



**DEPARTMENT
of HEALTH
and HUMAN
SERVICES**

**Fiscal Year
2020**

Centers for Disease Control
and Prevention

*Justification of
Estimates for
Appropriation Committees*

MESSAGE FROM THE DIRECTOR

As Director of the Centers for Disease Control and Prevention, I present the Fiscal Year 2020 Congressional Justification for the Centers for Disease Control and Prevention (CDC), the nation's health protection agency. CDC works 24 hours a day, 7 days a week to keep America healthy, safe and secure.

We accomplish our public health mission through putting science into action; rapidly detecting and containing diseases, outbreaks, biosecurity threats and environmental hazards; and working with state and local health departments to strengthen communities and increase public health impact.

- Our fiscal year 2020 budget request includes:
- A new initiative that will start America on the path towards the elimination of HIV
- New investments to address the infectious disease consequences of the opioid epidemic, as well as support for ongoing efforts to reduce deaths due to opioid abuse, misuse and overdose
- Support for a new strategic approach to global health security
- New resources to support influenza vaccination modernization efforts and CDC's investigations of acute flaccid myelitis
- Preparedness for public health threats through the Infectious Diseases Rapid Response Reserve Fund

As the nation's health protection agency, CDC saves lives and protects people from health threats. CDC scientists and disease detectives work around the world to track diseases, research outbreaks, and respond to emergencies. To accomplish our mission, CDC conducts critical science and provides health information that protects our nation against expensive and dangerous health threats, and responds when these arise. We are committed to putting science and advanced technology into action to prevent disease. As stewards of the resources entrusted to us, we work to maximize the benefits to our nation's health.

Sincerely,

A handwritten signature in black ink that reads "Robert R. Redfield MD". The signature is written in a cursive, slightly slanted style.

Robert R. Redfield, MD
Director, Centers for Disease Control and Prevention

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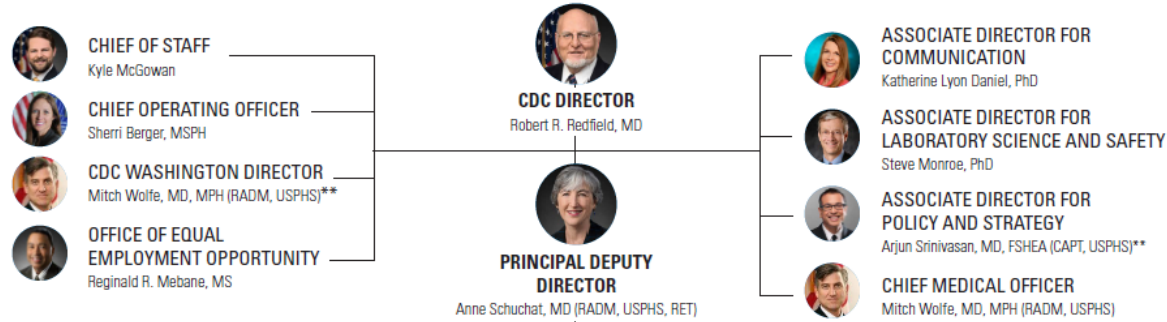
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CDC ORGANIZATIONAL CHART

CDC Organizational Chart

November 30, 2018



* ATSDR is an OPDIV within DHHS but is managed by a common director's office.

** Acting position



INTRODUCTION AND MISSION

The Centers for Disease Control and Prevention (CDC) is part of the Department of Health and Human Services.

CDC is the nation's public health protection agency. CDC saves lives and protects people from health threats. CDC staff work at home and abroad to protect America from health, safety, and security threats, both domestic and foreign. CDC increases the health security of our nation.

Each CDC program contributes through comprehensive public health activities. CDC's highly trained staff provide critical national and international leadership to increase America's health security.

CDC carries out its mission and fulfills its unique public health role by:

- Turning science into action to protect people from public health threats,
- Collecting mission critical data to inform decision making about health threats,
- Being prepared to combat any threat to the health and safety of American citizens, no matter where in the world it might first arise,
- Using data to evaluate and implement the best science-based programs to improve health, and
- Sharing information with the public, telling them what we know, when we know it, so people can decide how best to protect themselves and their families.

www.cdc.gov/cj

www.cdc.gov/budget

EXECUTIVE SUMMARY

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OVERVIEW OF BUDGET REQUEST

The fiscal year (FY) 2020 budget request for CDC and ATSDR includes a total funding level of \$6,593,832,000 in discretionary budget authority, Prevention and Public Health Fund (PPHF), and PHS Evaluation Funds. This request is \$763,242,000 below the FY 2019 Enacted level. The FY 2020 request carries forward several proposed reductions and eliminations from the FY 2019 President’s Budget.

CDC scientists, laboratorians, and disease detectives will continue to work around the clock and around the world to identify, prepare for, and respond to disease threats. The CDC budget request contains four initiatives:

- Ending the HIV Epidemic: A Plan for America(+\$140.0 million)
- Infectious Diseases and the Opioid Epidemic (+\$53.0 million)
- Global Health Security (+\$49.8 million)
- Modernizing Influenza Vaccines (+\$10.0 million)

The FY 2020 request includes \$50.0 million for the Infectious Diseases Rapid Response Reserve Fund that was created in FY 2019, bringing the total amount to \$100.0 million. The FY 2020 request also dedicates \$10.0 million for Acute Flaccid Myelitis (AFM).

The FY 2020 request maintains the proposal in the FY 2018 President’s Budget to establish the *America’s Health* Block Grant at a level of \$500.0 million, and provides support for several new programs established in FY 2019 including Maternal Mortality Review Committees, Surveillance for Emerging Threats to Mothers and Babies, and Neonatal Abstinence Syndrome.

The FY 2020 request retains NIOSH and EEOICPA at CDC. In keeping with this alignment, CDC’s FY 2020 request includes \$190.0 million for Occupational Safety and Health.

In addition to CDC’s discretionary funding request for FY 2020, the budget includes the following mandatory funding levels:

Vaccines for Children = \$4.761 billion, an increase of \$585.7 million above the FY 2019 estimate.

World Trade Center Health Program = \$541.3 million, an increase of \$24.8 million above the FY 2019 estimate.

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) = \$55.4 million, level with the FY 2019 estimate.

The funding amounts and programmatic approaches described below are changes compared to the FY 2019 Enacted level.

Initiatives

Ending the HIV Epidemic: A Plan for America (+\$140.0 million, two-year period of availability)

HIV has cost America too much for too long, with over half a million people losing their lives to HIV since 1987. The U.S. government spends approximately \$20 billion per year in direct health expenditures for HIV prevention and care in the United States.¹ However, with proven models of effective care and prevention, biomedical advancements in antiretroviral therapy, and pre-exposure prophylaxis (PrEP), we have the tools to address this threat to America’s health. Control of HIV infection in America is possible. The time to act is now.

Medical and technological advancement now afford the unprecedented opportunity to “bend the curve” of the HIV epidemic and see the numbers of people living with HIV begin to level off. In order to do this, we must dramatically reduce the number of new infections that occur each year. This Initiative will be coordinated across HHS, with efforts from CDC, the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), and the National Institutes of Health (NIH). HHS is focused on four strategies – diagnose, treat, protect, and respond.

With these new investments, CDC will focus on areas of the country that constitute the majority of new HIV infections annually to diagnose all people with HIV as early as possible after infection, link people to effective treatment and protection strategies, and respond rapidly to clusters and outbreaks of new HIV infections.

Infectious Diseases and the Opioid Epidemic (+\$53.0 million)

CDC’s FY 2020 request of \$58.0 million for Infectious Diseases and the Opioid Epidemic is \$53.0 million above the FY 2019 Enacted level. This increase will expand activities begun in FY 2019 to target the infectious disease consequences of the opioid epidemic. The United States is experiencing a massive increase in drug use due to the growing opioid crisis, including increasing injection drug use. As a result, unsafe, nonsterile injection practices are increasing nationally, making many communities susceptible to infectious disease outbreaks. For example, injection opioid use has led to more hepatitis B and hepatitis C infections with a 250% increase in acute HCV cases since 2010.² In 2017 and 2018, multiple states experienced hepatitis A outbreaks, at the highest incidence rate seen in the last 15 years,³ with over 10,000 cases nationwide.⁴

We can prevent and treat infections and overdose deaths through community-based programs that provide comprehensive preventive services and ensure people are linked to care. CDC will provide resources to state and local jurisdictions to address identified infectious disease vulnerabilities. Funded activities will focus on screening and linking people to treatment in high-impact settings such as healthcare systems, substance use treatment, permissible syringe services programs and correctional facilities. Nationally, CDC will also ensure that evidence-based and comprehensive preventive services are provided for people who use drugs. These investments will be complemented by increased active surveillance capacity to monitor infectious disease clusters across the nation to guide a faster and more targeted response. With these investments, CDC will reduce new infections, prevent morbidity and mortality of infectious diseases, and help reduce overdose and overdose deaths.

¹ <https://www.kff.org/global-health-policy/fact-sheet/u-s-federal-funding-for-hiv-aids-trends-over-time/>

² <https://www.cdc.gov/hepatitis/statistics/2016surveillance/commentary.htm>

³ <https://www.cdc.gov/hepatitis/statistics/2016surveillance/index.htm>

⁴ <https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>

Global Health Security (+\$49.8 million)

CDC’s FY 2020 request includes \$99.762 million, an increase of \$49.8 million above FY 2019 Enacted for Global Health Security activities that will protect Americans through partnerships and other activities that support public health capacity improvements in countries at risk from uncontrolled outbreaks of infectious diseases. Investing in global health security programs helps protect Americans from the next, inevitable emerging disease threat and safeguards against future epidemics.

In FY 2020, CDC will implement an approach to global health security investments that is informed by the lessons learned over the past five years. This approach will leverage regional platforms that increase CDC’s flexibility and efficiency in addressing public health opportunities and challenges as they evolve globally. By ensuring that CDC technical staff are able to “go where the disease is”, this approach is building towards a sustainable level of effort to ensure greater protection against disease threats that can arise unexpectedly. CDC will maintain a focus on core public health capacities related to workforce, laboratory, surveillance, and public health emergency management, while also addressing critical public health concerns that pose the greatest threats to our health security, such as antimicrobial resistance, pandemic influenza, and viral hemorrhagic fevers. In addition, CDC will ensure that key public health systems and tools, such as immunization services, infection control in healthcare settings, and border health are capable of responding to both routine public health needs and emergency situations.

Modernizing Influenza Vaccines (+\$10.0 million)

CDC’s FY 2020 request includes an increase of \$10.0 million to improve the effectiveness of and reduce barriers to seasonal influenza vaccination. Influenza is a potentially serious disease that can lead to hospitalization and sometimes even death. Every flu season is different, and influenza infection can affect people differently. Millions of people get the flu every year, hundreds of thousands of people are hospitalized, and thousands or tens of thousands of people die from flu-related causes. An annual seasonal flu vaccine is the best way to help protect against flu. Vaccination has been shown to have many benefits, and CDC recommends an annual flu vaccine for everyone 6 months and older. However, coverage rates remain low, and there are multiple challenges with the vaccine production technology that is currently used. With new resources in FY 2020, CDC will support improvements in vaccine effectiveness, help expand the production capacity of cell-grown vaccine candidates, and undertake other high-priority flu activities to increase vaccination coverage rates.

Other Critical Investments

Infectious Diseases Rapid Response Reserve Fund (\$50.0 million)

The Infectious Diseases Rapid Response Reserve Fund (Reserve Fund), created in FY 2019, provides CDC with funding that could be used to prevent, prepare for, or respond to an infectious disease emergency, domestic or international. Rapid response is essential to emerging public health threats, and timely action for detection, investigation, and assistance that saves lives. The request includes an additional \$50.0 million to be placed into the Reserve Fund to allow CDC to initiate a timely and effective response to infectious disease emergencies, as necessary, bringing the total for the Reserve Fund to \$100.0 million.

Acute Flaccid Myelitis (\$10.0 million)

CDC’s FY 2020 request dedicates \$10.0 million to address acute flaccid myelitis (AFM). AFM is a rare but serious condition that affects the nervous system, specifically an area of the spinal cord, which causes muscles and reflexes in the body to become weak. The risk of getting AFM varies by age and year. Ninety-five percent of cases are younger than 18 years old, and the median age is 4 years old. Since 2014, when CDC first began monitoring AFM, reported cases have increased every two years. CDC is working closely with national experts, healthcare providers, and state and local health departments to investigate AFM. CDC conducts active surveillance through the National Viral Surveillance Network at tertiary care children’s hospitals and reviewing

medical charts of each AFM case. CDC plans to further enhance AFM surveillance capacity in states and to initiate follow up of cases to better understand long-term effects and risk factors. In addition, CDC has established an AFM task force of national experts to better understand what is causing AFM, how to prevent it, and how to treat it.

Budget Realignment

In FY 2020, CDC proposes to consolidate its Global Tuberculosis (TB) funding within the Center for Global Health's Division of Global HIV/AIDS to better coordinate Global TB activities across the agency and leverage resources for maximum impact. These funds, \$7.2 million, will be realigned from the HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections, and Tuberculosis budget to the Global Health budget, continuing CDC's efforts to address TB globally. This reflects the programmatic consolidation of CDC's global TB activities which occurred in FY 2017. This consolidation has maximized CDC's impact on TB at home and overseas by better providing a single interface and coordination point focused on global TB activities.

Reductions and Eliminations

Chronic Disease Prevention and Health Promotion (-\$236.5 million)

The FY 2020 request reduces funding for Chronic Disease Prevention and Health Promotion. The request carries forward eliminations proposed in the FY 2019 President's Budget.

National Institute for Occupational Safety and Health (-\$146.3 million)

The FY 2020 request reduces funding for the National Institute for Occupational Safety and Health (NIOSH) by \$146.3 million. At this level, NIOSH will prioritize intramural research to reduce worker illness and injury, and to advance worker well-being.

Emerging and Zoonotic Infectious Diseases (-\$102.9 million)

The FY 2020 request reduces funding for Emerging Infectious Diseases, Food Safety, and Antibiotic Resistance. The request also carries forward proposed program reductions for epidemiology and laboratory capacity and healthcare-associated infections, as well as program eliminations for Prion Diseases and Chronic Fatigue Syndrome from the FY 2019 President's Budget. The request eliminates dedicated funding for Harmful Algal Blooms.

Immunization (-\$78.2 million)

The FY 2020 request reduces funding for the Immunization Program. This funding level includes \$10 million dedicated to support Acute Flaccid Myelitis. CDC will work collaboratively with its awardees and providers to sustain record-high childhood immunization coverage rates and ensure that all Americans have access to vaccines. At this funding level, CDC will continue to provide funding to the 64 immunization awardees for state infrastructure awards and vaccine direct assistance, but at a reduced level. CDC will also continue providing technical assistance and laboratory support to states and local communities responding to vaccine-preventable disease investigations, including outbreaks, but at a reduced level.

Environmental Health (-\$52.4 million)

The FY 2020 request reduces funding for environmental health activities. The request eliminates funding for Trevor's Law and carries forward proposed program eliminations for Climate and Health and the Amyotrophic Lateral Sclerosis Registry from the FY 2019 President's Budget. The FY 2020 request reduces funding for Asthma, Environmental Health Laboratory, Environmental and Health Outcome Tracking Network, Childhood Lead Poisoning Prevention, and other Environmental Health Activities.

Birth Defects, Developmental Disabilities, Disability and Health (-\$43.6 million)

The FY 2020 request reduces funding for the National Center on Birth Defects and Developmental Disabilities. At the proposed level, CDC will focus its birth defects and developmental disabilities portfolio on core public health activities that align with CDC’s mission and have proven interventions to make an impact on America’s health. This funding level includes dedicated funding for Surveillance for Emerging Threats to Mothers and Babies and Neonatal Abstinence Syndrome.

Global Health (-\$38.9 million)

The FY 2020 request reduces funding for global health activities. The majority of the reduction is from CDC’s Global HIV/AIDS program, which provides infrastructure and base support for CDC’s ongoing President’s Emergency Plan for AIDS Relief (PEPFAR) activities. The reduction reflects the Administration’s intent to further focus funds on countries, populations, and programs where resources will have the greatest public health impact, optimize staffing and technical resources to address the highest priority global HIV need, and ensure that ongoing activities are consistent with overall PEPFAR priorities and are lean, efficient and effective. The FY 2020 request also proposes reduction to the global immunization program. CDC will focus its global immunization activities to continue progress towards polio eradication, as well as measles and rubella elimination in countries with the highest disease burden.

Public Health Scientific Services (-\$36.4 million)

The FY 2020 request reduces funding for the National Center for Health Statistics (NCHS), as well as the funds that support the public health workforce, surveillance, epidemiology, and informatics. At the reduced capacity, the platform supported by NCHS will continue to provide information on emerging issues of public health importance for CDC and HHS based on prioritized needs within the available funding level. CDC will reduce the number of trained disease detectives and rapid outbreak responders.

Public Health Preparedness and Response (-\$30.2 million)

The FY 2020 request reduces funding for CDC Preparedness and Response by \$22.0 million and carries forward proposed elimination of the Academic Centers for Public Health Preparedness from the FY 2019 President’s Budget. CDC will work to prioritize the most important preparedness activities.

Injury Prevention and Control (-\$19.7 million)

The FY 2020 request reduces funding for Injury Prevention and Control, and carries forward proposed elimination of the Injury Control Research Centers and Elderly Falls from the FY 2019 President’s Budget. The request reduces funding for unintentional injury and injury prevention activities. CDC will continue its emphasis on Opioid Abuse and Overdose Prevention, and will focus its injury prevention portfolio on core public health activities that protect America’s health.

Cross-Cutting Activities and Program Support (-\$168.6 million)

The FY 2020 request reduces funding for Public Health Leadership and Support and carries forward proposed elimination of the Preventive Health and Health Services Block Grant from the FY 2019 President’s Budget.

Agency for Toxic Substances and Disease Registry (-\$12.7 million)

The FY 2020 request reduces funding for the Agency for Toxic Substances and Disease Registry (ATSDR). This reduction will reduce the number of public health assessments and consultations that ATSDR will conduct.

OVERVIEW OF PERFORMANCE

As the nation's prevention agency and a leader in improving health around the world, CDC is committed to reducing the leading causes of death, disability and injury. CDC staff work 24/7 around the world to save lives, protect people, and save money through prevention. To achieve maximum public health impact, CDC conducts research; implements strategic, evidence-based programs; and monitors results through ongoing data collection.

CDC's priorities form the core of its public health programs. These programs require the scientific excellence and leadership of our highly trained staff, who are dedicated to high standards of quality and ethical practice. The agency's priorities include:

- Securing global health and America's preparedness.
- Eliminating disease.
- Ending epidemics.

Performance in each of these areas and in all of CDC's work is strengthened through the use of rigorous and ongoing performance metrics and program evaluation data to monitor program effectiveness and compare performance to established targets. The accomplishments described below highlight the importance of investing in public health, preventing disease, and protecting health.

Securing Global Health and America's Preparedness

- In 2018, CDC employed lessons learned from the 2014-2016 Ebola epidemic in West Africa, including the need for a rapid, efficient, and coordinated response early in an outbreak to avert international crises:
 - In Uganda, CDC provided epidemiology and laboratory support during an outbreak of Marburg virus, helping limit the number infected to only five cases.
 - In the Democratic Republic of Congo, two separate Ebola outbreaks necessitated global assistance. CDC experts deployed to assist in response to both. Prior CDC virologic capacity building led to prompt detection of both outbreaks in which remote locations and security challenges required exceptional efforts. Tens of thousands of people have received Ebola vaccine and millions of border screenings occurred in response to the outbreak.
 - CDC developed a mobile laboratory that can safely test for viral hemorrhagic fevers at their source, before they turn into epidemics that threaten U.S. borders; the mobile lab was deployed to support an outbreak of Rift Valley Fever in Rwanda.
- In response to the growing international threat of yellow fever and the major epidemics in the Americas and Africa, CDC has developed a test kit for international distribution and is currently training the first international cohort of public health officials on use of the test kit and interpretation of the kit results. CDC is currently preparing the yellow fever test kit for submission to the WHO pre-qualification process, which would enable a greatly expanded number of laboratories worldwide to reliably test for the virus.
- In FY 2018, the number of countries in which refugees received at least one dose of recommended vaccinations and presumptive treatment for parasites increased to 55, increasing by 20 countries over the course of the year. The average cost of administering vaccines overseas per person is estimated to be 56% lower than the cost of administering the same vaccines in the U.S. (\$180.73 vs. \$406), saving U.S. health departments up to \$35 million annually.
- Since CDC and partners began to work towards eradication, polio cases have decreased from more than 350,000 per year in 1988 to 24 in 2018. Three countries continue to record low-level transmission of wild poliovirus: Afghanistan, Pakistan, and Nigeria.
- In FY 2018, CDC through PEPFAR, supported 8.21 million persons on antiretroviral therapy (ART), which is nearly half of the 14.6 million persons on ART supported by PEPFAR. Additionally, through PEPFAR, CDC supported tuberculosis screening for more than 6.5 million people living with HIV and on ART.

- In 2017, the Population-based HIV Impact Assessments (PHIA) supported by CDC through PEPFAR showed collective global efforts to combat HIV are working. The PHIA (Malawi, Zambia, Zimbabwe, Swaziland) directly measured new HIV infections and documented high rates of viral load suppression at a national level, while also identifying sub-populations yet to be fully reached.
- CDC provided critical response to the past year's severe flu season, including working with industry to facilitate smoother antiviral distribution, providing timely interim estimates of influenza vaccine effectiveness, and using sequence first surveillance to improve detection of emerging viruses and candidate vaccine virus selection for the 2018-19 season.
- CDC worked with hundreds of experts to update the Public Health Emergency Preparedness and Response Capabilities: National Standards for State, Local, Tribal, and Territorial Public Health, which provides a vital framework for state, local, tribal, and territorial preparedness programs as they plan, operationalize, and evaluate their ability to prepare for, respond to, and recover from public health emergencies, including pandemic influenza and environmental health.

Eliminating Disease

- During the extensive 2017 hurricane season, CDC's National Syndromic Surveillance Program (NSSP) quickly modified its system capability to support data receipt, data quality assurance, and data input into an electronic health records surveillance system in direct support of HHS' Disaster Medical Assistance Teams deployed to impacted areas in Texas, Louisiana, Florida, the U.S. Virgin Islands, and Puerto Rico. These data were made available to national and local decision makers to provide situational awareness and support decisions-makers managing the response effort.
- CDC's PulseNet program was a critical tool in understanding and solving at least 18 major foodborne disease investigations this year, such as the romaine lettuce, packaged vegetable trays, and breakfast cereal outbreaks. CDC's PulseNet program uses whole genome sequencing (WGS) for improved detection of and solving of more outbreaks as part of CDC's Advanced Molecular Detection program.
- In 2018, 55 sites, representing over 2,500 emergency department or urgent care facilities, contributed data to CDC's NSSP Biosense Platform. This surveillance platform can be used to share information and investigate disease threats that cross jurisdictions. For instance, the NSSP was designated by CDC as the surveillance source for states to use to collect, analyze and share data in support of the opioid response.
- During FY 2018, CDC advanced the modernization of infectious disease surveillance by producing technology upgrades to the Message Validation, Processing and Provisioning System, which receives surveillance data sent from the states using the new HL7-based messages. This reduces system development time to implement a new condition from months to weeks and ensures that CDC programs can access their data within an hour of receipt at CDC.
- In 2018, CDC launched a specimen bank to make its syphilis specimens accessible. Many diagnostic device developers or drug makers need such samples to test and develop their innovative products, to show that they are working correctly, and to obtain regulatory approval. This is needed to improve syphilis diagnostics, which currently is slow, labor-intensive, and involves sequential testing in specialized laboratories. Use of the specimen bank has been greater than expected: in its first year, CDC fulfilled a number of requests from industry partners, and shipped out 288 specimens.
- In June 2018, CDC expanded its recommendations for latent tuberculosis infection (LTBI) with a short-course regimen to include young children, ages 2-11; people who have latent TB infection and HIV coinfection; and to provide for self-administered therapy as well as the previously recommended directly observed therapy. Use of the shorter LTBI regimen results in over 75% of people completing treatment, as opposed to a 30% to 64% completion rate for the standard treatment. Self-administration, rather than directly observed therapy, can reduce TB programs' costs. The expanded recommendations allow even more people to be treated with the effective, shorter treatment.
- Rocky Mountain spotted fever (RMSF), a disease caused by various bacteria, is an increasing, potentially fatal public health threat and can be difficult to diagnose. CDC developed and received FDA-clearance

for the first diagnostic assays for the detection of rickettsial DNA in blood specimens during illness, when patients are still experiencing symptoms. Having FDA-cleared polymerase chain reaction assays at regional and state laboratories, through the Laboratory Response Network, builds capacity and allows for more rapid detection of rickettsial DNA in patients with RMSF, epidemic typhus, and other rickettsial infections.

- The North Carolina Perinatal Quality Collaborative led a collaboration that was able to decrease central line-associated bloodstream infection rates by almost 60% in the 100 participating neonatal intensive care units representing 9 states. This project prevented an estimated 131 infections that translated to an estimated 14 to 41 deaths prevented, and over \$2.2 million in excess costs avoided.
- From January 2017-August 2018, as part of CDC’s Antibiotic Resistance (AR) Solutions Initiative, the AR Lab Network tested almost 24,000 isolates and CDC supported more than 250 containment responses in partnership with state and local health departments.
- In 2017, CDC labs tested more than 6,700 specimens from U.S. residents and government overseas staff for parasitic diseases and responded to approximately 6,300 inquiries via its 24/7 hotline, many of them urgent requests related to life-saving consultations, diagnosis, and treatment.
- CDC’s Blood Disorders Laboratory provided testing and reporting to determine the status of inhibitors, which can prohibit medicine needed to stop bleeding from working, on over 18,000 patients since 2014. CDC identified or confirmed newly developed inhibitors in at least 125 patients, detecting their need for specialized medical expertise and care to resolve their inhibitor as soon as possible.
- CDC’s Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care has been downloaded over 37,000 times since its release in 2016. The Summary provides easy-to-understand infection control information to increase adherence to infection prevention recommendations in dental settings. CDC used the summary to create the CDC DentalCheck app, which is a free mobile app to assist dental health care personnel periodically assess practices in their facility and ensure they are meeting the minimum expectations for safe care. The application has been downloaded to nearly 10,000 devices.
- As of June 2018, the cumulative reach of the states participating in CDC’s Arthritis program was over 145,000 adults with arthritis. The CDC Arthritis program provides support to states to increase dissemination of and participation in arthritis-appropriate, evidence-based intervention (AAEBI) programs.

Ending Epidemics

- In 2017, CDC initiated the rapid release of provisional drug overdose deaths, which are updated monthly, showing counts of drug overdose deaths nationally and in each jurisdiction, and counts of drug overdose deaths involving specific drugs or drug classes.
- The percent of mortality records received by NCHS within 10 days of the event of death has increased dramatically from 8% in 2010 to 63% in 2018.
- With support from CDC, Ohio supported seven Coroner/Medical Examiners (MEs) in counties with high overdose burden to increase toxicology testing of novel and emerging drugs (e.g., fentanyl analogues including carfentanil) and expand and improve electronic data reporting by ME and Coroners to improve data quality and timeliness.
- CDC was selected by OMB as their “Case Study on Value” in 2018 for its opioid-related data. CDC provided timely and accurate data which informs the discussion and planning on how best to confront the opioid epidemic.
- CDC expanded the reach of its Rx Awareness campaign by supporting states to implement the campaign locally. This campaign features testimonials from people recovering from opioid use disorder and who have lost loved ones to opioid overdose, with the goal being to educate the public about the risks of prescription opioids and the importance of discussing safer and more effective pain management with their healthcare providers.

- In 2017, the Utah Department of Health (UDH) requested CDC assistance to investigate undetermined risk factors for suicide among Utah youth. CDC found that annual suicide rates among Utah youth increased 136% compared to a 24% increase nationally. After CDC's work with the UDH, the Governor's Teen Suicide Task Force was established and released recommendations to reduce the number of youth suicides in the state. Concurrently, the Utah Core State Violence and Injury Prevention Program (SVIPP) formed a Suicide Fatality Review Committee to make programmatic and system-change recommendations to prevent suicide deaths among clients in the public mental health system. The SVIPP also partnered with the Utah Department of Corrections and Juvenile Justice Services to implement suicide prevention guidelines for correctional facilities to include mental health assessment and treatment of suicidal individuals who are incarcerated.
- In March 2018, CDC released the Hospital Toolkit for Adult Sepsis Surveillance to track sepsis incidence and outcomes. CDC was awarded the 2018 Global Sepsis Alliance Award for "Outstanding Efforts in the Fight against Sepsis."
- CDC continued to educate the public about the harms of tobacco use and emerging products through ongoing surveillance, data releases, and publications focused on JUUL – USB shaped e-cigarettes, and youth use. For example, in October 2018, CDC released a study of retail sales data, from 2013-2017, showing that sales of JUUL grew more than seven-fold from 2016-2017.
- In April 2018, the National Diabetes Prevention Program became a covered service under Medicare—the first preventive service model from the CMS Innovation Center to become eligible for expansion and a landmark for public health. Additionally, enrollment in the program increased by 126% between July 2016 and July 2018.
- CDC's National Prediabetes Awareness Campaign, has provided information about how to prevent progression to type 2 diabetes, and is a health communication and marketing campaign aimed at increasing awareness and understanding of prediabetes. As of 2018, 2.68 million tests to determine an individual's risk for prediabetes were completed, well exceeding the National Prediabetes Awareness Campaign's initial goals of 30,000-50,000 tests per year.
- CDC developed dried blood spot reference materials for spinal muscular atrophy (SMA), the leading genetic cause of death in infants and toddlers. These materials are essential for public health laboratories to implement and maintain newborn screening for SMA, which was recently added to the list of conditions HHS recommends for screening.
- Through the Paul Coverdell National Acute Stroke Program (PCNASP), CDC is working to improve the quality of care provided from before the patient arrives at the hospital, through their hospital stay and until they are reconnected with their outpatient provider. From 2005 to 2017, PCNASP reached 13 states and 570 hospitals, with more than 815,000 stroke patients benefiting from quality improvement efforts. The percentage of patients receiving the national standard of intravenous alteplase (the clot busting drug) within 60 minutes of hospital arrival more than doubled from 26% in 2008 to 66% in 2017.
- CDC published a Best Practices Guide for Cardiovascular Disease Prevention Programs in late 2017 highlighting effective strategies in various settings and with diverse populations, as well as specific examples of successful implementation. To date, the guide has been downloaded 1,248 times and viewed online 14,145 times. The guide has been disseminated and referenced by multiple partners, and recently cited in World Health Organization's Cardiovascular Disease Technical Packages.
- Since 1991, the National Breast and Cervical Cancer Early Detection Program has served more than 5.3 million women and diagnosed over 64,000 cases of breast cancer and over 204,000 precancerous cervical lesions.
- Through March 2018, CDC's Colorectal Cancer Control Program (CRCCP) grantees have partnered with over 643 health system clinics that serve over 1,114,000 patients age-eligible for colorectal cancer (CRC) screening. Among clinics recruited in the first year of the program, screening rates have increased 9.1 percentage points from a median rate of 42.9% in 2016 to 52.0% in 2017. In contrast, national screening rates for the U.S. only increased approximately 2% over two years from 2014 (66.3%) to 2016 (67.3%).

Other CDC Accomplishments

- In 2017, CDC released 88 files from the 2015-2016 National Health and Nutrition Examination Survey (NHANES), as well as reports on the prevalence of hypertension, obesity, and cholesterol from the 2015-2016 NHANES. This provided policy-makers and researchers with nationally representative data from physical examinations, laboratory tests and interviews providing the health status of the nation.
- In 2017, CDC collaborated with the HHS Office of Minority Health to conduct a Behavioral Risk Factor Surveillance System (BRFSS) oversample of American Indians and Alaska Natives (AI/AN) in 11 states that have a proportionately higher AI/AN population. The project yielded 1,400 additional AI/AN BRFSS interviews above the previous year's level in those states. The additional completed interviews will increase the representativeness of the AI/AN population in each of the states' 2017 BRFSS data and increase the capacity to conduct public health analyses on the AI/AN population.
- In FY 2018, over 293,000 free continuing education (CE) credits, contact hours, and units were awarded to over 120,000 unique health professionals who earned CE 307,476 times, resulting in over \$3 million in savings to the workforce as free continuing education. For example, CDC provided training for the opioid overdose epidemic to over 8,700 public health and healthcare professionals, with 30 accredited trainings in CDC's online training and CE system.
- In May 2017, CDC released an award-winning series of 7 videos and an infographic to provide emergency medical services (EMS) agencies information to purchase safer ambulances. The video and infographic communicated findings from ambulance crash testing to reduce and eliminate crash-related injuries and deaths to EMS workers in the patient compartment, that CDC and its partners - other federal agencies and the ambulance manufacturing industry conducted. From May 2017 to July 2018, the videos had more than 31,000 combined views.
- As of December 2018, accredited health departments serve almost 73% of the U.S. population. CDC's Public Health Accreditation Board (PHAB) has accredited 311 health departments—33 state, 2 tribal, and 276 local health departments (including 209 individually accredited local health departments and 67 county health departments through a centralized state application). More than 90% of accredited health departments report experiencing benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and greater collaboration.
- CDC released Improving the Collection and Management of Human Samples Used for Measuring Environmental Chemicals and Nutrition Indicators, a new reference document that helps epidemiologists, laboratorians, and other scientists involved in the design and implementation of human biomonitoring studies recognize important factors for obtaining and using high-quality samples for assessing environmental exposures and nutrition status.
- To address the effects of the opioid epidemic on workers, CDC published guidance on protecting emergency responders from exposures to fentanyl and healthcare personnel in hospital and clinic settings in 2017.
- In 2017, CDC released the Safety Pays in Mining web application, which allows mines to assess the economic benefits of preventing a variety of injuries. It also gives examples of how a company could spend the savings from occupational injuries that are prevented.
- In August 2017, CDC released a free mobile application, the National Institute of Safety and Occupational Health lifting equation calculator (NLE Calc), which allows users to quickly calculate manual lifting risks as they occur on the job. The new app takes information from the internationally renowned "Revised NIOSH Lifting Equation" out of the laboratory and into the hands of workers and employers. As of December 2018 it has been downloaded more than 12,000 times.
- In July 2017, CDC published the first set of data from the National Environmental Assessment Reporting System (NEARS). This paper identified outbreak investigation characteristics linked with identification of the environmental causes of foodborne illness outbreaks.
- CDC's largest photo-voltaic array, multiple solar panels which generate electricity, is covering the entire 55,000 sq. ft top level of one of its parking decks. Using this method to capture solar energy and covert

it to electricity, it produces up to 750KW of energy during peak solar hours. This is more than enough energy to supply the deck, allowing power to be used elsewhere at CDC headquarters.

- CDC’s Summer Setback program, in one of the CDC headquarters’ buildings, led to \$20,000 in savings. Moving up the time a building system enters the "unoccupied" mode (temperature control and lights off) each evening by an additional 1.5 hours per workday, results in a reduction in daily energy and water consumption costs. Two of CDC’s buildings use the program to save energy and costs during peak heat times.
- CDC launched the Digital First initiative to ensure CDC’s trusted content is clear on any platform, including mobile. CDC trained staff across multiple disciplines, launched updated web and social media sites and content, and released Digital First tools and templates.

Agency Performance Planning and Management

CDC conducts continuous program improvement through priority and goal setting, performance measurement, and program evaluation. CDC collects information on program priorities, measurable outcomes, strategies, and progress through annual updates. CDC conducts regular data-driven reviews as part of its strategy for assessing program performance in a set of priority areas to demonstrate accountability for the agency’s large investment areas. Additionally, CDC has developed a Performance Improvement Framework to advance a culture of performance improvement and build performance improvement capacity at all levels of the agency.

The CDC awards nearly 75% of its budget through grants, cooperative agreements, and contracts to help accomplish its mission to promote health and quality of life by preventing and controlling disease, injury, and disability. Contracts procure goods and services used directly by the agency, and grants assist other health-related and research organizations that contribute to CDC's mission through health information dissemination, preparedness, prevention, research, and surveillance. Many CDC grant announcements require applicants to assess the health burden of their region, state or community. CDC surveillance systems often serve as the basis for the data used in applications.

Agency Use of Evaluation and Evidence

CDC fully supports the use of evidence and evaluation. CDC supports scientific advances and the use of evidence and data to support program design and budget decisions. CDC continues to focus on the development and use of evidence to enhance all aspects of the Agency’s mission.

CDC builds evidence regarding effective programs through evaluation, through systematic reviews of existing literature and by finding innovative ways to make data accessible for public health decision making.

CDC promotes evidence-based prevention interventions in our grant announcements, shares best practices through websites, searchable databases and other means, and is exploring additional strategies for promoting the use of evidence in practice such as performance-based grant making and recognition awards.

CDC is increasing its internal capacity to oversee and conduct program evaluation by expanding and enhancing evaluation trainings available to employees through CDC University, continuing an evaluation fellowship to expand program evaluation expertise, recruiting external subject matter planning and evaluation experts to assist CDC programs with related challenges, and by implementing standard program evaluation guidelines and recommendations. CDC has also adapted a framework to measure the impact of CDC science and gauge its scientific influence on subsequent events and actions that lead to health improvements.

Alignment to Administration Priorities and Initiatives

CDC is committed to supporting the national priorities set by the Administration. CDC leads key activities for 11 measures in the FY 2020 HHS performance plan. These include:

- Improving health care quality and patient safety.
- Strengthening public health surveillance and epidemiology.
- Enhancing support of the public health infrastructure at the state, tribal, local, and territorial levels.
- Addressing obesity through childhood nutrition, food labeling, and physical fitness.
- Protecting Americans in public health emergencies.
- Preventing and controlling tobacco use.
- Mitigating and preventing infectious and chronic diseases.

ALL PURPOSE TABLE

(dollars in thousands)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Immunization and Respiratory Diseases	<u>\$796,803</u>	<u>\$798,405</u>	<u>\$730,231</u>	<u>(\$68,174)</u>
Budget Authority	\$472,453	\$477,855	\$577,386	\$99,531
ACA/PPHF	\$324,350	\$320,550	\$152,845	(\$167,705)
HIV/AIDS, Viral Hepatitis, STI and TB Prevention²	<u>\$1,116,245</u>	<u>\$1,125,056</u>	<u>\$1,318,056</u>	<u>\$193,000</u>
Emerging and Zoonotic Infectious Diseases¹	<u>\$604,702</u>	<u>\$612,372</u>	<u>\$509,472</u>	<u>(\$102,900)</u>
Budget Authority	\$552,702	\$560,372	\$372,472	(\$187,900)
ACA/PPHF	\$52,000	\$52,000	\$137,000	\$85,000
Chronic Disease Prevention and Health Promotion	<u>\$1,159,857</u>	<u>\$1,187,771</u>	<u>\$951,250</u>	<u>(\$236,521)</u>
Budget Authority	\$912,307	\$932,821	\$347,145	(\$585,676)
ACA/PPHF	\$247,550	\$254,950	\$604,105	\$349,155
Birth Defects, Developmental Disabilities, Disability and Health	<u>\$140,086</u>	<u>\$155,560</u>	<u>\$112,000</u>	<u>(\$43,560)</u>
Environmental Health	<u>\$205,112</u>	<u>\$209,350</u>	<u>\$157,000</u>	<u>(\$52,350)</u>
Budget Authority	\$188,112	\$192,350	\$157,000	(\$35,350)
ACA/PPHF	\$17,000	\$17,000	\$0	(\$17,000)
Injury Prevention and Control	<u>\$647,974</u>	<u>\$648,559</u>	<u>\$628,839</u>	<u>(\$19,720)</u>
Public Health Scientific Services¹	<u>\$496,710</u>	<u>\$504,397</u>	<u>\$468,000</u>	<u>(\$36,397)</u>
Budget Authority	\$496,710	\$504,397	\$45,000	(\$459,397)
PHS Evaluation Transfer	\$0	\$0	\$423,000	\$423,000
Occupational Safety and Health	<u>\$334,067</u>	<u>\$336,300</u>	<u>\$190,000</u>	<u>(\$146,300)</u>
Global Health ²	<u>\$494,557</u>	<u>\$495,843</u>	<u>\$456,984</u>	<u>(\$38,859)</u>
Public Health Preparedness and Response³	<u>\$845,525</u>	<u>\$855,200</u>	<u>\$825,000</u>	<u>(\$30,200)</u>
Cross-Cutting Activities and Program Support	<u>\$273,570</u>	<u>\$323,570</u>	<u>\$155,000</u>	<u>(\$168,570)</u>
Budget Authority	\$113,570	\$163,570	\$155,000	(\$8,570)
ACA/PPHF	\$160,000	\$160,000	\$0	(\$160,000)
Buildings and Facilities	<u>\$510,000</u>	<u>\$30,000</u>	<u>\$30,000</u>	<u>\$0</u>
Budget Authority	\$270,000	\$30,000	\$30,000	\$0
Nonrecurring Expenses Fund	\$240,000	\$0	\$0	\$0
Total CDC – Budget Authority (BA)⁴	<u>\$6,824,308</u>	<u>\$6,477,883</u>	<u>\$5,214,882</u>	<u>(\$1,263,001)</u>
Total CDC – BA & PHS Evaluation Transfer	<u>\$6,824,308</u>	<u>\$6,477,883</u>	<u>\$5,637,882</u>	<u>(\$840,001)</u>
CDC Program Level - BA, PPHF & PHS Eval	<u>\$7,625,208</u>	<u>\$7,282,383</u>	<u>\$6,531,832</u>	<u>(\$750,551)</u>
Agency for Toxic Substances and Disease Registry	\$74,691	\$74,691	\$62,000	(\$12,691)
Prevention and Public Health Fund (PPHF) Transfer	\$800,900	\$804,500	\$893,950	\$89,450
PHS Evaluation Transfers	\$0	\$0	\$423,000	\$423,000
Energy Employees Occupational Illness Compensation Program Act (EEOICPA)	\$50,431	\$55,358	\$55,358	\$0
World Trade Center (Mandatory) ⁵	\$470,143	\$516,556	\$541,344	\$24,788
Vaccines for Children ⁶	\$4,389,000	\$4,175,681	\$4,761,408	\$585,727
Other User Fees	\$2,226	\$2,226	\$2,226	\$0
Childhood Obesity Research Demonstration (PL 115-120)	\$30,000	\$0	\$0	\$0
Total CDC/ATSDR	<u>\$12,641,699</u>	<u>\$12,106,895</u>	<u>\$11,954,168</u>	<u>(\$152,727)</u>
Nonrecurring Expenses Fund ⁷	\$240,000	\$49,000	N/A	N/A

¹ FY 2018 Final and FY 2019 Enacted are comparably adjusted to reflect the proposed \$8 million transfer from Lab Safety and Quality in the EZID account to the PHSS account.

² FY 2018 Final and FY 2019 Enacted are comparably adjusted to reflect the proposed \$7.222 million transfer from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to Global Tuberculosis in the Global Health account.

³ FY 2018 Final amount for Strategic National Stockpile is comparably adjusted to reflect transfer to ASPR.

⁴ FY 2018 Final amount for Budget Authority includes \$240 million in directed transfer of Nonrecurring Expenses Fund for the High Containment Continuity Laboratory.

⁵ Reflects Federal share estimated obligations only; NYC share estimated obligations are not included.

⁶ FY 2017-2019 estimates reflect anticipated transfers from Medicaid.

⁷ Includes \$240 million for the High Containment Continuity Laboratory in FY 2018 and reflects the Congressional notification amount for FY 2019 projects.

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BUDGET EXHIBITS

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APPROPRIATIONS LANGUAGE

CENTERS FOR DISEASE CONTROL AND PREVENTION

IMMUNIZATION AND RESPIRATORY DISEASES

For carrying out titles II, III, XVII, and XXI, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to immunization and respiratory diseases, [\$477,855,000] *\$577,386,000.*

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED DISEASES, AND TUBERCULOSIS PREVENTION

For carrying out titles II, III, XVII, and XXIII of the PHS Act with respect to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention, [\$1,125,056,000] *\$1,318,056,000, of which \$140,000,000 shall remain available through September 30, 2021.*

EMERGING AND ZOOONOTIC INFECTIOUS DISEASES

For carrying out titles II, III, and XVII, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to emerging and zoonotic infectious diseases, [\$560,372,000] *\$372,472,000: Provided, That of the made amounts available under this heading to pay for the transportation, medical care, treatment, and other related costs of persons quarantined or isolated under federal or state quarantine law, up to \$1,000,000 shall remain available until expended.*

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

For carrying out titles II, III, XI, XV, XVII, and XIX of the PHS Act with respect to chronic disease prevention and health promotion, [\$932,821,000] *\$347,145,000: Provided, That such amounts and any amounts transferred to this account shall be available for the Director of the Centers for Disease Control and Prevention (CDC) to administer a program, to be known as America's Health State Block Grant, to provide increased flexibility for States, territories, tribes, and tribal organizations to improve public health: Provided further, That for purposes of carrying out this program, the Director may award grants to States, territories, tribes, and tribal organizations, and such grant awards shall be provided through a formula, as determined by the Director, that takes into account the population and disease burden of the grantee: Provided further, That the Director may set aside not more than 15 percent of the amounts awarded for grants described in the previous proviso for the same purposes, on a competitive basis, to cities, Federally-recognized tribes, and public health entities serving rural and frontier areas or other entities: Provided further, That funds [appropriated under this account may be] made available under this heading may be available for making grants under section 1509 of the PHS Act for not less than 21 States, tribes, or tribal organizations: [Provided further, That of the funds made available under this heading, \$15,000,000 shall be available to continue and expand community specific extension and outreach programs to combat obesity in counties with the highest levels of obesity:] Provided further, That the proportional funding requirements under section 1503(a) of the PHS Act shall not apply to funds made available under this heading.*

BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

For carrying out titles II, III, XI, and XVII of the PHS Act with respect to birth defects, developmental disabilities, disabilities and health, [\$155,560,000] *\$112,000,000.*

PUBLIC HEALTH SCIENTIFIC SERVICES

For carrying out titles II, III, and XVII of the PHS Act with respect to health statistics, surveillance, health informatics, and workforce development, [\$504,397,000] *\$45,000,000: Provided, That in addition to amounts provided herein, \$423,000,000 shall be available from amounts available under section 241 of the PHS Act to carry out Public Health Scientific Services.*

ENVIRONMENTAL HEALTH

For carrying out titles II, III, and XVII of the PHS Act with respect to environmental health, [\$192,350,000] \$157,000,000.

INJURY PREVENTION AND CONTROL

For carrying out titles II, III, and XVII of the PHS Act, with respect to injury prevention and control, [\$648,559,000] \$628,839,000.

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

For carrying out titles II, III, and XVII of the PHS Act, sections 101, 102, 103, 201, 202, 203, 301, and 501 of the Federal Mine Safety and Health Act, section 13 of the Mine Improvement and New Emergency Response Act, and sections 20, 21, and 22 of the Occupational Safety and Health Act, with respect to occupational safety and health, [\$336,300,000] \$190,000,000.

ENERGY EMPLOYEES OCCUPATIONAL ILLNESS COMPENSATION PROGRAM

For necessary expenses to administer the Energy Employees Occupational Illness Compensation Program Act, \$55,358,000, to remain available until expended: Provided, That this amount shall be available consistent with the provision regarding administrative expenses in section 151(b) of division B, title I of Public Law 106–554.

GLOBAL HEALTH

For carrying out titles II, III, and XVII of the PHS Act with respect to global health, [\$495,843,000] \$456,984,000, of which: (1) [\$128,421,000] \$69,547,000 shall remain available through September 30, [2020]2021 for international HIV/AIDS; and (2) [\$50,000,000] \$99,762,000 shall [remain] *be* available [through September 30, 2021] for [Global Disease Detection and Emergency Response] global public health protection: Provided, That funds may be used for purchase and insurance of official motor vehicles in foreign countries.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

For carrying out titles II, III, and XVII of the PHS Act with respect to public health preparedness and response, and for expenses necessary to support activities related to countering potential biological, nuclear, radiological, and chemical threats to civilian populations, [\$1,465,200,000 of which \$610,000,000 shall remain available until expended for the Strategic National Stockpile] \$825,000,000: Provided, That the Director of the Centers for Disease Control and Prevention (referred to in this title as “CDC”) or the Administrator of the Agency for Toxic Substances and Disease Registry may detail staff without reimbursement for up to [90] 180 days to support an activation of the CDC Emergency Operations Center[, so long as the Director or Administrator, as applicable, provides a notice to the Committees on Appropriations of the House of Representatives and the Senate within 15 days of the use of this authority and a full report within 30 days after use of this authority which includes the number of staff and funding level broken down by the originating center and number of days detailed: Provided further, That funds appropriated under this heading may be used to support a contract for the operation and maintenance of an aircraft in direct support of activities throughout CDC to ensure the agency is prepared to address public health preparedness emergencies].

BUILDINGS AND FACILITIES

For *any cost related to the* acquisition of real property, equipment, construction, *installation*, demolition, and renovation of facilities, \$30,000,000 to remain available until September 30, [2023] 2024 [Provided, That funds previously set-aside by CDC for repair and upgrade of the Lake Lynn Experimental Mine and Laboratory shall be used to acquire a replacement mine safety research facility: Provided further, That in addition, the prior year unobligated balance of any amounts assigned to former employees in accounts of CDC made available for Individual Learning Accounts shall be credited to and merged with the amounts made available under this heading to support the replacement of the mine safety research facility].

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

For carrying out titles II, III, XVII and XIX, and section 2821 of the PHS Act and for cross-cutting activities and program support for activities funded in other appropriations included in this Act for the Centers for Disease Control and Prevention, [\$323,570,000] *\$155,000,000*, of which up to \$10,000,000 may be transferred to the reserve of the Working Capital Fund authorized under this heading in division F of Public Law 112-74: Provided, That paragraphs (1) through (3) of subsection (b) of section 2821 of the PHS Act shall not apply to funds [appropriated] under this heading and in all other accounts of the CDC: *Provided further, That of the amounts made available under this heading, \$50,000,000 shall be transferred to and merged with the Infectious Diseases Rapid Response Reserve Fund established by section 231 of division B of Public Law 115-245: Provided further, That any funds made available by this Act to the Centers for Disease Control and Prevention may be used to support the purchase, hire, maintenance, and operation of an aircraft for use and support of the activities of CDC: Provided further, That employees of CDC or the Public Health Service, both civilian and commissioned officers, detailed to States, municipalities, or other organizations under authority of section 214 of the PHS Act, or in overseas assignments, shall be treated as non-Federal employees for reporting purposes only and shall not be included within any personnel ceiling applicable to the Agency, Service, or HHS during the period of detail or assignment: Provided further, That CDC may use up to \$10,000 from amounts appropriated to CDC in this Act for official reception and representation expenses when specifically approved by the Director of CDC: Provided further, That in addition, such sums as may be derived from authorized user fees, which shall be credited to the appropriation charged with the cost thereof: Provided further, That with respect to the previous proviso, authorized user fees from the Vessel Sanitation Program and the Respirator Certification Program shall be available through September 30, [2020] 2021.*

CDC-RELATED HHS GENERAL PROVISIONS

Sec.[212] 210. In order for HHS to carry out international health activities, including HIV/AIDS and other infectious disease, chronic and environmental disease, and other health activities abroad during fiscal year [2019] 2020:

(1) The Secretary may exercise authority equivalent to that available to the Secretary of State in section 2(c) of the State Department Basic Authorities Act of 1956. The Secretary shall consult with the Secretary of State and relevant Chief of Mission to ensure that the authority provided in this section is exercised in a manner consistent with section 207 of the Foreign Service Act of 1980 and other applicable statutes administered by the Department of State.

(2) The Secretary is authorized to provide such funds by advance or reimbursement to the Secretary of State as may be necessary to pay the costs of acquisition, lease, alteration, renovation, and management of facilities outside of the United States for the use of HHS. The Department of State shall cooperate fully with the Secretary to ensure that HHS has secure, safe, functional facilities that comply with applicable regulation governing location, setback, and other facilities requirements and serve the purposes established by this Act. The Secretary is authorized, in consultation with the Secretary of State, through grant or cooperative agreement, to make available to public or nonprofit private institutions or agencies in participating foreign countries, funds to acquire, lease, alter, or renovate facilities in those countries as necessary to conduct programs of assistance for international health activities, including activities relating to HIV/AIDS and other infectious diseases, chronic and environmental diseases, and other health activities abroad.

(3) The Secretary is authorized to provide to personnel appointed or assigned by the Secretary to serve abroad, allowances and benefits similar to those provided under chapter 9 of title I of the Foreign Service Act of 1980, and 22 U.S.C. 4081 through 4086 and subject to such regulations prescribed by the Secretary. The Secretary is further authorized to provide locality-based comparability payments (stated as a percentage) up to the amount of the locality-based comparability payment (stated as a percentage) that would be payable to such personnel under section 5304 of title 5, United States Code if such personnel’s official duty station were in the District of Columbia. Leaves of absence for personnel under this subsection shall be on the same basis as that provided

under subchapter I of chapter 63 of title 5, United States Code, or section 903 of the Foreign Service Act of 1980, to individuals serving in the Foreign Service.

Sec. [230] 220. Funds appropriated in this Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available to pay travel and related expenses of such an employee or of a member of his or her family, when such employee is assigned to duty, in the United States or in a U.S. territory, during a period and in a location that are the subject of a determination of a public health emergency under section 319 of the Public Health Service Act and such travel is necessary to obtain medical care for an illness, injury, or medical condition that cannot be adequately addressed in that location at that time. For the purposes of this section, the term "U.S. territory" means Guam, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, or the Trust Territory of the Pacific Islands.

SEC. 228. Funds made available to the Secretary of Health and Human Services (HHS) in this or any other or prior Acts that are available for acquisition of real property or for construction or improvement of facilities shall also be available to make improvements on non-federally owned property located directly adjacent to property owned by HHS or a component thereof, provided that the primary benefit of such improvements accrues to HHS or the component thereof funding the improvements.

SEC. 229. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available for the primary and secondary schooling of eligible dependents of HHS personnel stationed in the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, and the possessions of the United States at costs not in excess of those paid for or reimbursed by the Department of Defense.

[SEC. 231. There is established in the Treasury a reserve fund to be known as the "Infectious Diseases Rapid Response Reserve Fund" (the "Reserve Fund"): Provided, That of the funds provided under the heading "CDC-Wide Activities and Program Support", \$50,000,000, to remain available until expended, shall be available to the Director of the CDC for deposit in the Reserve Fund: Provided further, That amounts in the Reserve Fund shall be for carrying out titles II, III, and XVII of the PHS Act to prevent, prepare for, or respond to an infectious disease emergency, including, in connection with such activities, to purchase or lease and provide for the insurance of passenger motor vehicles for official use in foreign countries: Provided further, That amounts in the Reserve Fund may only be provided for an infectious disease emergency if the infectious disease emergency (1) is declared by the Secretary of Health and Human Services under section 319 of the PHS Act to be a public health emergency; or (2) as determined by the Secretary, has significant potential to imminently occur and potential, on occurrence, to affect national security or the health and security of United States citizens, domestically or internationally: Provided further, That amounts in the Reserve Fund may be transferred by the Director of the CDC to other accounts of the CDC, to accounts of the NIH, or to the Public Health and Social Services Emergency Fund, to be merged with such accounts or Fund for the purposes provided in this section: Provided further, That the Committees on Appropriations of the House of Representatives and the Senate shall be notified in advance of any transfer or obligation made under the authority provided in this section, including notification on the anticipated uses of such funds by program, project, or activity: Provided further, That not later than 15 days after notification of the planned use of the Reserve Fund, the Director shall provide a detailed spend plan of anticipated uses of funds, including estimated personnel and administrative costs, to the Committees on Appropriations of the House of Representatives and the Senate: Provided further, That such plans shall be updated and submitted every 90 days thereafter until funds have been fully expended which should include the unobligated balances in the Reserve Fund and all the actual obligations incurred to date: Provided further, That amounts in the Reserve Fund shall be in addition to amounts otherwise available to the Department of Health and Human Services for the purposes provided in this section: Provided further, That the transfer authorities in this section are in addition to any transfer authority otherwise available to the Department of Health and Human Services: Provided further, That products purchased using amounts in the Reserve Fund may, at the discretion of the Secretary of Health and Human Services, be deposited in the Strategic National Stockpile under

section 319F-2 of the PHS Act: Provided further, That this section shall be in effect as of the date of the enactment of this Act through each fiscal year hereafter.]

SEC. 232. REAUTHORIZATION AND MODIFICATION OF CDC LOAN REPAYMENT

PROGRAM. Section 317F of the Public Health Service Act (42 U.S.C.

247b-7) is amended—

(a) in subsection (a),—

(1) in paragraph (1), by striking "\$35,000" and inserting "\$15,000";

(2) in paragraph (2), by striking "3 years" and inserting "2 years"; and

(3) by adding the following new paragraph: "(3) HEALTH PROFESSIONAL.—

For purposes of this section, the term 'health professional' includes information technology specialists and data surveillance specialists."; and

(b) in subsection (c), by striking "1995 through 2002" and inserting "thereafter".

SEC. 234. Funds appropriated in this Act, or any other Act making appropriations for fiscal year 2020, to any component of the Department of Health and Human Services that are available for activities to address opioid use shall also be available to such component to carry out activities authorized under the SUPPORT for Patients and Communities Act or under an amendment made by such Act.

APPROPRIATIONS LANGUAGE ANALYSIS

Language Provision	Explanation
IMMUNIZATION AND RESPIRATORY DISEASES	
For carrying out titles II, III, XVII, and XXI, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to immunization and respiratory diseases, [\$477,855,000] \$577,386,000.	Appropriates funding to support activities related to immunization and respiratory diseases.
HIV/AIDS, VIRAL HEPATITIS, SEXUALLY-TRANSMITTED INFECTIONS, AND TUBERCULOSIS	
For carrying out titles II, III, XVII, and XXIII of the PHS Act with respect to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention, [\$1,125,056,000] \$1,318,056,000,	Appropriates funding to support activities related to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention.
<i>of which \$140,000,000 shall remain available through September 30, 2021.</i>	Specifies an amount of funding available through the end of FY 2021 to support the new HIV Initiative.
EMERGING AND ZOOBOTIC INFECTIOUS DISEASES	
For carrying out titles II, III, and XVII, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to emerging and zoonotic infectious diseases, [\$560,372,000] \$372,472,000:	Appropriates funding for activities related to emerging and zoonotic infectious diseases.
<i>Provided, That of the amounts made available under this heading to pay for the transportation, medical care, treatment, and other related costs of persons quarantined or isolated under federal or state quarantine law, up to \$1,000,000 shall remain available until expended.</i>	The availability of \$1,000,000, as an initial set-aside, until expended, will ensure resources to address state and local expenditures for federal isolation orders. To ensure prompt and effective isolation when necessary, CDC has Memorandums of Agreement with 182 hospitals for transportation, evaluation, diagnosis, care, and treatment of travelers who pose a significant risk to public health. Cases are extremely variable in terms of frequency and cost (from \$2,000 to over \$500,000 per case).
CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION	
For carrying out titles II, III, XI, XV, XVII, and XIX of the PHS Act with respect to chronic disease prevention and health promotion, [\$932,821,000] \$347,145,000:	Appropriates funding for activities related to chronic disease prevention and health promotion.
<i>Provided, That such amounts and any amounts transferred to this account shall be available for the Director of the Centers for Disease Control and Prevention (CDC) to administer a program, to be known as America's Health State Block Grant, to provide increased flexibility for States, territories,</i>	For the new block grant, <i>America's Health</i> . This Block Grant will provide flexibility to grantees and focus on the top public health challenges faced by states, tribes, localities, and territories.

Language Provision	Explanation
<p><i>tribes, and tribal organizations to improve public health: Provided further, That for purposes of carrying out this program, the Director may award grants to States, territories, tribes, and tribal organizations, and such grant awards shall be provided through a formula, as determined by the Director, that takes into account the population and disease burden of the grantee: Provided further, That the Director may set aside not more than 15 percent of the amounts awarded for grants described in the previous proviso for the same purposes, on a competitive basis, to cities, Federally-recognized tribes, and public health entities serving rural and frontier areas or other entities:</i></p>	
<p>Provided <i>further</i>, That funds <i>made</i> [appropriated under this account may be] available <i>under this heading may be available</i> for making grants under section 1509 of the PHS Act for not less than 21 States, tribes, or tribal organizations: [Provided further, That of the funds made available under this heading, \$15,000,000 shall be available to continue and expand community specific extension and outreach programs to combat obesity in counties with the highest levels of obesity:] Provided further, That the proportional funding requirements under section 1503(a) of the PHS Act shall not apply to funds made available under this heading.</p>	<p>Creates a permissive override of limits in the authorization on the number of States that can receive funds for a WISEWOMAN program.</p>
<p>BIRTH DEFECTS AND DEVELOPMENTAL DISABILITIES</p>	
<p>For carrying out titles II, III, XI, and XVII of the PHS Act with respect to birth defects, developmental disabilities, disabilities and health, [\$155,560,000] \$112,000,000.</p>	<p>Appropriates funding for activities related to birth defects, developmental disabilities, and disabilities and health.</p>
<p>PUBLIC HEALTH SCIENTIFIC SERVICES</p>	
<p>For carrying out titles II, III, and XVII of the PHS Act with respect to health statistics, surveillance, health informatics, and workforce development, [\$504,397,000] \$45,000,000:</p>	<p>Appropriates funding for public health scientific services.</p>
<p><i>Provided, That in addition to amounts provided herein, \$423,000,000 shall be available from amounts available under section 241 of the PHS Act to carry out the Public Health Scientific Services.</i></p>	<p>Language reflects PHS Evaluation transfer to Public Health Scientific Services.</p>
<p>ENVIRONMENTAL HEALTH</p>	

Language Provision	Explanation
For carrying out titles II, III, and XVII of the PHS Act with respect to environmental health, [\$192,350,000] \$157,000,000.	Appropriates funding for activities related to environmental health.
INJURY PREVENTION AND CONTROL	
For carrying out titles II, III, and XVII of the PHS Act with respect to injury prevention and control, [\$648,559,000] \$628,839,000.	Appropriates funding to activities related to injury prevention and control.
NIOSH	
For carrying out titles II, III, and XVII of the PHS Act, sections 101, 102, 103, 201, 202, 203, 301, and 501 of the Federal Mine Safety and Health Act, section 13 of the Mine Improvement and New Emergency Response Act, and sections 20, 21, and 22 of the Occupational Safety and Health Act, with respect to occupational safety and health, [\$336,300,000] \$190,000,000.	Appropriates funding for activities related to occupational safety and health.
ENERGY EMPLOYEES OCCUPATIONAL ILLNESS COMPENSATION PROGRAM	
For necessary expenses to administer the Energy Employees Occupational Illness Compensation Program Act, \$55,358,000, to remain available until expended: Provided, That this amount shall be available consistent with the provision regarding administrative expenses in section 151(b) of division B, title I of Public Law 106–554.	Appropriates funding for the Energy Employees Occupational Illness Compensation Program Act.
GLOBAL HEALTH	
For carrying out titles II, III, and XVII of the PHS Act with respect to global health, [\$495,843,000] \$456,984,000,	Appropriates funding to activities related to global health.
of which: (1) [\$128,421,000] \$69,547,000 shall remain available through September 30, [2020] 2021 for international HIV/AIDS; and (2) [\$50,000,000] \$99,762,000 shall [remain] be available [through September 30, 2021] for [Global Disease Detection and Emergency Response] global public health protection:	Specifies an amount of funding available through the end of FY 2021 to support activities related to international HIV/AIDS. Specifies an amount of funding available to support activities related to global public health protection.
Provided, That funds may be used for purchase and insurance of official motor vehicles in foreign countries.	Permits the funds appropriated in this provision to be used for insuring official motor vehicles in foreign countries.
PUBLIC HEALTH PREPAREDNESS AND RESPONSE	
For carrying out titles II, III, and XVII of the PHS Act with respect to public health preparedness and response, and for expenses necessary to support activities related to countering potential biological,	Appropriates funding to support activities related to public health preparedness and response.

Language Provision	Explanation
<p>nuclear, radiological, and chemical threats to civilian populations, [\$1,465,200,000 of which \$610,000,000 shall remain available until expended for the Strategic National Stockpile]\$825,000,000:</p>	
<p>Provided, That the Director of the Centers for Disease Control and Prevention (referred to in this title as "CDC") or the Administrator of the Agency for Toxic Substances and Disease Registry may detail staff without reimbursement for up to [90] 180 days to support an activation of the CDC Emergency Operations Center[, so long as the Director or Administrator, as applicable, provides a notice to the Committees on Appropriations of the House of Representatives and the Senate within 15 days of the use of this authority and a full report within 30 days after use of this authority which includes the number of staff and funding level broken down by the originating center and number of days detailed: Provided further, That funds appropriated under this heading may be used to support a contract for the operation and maintenance of an aircraft in direct support of activities throughout CDC to ensure the agency is prepared to address public health preparedness emergencies].</p>	<p>To best direct resources to States with the greatest need during an activation of the Emergency Operations Center, CDC requests authority to deploy or otherwise utilize CDC staff to support emergency responses, regardless of appropriation line from which those staff are resourced. There will be a time limit of 180 days per employee to work on the emergency.</p>
<p>BUILDINGS AND FACILITIES</p>	
<p>For <i>any cost related to the</i> acquisition of real property, equipment, construction, <i>installation</i>, demolition, and renovation of facilities, \$30,000,000 to remain available until September 30, [2023] 2024[Provided, That funds previously set-aside by CDC for repair and upgrade of the Lake Lynn Experimental Mine and Laboratory shall be used to acquire a replacement mine safety research facility: Provided further, That in addition, the prior year unobligated balance of any amounts assigned to former employees in accounts of CDC made available for Individual Learning Accounts shall be credited to and merged with the amounts made available under this heading to support the replacement of the mine safety research facility].</p>	<p>Appropriates funding to support buildings and facilities, specifying availability through the end of FY 2024.</p>
<p>CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT</p>	
<p>For carrying out titles II, III, XVII and XIX, and section 2821 of the PHS Act and for cross-cutting activities and program support for activities funded in other appropriations included in this Act for the Centers for</p>	<p>Appropriates funding to support CDC-wide activities and program support.</p>

Language Provision	Explanation
Disease Control and Prevention, [\$323,570,000] \$155,000,000,	
of which up to \$10,000,000 may be transferred to the reserve of the Working Capital Fund authorized under this heading in division F of Public Law 112-74:	This provides CDC with the authority to transfer funds in support of business services, as needed.
<p>Provided, That paragraphs (1) through (3) of subsection (b) of section 2821 of the PHS Act shall not apply to funds [appropriated] under this heading and in all other accounts of the CDC: <i>Provided further, That of the amounts made available under this heading, \$50,000,000 shall be transferred to and merged with the Infectious Diseases Rapid Response Reserve Fund established by section 231 of division B of Public Law 115-245: Provided further, That any funds made available by this Act to the Centers for Disease Control and Prevention may be used to support the purchase, hire, maintenance, and operation of an aircraft for use and support of the activities of CDC:</i></p>	<p>CDC must maintain the ability to purchase or hire aircraft for deployment of emergency response operations; testing of new insecticides and formulations; and for applying the insecticides when outbreaks of mosquito-borne disease, such as encephalitis, occur in populous areas where no other method can be used to control the spread of the disease.</p> <p>This language provides CDC with the authority to transfer funds available under this heading to the Infectious Diseases Rapid Response Reserve Fund.</p>
<p>Provided further, That employees of CDC or the Public Health Service, both civilian and commissioned officers, detailed to States, municipalities, or other organizations under authority of section 214 of the PHS Act, or in overseas assignments, shall be treated as non-Federal employees for reporting purposes only and shall not be included within any personnel ceiling applicable to the Agency, Service, or HHS during the period of detail or assignment:</p>	<p>CDC and PHS employees are to be treated as non-Federal employees for reporting purposes and are not included within any personnel ceiling.</p>
<p>Provided further, That CDC may use up to \$10,000 from amounts appropriated to CDC in this Act for official reception and representation expenses when specifically approved by the Director of CDC: Provided further, That in addition, such sums as may be derived from authorized user fees, which shall be credited to the appropriation charged with the cost thereof:</p>	<p>Specifies \$10,000 of funds appropriated to CDC for official reception and representation expenses approved by the CDC Director.</p>
<p>Provided further, That with respect to the previous proviso, authorized user fees from the Vessel Sanitation Program and the Respirator Certification Program shall be available through September 30, [2020] 2021:</p>	<p>Indicates that user fees are credited to the CDC appropriation account.</p>
CDC-RELATED GENERAL PROVISIONS	
<p>Sec. [212]210. In order for HHS to carry out international health activities, including HIV/AIDS and</p>	<p>The date change updates a FY 2019 provision so that it applies in FY 2020.</p>

Language Provision	Explanation
<p>other infectious disease, chronic and environmental disease, and other health activities abroad during fiscal year [2019]2020:</p> <p>(1) The Secretary may exercise authority equivalent to that available to the Secretary of State in section 2(c) of the State Department Basic Authorities Act of 1956. The Secretary shall consult with the Secretary of State and relevant Chief of Mission to ensure that the authority provided in this section is exercised in a manner consistent with section 207 of the Foreign Service Act of 1980 and other applicable statutes administered by the Department of State.</p> <p>(2) The Secretary is authorized to provide such funds by advance or reimbursement to the Secretary of State as may be necessary to pay the costs of acquisition, lease, alteration, renovation, and management of facilities outside of the United States for the use of HHS. The Department of State shall cooperate fully with the Secretary to ensure that HHS has secure, safe, functional facilities that comply with applicable regulation governing location, setback, and other facilities requirements and serve the purposes established by this Act. The Secretary is authorized, in consultation with the Secretary of State, through grant or cooperative agreement, to make available to public or nonprofit private institutions or agencies in participating foreign countries, funds to acquire, lease, alter, or renovate facilities in those countries as necessary to conduct programs of assistance for international health activities, including activities relating to HIV/AIDS and other infectious diseases, chronic and environmental diseases, and other health activities abroad.</p> <p>(3) The Secretary is authorized to provide to personnel appointed or assigned by the Secretary to serve abroad, allowances and benefits similar to those provided under chapter 9 of title I of the Foreign Service Act of 1980, and 22 U.S.C. 4081 through 4086 and subject to such regulations prescribed by the Secretary. The Secretary is further authorized to provide locality-based comparability payments (stated as a percentage) up to the amount of the locality-based comparability payment (stated as a percentage) that would be payable to such personnel under section 5304 of title 5, United States Code if such personnel’s official duty station were in the District of Columbia. Leaves of absence for</p>	

Language Provision	Explanation
<p>personnel under this subsection shall be on the same basis as that provided under subchapter I of chapter 63 of title 5, United States Code, or section 903 of the Foreign Service Act of 1980, to individuals serving in the Foreign Service.</p>	
<p>Sec. [230]220. Funds appropriated in this Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available to pay travel and related expenses of such an employee or of a member of his or her family, when such employee is assigned to duty, in the United States or in a U.S. territory, during a period and in a location that are the subject of a determination of a public health emergency under section 319 of the Public Health Service Act and such travel is necessary to obtain medical care for an illness, injury, or medical condition that cannot be adequately addressed in that location at that time. For the purposes of this section, the term “U.S. territory” means Guam, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, or the Trust Territory of the Pacific Islands.</p>	<p>This provision allows CDC to Medivac its employees or their family members for medical care under certain circumstances, if needed.</p> <p>This provision may also be relevant to other HHS OpDivs.</p>
<p><i>SEC. 228. Funds made available to the Secretary of Health and Human Services (HHS) in this or any other or prior Acts that are available for acquisition of real property or for construction or improvement of facilities shall also be available to make improvements on non-federally owned property located directly adjacent to property owned by HHS or a component thereof, provided that the primary benefit of such improvements accrues to HHS or the component thereof funding the improvements.</i></p>	<p>CDC needs this authority to construct roadway improvements for safe access to construction projects benefiting CDC programs.</p> <p>This provision may also be relevant to other HHS OpDivs.</p>
<p><i>SEC. 229. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available for the primary and secondary schooling of eligible dependents of HHS personnel stationed in the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, and the possessions of the United States at costs not in excess of those paid for or reimbursed by the Department of Defense.</i></p>	<p>This language would allow CDC to reimburse private schools for tuition costs for dependents of CDC employees.</p> <p>Currently, CDC’s Dengue Branch has an Interagency Agreement with Department of Defense to send dependents to the base school. This is costly, and also does not provide bilingual instruction at the level needed for families that plan to stay in Puerto Rico long-term. This language would allow CDC to provide that benefit to civilian employees, and would save money when compared to DOD schools.</p>

Language Provision	Explanation
	This provision may also be relevant to other HHS OpDivs.
<p>[SEC. 231. There is established in the Treasury a reserve fund to be known as the "Infectious Diseases Rapid Response Reserve Fund" (the "Reserve Fund"): Provided, That of the funds provided under the heading "CDC-Wide Activities and Program Support", \$50,000,000, to remain available until expended, shall be available to the Director of the CDC for deposit in the Reserve Fund: Provided further, That amounts in the Reserve Fund shall be for carrying out titles II, III, and XVII of the PHS Act to prevent, prepare for, or respond to an infectious disease emergency, including, in connection with such activities, to purchase or lease and provide for the insurance of passenger motor vehicles for official use in foreign countries: Provided further, That amounts in the Reserve Fund may only be provided for an infectious disease emergency if the infectious disease emergency (1) is declared by the Secretary of Health and Human Services under section 319 of the PHS Act to be a public health emergency; or (2) as determined by the Secretary, has significant potential to imminently occur and potential, on occurrence, to affect national security or the health and security of United States citizens, domestically or internationally: Provided further, That amounts in the Reserve Fund may be transferred by the Director of the CDC to other accounts of the CDC, to accounts of the NIH, or to the Public Health and Social Services Emergency Fund, to be merged with such accounts or Fund for the purposes provided in this section: Provided further, That the Committees on Appropriations of the House of Representatives and the Senate shall be notified in advance of any transfer or obligation made under the authority provided in this section, including notification on the anticipated uses of such funds by program, project, or activity: Provided further, That not later than 15 days after notification of the planned use of the Reserve Fund, the Director shall provide a detailed spend plan of anticipated uses of funds, including estimated personnel and administrative costs, to the Committees on Appropriations of the House of Representatives and the Senate: Provided further, That such plans shall be updated and submitted every 90 days thereafter until funds have been fully expended which should include the unobligated balances in the Reserve Fund and all</p>	This provision was enacted with permanent effect in FY 2019 and does not need to be repeated.

Language Provision	Explanation
<p>the actual obligations incurred to date: Provided further, That amounts in the Reserve Fund shall be in addition to amounts otherwise available to the Department of Health and Human Services for the purposes provided in this section: Provided further, That the transfer authorities in this section are in addition to any transfer authority otherwise available to the Department of Health and Human Services: Provided further, That products purchased using amounts in the Reserve Fund may, at the discretion of the Secretary of Health and Human Services, be deposited in the Strategic National Stockpile under section 319F-2 of the PHS Act: Provided further, That this section shall be in effect as of the date of the enactment of this Act through each fiscal year hereafter.]</p>	
<p><i>SEC. 232. REAUTHORIZATION AND MODIFICATION OF CDC LOAN REPAYMENT PROGRAM. Section 317F of the Public Health Service Act (42 U.S.C. 247b-7) is amended—</i> <i>(a) in subsection (a),—</i> <i>(1) in paragraph (1), by striking "\$35,000" and inserting "\$15,000";</i> <i>(2) in paragraph (2), by striking "3 years" and inserting "2 years"; and</i> <i>(3) by adding the following new paragraph: "(3) HEALTH PROFESSIONAL.—</i> <i>For purposes of this section, the term 'health professional' includes information technology specialists and data surveillance specialists."; and</i> <i>(b) in subsection (c), by striking "1995 through 2002" and inserting "thereafter".</i></p>	<p>For reauthorization and modification of CDC loan repayment program.</p>
<p><i>SEC. 234. Funds appropriated in this Act, or any other Act making appropriations for fiscal year 2020, to any component of the Department of Health and Human Services that are available for activities to address opioid use shall also be available to such component to carry out activities authorized under the SUPPORT for Patients and Communities Act or under an amendment made by such Act.</i></p>	<p>Allows funds to be used to implement the SUPPORT Act.</p>

CDC AMOUNTS AVAILABLE FOR OBLIGATION ^{1,2}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Discretionary Appropriation:			
Enacted	\$6,841,008,000	\$6,477,883,000	\$5,637,882,000
Permissive Transfer	(\$16,700,000)	\$0	\$0
Reprogramming	\$0	\$0	\$0
ATB Rescission	N/A	N/A	N/A
Subtotal, adjusted Appropriation	\$6,824,308,000	\$6,477,883,000	\$5,637,882,000
Mandatory and Other Appropriations:			
Transfers from Other Accounts ³	\$800,900,000	\$804,500,000	\$893,950,000
Receipts from User Fees	\$2,226,000	\$2,226,000	\$2,226,000
Receipts from CRADA ⁴	\$85,109	\$85,109	\$85,109
Receipts from Royalties ⁴	\$54,541,096	\$54,541,096	\$54,541,096
Appropriation (EEOICPA)	\$50,431,000	\$55,358,000	\$55,358,000
Subtotal, adjusted Mandatory and Other Appropriations	\$908,183,205	\$916,710,205	\$1,006,160,205
Recovery of prior year Obligations	\$133,609,869	\$0	\$0
Unobligated balance start of year	\$238,030,868	\$1,319,634,107	\$1,462,283,651
Unobligated balance expiring	\$8,860,563	\$0	\$0
Unobligated balance end of year	(\$1,319,634,107)	(\$1,462,283,651)	(\$1,360,275,254)
Total Obligations	\$6,553,358,399	\$7,251,943,660	\$6,746,050,602

¹ Excludes Vaccines for Children, World Trade Center Health Program, Ebola Preparedness and Response, and Zika Preparedness and Response funds.

² Excludes the following amount for reimbursements: FY 2018 - \$192.900M.

³ FY 2018 Enacted Amount includes \$240 million in directed transfer of Nonrecurring Expenses Fund.

⁴ Reflects transfer from Prevention and Public Health Fund (PPHF).

⁵ FY 2018 amount represents actual collections. FY 2019 and FY 2020 amounts are estimates assuming level receipts; the actuals may vary.

SUMMARY OF CHANGES

	Dollars	FTEs
FY 2019 Enacted (Program Level)	\$7,282,383	11,195
FY 2020 President's Budget (Program Level)	\$6,531,832	11,224
Net Change	(\$750,551)	29

	FY 2019 FTE	FY 2019 Enacted	FTE Change	FY 2020 +/- FY 2019
(dollars in thousands)				
Increases:				
Immunization and Respiratory Diseases				
Influenza	---	\$187,558	---	\$10,000
HIV/AIDS, Viral Hepatitis, STI and TB Prevention				
Domestic HIV/AIDS Prevention and Research		\$788,712		\$140,000
Infectious Diseases and the Opioid Epidemic	---	\$5,000	---	\$53,000
Chronic Disease Prevention and Health Promotion				
America's Health Block Grant (PPHF)	---	N/A	---	\$500,000
Global Health				
Global Disease Detection and Other Programs	---	\$108,200	---	\$41,562
Total Increases	N/A	\$1,089,470	N/A	\$744,562
Decreases:				
Immunization and Respiratory Diseases				
Immunization Program (BA and PPHF)	---	\$610,847	---	(\$78,174)
Emerging and Zoonotic Infectious Diseases				
Antibiotic Resistance (BA and PPHF)	---	\$168,000	---	(\$31,000)
Food Safety	---	\$60,000	---	(\$6,000)
Prion Disease	---	\$6,000	---	(\$6,000)
Chronic Fatigue Syndrome	---	\$5,400	---	(\$5,400)
Emerging Infectious Diseases	---	\$186,797	---	(\$1,500)
Epi and Lab Capacity Program (PPHF) ²	---	\$40,000	---	N/A
Healthcare-Associated Infections (PPHF)	---	\$12,000	---	N/A
Chronic Disease Prevention and Health Promotion				
Other State-Based Chronic Disease Programs ³	---	\$566,111	---	N/A
REACH (PPHF)	---	\$55,950	---	(\$55,950)
Cancer Prevention and Control (BA and PPHF)	---	\$371,549	---	(\$34,125)
Prevention Research Centers	---	\$25,461	---	(\$25,461)
Hospitals Promoting Breastfeeding (PPHF)	---	\$8,000	---	(\$8,000)
National Diabetes Prevention Program	---	\$25,300	---	(\$5,338)
Million Hearts (PPHF)	---	\$4,000	---	(\$4,000)
National Early Child Care Collaboratives (PPHF)	---	\$4,000	---	(\$4,000)
Alzheimer's Disease	---	\$5,500	---	(\$2,007)
Oral Health (BA and PPHF)	---	\$19,000	---	(\$2,000)
Birth Defects, Developmental Disabilities, Disability and Health				
Health	---	\$155,560	---	(\$43,560)
Environmental Health				
Lead Poisoning Prevention (BA and PPHF)	---	\$35,000	---	(\$18,000)
Environmental Health Activities	---	\$10,494	---	(\$10,494)
<i>Amyotrophic Lateral Sclerosis Registry (ALS)</i>	---	\$10,000	---	(\$10,000)
<i>Climate Change</i>	---	\$10,000	---	(\$10,000)
Environmental Health Laboratory	---	\$66,750	---	(\$9,856)
Environmental and Health Outcome Tracking Network	---	\$34,000	---	(\$9,000)
Asthma	---	\$29,000	---	(\$4,000)
Injury Prevention and Control				
Unintentional Injury	---	\$8,800	---	(\$2,063)

CDC FY 2020 Congressional Justification

(dollars in thousands)	FY 2019 FTE	FY 2019 Enacted	FTE Change	FY 2020 +/- FY 2019
<i>Elderly Falls</i>	---	\$2,050	---	(\$2,050)
Injury Prevention Activities	---	\$28,950	---	(\$8,657)
Injury Control Research Centers	---	\$9,000	---	(\$9,000)
Public Health Scientific Services				
Surveillance, Epidemiology, and Informatics	---	\$293,000	---	(\$25,000)
Health Statistics	---	\$160,397	---	(\$5,397)
Public Health Workforce	---	\$51,000	---	(\$6,000)
Occupational Safety and Health				
Occupational Safety and Health Research	---	\$336,300	---	(\$146,300)
Global Health				
Global HIV/AIDS Program	---	\$128,421	---	(\$58,874)
Global Immunization Program		\$226,000	--	(\$20,000)
Parasitic Diseases and Malaria	---	\$26,000	---	(\$1,547)
Public Health Preparedness and Response				
CDC Preparedness and Response Capability	---	\$172,000	---	(\$22,000)
Academic Centers for Public Health Preparedness	---	\$8,200	---	(\$8,200)
Cross-Cutting Activities and Program Support				
Preventive Health and Health Services Block Grant	---	\$160,000	---	(\$160,000)
Public Health Leadership and Support	---	\$113,570	---	(\$8,570)
All Other Decreases		\$64,900		(\$32,529)
Total Decreases	N/A	\$4,273,257	N/A	(\$1,495,113)
Transfers				
	---	\$0	---	\$0
Built-In:				
1. Annualization of Jan - 2019 Pay Raise	---	---	---	\$0
2. FY 2020 Pay Increases	---	---	---	\$0
3. Changes in Day of Pay	---	---	---	\$0
4. Rental Payments to GSA and Others	---	---	---	\$0
Total Built-In		\$0		\$0
Absorption of Current Services				\$0
Total				\$0
Total Increases (Program Level)		\$1,089,470	0	\$744,562
Total Decreases (Program Level)		\$4,273,257	0	(\$1,495,113)
NET CHANGE - L/HHS/ED Program Level	11,195	\$7,282,383	29	(\$750,551)
Other Program Level Changes				
1. Vaccines for Children	---	\$4,175,681	---	\$585,727
2. World Trade Center ⁴	---	\$516,556	---	\$24,788
3. Energy Employees Occupational Illness Compensation Act (EEOICPA)	---	\$55,358	---	\$0
4. User Fees	---	\$2,226	---	\$0
Total - Other Program Level Net Increase	11,195	\$4,749,821	29	\$610,515
NET CHANGE: CDC BUDGET AUTHORITY & PROGRAM LEVEL	11,195	\$12,032,204	29	(\$140,036)

¹ FY 2019 totals for Vector-Borne Diseases include Lyme Disease.

² In FY 2020, the Epidemiology and Laboratory Capacity program will be supported by funding for Emerging Infectious Diseases under NCEZID.

³ FY 2019 totals reflect funding for: Tobacco Prevention and Control; Nutrition, Physical Activity, and Obesity; Heart Disease and Stroke; Diabetes; and Arthritis. In FY 2020, these activities will be allowable uses under the newly-established *America's Health* Block Grant.

⁴ Reflects Federal share estimated obligations only; NYC share estimated obligations are not included.

BUDGET AUTHORITY BY ACTIVITY

(dollars in thousands)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Budget Activity/Description			
Immunization and Respiratory Diseases	\$472,453	\$477,855	\$577,386
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	\$1,116,245	\$1,125,056	\$1,318,056
Emerging and Zoonotic Infectious Diseases	\$552,702	\$560,372	\$372,472
Chronic Disease Prevention and Health Promotion	\$912,307	\$932,821	\$347,145
Birth Defects, Developmental Disabilities, Disability and Health	\$140,086	\$155,560	\$112,000
Environmental Health	\$188,112	\$192,350	\$157,000
Injury Prevention and Control	\$647,974	\$648,559	\$628,839
Public Health Scientific Services	\$496,710	\$504,397	\$45,000
Occupational Safety and Health	\$334,067	\$336,300	\$190,000
Global Health	\$494,557	\$495,843	\$456,984
Public Health Preparedness and Response¹	\$845,525	\$855,200	\$825,000
Cross-Cutting Activities and Program Support	\$113,570	\$163,570	\$155,000
Buildings and Facilities	\$270,000	\$30,000	\$30,000
Total CDC, Budget Authority -	\$6,584,308	\$6,477,883	\$5,214,882
Total CDC, FTEs²	11,336	11,195	11,224

¹ FY 2018 Final Funding level is comparably adjusted to reflect the transfer of Strategic National Stockpile (SNS) to ASPR.

² FY 2018 FTE levels include SNS. FY 2019 and FY 2020 FTE levels reflect the transfer of SNS to the Office of the Assistant Secretary for Preparedness and Response (ASPR). The FY 2019 and FY 2020 FTE levels may not align with levels in MAX.

AUTHORIZING LEGISLATION

(dollars in thousands)	Enabling Legislation Status	Allocation Methods	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Enabling Legislation Citation ¹					
Immunization and Respiratory Diseases					
PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317N*, PHSA § 317S*, PHSA § 319, PHSA § 319C*, PHSA § 319E*, PHSA § 319F, PHSA § 322, PHSA § 325, PHSA § 327, PHSA § 340C, PHSA § 352, PHSA § 2102(a)(6), PHSA § 2102(a)(7), PHSA § 2125, PHSA § 2126, PHSA § 2127, PHSA § 2821*, Immigration and Nationality Act § 212 (8 U.S.C. 1182), Immigration and Nationality Act § 232 (8 U.S.C. 1222, 1252), Social Security Act § 1928 (42 U.S.C. 1396s)	Permanent Indefinite	Direct Federal/ Intramural; Competitive Cooperative Agreements/ Grants, including Formula Grants; Contracts; and Other	\$796,803	\$798,405	\$730,231
HIV/AIDS, Viral Hepatitis, STD, and TB Prevention					
PHSA § 301, PHSA § 306(a-l), PHSA § 306(n)*, PHSA § 307, PHSA § 308(d), PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317E(a-f), PHSA § 317E(g), PHSA § 317N(a-b), PHSA § 317N(c)*, PHSA § 317P(a-c), PHSA § 318A(a-d)*, PHSA § 318A(e)*, PHSA § 318A(f)*, PHSA § 318B*, PHSA § 322, PHSA § 325, PHSA § 327, PHSA § 352, PHSA § 2315, PHSA § 2320, PHSA § 2341, PHSA § 2521, PHSA § 2522, PHSA § 2524, Title II of Pub. L. 103-333	Permanent Indefinite	Direct Federal/ Intramural, Competitive Grant/ Cooperative Agreements, Formula Grants/ Cooperative Agreements, Contracts, and Other	\$1,116,245	\$1,125,056	\$1,318,056
Emerging and Zoonotic Infectious Diseases					
PHSA § 264, PHSA § 2821*, PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 308(d), PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317P*, PHSA § 317R*, PHSA § 317S*, PHSA § 317T*, PHSA § 319, PHSA § 319D*, PHSA § 319E*, PHSA § 319F, PHSA § 319G*, PHSA § 321, PHSA § 322, PHSA § 325, PHSA § 327, PHSA § 352, PHSA § 353, PHSA § 361-369, PHSA § 399V-5*, PHSA § 1102, Bayh-Dole Act of 1980 (Pub. L. 96-517)	Permanent Indefinite	Direct Federal/ Intramural, Contracts, and Competitive Grants/ Cooperative Agreements	\$604,702	\$612,372	\$509,472
Chronic Disease Prevention and Health Promotion					
PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317D*, PHSA § 317H*, PHSA § 317K, PHSA § 317L*, PHSA § 317M*, PHSA § 317P*, PHSA § 330E*, PHSA § 398A, PHSA § 399B*-399E*, PHSA § 399Q, PHSA § 399R*, PHSA § 399V-3*, PHSA § 399V-6, PHSA § 399W*, PHSA § 399X*, PHSA § 399Y*, PHSA § 399Z*, PHSA § 399LL, PHSA § 399NN*, PHSA § 417E(d), PHSA § 1501-1509*, PHSA § 1706*, Comprehensive Smoking Education Act of 1984, Fertility Clinic Success Rate And Certification Act of	Permanent Indefinite	Direct Federal Intramural; Competitive Cooperative Agreements/ Grants, including Formula Grants; and Competitive Contracts	\$1,159,857	\$1,187,771	\$951,250

(dollars in thousands)	Enabling Legislation Status	Allocation Methods	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Enabling Legislation Citation¹					
1992 (PUB. L. 102-493), Firefighter Cancer Registry Act of 2018 (Pub. L. 115-194)					
Birth Defects and Developmental Disabilities					
PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 308(d), PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317C(a)*, PHSA § 317J*, PHSA § 317K, PHSA § 317L*, PHSA § 317Q, PHSA § 327, PHSA § 352, PHSA § 399M*, PHSA § 399Q, PHSA § 399S, PHSA § 399S-1, PHSA § 399T, PHSA § 399V-2, PHSA § 399AA*, PHSA § 399BB*, PHSA § 399CC, PHSA Title XI, PHSA § 1102, PHSA § 1108*, PHSA § 1110, PHSA § 1112, PHSA § 1113, PHSA § 1114, PHSA § 1132*, PHSA § 1706*, The Prematurity Research Expansion And Education For Mothers Who Deliver Infants Early Act § 3 (42 U.S.C. 247b-4f)	Permanent Indefinite	Direct Federal/ Intramural, Competitive Grants, Cooperative Agreements and Contracts	\$140,086	\$155,560	\$112,000
Environmental Health					
PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317A*, PHSA § 317B, PHSA § 317I*, PHSA § 317O*, PHSA § 327, PHSA § 352, PHSA § 361, PHSA § 366, PHSA § 1102, PHSA § 1706*	Permanent Indefinite	Direct Federal/ Intramural, Contracts, Competitive Grants/ Cooperative Agreements	\$205,112	\$209,350	\$157,000
Injury Prevention and Control					
PHSA § 214, PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 308, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 319, PHSA § 319D*, PHSA § 327, PHSA § 352, PHSA § 391, PHSA § 392, PHSA § 393, PHSA § 393A*, PHSA § 393B, PHSA § 393C, PHSA § 393D, PHSA § 394, PHSA § 394A*, PHSA § 399P*, PHSA § 1102, PHSA § 1706*, Bayh-Dole Act of 1980 (PUB. L. 96-517), Family Violence Prevention and Services Act § 303*, Family Violence Prevention and Services Act § 314*, SUPPORT for Patients and Communities Act (Pub. L. 115-271)	Permanent Indefinite	Direct Federal/ Intramural; Competitive Cooperative Agreements/ Grants, including Formula Grants; and Competitive Contracts	\$647,974	\$648,559	\$628,839
Public Health Scientific Services					
PHSA § 241, PHSA § 301, PHSA § 304, PHSA § 306*, PHSA § 307, PHSA § 308, PHSA § 310, PHSA § 317, PHSA § 317G, PHSA § 318A*, PHSA § 319, PHSA § 319A*, PHSA § 353, PHSA § 391, PHSA § 399S-1, PHSA § 399V*, PHSA § 778*, PHSA § 1102, PHSA § 2315, PHSA § 2341, E-Government Act of 2002 Pub. L. 107-347, Food, Conservation, and Energy Act of 2008 § 4403 (7 U.S.C. 5311a), Intelligence Reform and Terrorism	Permanent Indefinite	Direct Federal/ Intramural, Competitive Grants/ Cooperative Agreements, Contracts	\$496,710	\$504,397	\$468,000

(dollars in thousands)	Enabling Legislation Status	Allocation Methods	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Enabling Legislation Citation¹					
Prevention Act of 2004 § 7211*, Pub. L. 101-445 § 5341, Title V (44 U.S.C. 3501 note)					
Occupational Safety and Health					
PHSA § 301, PHSA § 304, PHSA § 306*, PHSA § 307, PHSA § 308(d), PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317A*, PHSA § 317B, PHSA § 319, PHSA § 327, PHSA § 352, PHSA § 399MM, PHSA § 1102, PHSA § 2695, Black Lung Benefits Reform Act of 1977 § 19 (Pub .L. 95-239), Bureau of Mine Act, as amended by PUB. L. 104-208, Energy Employees Occupational Illness Compensation Program Act of 2000, Federal Mine Safety and Health Act of 1977, PUB. L. 91-173 as amended by PUB. L. 95-164 and PUB. L. 109-236, Firefighter Cancer Registry Act of 2018 (Pub. L. 115-194), James Zadroga 9/11 Health And Compensation Reauthorization Act (2015), Division O, Title Iii (Pub. L. 114-113), Occupational Safety and Health Act of 1970 §§20–22, PUB. L. 91-596 as amended by PUB. L. 107-188 and 109-236 (29 U.S.C. 669–671), Radiation Exposure Compensation Act, §§ 6 and 12, Toxic Substances Control Act, PUB. L. 94-469 as amended by 102-550	Permanent Indefinite	Direct Federal/ Intramural, Competitive Grant/ Cooperative Agreements, Contracts, Other	\$334,067	\$336,300	\$190,000
Global Health					
PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 310, PHSA § 319, PHSA § 327, PHSA § 340C, PHSA § 361-369, PHSA § 2315, PHSA § 2341, Federal Employees International Organization Service Act § 3, Foreign Assistance Act of 1961 § 104, Foreign Assistance Act of 1961 § 627, Foreign Assistance Act of 1961 § 628, Foreign Employees Compensation Program, PEPFAR Stewardship & Oversight Act of 2013 (Pub. L. 113-56), Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria (Pub. L.115-305), Section 212 of the Consolidated Appropriations Act, 2018 (Pub. L, 115-141, Division H)	Permanent Indefinite	Direct Federal/ Intramural, Competitive Grants/ Cooperative Agreements, Direct Contracts, Interagency Agreements	\$495,997	\$495,843	\$456,984
Public Health Preparedness and Response					
PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 319, PHSA § 319C-1*, PHSA § 319D*, PHSA § 319F, PHSA § 319F-2*, PHSA § 319G*, PHSA § 351A*, PHSA § 361, PHSA § 2801, PHSA § 2812*	Permanent Indefinite	Direct, Federal Intramural, Cooperative Agreements, including Formula Grants/ Cooperative	\$845,525	\$855,200	\$825,000

(dollars in thousands)					
Enabling Legislation Citation ¹	Enabling Legislation Status	Allocation Methods	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
		Agreements; and Contracts			
Buildings and Facilities					
Consolidated Appropriations Act, 2018 (Pub. L. 115-141)	Permanent Indefinite	Direct Federal/ Intramural, Contracts	\$510,000	\$30,000	\$30,000
CDC-Wide Activities and Program Support					
PHSA § 301, PHSA § 304, PHSA § 306*, PHSA § 307, PHSA § 308, PHSA § 310, PHSA § 310A*, PHSA § 311, PHSA § 317, PHSA § 317F*, PHSA § 319, PHSA § 319A*, PHSA § 319D*, PHSA § 322, PHSA § 325, PHSA § 327, PHSA § 361-369, PHSA § 391, PHSA § 399G Part N, * PHSA § 399U*, PHSA § 2821*	Permanent Indefinite	Direct Federal/ Intramural, Contracts, Competitive Grants/ Cooperative Agreements	\$273,570	\$373,570	\$155,000

¹ Expired/Expiring noted with *

APPROPRIATIONS HISTORY TABLE^{1,5}

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2010 H1N1 Influenza Supplemental, CDC ²	200,000,000	--	--	200,000,000
2010 Public Health Prevention Fund ³	--	--	--	191,800,000
2010	6,312,608,000	6,313,032,000	6,733,377,000	6,390,387,000
2011	6,265,806,000	--	6,527,235,000	5,648,970,000
2011 Public Health Prevention Fund	610,900,000	--	--	610,900,000
2012	5,817,412,000	--	5,765,915,000	5,655,670,000
2012 Public Health Prevention Fund	752,500,000	--	848,000,000	809,000,000
2013 Enacted	4,991,523,000	--	5,713,698,000	5,657,023,000
2013 OMB 0.2% Rescission				(\$11,314,000)
2013 Sequestration	--	--	--	(284,581,000)
2013 Public Health Prevention Fund	903,210,000	--	858,000,000	462,916,000
2014	5,216,509,000	--	5,757,052,000	5,792,542,000
2014 Public Health Prevention Fund	755,110,000	--	839,000,000	831,300,000
2015	5,399,706,000	--	5,999,348,000	5,968,118,000
2015 Public Health Prevention Fund	809,510,000	--	887,300,000	886,300,000
2015 CR Ebola Funding (PL 113-164)	--	--	--	30,000,000
2015 Ebola Response and Preparedness ⁴	--	--	--	1,771,000,000
2016	6,095,803,000	6,095,803,000	5,747,306,000	6,270,745,000
2016 Public Health Prevention Fund	914,300,000	914,300,000	892,950,000	892,300,000
2017	5,967,376,000	6,875,144,000	6,153,448,000	6,293,503,000
2017 Public Health Prevention Fund	944,470,000	908,300,000	891,300,000	891,300,000
2018	4,991,675,000	6,010,153,000	6,318,953,000	--
2018 Public Health Prevention Fund	840,600,000	840,600,000	800,900,000	--
2019	5,524,935,000	\$6,781,908,000	\$7,004,483,000	\$6,477,883,000
2019 Public Health Prevention Fund	--	\$848,000,000	\$808,300,000	\$804,500,000
2020	\$5,214,882,000	--	--	--
2020 Public Health Prevention Fund	\$893,950,000	--	--	--

¹ Does not include funding for ATSDR

² FY 2009 H1N1 influenza supplemental, Supplemental Appropriations Act, 2009 (P.L. 111-32). \$473M transferred from HHS's Public Health and Social Services Emergency Fund to CDC; \$200M directly appropriated to CDC.

³ The Prevention and Public Health Fund (PPHF) amounts here reflect CDC's request and final amount allotted from the PPHF to CDC from HHS.

⁴ Ebola Response and Preparedness is one-time emergency funding appropriated in FY 2015 for the U.S. Government response to contain, treat, and prevent the spread of Ebola.

⁵ FY 2018 level is comparably adjusted to reflect the transfer of Strategic National Stockpile to ASPR.

APPROPRIATIONS NOT AUTHORIZED BY LAW

(dollars in millions)

Program	Last Year of Authorization	Authorization Level	Appropriations in Last Year of Authorization	Appropriations in FY 2019 ²
Sexually Transmitted Diseases Grants (PHSA 318A)	FY 1998	Such Sums...	\$113.671	\$151.276
National Cancer Registries (PHSA 399B)	FY 2003	Such Sums...	N/A	\$49.104
National Center for Health Statistics (PHSA 306)	FY 2003	Such Sums...	\$125.899	\$160.397
WISEWOMAN (PHSA 1509)	FY 2003	Such Sums...	\$12.419	\$21.120
Asthma Surveillance & Grants (PHSA 317I)	FY 2005	Such Sums...	\$32.422	\$29.000
Folic Acid (PHSA 317J)	FY 2005	Such sums...	\$2.188	\$3.150
Injury Prevention and Control (PHSA 394A)	FY 2005	Such Sums...	\$138.237	\$648.559
Oral Health Promotion (PHSA 317M)	FY 2005	Such Sums...	\$11.204	\$19.000
Safe Motherhood/Infant Health (PHSA 317K, 317L)	FY 2005	Such Sums...	\$44.738	\$58.000
Grants to Promote Childhood Nutrition and Physical Activity (PHSA 399W) ²	FY 2005	Such Sums...	\$26.835	\$39.920
Screening, Referrals, and Education Regarding Lead Poisoning (PHSA 317A)	FY 2005	\$40.000	\$36.474	\$17.000
Birth Defects, Developmental Disability, Disability and Health (PHSA 317C)	FY 2007	Such Sums...	\$122.242	\$155.560
Developmental Disabilities Surveillance and Research Program (Autism) (PHSA 399AA)	FY 2011	\$21.000 in FY 2011	\$21.380	\$23.100
Breast and Cervical Cancer ¹ (PHSA 1501-10)	FY 2012	\$275.000 in FY 2012	\$204.779	\$218.000
Johanna's Law (PHSA 317P)	FY 2012	\$18.000 in FY 2012	\$4.972	\$7.500
Epidemiology Laboratory Capacity Grants (PHSA 2821)	FY 2013	\$190.000 in FY 2013	\$32.424	\$40.000
National TB Strategy/Grants (PHSA 317E)	FY 2013	\$243.101 In FY 2013	\$132.997	\$135.034
CDC Public Health Workforce and Career Development (PHSA 778)	FY 2013	\$39.500 in FY 2013	\$64.000	\$51.000
National Diabetes Prevention Program (PHSA 399V-3)	FY 2014	Such sums...	\$10.000	\$25.300
Section 317 Immunization (PHSA 317(I))	FY 2014	Such sums...	\$610.847	\$610.847
Young Women's Breast Health Awareness and Support of Young Women Diagnosed with Breast Cancer (PHSA 399NN)	FY2019	\$4,900,000 In FY 2019	\$4,960,000	\$4,960,000

¹ Breast and Cervical Cancer appropriation includes WISEWOMAN funding

² Program estimates

NARRATIVE BY ACTIVITY

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IMMUNIZATION AND RESPIRATORY DISEASES

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$472.453	\$477.855	\$577.386	+\$99.531
PPHF	\$324.350	\$320.550	\$152.845	-\$167.705
Total Request	\$796.803	\$798.405	\$730.231	-\$68.174
FTEs	666	666	666	0
Immunization Program Level	\$609.879	\$610.847	\$532.673	-\$78.174
-Immunization Program - BA	\$285.529	\$290.297	\$379.828	+\$89.531
-Immunization Program - PPHF	\$324.350	\$320.550	\$152.845	-\$167.705
Influenza/Influenza Planning and Response	\$186.924	\$187.558	\$197.558	+\$10.000

Enabling Legislation Citation: PHS A § 301, PHS A § 307, PHS A § 310, PHS A § 311, PHS A § 317, PHS A § 317N*, PHS A § 317S*, PHS A § 319, PHS A § 319C*, PHS A § 319E*, PHS A § 319F, PHS A § 322, PHS A § 325, PHS A § 327, PHS A § 340C, PHS A § 352, PHS A § 2102(a)(6), PHS A § 2102(a)(7), PHS A § 2125, PHS A § 2126, PHS A § 2127, PHS A § 2821*, Immigration and Nationality Act § 212 (8 U.S.C. 1182), Immigration and Nationality Act § 232 (8 U.S.C. 1222, 1252), Social Security Act § 1928 (42 U.S.C. 1396s)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; Contracts; and Other

CDC prevents disease, disability, and death of children, adolescents, and adults through immunization and control of respiratory and related diseases. These activities are key to CDC’s goal to protect Americans from infectious diseases. Through the discretionary Immunization Program and mandatory Vaccines for Children (VFC) Program, CDC improves access to immunization services for uninsured and underinsured U.S. populations and supports the scientific evidence base for vaccine policy and practices. CDC also provides critical epidemiology and laboratory capacity to detect, prevent, and respond to vaccine-preventable, respiratory, and related infectious disease threats and conducts preparedness planning for pandemic influenza.

CDC’s FY 2020 request of **\$730,231,000** for Immunization and Respiratory Diseases is \$68,174,000 below the FY 2019 Enacted level. At the proposed FY 2020 funding level, CDC will focus its immunization program on the highest priority activities, while providing dedicated resources to two urgent public threats—acute flaccid myelitis (AFM) and influenza planning and response.

Acute Flaccid Myelitis

CDC’s FY 2020 request of **\$532,673,000** for the immunization program includes **\$10,000,000** to address acute flaccid myelitis (AFM). AFM is a rare but serious condition that affects the nervous system, specifically an area of the spinal cord, which causes muscles and reflexes in the body to become weak. The risk of getting AFM varies by age and year. Ninety-five percent of cases are younger than 18 years old, and the median age is 4 years old. Since 2014, when CDC first began monitoring AFM, reported cases have increased every two years. CDC is working closely with national experts, healthcare providers, and state and local health departments to investigate AFM. CDC conducts active surveillance through the National Viral Surveillance Network at tertiary care children’s hospitals and reviewing medical charts of each AFM case. CDC plans to further enhance AFM surveillance capacity in states and to initiate follow up of cases to better understand long-term effects and risk factors. In addition, CDC has established an AFM task force of national experts to better understand what is causing AFM, how to prevent it, and how to treat it.

Modernizing Influenza Vaccines

CDC's request of **\$197,558,000** for Influenza Planning and Response is **\$10,000,000** above the FY 2019 Enacted level to improve the effectiveness of and reduce barriers to seasonal influenza vaccination.

Influenza is a potentially serious disease that can lead to hospitalization and sometimes even death. Every flu season is different, and influenza infection can affect people differently. Millions of people get the flu every year, hundreds of thousands of people are hospitalized, and thousands or tens of thousands of people die from flu-related causes. An annual seasonal flu vaccine is the best way to help protect against flu. Vaccination has been shown to have many benefits, and CDC recommends an annual flu vaccine for everyone 6 months and older. However, coverage rates remain low, and there are multiple challenges with the vaccine production technology that is currently used. With new resources in FY 2020, CDC will support improvements in vaccine effectiveness, help expand the production capacity of cell-grown vaccine candidates, and undertake other high priority flu activities to increase vaccination coverage rates.

IMMUNIZATION AND RESPIRATORY DISEASES

BY THE NUMBERS...

- CDC estimates that vaccination of children born between 1994 and 2016¹
 - Prevents **381 million** illnesses.
 - Prevents **24.5 million** hospitalizations.
 - Helps avoid **855,000** early deaths.
 - Saves nearly **\$360 billion** in direct costs.
 - Saves **\$1.65 trillion** in total societal costs.
 - Every dollar spent in childhood vaccination ultimately saves \$10.10.
- CDC estimates that for the 2016-2017 influenza season, influenza vaccination²
 - Prevented approximately **5.3 million** influenza illnesses,
 - Prevented **2.6 million** influenza-associated medical visits,
 - Prevented **84,700** influenza-associated hospitalizations, and
 - Reduced the burden of influenza illness by 12 percent.
- **81**—Investigations of vaccine-preventable disease received CDC technical support.
- **1,100**--Laboratory tests conducted by CDC in support of vaccine-preventable disease investigations.
- **10,000**—Doses of hepatitis A-containing vaccine purchased using CDC funding to respond to a deadly Hepatitis A outbreak in Kentucky.
- **90 percent**--CDC Influenza Partner countries have been routinely reporting to WHO FluNet since 2017, an increase from 40 percent reporting in 2005.

*References:

1 Updated data from previous article: Whitney, Cynthia, Zhou, Fangjun, Singleton, James, et al. Benefits from Immunization During the Vaccines for Children Program Era-United States, 1994-2013. MMWR 2014; 63: [352-355]. Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6316a4.htm?s_cid=mm6316a4_w

2 Rolfes MA, Foppa IM, Garg S, Flannery B, Brammer L, Singleton JA, et al. Estimated Influenza Illnesses, Medical Visits, Hospitalizations, and Deaths Averted by Vaccination in the United States. 2016 Dec 9 [2017 Dec 19]; <https://www.cdc.gov/flu/about/disease/2015-16.htm> Division program impact report 2015-2016

*Unless otherwise noted, all information and calculations are from CDC program data.

Immunization and Respiratory Diseases Funding History	
Fiscal Year	Dollars (in millions)
2016 (BA)	\$457.805
2016 (PPHF)	\$324.350
2016 (PHSSEF)	\$15.000
2017 Final (BA)	\$453.924
2017 Final (PPHF)	\$324.350
2017 Final (PHSSEF) ¹	\$15.000
2018 Final (BA)	\$472.453
2018 Final (PPHF)	\$324.350
2018 Final (PHSSEF)	\$0.000
2019 Enacted (BA)	\$477.855
2019 Enacted (PPHF)	\$320.550
2020 President's Budget (BA)	\$577.386
2020 President's Budget (PPHF)	\$152.845

¹ The FY 2017 Omnibus directs \$15 million in PHSSEF pandemic influenza supplemental unobligated balances to be transferred to CDC.

Immunization Program Ten-Year Funding History	
Fiscal Year	Dollars (in millions)
2010	\$561.459
2011	\$488.576
2011 (PPHF)	\$100.000
2012 (BA)	\$452.215
2012 (PPHF)	\$190.000
2013 (BA)	\$461.160
2013 (PPHF)	\$90.883
2014 (BA)	\$450.547
2014 (PPHF)	\$160.300
2015 (BA)	\$400.547
2015 (PPHF)	\$210.300
2016 (BA)	\$285.247
2016 (PPHF)	\$324.350
2017 Final (BA)	\$281.771
2017 Final (PPHF)	\$324.350
2018 Final (BA)	\$285.529
2018 Final (PPHF)	\$324.350
2019 Enacted (BA)	\$290.297
2019 Enacted (PPHF)	\$320.550
2020 President's Budget (BA)	\$379.828
2020 President's Budget (PPHF)	\$152.845

Immunization Program Budget Request

CDC's national immunization recommendations currently provide guidance for the prevention of 17 vaccine-preventable diseases (VPDs) across the lifespan. The discretionary Immunization Program plays a fundamental role in achieving national immunization goals and sustaining high vaccination coverage rates to prevent death and disability from VPDs.

The Immunization Program provides funding to support public health functions and ensure program effectiveness and scientifically sound immunization policy. A strong public health infrastructure at the national, state, and local levels is vital to sustaining high vaccination coverage levels and low incidence of VPDs. Support also maintains public health preparedness for response to a vaccine-preventable national emergency, such as a pandemic or biologic attack.

The Immunization Program purchases routinely recommended vaccines to protect at-risk populations not eligible for immunizations through the Vaccines for Children (VFC) Program and to meet urgent public health needs such as controlling VPD outbreaks. The flexibility of the Program is critical-- the discretionary Immunization Program allows states to use their purchased vaccines to meet their unique needs and priorities in responding to VPD outbreaks. The public health functions supported by the program include providing a safety net for those who cannot otherwise access immunization services, managing vaccine shortages, conducting continual quality improvement efforts with immunization providers, monitoring the safety and effectiveness of vaccines and vaccine programs, preventing disease outbreaks and responding early and rapidly should they occur, and preparing to respond quickly and comprehensively to other urgent vaccine emergencies, such as pandemics.

Budget Request

CDC's FY 2020 request of **\$532,673,000** for the Immunization Program, including \$152,845,000 from the Prevention and Public Health Fund, is \$78,147,000 below the FY 2019 Enacted level.

CDC's FY 2020 request includes \$10,000,000 dedicated to support acute flaccid myelitis (AFM). AFM is a rare but serious condition that affects the nervous system, specifically an area of the spinal cord, which causes muscles and reflexes in the body to become weak. The risk of getting AFM varies by age and year. Ninety-five percent of cases are younger than 18 years old, and the median age is 4 years old. Since 2014, when CDC first began monitoring AFM, reported cases have increased every two years. CDC is working closely with national experts, healthcare providers, and state and local health departments to investigate AFM. CDC conducts active surveillance through the National Viral Surveillance Network at tertiary care children's hospitals and reviewing medical charts of each AFM case. CDC plans to further enhance AFM surveillance capacity in states and to initiate follow up of cases to better understand long-term effects and risk factors. In addition, CDC has established an AFM task force of national experts to better understand what is causing AFM, how to prevent it, and how to treat it.

In FY 2020, at the Immunization Program funding level, CDC will continue to provide funding to the 64 immunization awardees for state infrastructure awards and vaccine direct assistance. CDC will also continue providing technical assistance and laboratory support to states and local communities responding to vaccine-preventable disease investigations, including outbreaks.

Preserving Core Public Health Immunization Infrastructure

The discretionary Immunization Program supports the public health workforce and systems at the national, state, and local levels that protect all Americans from disability and death from VPDs.

CDC conducts scientific studies that provide the basis for national immunization recommendations and programs including the burden of disease, vaccine effectiveness and safety, economic considerations, and

program feasibility. For example, CDC's vaccine effectiveness research provided critical scientific evidence that informed the Advisory Committee on Immunization Practices' (ACIP) recommendation to reduce the number of doses of HPV vaccine from three to two.

In addition, CDC collects, analyzes, and reports scientific data about vaccines to ensure the effectiveness and safety of our national vaccine recommendations and programs and to inform changes to the recommendations and programs as needed. This includes:

- Monitoring the effectiveness of vaccines when used in real-life settings.
- Monitoring safety of U.S.-licensed vaccines and evaluating vaccine safety concerns.
- Updating technology to enhance electronic adverse-event reporting.
- Developing vaccine safety profiles for each newly licensed vaccine in collaboration with other federal agencies.

CDC supports science-based communication efforts to aid Americans in making informed vaccine decisions to protect themselves and their loved ones. CDC also conducts outreach to healthcare providers about current immunization recommendations and clinical best practices to help them protect their patients and communities from VPDs.

CDC responds to disease outbreaks by:

- Rapidly identifying and investigating cases.
- Conducting surveillance and laboratory testing.
- Implementing targeted vaccination efforts and other measures to control the spread of disease and prevent future outbreaks.

In 2017, CDC provided technical support to over 81 vaccine-preventable disease investigations and conducted over 1,100 laboratory tests in support of these investigations. For example, in March 2017, CDC assisted the Washington State Department of Health (WA DOH) in responding to an outbreak of mumps that included over 600 cases across 12 counties, including 16 cases at the University of Washington. CDC, state, and local health departments, and the University of Washington worked together to report cases, conduct surveillance, and provide outbreak control guidance. Nearly 300 doses of MMR vaccine were provided to high-risk students to help control the outbreak and prevent further cases.

Maintaining an Adequate Amount of Vaccine Purchase

The Immunization Program is responsible for providing federally purchased vaccines to protect uninsured Americans from preventable diseases—and thus protect communities from the dangers of low vaccination rates. The discretionary vaccines serve uninsured adults and provide rapid vaccination response to disease outbreaks and other urgent public health needs.

The discretionary Immunization Program can be used to vaccinate non-VFC-eligible populations in a public health emergency. For example, from March 2018 through November 2018, over 30,000 doses of hepatitis A-containing vaccine were purchased using CDC funding to respond to a deadly outbreak of Hepatitis A in West Virginia.

In FY 2020, CDC will work collaboratively with its awardees and providers to sustain record-high childhood immunization coverage rates and help ensure that all Americans have access to vaccines.

Making Strategic Investments

CDC makes strategic investments to address gaps in vaccine coverage rates, including HPV, adult immunizations, and in rural populations. Through increases in coverage rates, the full potential of these vaccines to reduce

disease burden, prevent severe illness and death, and lower costs associated with these diseases can be fully realized. To improve HPV vaccination coverage, for example, CDC funded 22 immunization programs to use their Immunization Information Systems (IIS) for reminder/recall for adolescents 11 to 18 years of age and to conduct a comprehensive communication and education campaign. In addition, CDC supported a national network of immunization and cancer-prevention organizations to engage clinical and immunization partners at a national, regional, state, tribal, territorial, jurisdictional, and local level. CDC also works with professional medical organizations to educate their members about HPV vaccine and the importance of a strong clinician recommendation for the vaccine. CDC works with complementary health care venues such as pharmacies and retail-based clinics to improve adult vaccination coverage rates, and along with HHS, provides leadership to the National Adult and Influenza Immunization Summit, a network of provider organizations, health systems, public health, and others working on innovative strategies to increase adult immunization.

Anticipating the evolving role of public health, CDC has also strategically directed immunization resources to prepare for changes in the healthcare environment. In FY 2020, CDC will continue to implement health information technologies to give healthcare providers the necessary immunization information to ensure their patients receive the vaccines they need, when they need them, and will manage vaccine supply disruptions and shortages to ensure the best public health outcomes until vaccine supplies are restored.

Immunization’s Role in Public Health

Funding Category	FY 2020 Immunization Program Funding
State Infrastructure	Funds public health immunization workforce and systems at the state and local levels, including to: recruit and educate networks of immunization providers; provide continual quality assurance; promote public awareness of new and expanded vaccine recommendations; manage vaccine shortages; and respond to vaccine preventable disease outbreaks. These awards include core infrastructure/operations funding that goes to all awardees.
Vaccine Purchase	Allocated through direct assistance to provide federally purchased vaccines to vaccinate non-VFC-eligible uninsured populations and to meet urgent public health needs such as controlling vaccine preventable disease outbreaks.
Extramural Program Operations	Supports national immunization policies and programs, including: disease surveillance; vaccine coverage assessment; post-marketing evaluation of vaccine effectiveness and safety; immunization information technologies; centralized vaccine ordering and distribution systems; payer of last resort; public awareness campaigns and resources; and provider education and tools.
Intramural Program Operations	Provides national public health expertise in immunization and vaccine preventable diseases to national, state, and local vaccination program efforts, including expertise in epidemiology and surveillance, laboratory methods and science, immunology, immunization policy, health communications science, vaccine management, and program implementation.

Supporting State and Territorial Immunization Programs

In FY 2020, CDC will provide infrastructure funding to 64 awardees—including all 50 states; Washington, D.C.; five large cities; five territories; and three freely associated states—through a non-competitive, formula-based, discretionary cooperative agreement program that provides financial assistance for state and local immunization operations. Through population-based awards, collaboration, and a strong public-private partnership, the discretionary Immunization Program establishes a comprehensive immunization system providing:

- Public sector vaccine ordering and distribution.
- Continual quality assurance.

- Provider recruitment and enrollment in the VFC Program.
- Provider education and public awareness focused on new and expanded vaccine recommendations.
- Management of vaccine shortages.

In addition, CDC will continue to provide its 64 awardees with direct assistance for vaccine purchased from the federal contracts. CDC monitors spend plans developed by awardees, and makes further adjustments as needed throughout the year so that no vaccine goes to waste.

CDC provides national public health expertise in vaccine preventable diseases that supports the 64 awardees, including expertise in:

- Epidemiology and surveillance
- Laboratory methods and science
- Immunization policy
- Health communications science
- Vaccine management
- Program implementation and evaluation

Immunization Cooperative Agreements^{1, 2}

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	64	64	64
- New Awards	0	64	0
- Continuing Awards	64	0	64
Average Award	\$5.778	\$5.778	\$4.712
Range of Awards	\$0.410-\$45.696	\$0.410-\$45.696	\$0.357-\$36.845
Total Awards	\$369.767	\$369.767	\$301.542

¹ This table includes Immunization Program budget authority and Prevention and Public Health Funds. It does not include funds from the former program implementation line.

² These funds are awarded by formula.

Influenza Planning and Response Budget Request

CDC's influenza program works to detect, respond to, and prevent influenza disease that can cause illness, and at times, death. Some populations—such as older adults, young children, and people with certain health conditions—are at higher risk for serious influenza complications. The burden of influenza disease in the United States can vary widely and is determined by a number of factors including the characteristics of the circulating viruses, the timing of the season, how well the vaccine is working to protect against illness, and how many people got vaccinated. While the impact of flu varies, it places a substantial burden on the health of people in the United States each year. During 2016-2017, more than 16,200 children younger than 5 years were hospitalized from flu complications. Flu-related hospitalizations of children younger than 5 years in the United States are estimated to have ranged from 7,000 to 26,000 since 2010. A study⁵ published in 2007 estimated direct medical costs for hospitalizations and outpatient visits from seasonal influenza-related complications at more than \$10 billion annually.

Not only can influenza infections be severe, but influenza seasons are unpredictable—requiring constant vigilance from CDC and its domestic and international public health partners. CDC provides leadership and a cutting-edge scientific and programmatic foundation for the diagnosis, prevention, and control of influenza both domestically and internationally. CDC's annual seasonal influenza activities improve preparedness by:

- Strengthening surveillance and diagnostic capacity.
- Improving public awareness and provider knowledge about influenza and the importance of vaccination, other prevention measures, and early treatment.
- Enhancing international, federal, state, and local partnerships to respond quickly to influenza epidemics.
- Improving tools to prevent—i.e., vaccine and vaccine policy—and treat influenza.

Prevention of seasonal influenza requires an annual reassessment of virus strains contained in the vaccine—an assessment based on CDC surveillance data. The vaccine must be produced and administered annually to account for seasonal variations.

Since 2010, the Advisory Committee on Immunization Practices (ACIP) has recommended influenza vaccine for all Americans aged six months and older. To implement this recommendation, CDC works to educate providers and raise public awareness. CDC makes special efforts to reach high-risk individuals, such as pregnant women, and provides further outreach to subspecialty medical providers to increase vaccination of persons at especially high risk of severe illness or death from influenza. CDC also promotes vaccination at non-traditional venues—such as retail pharmacies—to increase access to vaccine services outside of clinic settings and hours.

Budget Request

CDC's FY 2020 request of **\$197,558,000** for Influenza Planning and Response is \$10,000,000 above the FY 2019 Enacted level to support vaccine effectiveness studies, help expand the production capacity of cell-grown vaccine candidates, and undertake other high priority flu activities in support of modernizing influenza vaccines.

FY 2020 funding will support the following activities:

- Influenza prevention, detection, and monitoring.
- State/Municipality/Territorial laboratory capacity support.
- Planning and responding to influenza pandemics and/or viruses with potential to become pandemics, such as H7N9.

⁵ <http://www.ncbi.nlm.nih.gov/pubmed/17544181>

Influenza Prevention

In FY 2020, CDC will support efforts to prevent influenza through vaccination. Each season, CDC focuses on increasing demand for influenza vaccine through health communications and outreach to providers and the general public and targeted outreach to high-risk populations about the importance of vaccination; and partnerships with pharmacists to extend access to influenza vaccination. Annual vaccination campaigns help reach the Healthy People 2020 influenza vaccination goals, including those for minority and high-risk populations, and help build capacity for vaccination efforts in the event of an influenza pandemic.

CDC estimates that for the 2016-2017 influenza season, influenza vaccination prevented approximately 5.3 million influenza illnesses, 2.6 million influenza-associated medical visits, and 84,700 influenza-associated hospitalizations.⁶ This represents a 12 percent reduction in the burden of influenza illness; which is similar to what was seen in estimates for the 2012-2013 season (11% reduction), when overall vaccine effectiveness was 49%. The proportion of flu hospitalizations averted through vaccination since 2010 has ranged from about 8% during 2014-2015 to nearly 23% during 2011-2012. A CDC published, April 2018 report underscores the benefits of the current vaccination program while highlighting areas where improvements in vaccine formulation and effectiveness could deliver greater benefits to the public's health.

To complement national efforts, resources are available to all 64 immunization awardees to increase demand for seasonal influenza—including school-located vaccination clinics—and to improve influenza coverage rates among priority populations (school-aged children, high-risk adults, and racial and ethnic minority groups). CDC will measure vaccination coverage, with particular attention to racial and ethnic minority populations with historically low coverage rates. These surveys guide outreach efforts that have resulted in improvements in influenza vaccination rates, particularly among children.

Influenza Detection and Monitoring

Detection and monitoring of influenza involves a network of laboratories at state and international levels that routinely test samples to:

- Determine severity of the influenza season.⁷
- Identify viruses that are causing disease and may pose a pandemic threat.
- Determine the effectiveness of the influenza vaccine and other interventions.

Ongoing work to improve laboratory and surveillance methods ensures that CDC can adequately respond to both routine and unusual influenza outbreaks. CDC's efforts to increase capacity for influenza surveillance includes training state public health laboratory workers that respond to foodborne outbreaks to apply their skills in response to influenza.

In FY 2020, CDC will continue to serve as a World Health Organization (WHO) Collaborating Center to rapidly detect, identify, and characterize emerging influenza viruses so vaccine-candidate viruses used to produce vaccines for seasonal and novel viruses are rapidly selected. During FY 2018, CDC was able to fully characterize 6,980 specimens using Next Generation Sequencing (NGS). NGS uses advanced molecular detection (AMD) to identify gene sequences from each virus in a sample. This level of detail can directly benefit public health decision-making in important ways, but data must be carefully interpreted by highly-trained experts in the context of other available information.

CDC continues to work with domestic and international partners in the intersection of human and animal health to improve surveillance, conduct swift outbreak responses, and complete threat assessments for emerging influenza viruses with pandemic potential. Pandemics may occur when a virus that is predominantly transmitted

⁶ <https://www.cdc.gov/flu/about/disease/2015-16.htm>

⁷ <http://www.cdc.gov/flu/weekly/fluactivitiesurv.htm>

among animals develops the ability to be transmitted among humans. Each human case of infection with an animal influenza virus represents the potential for a pandemic. CDC will conduct research to understand better the complex factors that determine how and when these novel influenza viruses develop the ability to be transmitted from person to person. For example, sporadic infections in humans with H3N2v influenza continue to be detected since the virus initially emerged in people in July 2011. Infections with H3N2v have mostly been associated with prolonged exposure to pigs at agricultural fairs. CDC continues to monitor this situation closely and reports cases of H3N2v and other variant swine influenza viruses weekly. Additionally, with the emergence of avian influenza H5N8 and H5N2 viruses in birds in the United States in 2015, CDC worked with its animal health partners, as well as with state and local public health, to ensure capacity to detect and respond to human infection.

Novel influenza viruses can emerge anywhere in the world. To combat this threat, CDC supports the international monitoring of influenza and evaluates core capacities of its partners to conduct surveillance, perform laboratory testing, and to prepare to respond to influenza pandemics. CDC’s influenza program funds WHO regional offices, as well as partner nations through cooperative agreements. CDC will continue this support to countries that have the potential for animal outbreaks and human cases of H5N1 and H7N9 influenza virus.

CDC began supporting over 50 partner countries in 2005, which has resulted in a significant increase in countries reporting to WHO FluNet. In 2005, 40% of partner countries reported to WHO FluNet; since 2017 more than 90% of CDC Influenza Partner countries have been routinely reporting to WHO FluNet. CDC will work on expanding virus sample sharing among countries so that vaccines and diagnostic tests for viruses with pandemic potential can be produced.

Supporting State/Municipality/Territorial Laboratory Capacity

The Epidemiology and Laboratory Capacity for Infectious Diseases cooperative agreement (ELC) assists states and eligible local public health agencies—strengthening their basic epidemiologic and laboratory capacity to address infectious disease threats. CDC funds 50 states, three municipalities, and four territories through the ELC to conduct influenza surveillance and diagnostic activities with funding from the Influenza Planning and Response budget line.

In FY 2020, public health departments will be funded to improve detection of novel human influenza virus infections. Collaboration between the state and local health authorities and CDC is essential for risk assessment and response to similar novel viruses. In addition, these funds support seasonal influenza surveillance consisting of eight interrelated systems. This network of systems provides data on:

- Influenza viruses
- Outpatient influenza-like illness
- Influenza-associated hospitalizations
- Influenza-associated deaths
- Geographic distribution of the viruses
- The network also forms the foundation for pandemic influenza surveillance.

Planning For and Responding to Influenza Pandemics

In FY 2020, CDC will work to ensure the availability and effectiveness of medical countermeasures and equipment in the event of an influenza pandemic. Scientific experts will continue to update or develop guidance that will inform purchasing countermeasure requirements. Examples of countermeasures include antiviral drugs, respirators or masks, and ventilators to assist patients with breathing. CDC also will develop and evaluate solutions to lessen the impact of an influenza pandemic through non-pharmaceutical interventions or actions that people and communities can take to help slow the spread of influenza. In addition, CDC is developing a nationwide system of triage call centers that would be activated during a severe pandemic to provide advice to

ill individuals and thereby reduce the burden on hospitals, healthcare facilities, and public health departments. CDC collaborates with the National Association of County and City Health Officials (NACCHO), the Association of State and Territorial Health Officials (ASTHO), and national associations that represent pharmacies, pharmacists, and pharmaceutical distributors on efforts to improve antiviral distribution and dispensing at the local level during a pandemic.

CDC will sustain the nation's ability to respond to influenza pandemics by ensuring well-trained staff are in place for pandemic response. CDC will support planning efforts among health departments, hospitals, and emergency responders. Coordination among these groups will result in more integrated emergency response plans prior to a public health disaster to ensure a rapid, efficient, and effective response at the community level. CDC will test its response capabilities with federal, state, and local partners in FY 2020 using techniques such as virtual tabletop and functional exercises to evaluate and improve its response plans based on lessons from previous responses and exercises.

State Table: Discretionary (Section 317)^{1,2}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$4,613,915	\$4,613,915	\$3,875,866	-\$621,657
Alaska	\$1,468,977	\$1,468,977	\$1,235,877	-\$196,284
Arizona	\$8,325,011	\$8,325,011	\$6,753,103	-\$1,331,114
Arkansas	\$3,099,804	\$3,099,804	\$2,654,063	-\$373,966
California	\$45,696,483	\$45,696,483	\$36,845,215	-\$7,500,961
Colorado	\$5,289,651	\$5,289,651	\$4,323,482	-\$817,349
Connecticut	\$3,887,090	\$3,887,090	\$3,211,410	-\$570,716
Delaware	\$1,513,783	\$1,513,783	\$1,283,068	-\$193,993
District of Columbia (D.C.)	\$2,140,871	\$2,140,871	\$1,706,036	-\$368,991
Florida	\$13,456,466	\$13,456,466	\$11,255,526	-\$1,855,278
Georgia	\$10,632,305	\$10,632,305	\$8,722,627	-\$1,614,691
Hawaii	\$1,861,295	\$1,861,295	\$1,553,600	-\$259,465
Idaho	\$2,674,738	\$2,674,738	\$2,177,592	-\$420,793
Illinois	\$6,676,250	\$6,676,250	\$5,602,298	-\$904,765
Indiana	\$6,464,506	\$6,464,506	\$5,306,549	-\$979,006
Iowa	\$4,158,660	\$4,158,660	\$3,414,368	-\$629,253
Kansas	\$2,789,430	\$2,789,430	\$2,331,917	-\$385,697
Kentucky	\$4,808,646	\$4,808,646	\$3,980,844	-\$698,988
Louisiana	\$5,051,621	\$5,051,621	\$4,060,225	-\$840,468
Maine	\$2,207,711	\$2,207,711	\$1,887,271	-\$268,939
Maryland	\$4,694,008	\$4,694,008	\$4,016,257	-\$568,708
Massachusetts	\$8,437,473	\$8,437,473	\$6,742,146	-\$1,438,185
Michigan	\$10,501,693	\$10,501,693	\$8,626,089	-\$1,585,602
Minnesota	\$6,124,163	\$6,124,163	\$5,040,237	-\$916,070
Mississippi	\$3,261,201	\$3,261,201	\$2,692,710	-\$480,222
Missouri	\$6,018,265	\$6,018,265	\$4,849,868	-\$990,218
Montana	\$1,654,025	\$1,654,025	\$1,369,993	-\$239,815
Nebraska	\$2,073,493	\$2,073,493	\$1,651,136	-\$358,430
Nevada	\$3,180,474	\$3,180,474	\$2,615,875	-\$477,211
New Hampshire	\$2,487,022	\$2,487,022	\$2,078,591	-\$344,334
New Jersey	\$6,778,576	\$6,778,576	\$5,495,308	-\$1,086,773
New Mexico	\$4,382,517	\$4,382,517	\$3,745,298	-\$534,842
New York	\$9,294,805	\$9,294,805	\$7,848,446	-\$1,217,069
North Carolina	\$11,013,859	\$11,013,859	\$8,955,576	-\$1,742,449
North Dakota	\$3,920,224	\$3,920,224	\$3,356,307	-\$473,119
Ohio	\$10,498,093	\$10,498,093	\$8,535,784	-\$1,661,213
Oklahoma	\$4,978,545	\$4,978,545	\$4,078,785	-\$760,921
Oregon	\$5,093,891	\$5,093,891	\$4,158,970	-\$791,031
Pennsylvania	\$9,688,411	\$9,688,411	\$7,974,344	\$1,448,610
Rhode Island	\$2,540,243	\$2,540,243	\$2,033,513	-\$429,784
South Carolina	\$4,959,465	\$4,959,465	\$4,089,542	-\$734,998
South Dakota	\$2,112,333	\$2,112,333	\$1,673,845	-\$372,310
Tennessee	\$6,664,123	\$6,664,123	\$5,438,930	-\$1,036,682
Texas	\$30,359,201	\$30,359,201	\$24,248,538	-\$5,184,067
Utah	\$2,998,238	\$2,998,238	\$2,518,864	-\$403,768
Vermont	\$1,917,508	\$1,917,508	\$1,544,353	-\$316,271
Virginia	\$7,604,180	\$7,604,180	\$6,251,986	-\$1,142,964
Washington	\$7,914,484	\$7,914,484	\$6,429,222	-\$1,257,512
West Virginia	\$3,449,354	\$3,449,354	\$2,701,324	-\$635,864
Wisconsin	\$7,479,618	\$7,479,618	\$5,972,855	-\$1,278,314

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wyoming	\$1,189,808	\$1,189,808	\$992,489	-\$166,408
Cities				
Chicago	\$6,193,120	\$6,193,120	\$4,909,316	-\$1,090,008
Houston ²	\$2,512,813	\$2,512,813	\$2,190,946	-\$268,741
New York City	\$9,023,516	\$9,023,516	\$7,267,563	-\$1,488,272
Philadelphia	\$2,712,564	\$2,712,564	\$2,243,941	-\$395,746
San Antonio ²	\$1,791,043	\$1,791,043	\$1,561,627	-\$191,549
Territories				
American Samoa	\$449,824	\$449,824	\$388,471	\$51,364
Guam	\$1,269,297	\$1,269,297	\$1,050,521	-\$184,740
Marshall Islands	\$3,946,379	\$3,946,379	\$2,956,814	-\$844,097
Micronesia	\$5,646,548	\$5,646,548	\$4,115,413	-\$1,308,228
Northern Mariana Islands	\$963,016	\$963,016	\$810,866	-\$128,100
Puerto Rico	\$4,047,821	\$4,047,821	\$3,249,620	-\$676,777
Republic Of Palau	\$714,232	\$714,232	\$531,905	-\$155,585
Virgin Islands	\$410,325	\$410,325	\$356,882	-\$44,654
Subtotal States	\$330,086,504	\$330,086,504	\$269,908,116	-\$50,906,139
Subtotal Cities	\$22,233,055	\$22,233,055	\$18,173,393	-\$3,434,316
Subtotal Territories	\$17,447,441	\$17,447,441	\$13,460,492	-\$3,393,544
Total States/Cities/Territories	\$369,767,000	\$369,767,000	\$301,542,000	-\$57,734,000
Total Resources	\$369,767,000	\$369,767,000	\$301,542,000	-\$57,734,000

¹ This state table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). Includes vaccine direct assistance and immunization infrastructure/operations grant funding. For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <https://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/>

² Immunization infrastructure/operations grant funding only; vaccine direct assistance for Houston and San Antonio is included with Texas.

State Table: Vaccines for Children^{1,2,3}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$71,881,128	\$67,816,466	\$77,083,203	\$9,266,737
Alaska	\$12,489,790	\$12,570,044	\$14,536,854	\$1,966,809
Arizona	\$110,270,907	\$104,196,280	\$118,504,536	\$14,308,257
Arkansas	\$47,073,462	\$44,538,160	\$50,679,455	\$6,141,295
California	\$541,168,247	\$511,121,824	\$581,206,716	\$70,084,892
Colorado	\$57,596,331	\$54,912,923	\$62,667,531	\$7,754,608
Connecticut	\$36,645,934	\$36,150,292	\$41,780,228	\$5,629,936
Delaware	\$12,581,826	\$12,464,830	\$14,428,329	\$1,963,499
District of Columbia (D.C.)	\$11,612,412	\$11,569,336	\$13,418,833	\$1,849,497
Florida	\$307,765,207	\$288,501,358	\$327,108,874	\$38,607,515
Georgia	\$154,789,564	\$146,121,822	\$166,125,820	\$20,003,997
Hawaii	\$18,205,509	\$18,340,942	\$21,357,105	\$3,016,163
Idaho	\$25,283,370	\$24,187,970	\$27,639,472	\$3,451,501
Illinois	\$96,527,831	\$92,278,766	\$105,417,552	\$13,138,785
Indiana	\$83,295,606	\$78,900,802	\$89,820,191	\$10,919,389
Iowa	\$39,552,471	\$38,045,293	\$43,563,287	\$5,517,994
Kansas	\$30,693,764	\$29,162,128	\$33,236,278	\$4,074,150
Kentucky	\$70,176,627	\$66,104,334	\$75,091,581	\$8,987,247
Louisiana	\$87,154,856	\$81,997,801	\$93,102,212	\$11,104,411
Maine	\$16,113,974	\$16,244,639	\$18,920,490	\$2,675,851
Maryland	\$79,019,494	\$74,776,601	\$85,093,088	\$10,316,487
Massachusetts	\$62,226,996	\$60,344,971	\$69,307,307	\$8,962,336
Michigan	\$103,609,453	\$99,316,186	\$113,572,554	\$14,256,367
Minnesota	\$53,851,682	\$51,637,241	\$59,056,852	\$7,419,611
Mississippi	\$48,966,094	\$46,397,111	\$52,824,529	\$6,427,418
Missouri	\$73,644,135	\$69,722,058	\$79,355,249	\$9,633,192
Montana	\$11,954,616	\$11,726,182	\$13,524,436	\$1,798,254
Nebraska	\$23,687,049	\$22,775,679	\$26,075,247	\$3,299,568
Nevada	\$40,413,768	\$38,622,724	\$44,116,669	\$5,493,946
New Hampshire	\$12,122,553	\$12,097,107	\$14,039,069	\$1,941,962
New Jersey	\$89,039,983	\$85,425,927	\$97,720,944	\$12,295,016
New Mexico	\$35,229,925	\$33,928,688	\$38,867,323	\$4,938,635
New York	\$123,213,494	\$119,529,489	\$137,299,925	\$17,770,436
North Carolina	\$140,361,547	\$132,218,244	\$150,194,815	\$17,976,571
North Dakota	\$8,579,916	\$8,538,356	\$9,899,279	\$1,360,924
Ohio	\$140,474,889	\$131,554,833	\$149,103,506	\$17,548,673
Oklahoma	\$67,186,550	\$64,090,443	\$73,155,844	\$9,065,401
Oregon	\$40,383,386	\$39,182,336	\$45,010,289	\$5,827,953
Pennsylvania	\$106,961,522	\$102,537,433	\$117,259,676	\$14,722,243
Rhode Island	\$13,409,441	\$13,468,150	\$15,666,156	\$2,198,006
South Carolina	\$73,139,843	\$69,384,998	\$79,032,861	\$9,647,862
South Dakota	\$11,655,385	\$11,448,007	\$13,210,060	\$1,762,053
Tennessee	\$96,337,074	\$90,819,908	\$103,199,468	\$12,379,561
Texas	\$515,905,454	\$483,859,476	\$548,718,350	\$64,858,874
Utah	\$29,424,987	\$28,448,813	\$32,637,258	\$4,188,445
Vermont	\$7,890,074	\$8,312,901	\$9,829,243	\$1,516,342
Virginia	\$76,731,894	\$72,060,944	\$81,762,324	\$9,701,380
Washington	\$101,133,792	\$97,575,703	\$111,854,807	\$14,279,104
West Virginia	\$24,275,005	\$23,414,379	\$26,837,991	\$3,423,612
Wisconsin	\$49,076,703	\$47,061,925	\$53,825,548	\$6,763,623

CDC FY 2020 Congressional Justification

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wyoming	\$6,148,121	\$6,227,678	\$7,265,683	\$1,038,006
Cities				
Chicago	\$48,995,998	\$47,490,874	\$54,534,232	\$7,043,358
Houston ²	\$909,041	\$2,013,661	\$2,794,908	\$781,247
New York City	\$154,680,293	\$147,141,048	\$167,775,652	\$20,634,604
Philadelphia	\$31,421,034	\$30,767,641	\$35,463,662	\$4,696,022
San Antonio ²	\$633,838	\$1,404,046	\$1,948,778	\$544,732
Territories				
American Samoa	\$1,413,653	\$1,399,528	\$1,615,567	\$216,038
Guam	\$3,144,827	\$3,391,549	\$4,026,142	\$634,593
Northern Mariana Islands	\$3,751,115	\$3,664,355	\$4,213,797	\$549,442
Puerto Rico	\$44,881,066	\$43,419,650	\$49,823,965	\$6,404,316
Virgin Islands	\$2,235,494	\$3,258,147	\$4,206,399	\$948,252
Subtotal States	\$4,096,933,642	\$3,891,731,000	\$4,435,005,000	\$543,275,000
Subtotal Cities	\$236,640,203	\$228,817,000	\$262,517,000	\$33,700,000
Subtotal Territories	\$55,426,155	\$55,133,000	\$63,886,000	\$8,752,000
Total States/Cities/Territories	\$4,389,000,000	\$4,175,681,000	\$4,761,408,000	\$585,727,000
Total Resources³	\$4,389,000,000	\$4,175,681,000	\$4,761,408,000	\$585,727,000

¹ This state table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). Includes vaccine direct assistance and immunization infrastructure/operations grant funding. For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

² Immunization infrastructure/operations grant funding only; vaccine direct assistance for Houston and San Antonio is included with Texas.

³ Total resources are based on the OMB-approved FY 2020 VFC PB 10 Year Table.

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HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS AND TUBERCULOSIS

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$1,116.245	\$1,125.056	\$1,318.056	+\$193.000
FTEs	1,088	1,088	1,088	0
-Domestic HIV/AIDS Prevention and Research	\$786.101	\$788.712	\$928.712	+\$140.000
-Viral Hepatitis	\$38.862	\$39.000	\$39.000	\$0.000
-Sexually Transmitted Infections (STIs)	\$156.752	\$157.310	\$157.310	\$0.000
-Tuberculosis (TB) ¹	\$134.530	\$135.034	\$135.034	\$0.000
-Infectious Diseases and the Opioid Epidemic	N/A	\$5.000	\$58.000	+\$53.000

¹ FY 2018 and FY 2019 amounts are comparably adjusted to reflect proposed \$7.222 million transfer from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to Global Tuberculosis in the Global Health account.

Enabling Legislation Citation: PHS A § 301, PHS A § 306(a-l), PHS A § 306(n)*, PHS A § 307, PHS A § 308(d), PHS A § 310, PHS A § 311, PHS A § 317, PHS A § 317E(a-f), PHS A § 317E(g), PHS A § 317N(a-b), PHS A § 317N(c)*, PHS A § 317P(a-c), PHS A § 318A(a-d)*, PHS A § 318A(e)*, PHS A § 318A(f)*, PHS A § 318B*, PHS A § 322, PHS A § 325, PHS A § 327, PHS A § 352, PHS A § 2315, PHS A § 2320, PHS A § 2341, PHS A § 2521, PHS A § 2522, PHS A § 2524, Title II of Pub. L. 103-333

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with*

Allocation Methods: Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Formula Grants/Cooperative Agreements, Contracts, and Other

CDC envisions a future free of Human Immunodeficiency Virus (HIV), viral hepatitis, sexually transmitted infections (STIs), and tuberculosis (TB). In working toward that future, CDC prioritizes cost-effective, scalable programs, policies, and research to achieve the greatest reduction in the incidence of these conditions—all of which have significant personal, societal, and economic costs.

While progress has been made in some areas, in recent years major increases in infectious diseases have occurred as a result of the opioid crisis, including a tripling of the number of hepatitis C infections. CDC works to stop the spread of infectious diseases like HIV and hepatitis C among people who inject drugs. CDC also reduces health disparities associated with these diseases, helps adolescents avoid infection, and provides technical assistance to state and local health departments and community-based organizations on the most effective strategies for engaging people who inject drugs into treatment for drug use and infectious diseases. Through targeted program investments, CDC saves lives and money:

- From 2008-2014, approximately 33,000 HIV infections were prevented through government investments in prevention and care, saving \$14.9 billion in lifetime medical costs.⁸
- From 2002-2016, CDC’s STI program prevented an estimated 5.7 million cases of gonorrhea, syphilis, and chlamydia, and 3,300 STI-attributable HIV infections, averting \$2.4 billion in lifetime healthcare costs.⁹

⁸ Farnham PG et al. Updates of Lifetime Costs of Care and Quality of Life Estimates for HIV-Infected Persons in the United States: Late Versus Early Diagnosis and Entry Into Care. *J Acquir Immune Defic Syndr* 2013; 64: 183-189. Estimates are updated to 2017 dollars.

⁹ Chesson HW, Ludovic JA, Berruti AA, Gift TL. “Methods for sexually transmitted disease prevention programs to estimate the health and medical cost impact of changes in their budget.” *Sex Transm Dis* 2018; 45(1):1-7.

- Each case of multidrug-resistant TB prevented saves the U.S. healthcare system more than \$294,000.^{10,11}

CDC's FY 2020 request of **\$1,318,056,000** for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections and Tuberculosis is \$193,000,000 above the FY 2019 Enacted level. At the proposed FY 2020 funding level, CDC will employ an intensive strategic approach to diagnose, refer for treatment, and help protect Americans from HIV, creating a pathway to control of the HIV/AIDS epidemic in America. In addition, CDC will scale up approaches to target the infectious disease consequences of the opioid epidemic.

Ending the HIV Epidemic: A Plan for America

In FY 2020, CDC is requesting **\$140,000,000** in new resources to undertake the *Ending the HIV Epidemic: A Plan for America*. HIV has cost America too much for too long, with over half a million people losing their lives to HIV since 1987. Based on 2016 data, the U.S. government spends approximately \$20 billion per year in direct health expenditures for HIV prevention and care in the United States.¹² However, with proven models of effective care and prevention, biomedical advancements in antiretroviral therapy, and pre-exposure prophylaxis (PrEP), we have the tools to address this threat to America's health. The time to act is now. With these new investments, CDC will focus on areas of the country that constitute the majority of new HIV infections annually to diagnose all people with HIV as early as possible after infection, link people to effective treatment and protection strategies, and respond rapidly to clusters and outbreaks of new HIV infections.

Infectious Diseases and the Opioid Epidemic

CDC's FY 2020 request of **\$58,000,000** for the Infectious Diseases and the Opioid Epidemic program is \$53,000,000 above the FY 2019 Enacted level. This increase will expand activities begun in FY 2019 to target the infectious disease consequences of the opioid epidemic. The United States is experiencing a massive increase in drug use due to the growing opioid crisis, including increasing injection drug use. As a result, unsafe, nonsterile injection practices are increasing nationally, making many communities susceptible to infectious disease outbreaks. For example, injection opioid use has led to more hepatitis B and hepatitis C infections with a 250% increase in acute HCV cases since 2010.¹³ In 2017 and 2018, multiple states experienced hepatitis A outbreaks, at the highest incidence rate seen in last 15 years,¹⁴ with over 10,000 cases nationwide.¹⁵ We can prevent and help treat infections and reduce overdose deaths through community-based programs that provide comprehensive preventive services and ensure people are linked to care. CDC will provide resources to state and local jurisdictions to address identified infectious disease vulnerabilities. Funded activities will focus on screening and linking people to treatment in high-impact settings such as healthcare systems, substance use treatment, permissible syringe services programs and correctional facilities. Nationally, CDC will also ensure that evidence-based and comprehensive preventive services are provided for people who use drugs. These investments will be complemented by increased active surveillance capacity to monitor infectious disease clusters across the nation to guide a faster and more targeted response. With these investments, CDC will reduce new infections, prevent morbidity and mortality of infectious diseases, and reduce overdose and overdose deaths.

¹⁰ <https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/costly-burden-dr-tb-508.pdf>

¹¹ Marks SM, Flood J, Seaworth B, et al. Treatment Practices, Outcomes, and Costs of Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis, United States, 2005–2007. *Emerging Infectious Diseases*. 2014;20(5):812-821. doi:10.3201/eid2005.131037.

¹² <https://www.kff.org/global-health-policy/fact-sheet/u-s-federal-funding-for-hiv-aids-trends-over-time/>

¹³ <https://www.cdc.gov/hepatitis/statistics/2016surveillance/commentary.htm>

¹⁴ <https://www.cdc.gov/hepatitis/statistics/2016surveillance/index.htm>

¹⁵ <https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS AND TUBERCULOSIS

BY THE NUMBERS...

- **319,000 and \$14.5 billion**— TB cases prevented and costs to society averted by CDC-funded U.S. TB control efforts between 1995 and 2014.¹
- **4,000**—Patients’ M. tuberculosis lab samples that have undergone whole genome sequencing by the CDC-funded National TB Molecular Surveillance Center since its opening in March 2018, in order identify new antibiotic resistant TB strains as they emerge and detect potential TB outbreaks.
- **130**—Patients’ M. tuberculosis samples tested by CDC’s Molecular Detection of Drug Resistance (MDDR) service in FY 18, to rapidly identify multidrug-resistant TB and help clinicians prescribe the most effective treatment.
- **>19,500**—Registered users of the CDC-supported STD Curriculum Center. These users have been awarded close to 39,000 continuing nursing education hours and more than 10,000 continuing medical education credits.
- **72%**—Potential cases of congenital syphilis prevented by CDC-funded U.S. STD public health programs in 2017.²
- **>15,000**—Unique gonorrhea isolates contained in CDC’s gonorrhea specimen bank. CDC shared ~1,000 in FY18. CDC’s syphilis serum bank contains syphilis serum from over 500 patients; since the launch of the website for CDC’s active sharing program in 2018, we have provided 150 vials to partners.
- **~3 million**—CDC-funded HIV tests conducted in 2016 by the 61 CDC-funded states and territories; 11,710 persons were newly diagnosed as HIV-positive. This represents about 1 in 3 new U.S. HIV diagnoses.
- **54**—Molecular clusters of HIV infections addressed in 2018 through collaboration with state health departments and identified with CDC analysis. A CDC-developed tool that allows health departments to identify molecular clusters of HIV infections is currently in use by 38 health departments.
- **77%**—Increase in the number of school districts between 2014 and 2018 that have a system in place to refer students to youth friendly health services, helping improve access to sexual health services for adolescents.
- **194,508**—Lab investigation tests CDC conducted from 2013 to 2018 for outbreak investigations and surveillance.
- **4,988**—People treated with curative therapies for hepatitis C between 2015 and 2018 as part of a three-site CDC-supported demonstration model for test and cure strategies; as part of this demonstration, 300,963 tests were performed, 15,736 people were diagnosed with hepatitis C, and 342 providers were trained.
- **19**—States used CDC “Integrated Human Immunodeficiency Virus (HIV) Surveillance and Prevention Programs for Health Departments” funds to support syringe services programs (SSPs) in 2018. CDC supports state and local communities who wish to use federal funds to implement SSPs, after consulting with CDC and in accordance with state and local law. SSPs are community-based programs that address drug use and infectious diseases. People who inject drugs who used SSPs are over three times more likely to stop injecting drugs compared to those who don’t. SSPs are associated with about a 50% reduction in HIV transmission related to injection drug use. The magnitude of that effect may be even greater with referral to medication-assisted treatment (MAT). Those that offer or provide referrals to MAT may help cut hepatitis C spread by up to 74%.^{3, 4, 5}

*References:

¹ Castro, K. G., et al. "Estimating tuberculosis cases and their economic costs averted in the United States over the past two decades." *The International Journal of Tuberculosis and Lung Disease* 20.7 (2016): 926-933.2 Kidd S, Bowen VB, Torrone EA, Bolan G. Use of National Syphilis Surveillance Data to Develop a Congenital Syphilis Prevention Cascade and Estimate the Number of Potential Congenital Syphilis Cases Averted. *Sex Transm Dis.* 2018 Sep;45(9S Suppl 1):S23-S28. doi: 10.1097/OLQ.0000000000000838. <https://www.ncbi.nlm.nih.gov/pubmed/29543623>

² Kidd S, Bowen VB, Torrone EA, Bolan G. Use of National Syphilis Surveillance Data to Develop a Congenital Syphilis Prevention Cascade and Estimate the Number of Potential Congenital Syphilis Cases Averted. *Sex Transm Dis.* 2018 Sep;45(9S Suppl 1):S23-S28. doi: 10.1097/OLQ.0000000000000838.

³ Hagan H, McGough JP, Thiede H, Hopkins S, Duchin J, Alexander ER. Reduced injection frequency and increased entry and retention in drug treatment associated with needle-exchange participation in Seattle drug injectors. *J Subst Abuse Treat* 2000;19(3):247-52.

⁴ Aspinall EJ, Nambiar D, Goldberg DJ, Hickman M, Weir A, Van Velzen E, Palmateer N, Doyle JS, Hellard ME, Hutchinson SJ. Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: a systematic review and meta-analysis. *International Journal of Epidemiology* 2014; 43(1): 235-248

⁵ Platt L, Minozzi S, Reed J, et al. Needle and syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs: findings from a Cochrane Review and meta-analysis. *Addiction (Abingdon, England).* 2018;113(3):545-563. doi:10.1111/add.14012.

*Unless otherwise noted, all information and calculations are from CDC program data.

HIV, Viral Hepatitis, Sexually Transmitted Infections, and TB Funding History¹	
Fiscal Year	Dollars (in millions)
2016	\$1,117.609
2017	\$1,121.017
2018 Final	\$1,116.245
2019 Enacted	\$1,125.056
2020 President's Budget	\$1,318.056

¹ FY 2018 and FY 2019 amounts are comparably adjusted to reflect proposed \$7.222 million transfer from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to Global Tuberculosis in the Global Health account.

Domestic HIV/AIDS Prevention and Research Budget Request

Over the past decade, major developments in HIV science, prevention, and treatment have produced a once-in-a-generation opportunity to eliminate new HIV infections in our nation. CDC is America's lead agency in the fight to prevent new HIV infections. The estimated number of people with HIV in the United States is 1.1 million, with an estimated 40,000 new HIV infections each year. Each year, approximately 15,000 people with HIV die from all causes, and 6,000 die with HIV as the underlying cause of death.

HHS is proposing a once-in-a-generation opportunity to eliminate new HIV infections in our nation. *Ending the HIV Epidemic: A Plan for America* will work to reduce new infections by 75 percent in the next five years and by 90 percent in the next ten years, with a goal of averting more than 250,000 HIV infections in that span. The multi-year program will infuse 48 counties, Washington, D.C., San Juan, Puerto Rico, as well as 7 states that have a substantial rural HIV burden with the additional expertise, technology, and resources needed to end the HIV/AIDS epidemic in the United States. This Initiative will be coordinated across HHS, with efforts from CDC, the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), and the National Institutes of Health (NIH). HHS is focused on four strategies – diagnose, treat, protect, and respond.

Sustained investments and improving efficiency in HIV prevention and treatment have yielded major successes—saving lives and money. While the estimated lifetime cost of a single person with HIV infection is greater than \$470,000, between 1991 and 2006 HIV prevention efforts averted approximately 350,000 infections, saving the United States more than \$125 billion in direct medical costs.¹⁶ The lifetime medical costs of the large number of new cases remain substantial, highlighting the importance of continuing to improve prevention efforts. Currently, populations such as gay, transgender, bisexual, and other men who have sex with men (MSM), Blacks or African Americans, Hispanics or Latinos, and people who live in the southern United States, are disproportionately affected.

CDC invests in a high-impact HIV prevention approach. This combination of scientifically proven, cost-effective, and scalable HIV prevention interventions, targeted to the most heavily-affected populations and geographic areas, has yielded major successes with HIV incidence declining 8% between 2010 and 2015. The percentage of persons with diagnosed HIV infection (i.e., who know their HIV positive status) at year-end 2015, compared with 2010, increased from 83.1% to 85.5% in the United States due to sustained testing efforts. People with HIV are living longer, healthier lives due to better, life-prolonging treatments. More youth are delaying their first sexual experience—reducing their risk for HIV and other sexually transmitted infections. The percentage of U.S. high school students who ever had sex decreased significantly from 2007 (47.8%) through 2017 (39.5%).

CDC is committed to HIV prevention, surveillance, and implementation of science programs and a strong dedication to serving people in the nation at highest risk for and with HIV. To sustain the progress of HIV prevention efforts reach our goals of HIV elimination in the United States, CDC will continue employing strategic practices in the right places targeted to the right people:

- Implement highly-effective biomedical, risk reduction, and HIV prevention education initiatives.
- Increase knowledge of HIV status through HIV testing.
- Reduce transmission of HIV by linking persons infected with HIV to care, ensuring that they remain in care, and achieve viral suppression.
- Use robust surveillance data to inform prevention efforts, as well as rapidly detect and interrupt active HIV transmission.

CDC's HIV prevention efforts aim to reduce the number of new HIV infections, increase access to care, improve health outcomes for people with HIV, and reduce HIV-related health disparities. The declines in annual HIV infections reflect the success of CDC's national HIV prevention and treatment efforts and commitment to high-

¹⁶ JAIDS Journal of Acquired Immune Deficiency Syndromes: 15 August 2010 - Volume 54 - Issue 5 - pp 565-567

impact prevention. Of CDC’s total funds that support programs focused on domestic HIV prevention, CDC spends approximately 80% extramurally to support state and local health departments, community-based organizations, and other partners:

- Supporting, managing, and providing guidance and resources to state and local health departments, community-based organizations, and other partners to implement HIV prevention interventions.
- Collaborating with national, state, and local partners to monitor HIV trends and characterize related risk factors to guide public health action at federal, state, and local levels.
- Conducting epidemiologic, behavioral, biomedical, and bio-behavioral research so CDC can better understand individual, social, and structural HIV risk factors; the current and changing context around HIV transmission; and the most effective and impactful prevention strategies to shape public health action at federal, state, and local levels.
- Providing science-based and culturally-appropriate training and capacity building support for partner organizations to strengthen and sustain the capabilities of the HIV prevention workforce.
- Monitoring and evaluating the effectiveness of HIV prevention programs at the federal, state, and local levels to ensure HIV resources have the greatest impact.
- Developing, producing, and disseminating scientific communication on HIV for public and private providers, persons at risk of HIV infection, and the public to ensure these audiences have the tools needed to protect themselves or their patients from HIV infection.
- Collaborating with state, local, and territorial education agencies to monitor youth health behavior, implement HIV and STI prevention programs, and provide expert guidance to schools on quality health education, school-based and school-linked health services, and safe and supportive school environments.

Key HIV Prevention Activities

CDC leads America’s fight against HIV/AIDS by conducting and supporting comprehensive domestic HIV prevention work.

Preventing New HIV Infections

HIV prevention in the United States has a substantial impact on public health. Recent estimates show annual HIV infections in the U.S. declined by 15%, between 2008 and 2015—preventing 34,000 cases at estimated cost savings of over \$16 billion for medical care¹⁷. Targeted investments in HIV prevention and treatment save lives and money across America. CDC invests surveillance and prevention resources in the places and among populations most affected by HIV. CDC awards nearly \$400 million per year to health departments, focusing on surveillance and prevention efforts in communities and local areas where HIV is most heavily concentrated. CDC also supports capacity-building assistance and ensures that on-the-ground prevention programs and their staff are best able to provide HIV prevention services in their communities. With CDC funding, health departments support services for persons at risk for HIV and activities that help those with HIV stay in HIV care or get re-engaged if they have fallen out of care in areas with a high burden of disease.

Improving Uptake of Bio-Medical Interventions

CDC is leading multiple efforts to improve awareness and delivery of bio-medical interventions for prevention in community settings. Bio-medical interventions, when used with other prevention strategies, have the potential to help at-risk individuals protect themselves and reduce the rate of new HIV infections in the United States. When taken as directed, these interventions, such as pre-exposure prophylaxis (PrEP), can reduce the risk of HIV infection by more than 90%. CDC currently provides funding for a free national service for clinicians

¹⁷ Farnham PG et al. Updates of Lifetime Costs of Care and Quality of Life Estimates for HIV-Infected Persons in the United States: Late Versus Early Diagnosis and Entry Into Care. *J Acquir Immune Defic Syndr* 2013; 64: 183-189. Estimates are updated to 2017 dollars.

seeking advice and consultation on prescribing these medications. This service provides a valuable resource for primary care providers who care for uninfected patients in communities most affected by HIV.

Conducting HIV Prevention Education and Risk Reduction

Prevention education and risk reduction programs include a variety of methods to support and sustain positive health behaviors to limit and eliminate HIV-related health risks. CDC assesses evidence on behavioral interventions to determine which ones have the greatest potential to reduce HIV transmission. Through funding to health departments and community-based organizations, CDC prioritizes behavioral interventions that help HIV-positive individuals remain in care and avoid transmission. In addition, CDC supports efforts to link individuals to other services they need to remain in care or avoid infection, including drug abuse treatment, mental health services, housing, and transportation. CDC targets these efforts to identify individuals at highest risk of acquiring or transmitting HIV. It is also important to equip Americans with the information needed to protect themselves and their partners. CDC supports efforts to provide the latest science and education tools to the public and clinical community to assist them in navigating the changing HIV prevention environment and make informed choices about the prevention options that are right for them or their patients.

Elimination of Mother to Child (Perinatal) Transmission

To achieve national goals of reducing perinatal transmission to less than 1 out of 100,000 live births in the United States, CDC continues to invest in eliminating mother-to-child transmission of HIV, primarily through its efforts with health departments, in jurisdictions with recent perinatal HIV cases or a high number of HIV infected women of childbearing age. CDC continues to increase screening in these women, track women infected with HIV and their infants, and conduct real-time investigations of perinatal acquisition cases to understand and address where the system failed. In addition, CDC continues to work with the Health Resources & Services Administration (HRSA) to strengthen partnerships with other federal agencies and organizations to ensure women of childbearing age with HIV have access to the care they need to stay healthy and keep their babies free of HIV.

Supporting Syringe Services Programs

The United States is experiencing a prescription opioid and heroin use crisis, which is increasing unsafe, nonsterile injection practices nationally, making many communities susceptible to outbreaks of HIV and viral hepatitis among people who inject drugs (PWID). While CDC observed a steady decline since the mid-1990s in diagnoses of HIV infection attributed to injection drug use, recent data (2010-2015) show progress is slowing. In 2016, 6% of new HIV diagnoses in the United States were among PWID. The cost of an HIV outbreak, similar to the one in Indiana in 2015 associated with injection drug use (227 cases), is estimated at over \$100 million¹⁸. CDC supports state and local communities who wish to use federal funds to implement syringe services programs (SSPs), after consulting with CDC and in accordance with state and local law. SSPs are community-based programs that address drug use and infectious diseases. Based on existing evidence, SSPs, when part of a comprehensive HIV prevention strategy, can play a critical role in preventing HIV among PWID, can facilitate entry into substance use disorder treatment and medical services, and do not increase illegal drug use. As of December 2018, 35 states, 1 territory, 1 tribal nation, 3 counties, and 2 city health departments have adequately demonstrated need and received CDC concurrence under federal law. CDC has also identified capacity building assistance providers with expertise in the implementation of SSPs to support SSP-related technical assistance requests.

¹⁸ Farnham PG et al. Updates of Lifetime Costs of Care and Quality of Life Estimates for HIV-Infected Persons in the United States: Late Versus Early Diagnosis and Entry Into Care. *J Acquir Immune Defic Syndr* 2013; 64: 183-189.

Preventing HIV among Youth

Experiences and behaviors during the adolescent years not only present immediate risk for HIV and STIs, but can have serious health consequences into adulthood, with 21% of all new HIV diagnoses occurring among people aged 13–24 years. Delaying and decreasing adolescent risk behaviors, working with schools to promote knowledge of risk and protective factors associated health outcomes, and promoting access to youth-friendly health services and safe and supportive environments is important. CDC’s adolescent and school health work is unique, providing funding, expert guidance, and technical assistance to education agencies to support schools to implement HIV and other STI prevention programs. CDC promotes environments where adolescents can establish healthy behaviors for a lifetime, connect to health services, and avoid risky behaviors that put them at increased risks for HIV, STIs, and unintended pregnancy. CDC’s school-based HIV prevention program focuses on three areas: national surveillance, supporting schools to implement primary prevention strategies, and building the evidence for what works in prevention. CDC funding is effective at increasing the number of schools implementing evidence-based prevention programs. For example, since CDC funding began in 2013, local agencies increased the proportion of schools that implemented quality health education programs by 32% in middle schools and by 10% in high schools. CDC-supported schools also saw a 96% increase in the establishment of student-led clubs to create a safe and supportive environment and a 25% increase in written procedures for making referrals to youth-friendly health services.

Increasing Knowledge of HIV Status

CDC tests people at risk for HIV, primarily through health department and community-based organizations programs. Of the estimated 1.1 million people with HIV in the United States, approximately one in seven are unaware of their HIV infection. In 2016, the 61 CDC-funded jurisdictions conducted approximately 3 million CDC-funded HIV tests; 11,710 persons were newly diagnosed as HIV-positive, which represents about 1 of 3 new HIV diagnoses in the United States, and 84.9% of these individuals were linked to HIV medical care within 90 days. In addition, CDC partners with state and local organizations, especially in states with low diagnosis rates (i.e., lower rates of persons diagnosed with HIV among all persons with HIV) to focus testing efforts to more effectively diagnose HIV in persons previously unaware of their infection. CDC is also working with the healthcare sector to increase implementation of the U.S. Preventive Services Task Force (USPSTF) recommendation to screen for HIV infection in all adolescents and adults aged 15 to 65 years. CDC is also investing in improved diagnostic testing methods and technologies to make testing easy, quick, and able to detect HIV very early after infection.

Preventing Transmission of HIV

Through research, scientific advancement, and best practices, CDC knows now better than ever before how to prevent HIV and preserve the health of those infected. In addition to evidence that HIV testing can lead to earlier treatment and longer, healthier lives for those infected, recent data show that people with HIV who take HIV medicine as prescribed and get and keep an undetectable viral load have effectively no risk of transmitting HIV to their HIV-negative sexual partners. Persons who are HIV infected but undiagnosed, and persons who are diagnosed with HIV but are not retained in medical care, accounted for approximately 87% of HIV transmissions.¹⁹ For this reason, CDC focuses specifically on diagnosing HIV infection early; rapidly linking people with HIV to ongoing care, treatment, risk reduction programs, and related support and social services; and helping them receive regular care, adhere to their medication regimens, and achieve viral suppression.

Achieving Viral Suppression

Improving health outcomes for persons with HIV and preventing HIV transmission are cornerstones of CDC’s prevention efforts. Evidence shows that diagnosing HIV and ensuring people with HIV receive early, ongoing care and treatment to achieve viral suppression could avert the majority of HIV infections in the United States. Since

¹⁹ Skarbinski JAMA Intern Med 2015;175(4):588-596

many persons with HIV fall out of care, and too many of them do not achieve ongoing viral suppression, CDC supports the use of cutting-edge disease surveillance tools to identify and follow-up with them to re-engage them in medical care. CDC examines new approaches, including studies of clinical, behavioral, and structural interventions to help people with HIV stay in care and adhere to their medications. Additionally, CDC developed guidelines and educational materials for healthcare providers related to HIV testing, care, treatment, and prevention. CDC also works with states to improve the completeness of their laboratory data and reporting of viral suppression information. In addition, CDC will work with states to encourage the implementation and uptake of strategies, such as Data to Care, and advancing efforts to use state and local public health information to identify persons with HIV who have fallen out of HIV medical care and re-engage them in care.

Rapidly Detecting and Interrupting Active HIV Transmission

CDC uses the national HIV surveillance system to target HIV prevention efforts near real-time. Ensuring that people with HIV receive the care they need to achieve viral suppression is of highest importance to reduce transmission and improve health outcomes. Targeting this work to networks with active transmission can improve success and save time and money. CDC will continue to use surveillance data, including HIV ribonucleic acid (RNA) sequence data, to identify clusters of recent and rapid linked transmissions. These networks can include persons with HIV who are not in care or virally suppressed and persons at high risk for exposure to HIV, who can then be connected to intensive prevention interventions and medical care. CDC develops surveillance reports and conducts analyses to guide national, state, and local prevention and testing programs and health education efforts directed towards affected populations. These reports help CDC to determine populations most affected by HIV infection and to inform providers on how to improve performance and care. CDC's surveillance system also informs other federal programs and helps CDC target resources to communities that need those resources most.

Reducing HIV-Related Health Disparities

Although we have made advances in HIV/AIDS prevention, including declines in new infections, HIV continues to be a major public health problem in the United States. CDC's analysis of HIV diagnoses data from 2012 to 2016 reveals signs of an encouraging decrease in HIV diagnoses among several key populations, including heterosexuals, people who inject drugs (PWID), and Blacks/African Americans, with particularly steep declines among African American women. Diagnoses continue to be highest among African Americans compared to other racial/ethnic groups and higher in the South compared to other regions. Diagnoses among persons aged 25-34 years, specifically men who have sex with men (MSM) in this age group, as well as American Indians/Alaskan Natives and Asians increased in the same time period. Annual diagnoses also continued to increase among Hispanic/Latino MSM and white PWID. HIV touches every corner of the United States, but the rate of HIV diagnoses (number of diagnoses per 100,000 people) is highest in the South and Northeast, compared with the West and Midwest. In 2015, Southern states accounted for an estimated 51% of all people with an HIV diagnosis in the United States, despite having only about one-third (37%) of the overall U.S. population. In addition, people with HIV in the South are less likely to be aware of their infection than those living in other U.S. regions.

Budget Request

CDC's FY 2020 request of **\$928,712,000** for Domestic HIV/AIDS Prevention and Research is \$140,000,000 above the FY 2019 Enacted level. This increase will support the Ending HIV Epidemic Initiative. Control of HIV infection in America is possible. Medical and technological advancement now afford us the unprecedented opportunity to "bend the curve" of the HIV/AIDS epidemic and see the numbers of people living with HIV begin to level off. Half of all new HIV diagnoses are concentrated in a relatively limited geographic area. In other areas, HIV infections are more dispersed. This initiative will focus on the 48 counties, Washington, D.C., and San Juan, Puerto Rico, where more than 50 percent of new HIV diagnoses in 2016 and 2017 occurred, as well as the seven states with the highest rural burden. The Initiative will be coordinated across HHS, with efforts from CDC, the Health

Resources and Services Administration (HRSA), the Indian Health Service (IHS), and the National Institutes of Health (NIH). HHS is focused on four strategies – diagnose, treat, protect, and respond.

CDC will leverage its HIV prevention infrastructure to plan and implement a targeted strategy, developing and deploying innovative solutions in data management and focused testing outreach. This is the first step of an effort to reduce new HIV diagnoses by 75% in five years and 90% in ten years. In addition to strategic testing approaches linked to immediate treatment and engagement with the clinical care system, this effort will seek to expand the use of pre-exposure prophylaxis by people at high risk, and develop approaches to better detect and respond to clusters of HIV cases.

As part of this Initiative, CDC will work with partners at the local, state, and federal level to bring HIV prevention information and resources into affected communities and advance U.S. HIV prevention. CDC will also support on the ground teams, as needed, to help tailor and ensure effective implementation of the Initiative.

Through CDC's core HIV Surveillance and Prevention awards, CDC will continue to invest nationwide in health departments; surveillance; improving program effectiveness and approaches; national, regional, local, community, and other organizations; and school health to implement key HIV prevention activities. In FY 2020, CDC will consider approaches that could be taken going forward to leverage the core HIV Surveillance and Prevention awards to further the goals of the new Initiative.

Investing in Health Departments to Prevent HIV

CDC investments in core HIV prevention programs at state and local health departments provide the foundation for HIV prevention and control in America. CDC directly funds health departments that serve communities affected by HIV by conducting HIV testing, providing critical prevention interventions, improving linkages to, retention in, and when needed, re-engagement in care, and with the goal of achieving greater rates of viral suppression. In 2018, CDC implemented a new integrated HIV surveillance and prevention program to prevent new HIV infections and achieve viral suppression among persons with HIV—enabling health departments to better match their resources to the geographic burden of HIV within their jurisdictions. This flagship HIV prevention program is a chief contributor to HIV prevention success in the United States, including increases in persons who know their HIV status as well as reductions in perinatal HIV infections and HIV diagnoses. CDC's support for state and local health departments encompasses not just funding, but program guidance and technical assistance, including assistance in seeking reimbursement for services possibly covered under health insurance policies (e.g., billing for testing for HIV and related co-infections in healthcare settings, counseling, and vaccination). CDC also assists health departments in monitoring and evaluating performance and holds programs accountable for implementing high-impact prevention strategies.

Investing in HIV Surveillance

CDC's surveillance activities, which take place in all 50 states, the District of Columbia, and U.S. territories, support identification and targeting of prevention efforts—including HIV testing—towards populations that have high rates of acquiring and transmitting HIV. CDC investments in HIV surveillance data provide important information on the number of people with HIV in the United States and national trend data. CDC also tracks how well states, cities, and local communities are doing in getting patients into care and keeping them in care and virally suppressed. High quality surveillance data assess the delivery of services to people with HIV across the entire continuum of care: HIV diagnosis, linkage to and retention in HIV medical care, starting and staying on antiretroviral therapy, and suppressing viral load. The integration of HIV surveillance and prevention programs will allow each jurisdiction to operate in unison and maximize the impact of federal HIV prevention funding by improving data collection and using it to drive public health action.

In addition, surveillance efforts serve as a resource for health information across CDC on youth in schools, and play a critical role in documenting public health trends and challenges. They also provide invaluable information

for state and local decision making. CDC monitors adolescent health risk behaviors and experiences and school-based HIV prevention activities such as health education, health services, and safe and supportive environments providing invaluable information for state and local decision making.

Investing in Efforts to Improve Program Effectiveness and Identifying Effective HIV Prevention Approaches

CDC investments support prevention research and demonstration projects in several domains that are crucial to successful HIV prevention programs in health departments and community-based organizations. These domains include epidemiological and laboratory science, outbreak investigation and response, social and behavioral science, and statistical and economic analyses. This work includes efforts to identify better strategies CDC grantees can use to link persons with HIV to care, to engage and retain them in HIV medical care, and promote adherence to their antiretroviral medication regimens. In addition, these investments support laboratory research, in collaboration with the National Institutes of Health (NIH), to identify new biomedical approaches to HIV prevention, as well as outbreak investigation and response efforts needed to interrupt active networks of transmission. Resources support providing public and clinical care providers with information on effective HIV prevention strategies, so they can best protect themselves or their patients from acquiring or transmitting HIV. Finally, CDC also examines how communities are using new biomedical and bio-behavioral interventions to improve HIV prevention and identifies related best practices to share nationally to maximize the impact of prevention efforts.

Investing in National, Regional, Local, Community, and Other Organizations

CDC invests in prevention across America at the community level. CDC formally partners with community-based organizations to expand the impact and reach of HIV prevention activities in communities disproportionately affected by HIV, and has since the late 1980s. Community-based organizations' access, history, credibility, and ability to serve the most affected communities make these organizations important partners in providing comprehensive, high-impact HIV prevention services to people with and at greatest risk for HIV infection. CDC partners with community-based organizations to provide HIV testing, linkage to and retention in HIV medical care, support services for persons with HIV and for HIV negative persons living in communities most affected by HIV, as well as other effective interventions. CDC targets resources to areas where the majority of HIV diagnoses are occurring in the United States.

Investing in School Health

CDC invests in school-based support for effective programs to prevent behaviors and experiences that contribute to HIV infection and other STIs among nearly 2 million adolescents, including sexual behaviors, substance use, and associated risk factors (e.g., mental health, violence). CDC's school-based programs build school capacity to implement health education, connect youth to health services, and build supportive environments. CDC prioritizes funding for jurisdictions with high rates of HIV infection and partners with nongovernmental organizations (NGOs) to help state and local agencies effectively implement their HIV/STI prevention efforts.

CDC also invests in organizations that provide professional development and capacity building support for state and local education agencies to strengthen and sustain the capabilities of the HIV prevention efforts. These investments will ensure that school health HIV prevention programs and their staff have the skills, information, and organizational support to best serve youth that are at the most risk for HIV, STIs, and unplanned pregnancy.

Viral Hepatitis Budget Request

Hepatitis is a dangerous inflammation of the liver, a vital organ that processes nutrients, filters blood, and fights infections. When the liver is inflamed or damaged, its function can be affected. Heavy alcohol use, toxins, some medications, and certain medical conditions can cause hepatitis. However, hepatitis is often caused by a virus. In the United States, the most common viral hepatitis types are hepatitis A, B, and C.

- The hepatitis A virus (HAV) transmits from person-to-person through the fecal-oral route or consumption of contaminated food or water. Hepatitis A is a self-limited disease that does not result in chronic infection. Most adults with it have symptoms, including fatigue, low appetite, stomach pain, nausea, and jaundice, that usually resolve within 2 months but can result in liver failure or death. Antibodies produced in response to HAV last for life and protect against reinfection. The best way to prevent HAV infection is to get vaccinated; the two-dose hepatitis A vaccine prevents over 95% of infections.
- The hepatitis B virus (HBV) is transmitted when blood, semen, or another body fluid from an infected person enters the body of someone who is not infected. This can happen through sexual contact; sharing needles, syringes, or other drug-injection equipment; or from mother to baby at birth. For some people, hepatitis B is a short-term illness, but for others it can become a long-term, chronic infection. Chronic hepatitis B can lead to serious health issues, like cirrhosis or liver cancer. The best way to prevent hepatitis B is by getting vaccinated; the three-dose vaccine provides greater than 95% protection. Although not curative for infected persons, hepatitis B therapy can suppress viral replication in those who need it, and lowers risk of liver cancer by 50%.
- The hepatitis C virus (HCV) is most commonly transmitted through blood, typically through injecting drugs, from mother to child at birth, or in healthcare settings with poor infection control. Hepatitis C is common and deadly, yet curable if persons are diagnosed early and receive treatment before they develop liver cancer and other severe consequences. While a HCV vaccine is not available, infection control in healthcare settings and syringe services programs can prevent transmission. Chronic hepatitis C is curable in greater than 95% of patients with 8-12 weeks of oral antiviral medication. Curing hepatitis C infection eliminates the risk of transmission to others and reduces the risk of liver cancer by over 70%.

Most recent estimates are that 4,000 people are infected with HAV each year, 847,000 Americans are living with chronic hepatitis B, and 2.4 million are living with hepatitis C. This represents nearly the combined populations of Boston and Los Angeles, with more than 60,000 new infections from HBV and HCV occurring each year.

Reported cases of acute HCV infection increased more than 3-fold from 2010 to 2016. Through CDC's implementation of effective hepatitis B vaccine-based strategies, the annual rate of new HBV infections has decreased more than 90% since 1992. However, in at least six states in 2015, increases in HBV transmission accompanied increases in HCV transmission, reflecting poor HBV vaccination coverage among at-risk adults.

CDC is uniquely positioned to invest in, and partner with, state and local health departments, universities, medical centers, community-based organizations, and others to defend and protect the United States against viral hepatitis disease threats by:

- Diagnosing and referring people who are living with viral hepatitis to treatment.
- Reducing the number of new infections, including those associated with injection drug use and other modes of transmission like perinatal (mother-to-child) transmission of HBV and HCV.
- Supporting state, local, and tribal hepatitis B and C elimination programs.

Diagnosing and referring people living with viral hepatitis to treatment

An early diagnosis, coupled with care and treatment of those infected, greatly reduces the risk of liver disease and mortality caused by viral hepatitis. Implementation of CDC's recommendations for HCV testing and linkage to curative treatment will save over 320,000 lives. Treating hepatitis C at all stages of the disease could save

approximately \$3.3 billion in healthcare costs. In FY 2018, CDC invested in a number of projects that focused on testing and linking people living with hepatitis B and hepatitis C to care and, in the case of those living with hepatitis C, cure.

Reducing the number of new infections

CDC found that the highest reported incidence of new cases of hepatitis C is among white persons aged 20-29 years (575% increase from 2005 to 2016), most often transmitted through injection drug use of prescription opioids or heroin. There have also been significant increases in HCV infection among those 30-39 years (450% increase from 2005 to 2016). New cases of hepatitis B are occurring in this same population. From 2001 through 2016, the incidence of hepatitis B cases reported in the United States was consistently highest among those aged 30–39 years and lowest among those aged 0–19 years. Epidemics of hepatitis C are occurring in many states, but are concentrated in tribal nations and in the non-urban communities of Appalachia, the mid-West, and New England. Additionally, the rates of new cases of HCV infection are beginning to increase in urban areas. In response to the urgent need to curb the epidemic of hepatitis B and C infections associated with injection drug use, CDC’s work in states with a substantial burden of viral hepatitis promotes:

- Improving viral hepatitis surveillance to detect new HBV and HCV infections, investigating transmission networks, and responding with interventions that protect affected communities, particularly in states most vulnerable to epidemics of hepatitis C.
- Training to support state and local health department staff in actively identifying networks of viral hepatitis transmission among persons who inject drugs and other high-risk populations to precisely target prevention interventions and prevent outbreaks.
- Providing technical assistance to states and jurisdictions that wish to effectively implement comprehensive community-based prevention services that support drug treatment and recovery and can reduce the transmission of viral hepatitis and other infectious disease among people who inject drugs. These programs provide a range of services, including vaccination, testing, linkage to care and treatment, and access to sterile syringes and injection equipment (syringe services programs (SSPs).

CDC supports state and local communities that wish to use federal funds to implement SSPs, after consulting with CDC and in accordance with state and local law. SSPs are community-based programs that address drug use and infectious diseases. SSPs play a critical role in preventing viral hepatitis among people who inject drugs, can facilitate entry into substance use disorder treatment and medical services, stopping use of drugs, and do not increase illegal drug use. As of December 2018, 35 states, 1 territory, 1 tribal nation, 3 counties, and 2 city health departments have adequately demonstrated need and received CDC concurrence under federal law.

Further, since March 2017, CDC has been assisting multiple state and local health departments with hepatitis A outbreaks among people who use drugs and/or persons experiencing homelessness, as well as their close contacts. Combined, these hepatitis A outbreaks comprise the largest increases in the infection seen in the United States for at least 15 years. To put these outbreaks in context, in the last five years, approximately 1,500 cases of hepatitis A each year were reported to CDC and most states diagnosed less than 30 cases per year. The majority of those cases were in people who had travelled out of the country. As of December 2018, more than 10,000 outbreak-associated hepatitis A cases have been reported to CDC, with more than 5,600 hospitalizations and 87 deaths associated with the multiple outbreaks across 14 states.

To respond to the hepatitis A outbreaks, CDC’s viral hepatitis program has implemented an incident command structure to build surge capacity staff to help affected states. CDC has provided on-the-ground assistance in several of the states affected by these outbreaks to support epidemiologic investigations, vaccination strategy development, and the establishment of state and local emergency response teams. CDC has provided assistance to every affected state, sharing best practices and educational resources with state health officials, community leaders, and providers. In addition, CDC is prioritizing and testing specimens and building states’ laboratory capacity. As part of CDC’s advanced molecular detection systems, CDC’s viral hepatitis laboratory has analyzed

the genetic structure of more than 2,700 HAV specimens obtained from persons diagnosed with hepatitis A in jurisdictions affiliated with the outbreaks.

Supporting state, local, and tribal hepatitis B and C elimination programs

CDC’s most recent data show that 12 states accounted for 60% of new cases of hepatitis B and hepatitis C reported nationally. Epidemics of hepatitis C are occurring in many states, but are concentrated in tribal nations and in the non-urban communities of Appalachia, the mid-West, and New England. The rates of new cases of HCV infection are beginning to also increase in urban areas. Currently, state and local health departments voluntarily report viral hepatitis cases to CDC. Collecting, verifying, and reporting the many cases of hepatitis B and C in the United States is beyond the capacity of many health departments; therefore, not all states report data to CDC or permit CDC to publish their data in national surveillance reports. CDC’s most recent data show that 36 states are reporting both acute and chronic hepatitis B and C to CDC.

CDC funds viral hepatitis surveillance and case investigation to collect more extensive and complete information about patients and disease transmission trends in a select number of jurisdictions. In FY 2018, CDC supported improved active surveillance of hepatitis B and C in 14 states, representing more than 70% of the cases reported in the United States in 2014. This support enabled jurisdictions to better utilize data to prioritize activities, surveillance, and prevention. CDC also supported six jurisdictions (Louisiana, Massachusetts, New Jersey, Tennessee, Washington, and West Virginia) to promote hepatitis B and C testing in venues likely to serve people who inject drugs, who have been difficult to reach, and link them to care and treatment.

Recently, CDC also supported the development and dissemination of a community-based plan to help communities (particularly those in non-urban areas) more effectively address the syndemics of HBV, HCV, HIV, and opioid abuse. The plan was developed in collaboration with local stakeholders in a four county area of southwestern Virginia, and was actively distributed to local health departments across the United States.

Budget Request

CDC’s FY 2020 request of **\$39,000,000** for Viral Hepatitis is level with the FY 2019 Enacted level. The FY 2020 Budget will protect and defend Americans at greatest risk of becoming infected with viral hepatitis and will help those living with viral hepatitis infection to lead healthier, more productive, and longer lives.

To increase the number of people with viral hepatitis being diagnosed and treated in the United States, in FY 2020, CDC will continue to support health departments to implement and evaluate programs to improve viral hepatitis vaccination, testing, and linkage to care and treatment, particularly in states where the burden of viral hepatitis is greatest. CDC will also strengthen surveillance to better track infections and stop outbreaks and increase the number of health systems and their providers who test, manage, and treat viral hepatitis.

Concerns about hepatitis B and C are increasing among pregnant women and their newborns. This is an emerging consequence of the increases in substance use among young adults. To prevent new infections, CDC is developing recommendations for HBV vaccination, testing, and treatment that protects the health of the mother and eliminates the risk of hepatitis B for her newborn. To improve detection, testing, and linkage to care, CDC will also develop recommendations on appropriate curative hepatitis C treatments for women of childbearing age, pregnant women, and children affected with hepatitis C at birth. Additionally, CDC will support work to detect, respond, and stop outbreaks of hepatitis A across the country. CDC will continue to work to mitigate the impact of America’s drug crisis and work to increase testing and linkage to care for persons who inject drugs.

In FY 2020, CDC will remain a major partner in the national effort to eliminate the public health threat of viral hepatitis and will continue to take action to prevent incidence, morbidity, and mortality associated with viral hepatitis. For example, building on the successes and progress of projects in the Cherokee Nation and other settings, in FY 2020 CDC will continue to assist state, local, and tribal development of viral hepatitis prevention programs that have goals and plans for eliminating viral hepatitis. The objectives of the programs are to identify

best practices that can assist other state and local jurisdictions with developing similar programs that will save lives and save money. CDC will also continue investing in expanded surveillance that will support elimination projects—enabling jurisdictions to better track trends and identify and respond to outbreaks swiftly—and evaluating high-impact strategies to prevent new HCV infections in high-risk areas.

Sexually Transmitted Infections Budget Request

Sexually transmitted infections (STIs) compromise Americans' health and cost billions of dollars in healthcare. Adverse outcomes associated with STIs include pelvic inflammatory disease, infertility, neurological conditions, birth defects, and increased risk of HIV infection. CDC's most recent data from 2016 show there were more cases of chlamydia, gonorrhea, and syphilis (including congenital syphilis in babies) than ever reported before. Every year, 20 million new STI cases cost the U.S. healthcare system \$16 billion each year in lifetime direct medical care costs. This includes 5,000 new STI-attributable HIV cases each year in the United States, costing \$2 billion. STIs disproportionately occur in young people: CDC estimates that youth ages 15-24 make up just over one quarter of the sexually active population, but account for half of the 20 million new STIs that occur in the United States each year.²⁰ However, increasing rates among men contributed to the overall increases across these STIs.

Although most syphilis is found in men, it is increasing in all populations, and the number of cases were higher than in any of the past 25 years. Congenital syphilis, passed from a pregnant woman to her baby, is rapidly increasing even though it is completely preventable. Pregnant women should access prenatal care early, and their healthcare provider should screen them for syphilis at the first visit and treat them immediately, if infected. Some women should be tested more than once during pregnancy. Congenital syphilis is especially concerning, because it results in infant death in up to 40% of cases. Among infants who survive, congenital syphilis can cause developmental delays, permanent deafness, neurological impairment, and bone deformities.

CDC supports health departments to collect and analyze information on notifiable STIs, those infections that are required by law to be reported to a government entity (i.e., syphilis, gonorrhea, chlamydia, and chancroid). Health departments reported a record number of chlamydia cases (1,598,354) to CDC in 2016, as well as the highest number of gonorrhea cases (468,514) in any of the past 25 years. Young people account for the majority of reported chlamydia and gonorrhea infections. CDC works with partners and health plans to identify evidence-based strategies to increase chlamydia screening; screening is especially important because infections are often asymptomatic and can lead to serious medical consequences, including infertility.

CDC is the only federal agency that directly supports and funds STI prevention and control activities by state, territorial, and local health departments. In this unique role, CDC provides national leadership, research, policy assessment, and scientific information about STIs to the medical community and the public. CDC coordinates and publishes national STI guidelines and recommendations, which translate research into practice and serve as the gold standard for STI care in the United States. These core public health activities complement and support treatment services provided through public and private health care systems.

CDC's supports health departments to:

- Collect and analyze information on notifiable STIs (i.e., syphilis, gonorrhea, chlamydia, and chancroid).
- Conduct disease investigations, contact tracing, and linkage to treatment for patients diagnosed with STIs to reduce adverse health outcomes and transmission and prevent further spread of disease.
- Respond to public health outbreaks.
- Ensure appropriate screening to rapidly detect STIs and timely treatment by clinical providers.
- Conduct scientific investigations to better understand how diseases are spread throughout the community.
- Support training and education of health and medical professionals involved in STI screening and treatment.

²⁰ <https://www.cdc.gov/std/life-stages-populations/adolescents-youngadults.htm>

CDC's STI surveillance, service, and scientific activities improve health and save money. CDC's support and funding over a five year period from 2012-2016 for syphilis, gonorrhea, and chlamydia prevention activities saved an estimated \$1.3 billion in lifetime averted medical costs.

Budget Request

CDC's FY 2020 request of **\$157,310,000** for Sexually Transmitted Infections is level with the FY 2019 Enacted level. To address the substantial increases in the rates of STIs observed in 2016 and 2017, CDC will continue to conduct STI surveillance and support states to conduct STI prevention and control activities, such as contact tracing. At the FY 2020 requested level, public health programs will continue to support Disease Intervention Specialist (DIS) follow-up and response to outbreaks. This funding level will also support training and educational materials for healthcare professionals, and studies to translate STI research to practice and to improve program delivery.

Surveillance: Assess the Burden and Outcomes of STIs in the United States

In FY 2020, public health programs will conduct and report county-level surveillance of four reportable STIs (i.e., syphilis, gonorrhea, chlamydia, and chancroid) following strict data and confidentiality guidelines. STI programs will maximize use of surveillance data to:

- Understand burden and outcomes.
- Monitor STI trends to improve our understanding of how STIs spread throughout communities, so CDC and its partners can implement high-impact prevention and control strategies.
- Implement prevention and control programs.
- Improve program management and resource allocation.
- Estimate costs associated with STIs.
- Evaluate if STIs are being treated appropriately, which is especially important for preventing the spread of antibiotic resistant gonorrhea and reducing congenital syphilis.
- Examine complications and manifestations of STIs, such as ocular syphilis (syphilis of the eye), which is increasing at a faster rate than overall syphilis and can cause vision problems or blindness.

Service: Defend Against the Spread of STIs and Ensure Americans Get the Screening and Treatment They Need

CDC and its funded STI programs will support staff in state and local public health agencies, including Disease Investigators. No other entities conduct these community services, including:

- Conducting contact tracing to identify and treat partners exposed to STIs.
- Identifying opportunities to address increasing STI cases, such as establishing maternal review boards in high risk states in 2018 to identify and address system failures in the diagnosing and timely treatment of syphilis among pregnant women.
- Providing outreach services, which can include non-reimbursable STI/HIV testing of individuals likely to be infected in non-clinical settings, to control the spread of disease in the community.
- Identifying those who may benefit from HIV pre-exposure prophylaxis (PrEP) and connecting them with clinical and community resources.
- Linking HIV-infected persons seeking STI services to HIV treatment and care.
- Working to contain outbreaks.
- Protecting Americans from STI and other public health emergencies as they arise by using the unique skills of STI Disease Investigators, who have been deployed in the past to address Zika, Ebola, influenza, anthrax, and SARS.

CDC will also fund the National Network of STD Clinical Prevention Training Centers (NNPTCs), to ensure that public and private healthcare providers have the most up-to-date clinical science for the screening and

treatment of STIs. Many U.S. healthcare workers have limited training and experience diagnosing and treating STIs. To increase STI knowledge among clinicians, NNPTCs offer a variety of courses in both web-based and in-person formats. In 2016 alone, NNPTCs provided over 500 courses, trained 27,500 clinicians, and conducted over 570 one-on-one clinical consultations to providers about complex STI cases.

CDC will update its widely utilized, evidence-based STD Treatment Guidelines. Visitors to CDC's website have viewed CDC's 2015 STD Treatment Guidelines more than 9.3 million times since CDC released them. Disease Investigators will continue to increase providers' awareness of CDC's STD Treatment Guidelines and the STI burden in their respective communities. CDC will also ensure that providers have access to recommended medications—such as injectable benzathine penicillin, the primary treatment for most syphilis and the only recommended treatment for pregnant women with syphilis to prevent congenital syphilis. In partnership with the NNPTCs, CDC will continue to educate physicians about CDC's recommended gonorrhea treatment, which helps to protect Americans from gonorrhea's increasing antibiotic resistance. In 2016, physicians prescribed CDC's recommended treatment for 81% of gonorrhea cases.

Science: Facilitate Diagnostic and Medical Advances

CDC will continue to expand its one-of-a-kind syphilis and gonorrhea laboratory sample repository. CDC and other federal agencies, academic researchers, and industry use this unique repository to test new diagnostics and treatments, including vaccines. CDC's STI lab will work on advancing more effective and efficient responses to syphilis, such as a rapid syphilis point-of-care test. This assessment of new tests and medicines is also urgently needed to prevent the threat of untreatable gonorrhea. CDC's STI lab and its partners continue genetic work on gonorrhea. To date, CDC has sequenced over 5,000 genomes for gonorrhea with different resistance profiles; over 2,000 sequences are accessible in public databases for the scientific community. The CDC STI laboratory will continue serve as a resource for state and local health departments in STI outbreak investigations.

Tuberculosis Budget Request

CDC is the lead agency for eliminating tuberculosis (TB) in the United States, and is a global leader in the science of TB elimination. CDC is dedicated to science, surveillance, and service by supporting health departments across the nation, in larger cities, Washington D.C., Puerto Rico, the Virgin Islands, and other U.S. territories to:

- Investigate and report every case of TB disease.
- Identify contacts and provide treatment to prevent future TB cases.
- Genotype TB bacteria and test for drug resistance.
- Ensure provision of medical care, laboratory testing, and other services to achieve complete cure of TB patients, which halts further transmission.

The United States has one of the lowest TB rates in the world due to an aggressive strategy of supporting prevention, control, laboratory services, research, and training at state, local, and territorial health departments. CDC is also the only U.S. agency that conducts domestic field-based clinical and operational research on TB. A recent CDC study found that, over a 20 year period, U.S. TB control efforts prevented as many as 319,000 cases of TB and averted up to \$14.5 billion, including costs from TB deaths.²¹

However, after two decades of annual declines, TB case rates in the United States have slowed to approximately 2.8 new cases per 100,000 persons, or a total of 9,093 cases in 2017.²² Additionally, CDC estimates that up to 13 million people in the United States have latent TB infection (LTBI). LTBI has no symptoms and cannot be transmitted, but if these bacteria multiply, the person will go from having LTBI to being sick with TB disease. More than 80% of U.S. TB cases result from reactivated latent TB infection.

To eliminate TB in the United States, CDC supports health departments across the nation to prevent new cases of TB; ensure the provision of medical care, laboratory testing, and other services to cure TB patients; and stop transmission and prevent drug resistance.

Prevent new cases of TB

CDC funds health departments to find and treat cases of TB disease, and to identify, evaluate, and treat close contacts who may be infected. Every year, TB programs treat about 400,000 people with LTBI. Upon request, CDC provides on-site assistance to communities experiencing large or complex outbreaks. For example, in 2018, CDC provided on-site assistance to address TB among persons experiencing homelessness, in a community with multiple social risk factors, and multidrug-resistant TB in a senior center. However, TB programs have limited reach. To eliminate TB, it is necessary to also treat people for LTBI, many of whom are unaware that they were exposed to someone with TB disease. CDC works with health departments, professional associations, and other groups to explore ways to incorporate targeted LTBI testing for people receiving care in private or community-based practices. This includes sharing information regarding USPSTF recommendations for targeted LTBI testing, information about more specific diagnostic tests, and shorter regimens for treating LTBI.

Ensure the provision of medical care, laboratory testing, and other services to cure TB patients

Given the low incidence of TB disease in the United States, few U.S. healthcare workers have encountered TB disease in their medical training. Misdiagnosis and failure to treat TB result in transmission of disease in families and communities and months of debilitating illness for the patient. To counter this, CDC funds Centers of Excellence (COEs) which have increased human resource development through education and training activities and increased the capacity for appropriate medical evaluation and management of persons with TB disease and LTBI through medical consultation. From 2013-2017, the most recent data available, the COEs provided over

²¹ These numbers represent the outer limits of the ranges of cases and costs averted, as published in Tuberculosis Contact Investigations — United States, 2003–2012 (Young et. al., MMWR, 2016). Available at: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a1.htm>.

²² Provisional data, as of February 12, 2018, as published in Tuberculosis--United States, 2017 (Stewart et. al. MMWR 67(11);317–323). Available at: <https://www.cdc.gov/mmwr/volumes/67/wr/mm6711a2.htm>

4,320 hours of training to 42,856 participants, and provided 14,586 medical consultations to providers with TB patients. Four COEs were awarded funding in 2018 for a five-year program.

CDC is a global leader in TB clinical and field research. CDC's TB Trials Consortium (TBTC) conducts clinical trials that build the evidence base for guidelines used all over the world for diagnosing, preventing, and treating TB. CDC's top priority is to make TB treatment regimens shorter and less toxic, especially for children and people with other health conditions such as diabetes or cancer. The existing TB disease regimen takes six to nine months with four different antibiotics, and requires frequent laboratory tests to monitor patients' side effects and make sure the medicine is working. In FY 2018, CDC completed its enrollment of 2,500 participants in a clinical trial to evaluate a regimen that will shorten treatment for TB disease from six to four months. In 2018, CDC published guidelines for treating more people with the TBTC-developed short course therapy for LTBI. This regimen ("3HP") involves 12 weekly doses of isoniazid and rifapentine. These guidelines reflect additional research that found 3HP can be used in children ages 2-11 and persons with HIV/AIDS, and can be either self-administered or administered via directly observed therapy. Implementation of this shorter regimen results in over 75% of people completing treatment, as opposed to a 30-64% completion rate for the older regimen of 9 months daily doses of isoniazid. Continued innovation in short course therapy for LTBI will help the United States move closer toward TB elimination because completing treatment for LTBI cuts the risk of progression to active TB disease by 90%.

CDC also funds the TB Epidemiologic Studies Consortium (TBESC), which applies epidemiologic, behavioral, economic, laboratory, and operational research for better approaches to TB control in communities. TBESC study sites are working with providers in community health centers to expand testing and treatment for LTBI in people at risk for developing TB disease.

CDC's TB laboratory serves as the National Tuberculosis Reference Laboratory and as a source of innovation, including development of advanced molecular detection (AMD) methods. In 2018, CDC continued to offer health departments molecular testing of drug resistance for isolates, allowing the rapid detection of drug-resistant TB. Molecular tests provide results within days instead of the weeks required for culture-based testing, providing health departments with information on how to best protect their community. The TB lab also increased its ability to identify matching cases of TB disease using whole-genome sequencing, providing an ever-clearer picture of locations where transmission of active TB disease has occurred. To identify drug-resistant TB and understand how drug resistance can develop during treatment, CDC conducted whole-genome sequencing for more than 1,000 isolates of *M. tuberculosis*. To build capacity to conduct whole-genome sequencing for isolates from all newly-diagnosed U.S. TB patients, CDC established the National Tuberculosis Molecular Surveillance Center in Michigan.

Stop transmission and prevent drug resistance

CDC has the knowledge and tools to keep Americans safe and protect America's health, safety, and security by promptly and effectively treating TB disease to stop transmission and preventing drug-resistant and multidrug-resistant TB, which can be extremely costly. Currently, approximately 1% of U.S. TB cases are multidrug-resistant. Each case is expensive to treat, and the treatment is difficult for the patient to tolerate. Accordingly, CDC strives to prevent drug-resistant TB from developing in the first place. To do so, it is critical to ensure that TB treatment is completed without interruption, yet TB drug shortages have affected more than 80% of TB control programs. CDC established a small commercial stockpile of TB drugs to ensure that patient treatment will not be interrupted in the event of a nationwide shortage of critical TB drugs. In 2018, CDC activated the TB stockpile to meet the needs of 12 states that requested emergency shipments of rifapentine.

Budget Request

CDC's FY 2020 request of **\$135,034,000** for Tuberculosis is level with the FY 2019 Enacted level. At this funding level, CDC will support states to conduct TB surveillance and oversee the medical and public health management of persons with TB and contact tracing. The funding requested will support training for healthcare professionals, studies to improve TB treatment, diagnostic tools, and program delivery.

Additionally, CDC will continue to work with health departments, professional associations, and other groups to explore ways to incorporate targeted LTBI testing for people receiving care in private or community-based practices. CDC will continue to fund four Centers of Excellence (COEs) to provide training (both in person and via distance learning) and technical assistance to increase human resource development in TB programs; TB educational materials; and medical consultation for healthcare professionals treating TB patients, particularly those with complex or drug-resistant cases. CDC will continue to fund essential TB research consortiums--TBTC and TBESC--which invest in clinical trials focused on improving treatment and epidemiological studies on TB control, respectively. As timely provision of critical TB drugs ensures continued therapy for hundreds of LTBI patients, CDC will continue to refine these and other innovative activities to prevent the spread of drug-resistant TB in FY 2020.

Infectious Diseases and the Opioid Epidemic Budget Request

The United States is experiencing a prescription opioid and heroin use crisis, which is increasing unsafe, nonsterile injection practices nationally, making many communities susceptible to outbreaks of viral hepatitis and HIV among people who inject drugs. A 2016 outbreak of HIV in rural Indiana—the worst single outbreak in U.S. history—exemplifies how viral infections can rapidly spread through networks of injecting drug users. In FY 2019, CDC initiated a new program to address the infectious disease consequences of the opioid epidemic.

CDC is investing in states to increase testing for viral hepatitis and HIV in high-impact settings, and, where needed, refer people for substance use disorder treatment, and ensure quality implementation of programs. CDC will help strengthen surveillance and laboratory capacity providing critical information to guide patient-centered response, including information on co-morbidities. Select specific activities include:

1. Targeting resources to local communities and supporting state health departments to address identified risks for increasing viral hepatitis and HIV infections, especially in communities with limited services and high burden of infections and overdose; and
2. Providing technical assistance nationwide on the implementation of comprehensive preventive services through syringe services programs with a particular focus on reducing infectious disease transmission among people who inject drugs.

The prioritized outcomes of these investments are to:

- Reduce new infections of viral hepatitis and HIV.
- Reduce morbidity and mortality of viral hepatitis and HIV.
- Reduce overdose

Budget Request

CDC's FY 2020 request of **\$58,000,000** for Infectious Diseases and the Opioid Epidemic is \$53,000,000 above the FY 2019 Enacted level. This increase will expand activities begun in FY 2019 to target the infectious disease consequences of the opioid epidemic by focusing on improving surveillance, referral to treatment, and education efforts around hepatitis B, hepatitis C and HIV infections related to the opioid epidemic. Jurisdictions most at risk for outbreaks of HIV and viral hepatitis due to injection drug use are prioritized. This initiative will build on those initial efforts to focus on jurisdictions experiencing increased cases due to injection drug use. Activities will focus on intensive screening, testing, and referral to treatment, supporting use of evidence-based syringe service programs, and referral to treatment for substance abuse.

CDC-Wide HIV/AIDS Funding

Fiscal Year	Domestic HIV/AIDS Prevention and Research (Infectious Disease)	Global HIV/AIDS Program	CDC-Wide HIV Total
2010 ¹	\$799,270,000	\$118,961,000	\$918,231,000
2011	\$800,445,000	\$118,741,000	\$919,186,000
2012 ²	\$822,633,000	\$131,190,000	\$953,823,000
2013	\$768,635,000	\$125,254,000	\$893,889,000
2014	\$786,712,000	\$128,420,000	\$915,132,000
2015	\$786,712,000	\$128,421,000	\$915,133,000
2016	\$788,712,000	\$128,421,000	\$917,133,000
2017	\$786,868,000	\$128,120,000	\$914,988,000
2018 Final	\$786,101,000	\$127,985,000	\$914,086,000
2019 Enacted	\$788,712,000	\$128,421,000	\$917,133,000
FY 2020 President's Budget	\$928,712,000	\$69,547,000	\$998,259,000

¹ In FY 2012, HIV prevention activities in the Division of Adolescent and School Health were transferred to NCHHSTP. FY 2010 and FY 2011 funding levels have been made comparable to the budget realignment, reflecting a transfer of \$40,000,000 from Chronic Disease Prevention and Health Promotion to Domestic HIV/AIDS Prevention and Research. FY 2010 funding also includes a \$30,400,000 Obamacare/PPHF allocation.

² FY 2012 and FY 2013 are comparably adjusted to reflect the FY 2014 BSS transfer to implement the Working Capital Fund. Funding levels prior to FY 2012 have not been made comparable to the FY 2016 request.

State Table: Integrated HIV Prevention and Surveillance Funding^{1,2,3,4}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$4,807,661	\$4,519,201	TBD	TBD
Alaska	\$1,033,859	\$971,827	TBD	TBD
Arizona	\$5,667,607	\$5,327,551	TBD	TBD
Arkansas	\$2,084,561	\$1,959,487	TBD	TBD
California	\$22,176,701	\$20,846,099	TBD	TBD
Colorado	\$4,346,536	\$4,085,744	TBD	TBD
Connecticut	\$3,974,204	\$3,735,752	TBD	TBD
Delaware	\$1,353,327	\$1,272,127	TBD	TBD
Florida	\$38,904,420	\$36,570,155	TBD	TBD
Georgia	\$17,697,096	\$16,635,270	TBD	TBD
Hawaii	\$1,176,489	\$1,105,900	TBD	TBD
Idaho	\$1,054,018	\$990,777	TBD	TBD
Illinois	\$5,037,850	\$4,735,579	TBD	TBD
Indiana	\$4,006,661	\$3,766,261	TBD	TBD
Iowa	\$1,121,114	\$1,053,847	TBD	TBD
Kansas	\$1,233,569	\$1,159,555	TBD	TBD
Kentucky	\$2,591,201	\$2,435,729	TBD	TBD
Louisiana	\$7,244,982	\$6,810,283	TBD	TBD
Maine	\$1,075,537	\$1,011,005	TBD	TBD
Maryland	\$7,887,182	\$7,413,951	TBD	TBD
Massachusetts	\$7,360,637	\$6,918,999	TBD	TBD
Michigan	\$5,754,161	\$5,408,911	TBD	TBD
Minnesota	\$2,985,919	\$2,806,764	TBD	TBD
Mississippi	\$3,508,229	\$3,297,735	TBD	TBD
Missouri	\$4,477,487	\$4,208,838	TBD	TBD
Montana	\$1,029,059	\$967,315	TBD	TBD
Nebraska	\$1,103,683	\$1,037,462	TBD	TBD
Nevada	\$3,266,705	\$3,070,703	TBD	TBD
New Hampshire	\$1,064,375	\$1,000,513	TBD	TBD
New Jersey	\$13,492,554	\$12,683,001	TBD	TBD
New Mexico	\$1,306,349	\$1,227,968	TBD	TBD
New York	\$13,964,488	\$13,126,619	TBD	TBD
North Carolina	\$10,962,336	\$10,304,596	TBD	TBD
North Dakota	\$1,000,000	\$940,000	TBD	TBD
Ohio	\$7,602,765	\$7,146,599	TBD	TBD
Oklahoma	\$2,254,312	\$2,119,053	TBD	TBD
Oregon	\$2,500,170	\$2,350,160	TBD	TBD
Pennsylvania	\$6,539,491	\$6,147,122	TBD	TBD
Rhode Island	\$1,116,567	\$1,049,573	TBD	TBD
South Carolina	\$6,116,420	\$5,749,435	TBD	TBD
South Dakota	\$1,026,482	\$964,893	TBD	TBD
Tennessee	\$6,210,436	\$5,837,810	TBD	TBD
Texas	\$20,772,434	\$19,526,088	TBD	TBD
Utah	\$1,151,670	\$1,082,570	TBD	TBD
Vermont	\$999,999	\$939,999	TBD	TBD
Virginia	\$8,281,767	\$7,784,861	TBD	TBD
Washington	\$4,656,564	\$4,377,170	TBD	TBD
West Virginia	\$1,097,368	\$1,031,526	TBD	TBD
Wisconsin	\$2,384,516	\$2,241,445	TBD	TBD
Wyoming	\$1,015,468	\$954,540	TBD	TBD

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Cities				
Baltimore ⁵	\$4,237,790	\$3,983,523	TBD	TBD
Chicago	\$8,307,883	\$7,809,410	TBD	TBD
Fulton Co., GA ⁶	\$0	\$0	TBD	TBD
Houston	\$8,671,634	\$8,151,336	TBD	TBD
Los Angeles	\$17,950,095	\$16,873,089	TBD	TBD
New York City	\$35,204,237	\$33,091,983	TBD	TBD
Philadelphia	\$6,336,536	\$5,956,344	TBD	TBD
San Francisco	\$5,008,377	\$4,707,874	TBD	TBD
Washington, D.C.	\$5,835,119	\$5,485,012	TBD	TBD
Territories				
Puerto Rico	\$6,525,314	\$6,133,795	TBD	TBD
Virgin Islands	\$1,029,968	\$968,170	TBD	TBD
Subtotal States	\$279,476,986	\$262,708,368	TBD	TBD
Subtotal Cities	\$91,551,671	\$86,058,571	TBD	TBD
Subtotal Territories	\$7,555,282	\$7,101,965	TBD	TBD
Total Resources	\$378,583,939	\$355,868,904	TBD	TBD

¹ CFDA NUMBER: 93-940 [Discretionary]

² In addition to the city and state amounts listed in the above table, an additional \$19M was and will be distributed to the health departments each fiscal year through a competitive process based on availability of funds.

³ This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/>

⁴ Additional resources requested for FY 2020 will be awarded through a competitive notice of funding opportunity.

⁵ Baltimore funding does not include surveillance funding for FY 2018 and 2019

⁶ Fulton Co, GA funding is included in State of Georgia funding for FY 2018 and 2019

State Table: Sexually Transmitted Disease Prevention^{1,2,3,4,5}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$1,835,088	\$1,733,855	\$1,647,162	-\$86,693
Alaska	\$367,311	\$352,370	\$347,941	-\$4,429
Arizona	\$1,659,246	\$1,708,430	\$1,789,243	\$80,814
Arkansas	\$1,130,217	\$1,073,706	\$1,020,021	-\$53,685
California	\$6,310,228	\$6,572,887	\$7,145,935	\$573,048
Colorado	\$1,150,669	\$1,243,502	\$1,274,899	\$31,397
Connecticut	\$857,822	\$816,242	\$800,563	-\$15,679
Delaware	\$386,153	\$380,636	\$384,107	\$3,470
Florida	\$4,851,192	\$4,913,989	\$5,062,944	\$148,955
Georgia	\$3,463,113	\$3,324,783	\$3,292,814	-\$31,969
Hawaii	\$412,121	\$412,925	\$425,851	\$12,926
Idaho	\$342,505	\$343,720	\$351,669	\$7,949
Illinois	\$2,333,997	\$2,246,838	\$2,224,895	-\$21,943
Indiana	\$1,689,543	\$1,641,159	\$1,644,777	\$3,618
Iowa	\$695,538	\$690,464	\$700,592	\$10,129
Kansas	\$720,807	\$705,011	\$707,104	\$2,093
Kentucky	\$1,017,722	\$1,077,420	\$1,084,483	\$7,063
Louisiana	\$2,138,019	\$2,021,618	\$1,920,537	-\$101,081
Maine	\$248,239	\$300,000	\$300,000	\$0
Maryland	\$1,331,663	\$1,292,892	\$1,289,111	-\$3,781
Massachusetts	\$1,524,014	\$1,512,684	\$1,535,486	\$22,802
Michigan	\$2,688,653	\$2,544,720	\$2,447,940	-\$96,781
Minnesota	\$1,167,758	\$1,186,877	\$1,227,868	\$40,991
Mississippi	\$1,285,429	\$1,295,885	\$1,231,090	-\$64,794
Missouri	\$1,731,603	\$1,662,974	\$1,645,859	-\$17,115
Montana	\$227,700	\$300,000	\$300,000	\$0
Nebraska	\$469,143	\$471,572	\$483,071	\$11,499
Nevada	\$805,364	\$842,584	\$896,453	\$53,869
New Hampshire	\$287,045	\$300,000	\$300,000	\$0
New Jersey	\$2,452,944	\$2,330,297	\$2,213,782	-\$116,515
New Mexico	\$653,315	\$651,778	\$671,640	\$19,861
New York	\$2,450,508	\$2,320,307	\$2,345,376	\$25,069
North Carolina	\$2,901,271	\$2,864,054	\$2,901,264	\$37,210
North Dakota	\$225,000	\$300,000	\$300,000	\$0
Ohio	\$3,044,608	\$3,055,682	\$3,012,523	-\$43,159
Oklahoma	\$1,072,109	\$1,081,414	\$1,110,685	\$29,271
Oregon	\$846,751	\$908,772	\$979,379	\$70,607
Pennsylvania	\$2,241,497	\$2,136,255	\$2,156,023	\$19,768
Rhode Island	\$337,966	\$337,862	\$344,667	\$6,805
South Carolina	\$1,485,167	\$1,502,507	\$1,476,127	-\$26,380
South Dakota	\$260,479	\$317,653	\$325,575	\$7,922
Tennessee	\$2,005,474	\$1,905,200	\$1,809,940	-\$95,260
Texas	\$6,922,062	\$6,970,999	\$7,158,877	\$187,878
Utah	\$588,785	\$606,801	\$633,169	\$26,368
Vermont	225,000	\$300,000	\$300,000	\$0
Virginia	\$2,090,683	\$2,032,784	\$2,029,218	-\$3,566
Washington	\$2,075,395	\$1,860,059	\$1,776,810	-\$83,250
West Virginia	\$533,165	\$530,257	\$503,744	-\$26,513
Wisconsin	\$1,230,761	\$1,287,376	\$1,277,134	-\$10,242
Wyoming	\$225,165	\$300,000	\$300,000	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Cities				
Baltimore	\$1,221,339	\$1,066,274	\$1,012,960	-\$53,314
Chicago	\$2,009,148	\$1,899,190	\$1,804,231	-\$94,960
Los Angeles	\$3,102,182	\$3,097,208	\$3,160,353	\$63,144
New York City	\$4,687,937	\$4,662,949	\$4,429,801	-\$233,147
Philadelphia	\$1,950,748	\$1,843,711	\$1,751,525	-\$92,186
San Francisco	\$1,159,156	\$1,115,448	\$1,084,633	-\$30,815
Washington, D.C.	\$957,867	\$909,974	\$864,475	-\$45,499
Territories				
Puerto Rico	\$1,010,635	\$1,035,448	\$983,676	-\$51,772
Virgin Islands	\$200,000	\$300,000	\$300,000	\$0
Subtotal States	\$76,996,007	\$76,569,798	\$77,108,346	\$538,548
Subtotal Cities	\$15,088,377	\$14,594,754	\$14,107,978	-\$486,776
Subtotal Territories	\$1,210,635	\$1,335,448	\$1,283,676	-\$51,772
Total Resources	\$93,295,023	\$92,500,000	\$92,500,000	\$0

¹ CFDA NUMBER: 93-977 [Discretionary]

² Amounts reflect new assistance and include HIV/STD coinfection funds. Amounts do not include funding under Direct Assistance, which is a financial assistance mechanism primarily used to support payroll and travel expenses of CDC employees assigned to state, tribal, local, and territorial health agencies that are recipients of grants and cooperative agreements.

³ Amounts do not include Gonococcal Isolate Surveillance Project awards.

⁴ This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

State Table: TB Prevention and Control^{1,2,3}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$1,073,255	\$1,096,200	\$1,096,200	\$0
Alaska	\$603,287	\$571,779	\$571,779	\$0
Arizona	\$1,549,983	\$1,613,779	\$1,613,779	\$0
Arkansas	\$624,192	\$652,746	\$652,746	\$0
California	\$8,523,277	\$8,807,703	\$8,807,703	\$0
Colorado	\$492,466	\$535,492	\$535,492	\$0
Connecticut	\$531,751	\$555,766	\$555,766	\$0
Delaware	\$182,463	\$181,503	\$181,503	\$0
Florida	\$4,979,499	\$4,960,858	\$4,960,858	\$0
Georgia	\$2,634,378	\$2,504,121	\$2,504,121	\$0
Hawaii	\$988,704	\$1,003,699	\$1,003,699	\$0
Idaho	\$176,740	\$187,520	\$187,520	\$0
Illinois	\$1,388,016	\$1,481,231	\$1,481,231	\$0
Indiana	\$828,565	\$839,058	\$839,058	\$0
Iowa	\$403,292	\$415,248	\$415,248	\$0
Kansas	\$421,786	\$405,046	\$405,046	\$0
Kentucky	\$651,398	\$628,065	\$628,065	\$0
Louisiana	\$916,647	\$945,655	\$945,655	\$0
Maine	\$231,372	\$250,332	\$250,332	\$0
Maryland	\$1,360,993	\$1,406,578	\$1,406,578	\$0
Massachusetts	\$1,693,569	\$1,709,981	\$1,709,981	\$0
Michigan	\$1,011,948	\$1,061,690	\$1,061,690	\$0
Minnesota	\$1,230,016	\$1,365,142	\$1,365,142	\$0
Mississippi	\$643,906	\$646,182	\$646,182	\$0
Missouri	\$669,859	\$702,194	\$702,194	\$0
Montana	\$182,033	\$181,940	\$181,940	\$0
Nebraska	\$278,090	\$259,365	\$259,365	\$0
Nevada	\$628,948	\$664,919	\$664,919	\$0
New Hampshire	\$169,956	\$171,423	\$171,423	\$0
New Jersey	\$2,143,682	\$2,192,732	\$2,192,732	\$0
New Mexico	\$363,526	\$357,686	\$357,686	\$0
New York	\$1,489,190	\$1,522,455	\$1,522,455	\$0
North Carolina	\$1,611,273	\$1,679,562	\$1,679,562	\$0
North Dakota	\$184,530	\$186,048	\$186,048	\$0
Ohio	\$1,107,428	\$1,080,561	\$1,080,561	\$0
Oklahoma	\$589,989	\$611,649	\$611,649	\$0
Oregon	\$634,585	\$619,132	\$619,132	\$0
Pennsylvania	\$902,533	\$900,925	\$900,925	\$0
Rhode Island	\$204,258	\$190,622	\$190,622	\$0
South Carolina	\$837,659	\$859,457	\$859,457	\$0
South Dakota	\$184,665	\$197,868	\$197,868	\$0
Tennessee	\$1,074,468	\$1,035,673	\$1,035,673	\$0
Texas	\$8,058,475	\$7,883,899	\$7,883,899	\$0
Utah	\$287,645	\$279,266	\$279,266	\$0
Vermont	\$159,544	\$161,543	\$161,543	\$0
Virginia	\$1,492,733	\$1,540,577	\$1,540,577	\$0
Washington	\$1,500,162	\$1,566,912	\$1,566,912	\$0
West Virginia	\$177,867	\$174,253	\$174,253	\$0
Wisconsin	\$589,821	\$570,307	\$570,307	\$0
Wyoming	\$154,644	\$155,691	\$155,691	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Cities				\$0
Baltimore	\$181,677	\$196,706	\$196,706	\$0
Chicago	\$1,034,334	\$1,027,052	\$1,027,052	\$0
Detroit				
Houston	\$1,668,782	\$1,677,097	\$1,677,097	\$0
Los Angeles	\$4,669,048	\$4,559,479	\$4,559,479	\$0
New York City	\$4,215,131	\$4,479,967	\$4,479,967	\$0
Philadelphia	\$604,872	\$591,378	\$591,378	\$0
San Diego	\$1,884,780	\$1,968,551	\$1,968,551	\$0
San Francisco	\$840,367	\$846,917	\$846,917	\$0
Washington, D.C.	\$289,163	\$323,411	\$323,411	\$0
Territories				
Puerto Rico	\$555,843	\$537,026	\$537,026	\$0
Virgin Islands	\$117,797	\$118,000	\$118,000	\$0
Subtotal States	\$58,819,066	\$59,572,033	\$59,572,033	\$0
Subtotal Cities	\$15,388,154	\$15,670,558	\$15,670,558	\$0
Subtotal Territories	\$673,640	\$655,026	\$655,026	\$0
Total Resources	\$74,880,860	\$75,897,617	\$75,897,617	\$0

¹ CFDA NUMBER: 93-116 [Discretionary]

² Amounts reflect new assistance and include HIV/TB coinfection funds. Amounts do not include funding under Direct Assistance.

³ This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

State Table: Viral Hepatitis Surveillance and Prevention^{1,2,3}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$174,399	\$175,250	\$175,250	\$0
Alaska	\$174,399	\$175,250	\$175,250	\$0
Arizona	\$175,144	\$176,000	\$176,000	\$0
Arkansas	\$175,889	\$175,889	\$175,889	\$0
California	\$182,593	\$183,500	\$183,500	\$0
Colorado	\$175,889	\$176,750	\$176,750	\$0
Connecticut	\$184,083	\$185,000	\$185,000	\$0
Delaware	\$137,383	\$137,980	\$137,980	\$0
Florida	\$405,806	\$436,468	\$436,468	\$0
Georgia	\$437,520	\$469,837	\$469,837	\$0
Hawaii	\$88,773	\$139,380	\$139,380	\$0
Idaho	\$115,221	\$115,667	\$115,667	\$0
Illinois	\$0	\$0	\$0	\$0
Indiana	\$401,551	\$434,081	\$434,081	\$0
Iowa	\$180,535	\$180,428	\$180,428	\$0
Kansas	\$0	\$0	\$0	\$0
Kentucky	\$436,494	\$467,291	\$467,291	\$0
Louisiana	\$473,063	\$505,380	\$505,380	\$0
Maine	\$147,474	\$148,140	\$148,140	\$0
Maryland	\$174,399	\$175,250	\$175,250	\$0
Massachusetts	\$602,593	\$633,500	\$633,500	\$0
Michigan	\$178,124	\$179,000	\$179,000	\$0
Minnesota	\$177,287	\$178,157	\$178,157	\$0
Mississippi	\$174,399	\$175,250	\$175,250	\$0
Missouri	\$174,399	\$175,250	\$175,250	\$0
Montana	\$89,728	\$89,728	\$89,728	\$0
Nebraska	\$148,630	\$149,304	\$149,304	\$0
Nevada	\$174,326	\$175,176	\$175,176	\$0
New Hampshire	\$125,889	\$176,750	\$176,750	\$0
New Jersey	\$492,212	\$523,048	\$523,048	\$0
New Mexico	\$154,813	\$155,530	\$155,530	\$0
New York	\$0	\$0	\$0	\$0
North Carolina	\$502,477	\$526,000	\$526,000	\$0
North Dakota	\$129,311	\$125,853	\$125,853	\$0
Ohio	\$422,378	\$453,229	\$453,229	\$0
Oklahoma	\$410,391	\$440,571	\$440,571	\$0
Oregon	\$181,172	\$182,069	\$182,069	\$0
Pennsylvania	\$182,539	\$183,500	\$183,500	\$0
Rhode Island	\$175,889	\$176,750	\$176,750	\$0
South Carolina	\$181,016	\$181,912	\$181,912	\$0
South Dakota	\$0	\$0	\$0	\$0
Tennessee	\$495,883	\$526,747	\$526,747	\$0
Texas	\$125,889	\$176,750	\$176,750	\$0
Utah	\$403,771	\$434,344	\$434,344	\$0
Vermont	\$81,562	\$132,120	\$132,120	\$0
Virginia	\$179,803	\$180,691	\$180,691	\$0
Washington	\$550,430	\$581,990	\$581,990	\$0
West Virginia	\$367,260	\$554,668	\$554,668	\$0
Wisconsin	\$175,467	\$176,325	\$176,325	\$0
Wyoming	\$135,522	\$136,107	\$136,107	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Cities				
Chicago	\$101,338	\$152,031	\$152,031	\$0
New York City	\$171,469	\$172,300	\$172,300	\$0
Philadelphia	\$139,389	\$140,000	\$140,000	\$0
San Francisco	\$0	\$0	\$0	\$0
Washington, D.C.	\$174,389	\$175,250	\$175,250	\$0
Subtotal States	\$11,433,775	\$12,237,860	\$12,237,860	\$0
Subtotal Cities	\$586,585	\$639,581	\$639,581	\$0
Total Resources	\$12,020,360	\$12,877,441	\$12,877,441	\$0

¹ CFDA NUMBER: 93-270

² This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

³ Table reflects viral hepatitis resources and additional resources provided to states from immunization, food safety, and emerging infectious disease outbreak budget activities to support hepatitis A outbreak response.

EMERGING AND ZONOTIC INFECTIOUS DISEASES

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority ¹	\$552.702	\$560.372	\$372.472	-\$187.900
PPHF	\$52.000	\$52.000	\$137.000	+\$85.000
Total Request	\$604.702	\$612.372	\$509.472	-\$102.900
FTEs	1,277	1,277	1,277	0
Antibiotic Resistance – BA	\$167.364	\$168.000	\$0	-\$168.000
Antibiotic Resistance – PPHF	\$0.000	\$0.000	\$137.000	+\$137.000
Vector-borne Diseases	\$49.157	\$50.603	\$50.603	\$0.000
<i>Lyme Disease (non-add)</i>	\$10.700	\$12.000	\$10.643	-\$1.357
Prion Disease	\$5.978	\$6.000	\$0.000	-\$6.000
Chronic Fatigue Syndrome	\$5.380	\$5.400	\$0.000	-\$5.400
Emerging Infectious Diseases ²	\$184.595	\$186.797	\$185.297	-\$1.500
Food Safety	\$57.780	\$60.000	\$54.000	-\$6.000
National Healthcare Safety Network	\$20.989	\$21.000	\$21.000	\$0.000
Quarantine	\$31.572	\$31.572	\$31.572	\$0.000
<i>Federal Isolation and Quarantine (non-add)</i>	N/A	N/A	\$1.000	N/A
Advanced Molecular Detection	\$29.887	\$30.000	\$30.000	\$0.000
Harmful Algal Blooms	\$0.000	\$1.000	\$0.000	-\$1.000
Epidemiology and Laboratory Capacity (PPHF)	\$40.000	\$40.000	\$0.000	-\$40.000
Healthcare-Associated Infections (PPHF)	\$12.000	\$12.000	\$0.000	-\$12.000

¹ FY 2018 Final and FY 2019 Enacted are comparably adjusted to reflect the proposed \$8 million transfer from Lab Safety and Quality in the Emerging and Zoonotic Infectious Disease account to PHSS.

² Emerging Infectious Diseases amounts are comparably adjusted to reflect movement from All Other Infectious Diseases line.

Enabling Legislation Citation: PHS A § 264, PHS A § 2821*, PHS A § 301, PHS A § 304, PHS A § 307, PHS A § 308(d), PHS A § 310, PHS A § 311, PHS A § 317, PHS A § 317P*, PHS A § 317R*, PHS A § 317S*, PHS A § 317T*, PHS A § 319, PHS A § 319D*, PHS A § 319E*, PHS A § 319F, PHS A § 319G*, PHS A § 321, PHS A § 322, PHS A § 325, PHS A § 327, PHS A § 352, PHS A § 353, PHS A § 361-369, PHS A § 399V-5*, PHS A § 1102, Bayh-Dole Act of 1980 (Pub. L. 96-517)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, and Competitive Grants/Cooperative Agreements

CDC defends the country against public health threats by preventing and controlling a wide range of infectious diseases. These include diseases caused by bacteria (like anthrax or *Salmonella*), by viruses (like Zika or Ebola), or by fungi (like Valley fever). These infections can be considered *emerging* if they have increased in the past 20 years or could increase in the near future; *reemerging* if they once were major health problems that declined dramatically but are again becoming health problems for a significant proportion of the population; and *zoonotic* if they are transmissible from animals to humans. CDC’s world-class scientists, researchers, laboratorians, and emergency responders protect America’s health, safety, and security by reducing illness and death associated with these infectious diseases, whether spread intentionally or unintentionally, through several core functions:

- **Outbreak response:** Providing rapid scientific support during outbreaks of infectious disease that can spread to and within the United States. This includes unique scientific expertise to respond to disease threats from many different pathogens, such as yellow fever in Angola and Brazil, Zika in the western hemisphere, Ebola in Central and West Africa, emerging and resistant infections like *Candida auris* and carbapenemase-producing *Enterobacteriaceae* pathogens (e.g., CRE), and numerous foodborne outbreaks.

- **Surveillance:** Operating disease surveillance systems that serve as early warning systems, enabling rapid response capability in which CDC's experts detect and protect the public from both well-known infectious diseases and less familiar, but equally dangerous, threats.
- **Laboratory expertise:** Advancing disease detection and identification, providing early warning for emerging or changing germs, and serving as reference laboratories for the United States and world.

CDC's FY 2020 request of **\$509,472,000** for Emerging and Zoonotic Infectious Diseases, including \$137,000,000 from the Prevention and Public Health Fund, is \$102,900,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of Prion Disease and Chronic Fatigue Syndrome (CFS) from the FY 2019 President's Budget.

Prion Disease

Prion diseases are a group of rare brain diseases affecting humans and animals that are uniformly fatal. CDC has worked with other government partners to institute prion disease surveillance systems. Public health preventive measures recently instituted by the USDA and NIH's prion research efforts may further reduce the risk of exposure to prion diseases among the U.S. population. CDC's prion activities have been proposed for elimination to focus on surveillance and monitoring activities for a broader range of high consequence pathogens and emerging diseases.

Chronic Fatigue Syndrome

Chronic Fatigue Syndrome (CFS) affects between one and four million people in the United States. CDC's CFS program works with states and experienced clinicians to develop tools to gather and analyze surveillance data and to educate clinicians and the public on the results of evidence-based studies. NIH has been funded to conduct biomedical research on CFS. CFS activities are proposed for elimination, prioritizing funding to programs that support a broad range of diseases to maximize effectiveness in this limited-resource environment.

NATIONAL CENTER FOR EMERGING AND ZONOTIC INFECTIOUS DISEASES

BY THE NUMBERS...

- **>800**—Pathogens NCEZID protects against, including ones transmitted via food, water, or vector animals; bioterror threats like anthrax; infections spread in healthcare settings; and drug-resistant threats.
- **>200,000**—Laboratory samples tested in 2018 to assist state health departments and other federal agencies with diagnoses and essential information about dangerous bacteria and viruses.
- **16**—Epi-Aids (short-term epidemiologic assistance) conducted in FY 2018 at the request of a public health authority facing an urgent public health problem, including an investigation into the risk factors for invasive mold infections following Hurricane Harvey in Houston, response to a widespread outbreak of monkeypox in Nigeria, and an investigation of reported myopericarditis (an inflammation of the heart muscle) among U.S. soldiers vaccinated for smallpox.
- **\$200 million**—Funds awarded to state, local, and territorial health departments through the Epidemiology and Laboratory Capacity (ELC) cooperative agreement in 2018 to strengthen jurisdictions’ core and cross-cutting epidemiology, laboratory, and health information systems capacity to address infectious diseases.¹
- **270,000**—Foodborne illnesses prevented, and \$500 million dollars saved, every year by PulseNet, which uses whole genome sequencing to find clusters of diseases that might represent unrecognized outbreaks, allowing investigators to find the source, alert the public sooner, and identify gaps in our food safety systems.²
- **20**—CDC quarantine stations at which public health officers help protect more than 360 million travelers who arrive at over 300 U.S. ports of entry by land, air, and sea each year.^{3,4}
- **>120**—Contact investigations coordinated in 2018 to alert travelers about potential exposures to infectious diseases and to advise on appropriate steps they can take to protect themselves.
- **>40**—New diagnostic tests for rare and deadly pathogens developed in the last two years, including a new molecular test for detecting the rabies virus that is more accurate and faster than other currently available tests.
- **7 regional labs, 1 National Tuberculosis Molecular Surveillance Center, and 56 state and local labs**—AR Laboratory Network labs established to close the gap between local capabilities and data needed to combat antibiotic resistance.⁵

*References:

¹ <https://www.cdc.gov/ncezid/dpei/epidemiology-laboratory-capacity.html>

² Scharff, R. L., Besser, J., Sharp, D. J., Jones, T. F., Peter, G. S., & Hedberg, C. W. (2016, May). An Economic Evaluation of PulseNet: A Network for Foodborne Disease Surveillance. <https://www.ncbi.nlm.nih.gov/pubmed/26993535/>

³ <https://www.cbp.gov/sites/default/files/assets/documents/2018-Mar/cbp-snapshot-20180320.pdf>

⁴ <https://www.cbp.gov/border-security/ports-entry>

⁵ <https://www.cdc.gov/drugresistance/solutions-initiative/ar-lab-networks.html>

All figures current to December 2018

*Unless otherwise noted, all information and calculations are from CDC program data.

Emerging and Zoonotic Infectious Diseases Funding History	
Fiscal Year	Dollars (in millions)
2016 (BA)	\$352.990
2016 (PPHF)	\$52.000
2017 (BA)	\$530.228
2017 (PPHF)	\$52.000
2018 Final (BA)	\$552.702
2018 Final (PPHF)	\$52.000
2019 Enacted (BA)	\$560.372
2019 Enacted (PPHF)	\$52.000
2020 President's Budget (BA)	\$372.472
2020 President's Budget (PPHF)	\$137.000

Vector-borne Diseases Budget Request

The United States is increasingly vulnerable to vector-borne disease threats occurring within and outside our borders. Vector-borne diseases are viral, bacterial, or parasitic infections transmitted by the bite of an infected arthropod, such as ticks, mosquitoes, fleas, and other insects. They account for 17% of the estimated global burden of all infectious diseases. In the United States, the most common vector-borne diseases causing regular outbreaks include mosquito-borne West Nile and dengue viruses, tickborne Lyme disease and Rocky Mountain spotted fever (RMSF), and flea-borne plague. The national vector-borne disease pattern is concerning:

- **More cases:** There was a tripling of reported vector-borne disease cases from 2004-2016, marked by mosquito-borne outbreaks and a doubling of reported cases of tickborne disease. In total, more than 640,000 cases of vector-borne disease were reported from 2004-2016, and more vector-borne diseases continue to be identified. Keystone virus is the latest mosquito-borne disease to have emerged in the United States, with the first human case ever reported in Florida in 2018.
- **More germs:** In the last 13 years alone, 10 new vector-borne pathogens were identified in the United States, including the first domestic outbreaks of chikungunya and Zika viruses and the discovery of seven tickborne pathogens.
- **More people at risk:** Commerce moves mosquitoes, ticks, and fleas around the world on animals and objects. Infected travelers can traverse the world in a single day and introduce and spread vector-borne pathogens. Mosquitoes and ticks move pathogens into new areas of the country, causing more people to be at risk.

A major contributor to the increasing risk of vector-borne diseases in the United States is the geographic expansion of mosquito and tick vectors. *Aedes aegypti* and *Ae. albopictus* mosquitoes are now established throughout much of the United States and its territories and have been found in an increasing number of locations in the last decade. These mosquitoes are the primary vectors for Zika, dengue, and chikungunya. *Ae. aegypti* also transmits yellow fever. Local and state health departments and vector control organizations face challenges to respond to these threats. 84% of local vector control organizations lack at least one of five core vector control competencies. Better control of vectors can help protect people from these costly and deadly diseases.

In 2017, state and local health departments reported a record number of cases of tickborne disease to CDC. Cases of Lyme disease, anaplasmosis/ehrlichiosis, spotted fever rickettsiosis (including Rocky Mountain spotted fever), babesiosis, tularemia, and Powassan virus disease all increased - from 48,610 in 2016 to 59,349 cases in 2017. Species of ticks have also moved further north, west, and south in recent years. The tick that spreads the bacteria that cause Lyme disease and six other pathogens is now found in nearly half of all counties in the United States. The discovery of the longhorned tick, *Hemaphysalis longicornis*, in New Jersey in 2017 marked the first time in more than 50 years that an exotic tick was newly discovered and became established in the United States. The longhorned tick is a known vector of several pathogens throughout the world, including an Asian virus related to Heartland virus, discovered in the United States in 2009. Since its discovery in New Jersey, the longhorned tick has been found in Virginia, West Virginia, Pennsylvania, Arkansas, North Carolina, and New York. Additional studies can help to determine where these ticks are and the potential threat to people and animals.

CDC's vector-borne diseases program is the keystone of our nation's ability to detect, control, and prevent the spread of bacteria and viruses by vectors like ticks, mosquitoes, and fleas. CDC's vector-borne disease scientists serve as global experts with deep expertise in entomology, microbiology, and public health that does not exist elsewhere. CDC experts provide technical assistance and support to state, territorial, and local health departments to increase preparedness and respond to outbreak investigations; provide tools for outbreak preparedness and response; identify novel insecticides and insect repellents and other prevention tools; and identify, improve, and deploy diagnostic tools and tests. In FY 2018, CDC provided funding to all 50 states, five large cities (including Washington, D.C.), five U.S. territories and protectorates, one county, two countries, and

domestic and international partners to support activities that protect the health of Americans from vector-borne diseases. These activities included:

Developing and supporting laboratory capacity to rapidly diagnose vector-borne diseases

CDC supported domestic and international diagnostic laboratories by developing guidelines for performing diagnostic tests, distributing the reagents and supplies needed to do the tests, and performing confirmatory testing for difficult or complex cases. In addition, CDC developed new diagnostic methods to improve testing speed, accuracy, and reliability, and provided lab training to states, territories, and international partners:

- **Laboratory testing:** CDC produced and shipped reagents to facilitate nearly 2,000,000 tests in 2017 to diagnose vector-borne bacterial and viral infections worldwide.
- **Zika:** Prior to the 2016-2017 Zika outbreak, CDC was the only public health laboratory capable of testing for Zika. CDC provided extensive technical assistance and support to states so that 49 states, Washington, D.C., and Puerto Rico now have this capacity.
- **Lyme disease:** CDC advanced the development of a new type of test to help diagnose early Lyme disease using an innovative approach called “metabolomics.” Metabolomics can be used to identify and measure types and amounts of chemicals the body produces during illness. Different infections or stages of infection have different metabolic “fingerprints” that make each unique.

Developing innovative technologies

CDC developed and evaluated innovative technology to prevent and control the spread of diseases from mosquitoes, ticks, and fleas. Recent innovations include:

- **Yellow fever diagnostic test kit:** In response to the growing international threat of yellow fever and the major epidemics in the Americas and Africa, CDC developed a test kit for international distribution and is currently training the first international cohort of public health officials on use and interpretation of the kit. CDC is currently preparing the yellow fever test kit developed for submission for the WHO pre-qualification process, which would enable a greatly-expanded number of laboratories worldwide to reliably test for the virus.
- **Rickettsial diagnostic assays:** Rocky Mountain Spotted Fever (RMSF) is an increasing, potentially fatal public health threat. Rickettsial diseases are caused by various bacteria called *Rickettsia* species that can be difficult to diagnose. CDC developed and received FDA-clearance for the first diagnostic assays for the detection of rickettsial DNA in blood specimens during illness, when patients are still experiencing symptoms. Having FDA-cleared polymerase chain reaction assays at regional and state laboratories, through the Laboratory Response Network, builds capacity and allows for more rapid detection of rickettsial DNA in patients with RMSF, epidemic typhus, and other rickettsial infections.
- **Lyme disease prevention tools:** CDC worked with partners to develop new natural product repellents and toxicants for ticks; to test commercially available tick control products, including fungal control agents to kill ticks in vegetation; and to deliver tick pesticides via bait boxes to kill ticks feeding on rodents infected with Lyme disease bacteria.

Conducting surveillance to quickly detect cases of disease

Vector monitoring systems allow for national and state-based monitoring of specific vectors that pose risks for outbreaks, which informs vector control and management activities within states and localities. CDC operates three vector-related surveillance systems:

- **ArboNET:** the national surveillance system for arboviruses. ArboNET is implemented in all 50 states and supports activities including human case investigations, collection and testing of mosquitoes for the presence of arboviruses, and promoting standardized, reliable laboratory testing nationwide. In

addition to human disease, ArboNET maintains data on arboviral infections among select blood donors, veterinary disease cases, mosquitoes, dead birds, and sentinel animals.

- **MosquitoNET:** a web-based data system for participating states to report on the presence of mosquitoes and the results of insecticide resistance testing. MosquitoNET enables us to regularly update maps demonstrating where mosquito vectors can be found throughout the United States and its territories, informing prevention and control efforts.
- **TickNET:** a collaborative public health effort that funds 22 high-risk states and local jurisdictions. Research activities include laboratory surveys, high-quality prevention trials, and pathogen discovery. TickNET fosters surveillance, research, education, and prevention of tickborne diseases.

Responding quickly to outbreaks and emerging vector-borne disease threats

CDC provides broad-range scientific support and leadership as requested by states responding to vector-borne outbreaks. CDC’s support is typically provided to states in the areas of laboratory diagnosis, epidemiology and surveillance, vector monitoring and control, and health communications. In response to discovery of the longhorned tick in the United States, CDC developed a plan for working with states and federal partners to determine the geographical distribution of the tick. CDC is establishing a longhorned tick colony to determine if this tick can spread pathogens to people in the United States and will develop any new laboratory tests that may be needed. CDC has also provided technical assistance to states as requested, including deploying a group of epidemiologists, veterinarians, and entomologists to Arkansas to train and support staff in their longhorned tick surveillance and vector-borne disease prevention and control efforts.

CDC also frequently responds to international vector-borne disease emergencies. In 2017-2018, at the request of the World Health Organization (WHO), CDC responded to a request for support in the international response to a large-scale plague outbreak in Madagascar in which 2,600 suspect plague cases (August 2017 through April 2018) and more than 230 deaths were reported. CDC will continue to collaborate with WHO, the Madagascar Ministry of Health, and Institut Pasteur to develop improved diagnostic and treatment protocols, as well as better approaches to vector and reservoir control. These essential efforts assure that the United States and international community are prepared to prevent and control future similar outbreaks.

In addition, in FY 2018 CDC continued to play a central role in detecting and responding to yellow fever epidemics in Africa and the Americas, and in preparing for a potential shortage of yellow fever vaccine in the Americas. In 2016-2018, large outbreaks of yellow fever—one of the few vaccine-preventable arboviral diseases—killed hundreds of people in Brazil, Angola, and the Democratic Republic of the Congo. When a vaccine supply shortage occurred, CDC experts provided advice to WHO and ministries of health in rapidly implementing vaccination campaigns using one fifth of the standard dose (also known as fractional dosing). Millions of people in the Democratic Republic of Congo were vaccinated within a few weeks, largely stopping the epidemic. This action, in addition to designing and supplying diagnostic kits especially suitable for use in resource-poor areas, helped to save many lives while also showing that fractional dosing was effective.

Budget Request

CDC’s FY 2020 request of **\$50,603,000** for vector-borne activities is level with the FY 2019 Enacted level. These funds will allow public health to guide traditional and novel vector control activities based on data and best practices. Direct vector control, such as application of pesticides, will be supported and conducted through local agencies. CDC plans to continue to invest in cooperative agreements for vector-borne disease surveillance, prevention, and control.

The United States continues to be susceptible to existing and new vector-borne disease threats such as Zika virus. Therefore, the FY 2020 priorities will address critical needs in the nation’s vector control system by:

- Continuing to build comprehensive vector programs at the federal, state, and local levels, including:

- Developing a skilled vector workforce that can respond to the full variety of pathogens and the vectors that transmit them.
- Supporting every state to ensure critical surveillance and response capacities.
- Supporting a selection of high-risk states to ensure access to entomological expertise and expand state activities in laboratory, case and outbreak investigation, and vector control to identify and mobilize responses to existing and emerging threats.
- Advancing innovation and discovery in the areas of vector-borne disease threats, such as Lyme disease, West Nile virus, Zika, dengue, and yellow fever, including disease detection, prevention, and control. This work will include:
 - Identifying new and emerging vector-borne diseases and increasing understanding of the magnitude of existing vector-borne threats.
 - Developing cutting-edge diagnostic tools for fast, accurate detection of vector-borne infections.
 - Conducting priority research and development by supporting government, universities, and industry to develop ways to monitor and prevent insecticide resistance and foster new vector control technologies.

Through this work, and together with its partners, CDC will continue to build a sustained foundation to address the persistent threat of vector-borne diseases.

Advanced Molecular Detection and Response to Infectious Disease Outbreaks Budget Request

The Advanced Molecular Detection (AMD) program introduces rapid technological innovation, such as genomic sequencing of pathogens, to allow for better prevention and control of infectious diseases. Since the early 2000s, the world has witnessed revolutionary advances in certain technologies, particularly DNA sequencing (i.e., “next-generation sequencing”) and bioinformatics (methods for analyzing the data).

CDC’s AMD program was established to bring these technologies into the U.S. public health system. The AMD program works with disease-specific programs throughout the agency, supporting adaptation of AMD technologies to public health applications as well as the piloting and early scale up of those applications—giving programs a pathway to the implementation of AMD technologies within their fields. The AMD program also supports and manages the cross-cutting infrastructure to enable this, such as high-performance computing and bioinformatics support, and workforce development at CDC and in state and local health departments to prepare microbiologists and epidemiologists for this new era in technology. Increasingly, the program is also supporting adoption of cutting-edge data science technologies to optimize the impact of AMD data on the nation’s health by integrating them with other data streams and allowing for innovative analysis.

CDC has made significant progress since the establishment of the AMD program in FY 2014. At that time, CDC lagged behind in the adoption of AMD technologies. Now, CDC is a leader in many areas, incorporating new, more powerful pathogen detection methods. These innovations often replace more costly, time-consuming methods, many of which have been in use for the past 50–100 years. This work also provides a stronger scientific foundation for decision-making. As a result of this transition, CDC gets higher quality data, detects outbreaks sooner, and responds more effectively—ultimately saving lives and reducing costs. Additionally, AMD technologies are helping CDC to understand, characterize, and control antibiotic resistance (AR) and develop and target prevention measures, including vaccines.

Through AMD investments, CDC is seeing improvements in both public health outcomes and preparedness, applying AMD technologies in dozens of areas such as foodborne disease, influenza, AR, hepatitis, pneumonia, and meningitis. Since FY 2015, AMD has been rolling out genetic sequencing technologies to all state health departments as well as larger local health departments. Examples of how AMD investments are being leveraged through CDC’s programs include:

- **Foodborne illness:** The AMD program has been partnering with PulseNet, the nation’s laboratory-based foodborne disease surveillance system, to move from an older technology (pulsed-field gel electrophoresis [PFGE] first implemented over 20 years ago) to a more detailed, more accurate “DNA-fingerprinting” system, whole genome sequencing (WGS). The network, which consists of over 80 U.S. laboratories, is on track to complete this switch for the major foodborne pathogens (*Salmonella*, *E. coli*, and *Listeria*) in early 2019. WGS has already shown great value in understanding and solving major recent foodborne disease investigations, such as the Romaine lettuce outbreak and the breakfast cereal outbreak. Development efforts in the foodborne disease area are now expanding to address a rapidly emerging challenge—how to obtain WGS directly from samples when cultured pathogens are no longer available (due to culture-independent diagnostic testing [CIDT]). State health departments have asked the AMD program to prioritize this development effort.
- **Influenza:** CDC’s influenza program characterizes about 4,000-7,000 influenza viruses annually in order to determine which strains should be used for the annual influenza vaccine. With AMD support, the program has transformed virus surveillance to a “sequencing-first” strategy, establishing three state-based National Influenza Reference Centers to perform the sequencing. This approach increases timeliness of U.S. data by approximately two weeks, is much more automated, and provides additional data that are made publicly available to world experts in real-time. As a result, the twice-yearly strain selection for the world’s influenza vaccines is now based on a more

informative, more complete data set. Partly because of the success of this U.S. initiative, other countries have also been developing genomic surveillance programs, and these sequence data have rapidly become central to the vaccine strain decision-making process. In addition, the public availability of these sequence data has spawned research in the academic community into how to better predict the emergence of new influenza variants.

- **Zika:** Before recognition of the emergence of Zika virus in Brazil, the AMD program was supporting the implementation of sequencing for two related pathogens, chikungunya virus and dengue virus, in the Americas. Within three weeks of receiving the first Zika virus-positive sample, a CDC-developed protocol for Zika virus testing was developed, validated, and shared with public health laboratories in the United States and Latin America. Had this AMD program-funded infrastructure not been in place at the time, this same process would have taken three to four months, delaying public health's ability to quickly diagnose Zika and target prevention and control strategies.
- **Hepatitis C:** The opioid crisis is placing the United States at risk for epidemics of hepatitis C, which is quick to move into communities plagued by injection drug use. Previously, investigations of hepatitis C outbreaks were hampered by cumbersome laboratory methods to trace chains of transmission. Now, using AMD technologies, CDC has developed a high-throughput, low-cost method for identifying transmission networks. AMD has been useful in investigating outbreaks, and specifically in determining which cases are part of the outbreak and which are not. As of mid-2018, eight state and local health departments where the population has been heavily impacted by the opioid crisis implemented the technology and several others are planning to in the upcoming year.
- **HIV:** While there has been a steady decline in HIV infections attributed to injection drug use, the nation's opioid crisis threatens this progress. To identify outbreaks of HIV transmission more quickly and to support early intervention, CDC partnered with the University of California, San Diego and Temple University for the development of a secure system for analyzing HIV genomic data generated by drug resistance testing ordered by physicians to identify emerging clusters of disease. As of mid-2018, 31 HIV programs were routinely using the system. CDC anticipates that most remaining states will also begin implementing the system.

Budget Request

CDC's FY 2020 request of **\$30,000,000** for Advanced Molecular Detection and Response to Infectious Disease Outbreaks is level with the FY 2019 Enacted level. AMD is introducing cutting-edge technologies into public health that will fundamentally change the public health system and modernize the ability of CDC and state health departments to protect Americans' health. In FY 2020, the AMD program will focus on four key areas:

- **Deploying AMD technologies:** AMD technologies are now being rapidly adopted by state and local health departments and, for FY 2020, the AMD program anticipates growing demands to support this adoption. All states are applying AMD to the detection of foodborne pathogens. As states come online in this area, they are quickly moving to apply the technology in other areas, depending on local priorities: hepatitis C surveillance, for example, or influenza, meningitis, Legionnaires' disease, or any of several other areas. The AMD program is working with state and local health departments and with various programs at CDC to make sure this rollout is both rapid and sustainable.
- **Applying the technologies to other disease areas:** The program has supported adoption of AMD technologies in a large number of areas, but there remain many more areas of infectious disease where the technologies are applicable and can create efficiencies. In addition, the rapid advancement of these technologies is continuing to open up new opportunities for improving health. This technology will almost certainly play a role in responding to the next emerging infectious disease threat as it has in recent outbreaks of Ebola virus, Zika virus, and *C. auris*. With emerging infections, there will constantly be new opportunities to protect Americans better through application of AMD technologies.

- **Enhancing technological infrastructure:** Application of sequencing and related technologies requires access to such infrastructure as high-performance computing and expertise in certain specialized areas, including bioinformatics. The rapid increase in sequencing currently under way in state health departments will require expansion of existing services if the reliability and rapid turnaround time of the system is to be maintained. CDC is working with state and local health departments to develop a regional network of state-based bioinformatics experts to make this happen. Such an approach will promote collaboration among states and lead to a robust, resilient infrastructure.
- **Modernizing the workforce:** Although AMD technologies carry great potential, sufficient laboratory and bioinformatics capacities and highly skilled staff are essential to extract and interpret the relevant information from the massive amount of sequencing data rendered. Training CDC scientists and state public health staff in methods for pathogen genetic sequencing, analysis, and interpretation is critical. One example is a molecular epidemiology training that the AMD program has offered for CDC and state epidemiologists.

Next-generation sequencing and related technologies are continuing to advance at an astounding pace—much faster, for example, than the rapid rate of advances in computer processing. This technologic revolution is showing no signs of slowing down, resulting in greater capacity, lower costs, and increased automation, all of which are opening opportunities both in the private sector and in public health. Continued investment to keep up with ongoing, rapid changes in physical technology and innovation in public health will be crucial to ensuring CDC’s ability to take advantage of these advances and that it does not fall behind again. Continued investment will also ensure that there is ongoing, dedicated support for innovation both at CDC and at state and local public health laboratories.

Emerging Infectious Diseases and Emerging and Zoonotic Core Activities Budget Request

Protecting Americans from zoonotic and emerging infections—infections that have increased recently or are threatening to increase in the near future—involves a cascade of public health activities. These actions must occur at many levels (local, state, national, and international), because pathogens, diseases, and people move across borders. CDC invests in building a public health system for infectious diseases to:

- Create, support, and maintain disease tracking systems
- Support modern and efficient laboratories with well-trained laboratory scientists
- Prepare and equip outbreak investigation and response teams
- Develop and apply tools for effective epidemiologic, statistical, analytic, policy, and communication approaches
- Support an appropriately-sized and competent public health workforce with deep expertise across a broad range of pathogens

The budget lines for Emerging Infectious Diseases and Emerging and Zoonotic Core Activities have been merged into a single Emerging Infectious Diseases line. Both of these budget lines support a variety of foundational activities and programs. The merging of these two lines allows for greater programmatic and scientific synergy and administrative efficiency. Core activities and accomplishments in this area are described below.

Controlling high-consequence pathogens

CDC conducts disease detection and control activities that protect the United States from dangerous viral, bacterial, and unknown infectious agents. These include Hantavirus, Ebola virus, Marburg virus, Nipah virus, Rift Valley Fever, rabies, monkeypox, anthrax, and smallpox. Many of these pathogens are considered bioterrorism threats and are regulated as Tier 1 select agents. Since these pathogens can be lethal and some can spread as epidemics, CDC maintains regulated Biosafety level (BSL)-3 and BSL-4 laboratories that support epidemiology, research, and prevention efforts to reduce the public health threat of these highly hazardous and infectious pathogens. CDC's BSL-4 smallpox laboratory is one of only two labs in the world that can develop tests and evaluate treatments and vaccines needed to protect against smallpox used as a bioweapon.

CDC also provides laboratory reference and diagnostic support for state and local health departments and many other federal agencies. These laboratories, along with CDC's scientific and medical experts, keep Americans safe by reducing the threat of high-consequence pathogens within and outside our borders. CDC investigates all suspect domestic cases of known high-consequence pathogens and infectious diseases of unknown causes reported to CDC by state and local health departments. These laboratories, along with CDC's scientific and medical experts, reduced the threat of high-consequence pathogens in FY 2018, working around the clock, within the United States and internationally, tracking infections and investigating new outbreaks to protect Americans from lethal infectious diseases:

- **Viral Hemorrhagic Fevers (VHFs):**
 - In early 2018, an outbreak of Ebola Zaire in the Equateur Province of the Democratic Republic of Congo (DRC) raised international concern due its size, logistical challenges due to the remote area, and early limited spread to more populated cities. CDC deployed experienced staff to provide technical support to the Global Outbreak and Alert Network, World Health Organization (WHO), and the DRC Ministry of Health (MOH). CDC provided guidance and evaluation on the contact tracing systems critical for controlling these outbreaks. For the first time since West Africa, Ebola vaccine was used as part of the emergency response, with over 3,000 high-risk persons receiving vaccine. The outbreak was limited to 53 cases and 29 deaths; the swift international response ensured the outbreak was quickly controlled, and on July 25, 2018, the outbreak was officially declared over.

- Another outbreak of Ebola Zaire was announced on July 30, 2018 by the MOH of DRC; it is now the second largest Ebola outbreak ever recorded. Outbreak response activities continue: case finding and investigations, contact tracing, and immunization. Community resistance and security concerns in specific localities within the outbreak area have hampered CDC response activities, but staff deployed to Kinshasa, Geneva, and surrounding countries have been able to assist with data analysis and technical consultation. As of December 9, 2018, there are a total of 494 confirmed and probable cases.
- CDC provided epidemiological and laboratory assistance for an outbreak of Marburg in eastern Uganda in late 2017. Five human cases were identified, and 34 suspect cases and 36 close contacts were investigated. This outbreak shows Uganda's strong capacity to rapidly and efficiently respond to viral hemorrhagic fevers like Marburg and Ebola, which has been aided by CDC's investments in surveillance and laboratory capacity there since 2010, ensuring outbreaks are quickly investigated and controlled.
- Early laboratory capacity is critical to contain VHF outbreaks, but can be challenging in remote and resource-poor areas. To be better prepared to quickly assist countries managing outbreaks, CDC developed a deployable mobile laboratory that can safely test for pathogens like Ebola at their source, before they turn into epidemics that threaten U.S. borders. In 2018, CDC deployed the new mobile laboratory and team in support of an outbreak of Rift Valley Fever in Rwanda, where they helped train local staff to safely test for VHFs.
- **Myopericarditis reports following smallpox vaccination:** Following reports of a cluster of myopericarditis cases (an inflammation of the heart muscle) in April 2018 among recent military recipients of smallpox vaccine at Fort Hood, Texas, CDC staff deployed to help the Department of Defense investigate. Rare reports of myopericarditis have been previously associated with the current smallpox vaccine, and vaccination rates at Fort Hood had recently increased among soldiers. The team reviewed medical records and patient test results, and other causes of myopericarditis were investigated. Six cases with symptoms consistent with myopericarditis were identified.
- **Anthrax:** Anthrax is a zoonotic disease that can have devastating outbreaks associated with animal infections, as well as the potential to be used as a bioweapon. In 2018, CDC deployed a team to assist Namibia with a large wildlife die-off attributable to anthrax, which included human exposures to carcasses. In addition, CDC deployed a team to Uganda to investigate ongoing livestock outbreaks of anthrax, with over 150 human cases and more than 700 livestock deaths. CDC staff worked on case identification, safe sample collection, and laboratory capacity building, and provided recommendations on treatment, control, and prevention measures. These investigations provided a unique opportunity for CDC staff to test a new rapid diagnostic test on animal carcasses, which helped reduce the number of people exposed to anthrax.
- **Monkeypox virus:** In 2017-2018, unprecedented reports of monkeypox occurred across Central and West Africa. During 2018, CDC staff deployed a team to assist Nigeria's response to a monkeypox outbreak that affected over 150 suspected cases in over 10 provinces. CDC staff assisted health officials to recognize and track cases and contacts, as well as trained healthcare workers to recognize symptoms and to use laboratory tests to diagnose infection. In 2018, CDC also provided support throughout the Congo Basin and West Africa to enhance animal-human interface and disease ecology work to inform disease prevention programs.
- **Leptospirosis:** Following Hurricane Maria in late 2017, CDC supported laboratory testing for Puerto Rico and the U.S. Virgin Islands (USVI), which helped identify at least 129 confirmed and probable cases and 15 deaths due to leptospirosis, an increase above reports for the islands in previous years. In addition, a CDC team deployed to USVI to help improve surveillance, sample water sources, and healthcare provider education.

Identified unrecognized infectious diseases

CDC is one of the only places in the world with the scientific expertise to tackle outbreaks of unknown and emerging pathogens. CDC plays a critical role in the discovery of new and emerging infectious diseases, using techniques including advanced molecular detection (AMD) to solve medical mysteries and identify pathogens faster and more accurately. Laboratory specimens from all over the nation and the world are sent to CDC, often in cases where the cause of illness is unknown. In 2018, CDC tested thousands of tissue samples to help diagnose over 800 cases of unexplained illness or death.

Following the devastation caused by the 2017 hurricanes in Puerto Rico, CDC's pathology laboratory helped diagnose ten unexplained deaths in the territory, including three found to be caused by leptospirosis. In addition, CDC's pathology lab helped investigate infectious causes of death among persons in the United States with a history of substance abuse, including those affected by the opioid epidemic. Among 402 recent autopsy cases submitted to CDC's pathology lab, 26% had a history of substance abuse, and among those 65% had evidence of infectious disease contributors to death.

Developed innovative tools to reduce, treat, and better understand threats

CDC maintains world-class laboratories that conduct ground-breaking research to improve CDC's efforts to protect Americans against health threats. CDC's BSL-4 laboratories, reference collections, and skilled laboratorians provide a unique opportunity to test drugs in ways that cannot be evaluated anywhere else, such as studying the effects of new tools and therapeutics against many different strains of viruses. Recent accomplishments include:

- **Rabies:** Rabies is one of the deadliest viruses known to man, with nearly 60,000 deaths reported worldwide every year from infections spread through dog bites. WHO has set a goal for 2030 to eliminate human rabies deaths due to canine rabies. In 2018, CDC launched a new molecular-based rabies test that detects rabies faster and more accurately than other currently available tests and has been validated with a number of state and local public health laboratories. The new test—LN34—has the potential to transform rabies diagnostics around the world, especially in resource-poor areas where rabies is most common, because it does not require samples to be fresh or refrigerated and can be run on polymerase chain reaction (PCR) machines which lab staff already commonly use.
- **Viral Hemorrhagic Fevers (VHFs):** In order for the United States to be prepared in the event of an imported Ebola case, another VHF, or bioterrorism event—as well as protect against global outbreaks that could threaten our borders—CDC continues to evaluate possible new treatments to determine if they could work against highly dangerous pathogens. CDC has tested over 30,000 compounds for activity against hemorrhagic fever pathogens since 2014 (including Ebola and Marburg, Crimean Congo Hemorrhagic fever, Lassa, Nipah, Rift Valley Fever, and more), all under BSL-4 containment. Sixteen compounds with promising antiviral activity have been identified, and next steps are to characterize these compounds to determine their mechanism of action and assess their potential to be used as treatments.
- **Novel Pathology Tools:** CDC staff helped establish the first key links between the emergence of Zika virus in South America and microcephaly in infants, by using powerful microscopic techniques and precision molecular tracking tools to show the virus actually infecting the brain cells of affected infants. In 2018, CDC further developed these techniques (called in situ hybridization) for a variety of emerging pathogens, including chikungunya, Zika, dengue, enterovirus, MERS-CoV, and more. This work is providing important insights for how viruses infect us and spread in our bodies.
- **MicrobeNet:** CDC developed this innovative online tool to help laboratorians and doctors around the world get the information they need to accurately diagnose diseases faster. The tool allows unprecedented access to CDC's virtual microbe library of more than 2,400 rare and emerging

infectious diseases at no cost to users. Traditionally, clinicians or laboratorians who need support to identify a bacterium or fungus send a sample to CDC and await test results. With MicrobeNet, CDC is dramatically improving the health of people in the United States by cutting the time to identify pathogens from about one week to a few hours. MicrobeNet use and popularity has grown since it was first launched, and the platform now has over 1,700 users in the United States and around the world, and had over 16,000 user searches in 2018.

Addressed emerging respiratory pathogens

CDC detects and respond to respiratory disease threats domestically and abroad through disease tracking, epidemiologic investigation and response, and laboratory activities:

- **Middle East Respiratory Syndrome:** Continued assisting partners abroad and preparing for possible Middle East Respiratory Syndrome (MERS) cases in the United States. CDC provided trainings on the CDC laboratory diagnostic assay for MERS, participated in outbreak investigations, assessed the virus for genetic changes, worked with the Department of Homeland Security to train Customs and Border Protection officers, and provided guidance to healthcare providers, travelers, and airlines.
- **Legionnaires' disease:** Provided technical support for more than 110 Legionnaires' disease cases and outbreak investigations (as of December 10, 2018). This included seven investigations that required on-site technical assistance by CDC personnel. CDC continues to build capacity to prevent Legionnaire's disease/Legionella infections by developing and disseminating building water management toolkits, monitoring causes of Legionella outbreaks in communities and healthcare facilities, collaborating with the Centers for Medicare & Medicaid Services (CMS) to support implementation of water management programs in healthcare facilities, collaborating with states and other partners to monitor the impact of prevention measures, and developing laboratory techniques to more quickly identify the most dangerous strains.

Prevented and responded to healthcare-associated infections

Healthcare-Associated Infections (HAIs) are infections that people can get while receiving medical treatment in any healthcare setting. For example, in hospitals alone, one in 31 hospitalized patients has at least one HAI at any given time, with more than 680,000 infections occurring across the United States every year.^{23,24} In addition, many of these HAIs are caused by antibiotic resistant (AR) pathogens. CDC provides technical expertise on HAI prevention to other federal agencies, state and local health departments, and other partners. While CDC has made great progress preventing HAIs, more action is needed at every level of public health and healthcare to eliminate these infections to save lives and reduce unnecessary healthcare costs.²⁵

CDC published separate, but related, reports in 2018 regarding progress in preventing HAIs, the 2016 HAI Progress Report and the HAI Prevalence Survey. These reports showed that focused infection prevention efforts across the nation have successfully reduced infections in healthcare facilities. However, even with these successes, the reports indicate more work needs to be done to address infections that are not being prevented. CDC continues to support state and local health departments, healthcare systems, and other partners to prevent HAIs and support innovation.

CDC's HAI prevention efforts build on existing CDC guidelines and knowledge learned from our applied research and outbreak responses to enhance prevention strategies and tools to prevent infections, and stop the spread of AR infections to better protect patients. In 2018, CDC's world-class scientists provided critical epidemiological expertise and laboratory testing support to investigate over 250 outbreaks in healthcare, including multi-state outbreaks related to lapses of infection control, transmission of infections from organs and tissues, and

²³ <https://health.gov/hcq/prevent-hai-action-plan.asp>

²⁴ <https://www.nejm.org/doi/full/10.1056/NEJMoa1801550>

²⁵ These activities complement and are informed by CDC's National Healthcare Safety Network (NHSN) reporting capabilities.

contamination of medical devices and products. Recent examples range from design flaws in sinks and other healthcare plumbing that contaminate rooms through sink splashback, to surgical support equipment for open-heart surgeries that have inadvertently blown pathogenic bacteria into patients' exposed heart tissue. CDC also continues to work with partners to implement CDC tools and guidelines to healthcare facilities and providers to prevent infections, minimize unintentional risks to patients, and stop the spread of infections caused by highly resistant bacteria (e.g., carbapenem-resistant Enterobacteriaceae [CRE]).

Budget Request

CDC's FY 2020 request of **\$185,297,000** for Emerging Infectious Diseases and Emerging and Zoonotic Core Activities is \$1,500,000 below the FY 2019 Enacted level.

With the requested funding, CDC will continue its progress through the following actions:

Supporting epidemiological and laboratory capacity in the public health system

- Continue the Epidemiology and Laboratory Capacity (ELC) program, which operates a nationwide cooperative agreement supporting all 50 states, the six largest local health departments, and U.S. territories and affiliates. ELC focuses investments on building essential epidemiology and laboratory capabilities in all grantees while also providing targeted resources for issues of regional concern. Recipients are supported to accomplish a number of infectious disease goals, funded by this line and other infectious disease budget lines.
- CDC anticipates launching a new 5-year ELC cooperative agreement in FY 2019 that will run through FY 2024.

Controlling high-consequence pathogens

- Continue to protect Americans by responding to outbreaks of high-consequence pathogens, working to stop diseases spread within the United States and also around the world.
- Through training and sharing of scientific knowledge, improve the capacity of other countries to quickly identify and respond to outbreaks of high-consequence pathogens, so outbreaks can be stopped before pathogens can threaten our borders.
- Utilize a "One Health" approach to address the complex interplay between human health, animal health, and the environment by integrating surveillance and response strategies.
- Continue to support the Emerging Infections Program (EIP)—a network of 10 state public health departments (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) and their academic partners which conduct disease surveillance, epidemiology studies, and prevention research.
- Continue to monitor the effectiveness of pneumococcal conjugate vaccines in the Emerging Infections Program, demonstrating the dramatic impact of the pneumococcal conjugate vaccine (PCV13), licensed in 2010 for prevention of invasive pneumococcal disease in children and adults.

Identifying unrecognized infectious diseases

- Maintain technical subject matter expertise and world-class facilities to provide laboratory and epidemiologic capability to rapidly identify and respond to new contagious and dangerous infectious disease threats.
- Continue to help diagnose rare and unusual infections faster and more efficiently, and maintain vigilance to solve medical mysteries by determining the causes of unexplained illnesses and deaths.

Developing innovative tools to reduce and better understand threats

- Continue to serve as the world's gold standard laboratory to identify high-consequence pathogens and protect the nation from emerging public health threats.

- Use innovative tools, such as MicrobeNet and novel pathology tools, to help diagnose high-consequence infections (including rabies, leptospirosis, anthrax, viral hemorrhagic fevers, and monkeypox) more quickly and effectively, in order to expedite the response.
- Continue to improve diagnostic tests for high-consequence pathogens. As genomic surveillance improves for many of these diseases, continue to identify needs for diagnostic assay refinement. Some examples include species-specific orthopoxvirus tests, and pan-Lassa fever diagnostics.
- Continue to develop medical and public health interventions such as antivirals and new vaccines for high consequence pathogens, including monkeypox and viral hemorrhagic fevers like Ebola.

Preventing and responding to healthcare-associated infections

- Continue to provide national leadership and scientific expertise in HAI prevention, identify emerging threats, and protect patients through outbreak response, detection, infection control, and innovation across all healthcare settings and related communities. This includes working with health departments and healthcare facilities when problems arise and engaging other public and private health partners to prevent HAIs, as well as supporting other federal agencies (e.g., CMS, VA, IHS, and others) through provision of data and technical expertise.
- Continue to serve as the nation's gold standard laboratory to identify emerging and untreatable pathogens in healthcare settings and develop and evaluate new tests to protect the nation from public health threats.
- Continue to develop evidence-based HAI and AR prevention guidelines and work with partners to implement these recommendations to keep patients and healthcare workers safe, move toward elimination of HAIs, and improve the quality of care.
- Continue to use applied research and apply knowledge learned from outbreak response to enhance strategies and tools to prevent transmission of infections and AR, preventing future outbreaks.

Addressing emerging respiratory pathogens

- Continue funding all ten EIP sites to monitor respiratory bacterial pathogens, such as Group A and Group B *Streptococcus* and *Legionella*, and antibiotic resistance.
- Continue to support planning, surveillance, laboratory testing, and technical assistance for MERS.
- Continue epidemiologic and laboratory activities for non-influenza respiratory viruses that allow CDC to maintain expertise to respond to outbreaks of viruses such as EV-D68.
- Continue to provide state and local health departments 24/7 consultation regarding MERS identification and testing, partner at U.S. borders to increase MERS surveillance, and deploy epidemiologists to help in health investigations in affected countries. Closely monitor MERS globally and assess domestic risk, given the potential for this virus to cause more cases.
- Continue to build capacity to prevent Legionnaire's disease/*Legionella* infections by developing and disseminating building water management toolkits, monitoring causes of *Legionella* outbreaks in communities and healthcare facilities, collaborating with the Centers for Medicare & Medicaid Services (CMS) to support implementation of water management programs in healthcare facilities, collaborating with states and other partners to monitor the impact of prevention measures, and developing laboratory techniques to more quickly identify the most dangerous strains.

Antibiotic Resistance Budget Request

Antibiotic Resistance (AR)—when bacteria do not respond to the drugs designed to kill them—is a threat to the population at large, to modern medicine, and to the healthcare, veterinary, and agriculture industries. Life-saving treatments such as surgery and chemotherapy depend on antibiotics that work because they can reduce or even prevent the risk of infections that come with these procedures. The spread of AR infections can be prevented and contained with sustained commitment.

Some AR infections are already untreatable and add considerable burden to both patients and to the U.S. healthcare system. Each year, CDC estimates that over two million illnesses and about 23,000 deaths are caused by AR in the United States alone, leading to approximately \$20 billion in excess direct healthcare costs.²⁶ In addition, nearly half a million Americans suffer from *Clostridioides difficile* (*C. difficile*) infection, a potentially deadly diarrhea associated with antibiotic use. Antibiotics are critical tools for treating common infections and for life-threatening conditions including sepsis, the body’s extreme response to an infection. When bacteria become resistant, antibiotics cannot fight them, and the bacteria multiply. This increases the risk of spread of resistant bacteria to other patients and increases a patient’s risk that his or her infection does not respond to antibiotics, resulting in sepsis. As the nation’s leading public health agency, CDC is leading the public health response to combat AR. Without CDC, the country would have no situational awareness about new and known AR threats in the United States. CDC also provides the strategies, expertise, and resources for states and regions to adequately respond to these critical threats.

CDC defends against public health threats caused by AR through its support for fundamental public health capabilities and specialized programs in order to prevent, detect, and respond to AR pathogens like carbapenem-resistant Enterobacteriaceae (CRE), *C. auris*, and resistant *Salmonella*. CDC’s AR Laboratory Network (ARLN) supports labs nationwide to rapidly detect AR in healthcare, food, and the community, and inform local responses to prevent spread and protect people. The ARLN includes seven regional labs, the National Tuberculosis Molecular Surveillance Center, and labs in 50 states, six cities, and Puerto Rico. CDC also supports programs in 32 states and three cities to prevent and contain healthcare-associated infections and AR threats through the coordinated efforts of public health and healthcare facilities to target infection prevention.

Public and private sector research is crucial to discover new ways to protect people from AR infections and prevent their spread. Such promising research includes exploring ways that the microbiome can be used to predict and prevent infections caused by drug-resistant organisms. Applied research into infection control strategies is also essential to combat unknown or emerging threats like *C. auris* and “nightmare bacteria” CRE. To prevent the importation of urgent AR threats, CDC supports containment by building domestic infection prevention capacity, identifying emerging and existing AR pathogens, and partnering to implement global “early warning” systems for national surveillance programs. Recent investments have increased the nation’s capacity to detect AR pathogens, which is critical to identify AR threats and to implement fast, targeted interventions to stop the spread of infections in healthcare and communities, including ones related to food and the environment.

CDC continues to improve detection, and continued protecting patients and communities from the AR threats outlined in CDC’s AR Threat Report:

- Improved tracking, faster and more effective response, prevention, and containment:
 - Sustained core state and local laboratory and epidemiological capacity in all 50 states, six cities, and Puerto Rico for detecting, responding, and preventing AR infections related to healthcare, foodborne, and community infections.

²⁶ <https://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf>

- ARLN laboratories across all 50 states, Washington D.C., and Puerto Rico performed resistance testing on “nightmare bacteria” CRE isolates to assist local healthcare facilities identify new cases and prevent spread.
- Leveraged successful CDC programs to scale up cutting-edge technology in every state, including the implementation of whole genome sequencing (WGS) for resistance identification on food and waterborne bacteria, such as *Salmonella*, *Shigella*, and *Campylobacter*.
 - The ARLN, via a 50-state investment in PulseNet, is now able to perform WGS on *Salmonella*, *Campylobacter*, and *E. coli* isolates and simultaneously monitor these isolates for resistance genes.
- Supported the ARLN's seven AR Regional Laboratories to assist state outbreak response, rapidly detect existing and emerging resistance, and support innovations in antibiotic and diagnostic development.
 - The ARLN, via CDC and the Regional Labs, performed 100% of *C. auris* confirmation testing for the nation to inform patient clinical management and facility infection control actions.
- Strengthened national tuberculosis (TB) surveillance and infrastructure by establishing the National TB Molecular Surveillance Center, which will perform WGS of *Mycobacterium* TB to help target public health interventions and identify new AR TB strains as they emerge.
 - The National TB Molecular Surveillance Center of the ARLN is now sequencing 100% of the TB isolates in the United States, approximately 9,000 annually.
- Improved antibiotic use:
 - Partnered with states to improve antibiotic use, which is critical to ensure that bacteria do not become resistant to antibiotics. This also includes working with public health, healthcare systems, and professional organizations to integrate antibiotic stewardship principles in all healthcare facility program activities, such as early recognition of sepsis.
 - Implemented a national initiative—*Get Ahead of Sepsis*—targeted to healthcare professionals, patients, and their families emphasizing the importance of early recognition and timely treatment of sepsis as well as the importance of preventing infections that could lead to sepsis. CDC developed brand new educational resources to continue engaging partners and promoted this information throughout FY 2018 to increase awareness and provide support to healthcare providers and healthcare facilities on sepsis, including the need to prevent infections that lead to sepsis, and urgently treat suspected sepsis cases to protect America's health and save lives. CDC is also ensuring the sepsis messaging aligns and complements other CDC efforts (e.g., improving antibiotic use and combating AR).
- Supported new approaches to combat AR:
 - Invested in research on the link between antibiotics, the microbiome—the microorganisms that live naturally in and on our bodies—and the downstream consequences of widespread antibiotic use.

Budget Request

CDC's FY 2020 request of **\$137,000,000** from the Prevention and Public Health Fund to combat AR pathogens is \$31,000,000 below the FY 2019 Enacted level. CDC's AR Solutions Initiative supports national infrastructure to detect, respond to, and contain AR infections associated with healthcare, food, and the community. The requested level carries forward the proposed reductions included in the FY 2019 President's Budget. In FY 2020, CDC will continue to work with state and local health departments to protect Americans from the growing threat of antibiotic resistance, focusing on the highest priority activities. CDC will reduce investment to academic partners to identify innovative public health approaches to protect people from AR and will decrease support for state and local health departments. CDC will focus its resources in order to best protect Americans from the spread of resistant infections.

National Healthcare Safety Network (NHSN) Budget Request

Data collected to target healthcare-associated infection (HAI) prevention efforts and measure progress provide accountability and transparency, empowering healthcare professionals to improve the quality of care they provide to patients. Healthcare facilities identify and prevent HAIs and other health events using CDC's National Healthcare Safety Network (NHSN)—the nation's most comprehensive and widely used HAI and antibiotic resistance (AR) surveillance and quality improvement system. Over 21,500 U.S. healthcare facilities use NHSN as the cornerstone of their HAI elimination strategies.

Public health and healthcare partners—including healthcare facilities (e.g., hospitals, dialysis facilities, and nursing homes), state and local health departments, and federal partners (e.g., CMS, OASH, FDA, HRSA, DOD, and VA)—have used NHSN data and system tools to significantly reduce HAIs and improve antibiotic prescribing trends. Facilities, healthcare systems, and states use NHSN data to target HAI prevention activities to specific facilities, units, and wards across multiple healthcare settings so that infections can be prevented. Healthcare systems are using NHSN's Antimicrobial Use and Resistance (AUR) module to track and improve their use of antibiotics to best treat their patients and are also using NHSN data to identify specific facilities that need help with antibiotic stewardship efforts and work with those facilities to improve antibiotic use.

NHSN funding also enabled CDC to provide technical support to over 65,000 users, including healthcare facilities and systems, state and local health departments, and other quality improvement groups. This included supporting CMS on their meaningful measures and quality improvement initiatives, and working with HRSA's Federal Office for Rural Health to implement CDC Core Elements based antibiotic stewardship programs in small, critical access hospitals using the NHSN survey. In addition to maintaining the current systems, CDC advanced the use of electronic data capture for automated data extraction and reporting to relieve burden on users and healthcare providers and increase data reliability. The use of electronic data capture for NHSN reporting has increased. For example, over 1,100 hospitals from 49 states and Washington D.C., as well as Pacific and European military hospitals, now use NHSN with electronic data capture to track antibiotic use in the AUR module.

CDC has also expanded the range of infection data healthcare facilities can report in NHSN. This includes a joint CMS quality improvement effort in nursing homes to track *C. difficile* infections in NHSN and improve antibiotic use. CDC also launched a new Outpatient Procedure Component (OPC) in October 2018 to enhance ambulatory surgical centers' (ASC) abilities to identify and track outpatient procedure adverse events.

Budget Request

CDC's FY 2020 request of **\$21,000,000** for NHSN is level with the FY 2019 Enacted level. The FY 2020 budget request will support NHSN reporting in healthcare facilities across the continuum of care, including acute-care hospitals, dialysis facilities, nursing homes, and ASCs, enabling CDC to:

- Continue to provide technical expertise and enhance the use and maintenance of NHSN reporting components to protect America's health.
- Improve NHSN infrastructure to reduce reporting burden, provide reliable data, and increase the use of electronic reporting.
- Target prevention of HAI and AR infections and improve antibiotic prescribing.

Enhance the use of and maintain NHSN to protect patients

Data collected to target HAI prevention efforts and measure progress provide accountability and transparency, empowering healthcare professionals to improve the quality of care they provide to patients and informing state HAI-AR programs where to target their prevention efforts at the local level. CDC will also maintain NHSN reporting of specific device- and procedure-associated infections and provide these data to CMS to prevent

infections as part of their quality improvement initiatives, as well as increase awareness of patients and the public.

CDC will also focus on providing support to critical access and other smaller hospitals since these facilities serve as a foundation for rural healthcare delivery systems. CDC is engaging CMS, HRSA, and other healthcare partners on the best ways to provide support to these healthcare facilities on using NHSN. CDC will also continue to work closely with CMS on developing reliable NHSN measures as part of CMS' quality improvement initiatives and providing NHSN data to CMS which is also posted on CMS' Hospital Compare.

CDC will continue to promote the use of the Targeted Assessment for Prevention (TAP) Strategy²⁷ by facilities, health systems, health departments, and federal quality improvement organizations to target and tailor prevention efforts for efficiency and efficacy. NHSN's TAP reports alert providers and public health professionals to healthcare facilities and units with more infections so they can target prevention efforts in these areas. CDC's TAP Facility Assessment Tools can then be used to assess current prevention practices and identify gaps. CDC's TAP Implementation Guides can be used to address these gaps, prevent infections, and protect patients.

Improve NHSN infrastructure to reduce reporting burden and increase use of electronic reporting

The collection and dissemination of trusted, reliable, and credible data stimulates efforts to protect patients and preserve quality healthcare. CDC is constantly making improvements in response to end-user needs to reduce burden on NHSN users and improve data reliability and accuracy to enable healthcare providers, health systems, and health departments to use the data to better prevent infections and protect patients. In FY 2020, CDC will continue to promote the use of electronic data capture from health records and electronic data exchanges with NHSN as alternatives to manual processes, minimizing burden and increasing objectivity. Currently, over 7,900, or over one-third of the facilities participating in NHSN, use electronic data capture and reporting methods.

Combating AR infections and improving antibiotic prescribing through NHSN data

In FY 2020, CDC will continue to work with partners to promote the use of the NHSN AUR module and use those data to assess antibiotic prescribing for facilities in support of national HAI/AR prevention goals. Measurement of antibiotic use in hospitals (including VA and DoD hospitals) is an integral part of efforts to reduce inappropriate use and stop unnecessary antibiotic exposure, which puts patients at risk of highly resistant infections and secondary complications such as *C. difficile* infections. CDC is also working to improve reporting of CRE infections in NHSN. For additional information, please refer to CDC's AR Solutions budget narrative.

Preventing one of the leading causes of death: Sepsis

Sepsis is a life-threatening condition caused by the body's overwhelming response to an infection, leading to tissue damage, organ failure, and even death. Sepsis often begins outside the hospital and many patients who develop sepsis have medical conditions or require frequent medical care prior to onset of sepsis. Thus, there is a critical need to engage public health partners and healthcare providers to prevent infections that lead to sepsis and quickly recognize and treat sepsis—improving patient outcomes and saving lives. In FY 2020, CDC will continue efforts to develop an NHSN surveillance protocol for late onset sepsis and meningitis in neonates and initiate a new neonatal component in NHSN.

²⁷ <https://www.cdc.gov/hai/prevent/tap.html>

Food Safety Budget Request

CDC works to prevent the estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths each year caused by pathogens in contaminated food. Although 1 in 6 Americans gets sick from contaminated foods or beverages every year^{28, 29}, significant progress has been made in reducing human illness caused by three major bacteria associated with food compared to 1996-1998 baseline incidence: *Listeria* incidence has decreased 45%, *E. coli* O157 incidence has decreased 44%, and *Campylobacter* incidence has decreased 26%.^{30, 31, 32}

CDC has a unique role in detecting and investigating foodborne illness and outbreaks and attributing them to specific foods and settings. CDC provides the vital link between illness in people and the food safety systems of government agencies and food producers. CDC collaborates closely with FDA, USDA, state and local health departments, and food industries to protect Americans from food contaminated with dangerous pathogens.

PulseNet is a network of public health and food safety laboratories in all 50 states and Washington, D.C. that detects outbreaks of foodborne disease. In FY 2019, CDC continued to modernize PulseNet technology by increasing food safety support to state health departments for the roll-out of whole genome sequencing (WGS) at state public health labs, and for the transition of PulseNet surveillance to DNA sequence-based methods, and developing metagenomic methods for the next generation of PulseNet. Apart from laboratory advancements, CDC also increased support for state and local epidemiology capacity needed to investigate and solve foodborne outbreaks and to the Integrated Food Safety Centers of Excellence to support improved surveillance and response training for other states. All of this was accomplished in coordination with CDC's efforts on antibiotic resistance (AR) and Advanced Molecular Detection (AMD).

Budget Request

CDC's FY 2020 request of **\$54,000,000** for Food Safety is \$6,000,000 below the FY 2019 Enacted level. This request will help address critical unmet needs in the nation's food safety system, focusing on food safety priority areas at CDC and at state and local health departments. CDC will achieve these priorities in part through programs that enhance state and local public health capacity to support vital national surveillance, improve foodborne outbreak detection and investigations, enhance food safety prevention efforts, and maintain vigilance for emerging threats to our nation's food supply. Priority areas include:

Innovating to better detect, stop, and prevent outbreaks

For more than 20 years, CDC's PulseNet laboratory system has been a cost-effective tool for detecting foodborne disease outbreaks and correcting problems in the food production chain. Every year, PulseNet prevents approximately 270,000 illnesses and saves at least half a billion dollars in medical costs and lost productivity. For every \$1 invested, \$70 are saved.³³ Each state has at least one public health laboratory linked into PulseNet. This enables state health departments and CDC to identify ill people infected by bacteria with the same DNA fingerprint and to uncover potential foodborne outbreaks. AMD innovations, such as WGS technology, now being deployed at CDC and state public health laboratories are revolutionizing PulseNet and

²⁸ E. Scallan, R.M. Hoekstra, F.J. Angulo, et al. Foodborne illness acquired in the United States - major pathogens *Emerg Infect Dis*, 17 (1) (2011), pp. 7-15 https://wwwnc.cdc.gov/eid/article/17/1/p1-1101_article

²⁹ E. Scallan, P.M. Griffin, F.J. Angulo, et al. Foodborne illness acquired in the United States - unspecified agents *Emerg Infect Dis*, 17 (1) (2011), pp. 16-22, https://wwwnc.cdc.gov/eid/article/17/1/p2-1101_article

³⁰ *Listeria*: Healthy People 2020 FS-1.3 Reduce infections caused by *Listeria monocytogenes* transmitted commonly through food <https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4477>

³¹ *E. coli*: Healthy People 2020 FS-1.2 Reduce infections caused by Shiga toxin-producing *Escherichia coli* (STEC) O157 transmitted commonly through food <https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4476>

³² *Campylobacter*: Healthy People 2020 FS-1.1 Reduce infections caused by *Campylobacter* species transmitted commonly through food <https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4475>

³³ Robert L. Scharff, John Besser, Donald J. Sharp, Timothy F. Jones, Gerner-Smidt Peter, Craig W. Hedberg, An Economic Evaluation of PulseNet: A Network for Foodborne Disease Surveillance, *American Journal of Preventive Medicine*, Volume 50, Issue 5, Supplement 1, 2016, Pages S66-S73, ISSN 0749-3797, <http://www.sciencedirect.com/science/article/pii/S0749379715006108>

foodborne outbreak investigations. These innovations allow PulseNet laboratories to reveal important genetic material of a bacterium, including its AR characteristics, in one efficient process. Implementation of WGS at CDC and in state health departments is greatly improving the ability to detect widespread problems in the food supply. In a CDC pilot project, WGS of *Listeria* helped solve more *Listeria* outbreaks and with fewer cases per outbreak investigation, compared to using the older technology that WGS is replacing. CDC is rapidly expanding PulseNet capacity in all 50 states to conduct sequencing on *Salmonella*, *E. coli*, *Shigella*, *Campylobacter*, and *Listeria* from human cases by the end of 2019. By continuing core support to state health department PulseNet laboratories, enhanced investigation tools, and epidemiologists, outbreak detection and investigation will be improved throughout the country.

A rapidly emerging threat to PulseNet and CDC's ability to identify foodborne outbreaks is the increased adoption of culture-independent diagnostic test (CIDT) technologies used in clinical laboratories (e.g., laboratories which serve hospitals and clinics). CIDTs use simplified methods to detect bacteria directly from patient samples, like stool, to determine whether a patient has been infected with a foodborne pathogen. While useful for patient diagnosis, CIDTs do not provide state public health departments and CDC all of the genetic information needed to connect cases of ill people and detect outbreaks. This critical information is obtained through traditional microbiological techniques such as bacteria culture, followed by DNA sequencing. Until new AMD technologies, such as metagenomics, are available that provide the information directly from clinical samples, CDC is working with partners to ensure that cultures remain available for public health and to preserve the effectiveness of PulseNet. To support the continuing function of PulseNet laboratories, with the FY 2020 budget request CDC will:

- Track adoption of new CIDTs in clinical laboratories and analyze their impact on foodborne disease surveillance.
- Help public health laboratories collect bacterial isolates for PulseNet to preserve the ability to detect and control outbreaks until new laboratory technologies are developed.

To address the expected increased detection of foodborne disease outbreaks by PulseNet using WGS, CDC will:

- Develop methods to triage and prioritize outbreaks so limited state and local health department resources can be deployed effectively to stop the outbreaks.
- Evaluate new methods and technologies for conducting more rapid and complete interviews of patients to determine what they ate that made them sick.

Expanding capabilities of state and local health departments to detect and solve outbreaks

CDC will continue to support, coordinate, and enhance the state epidemiology, laboratory, and environmental health capacity needed to track illnesses and detect and respond to foodborne disease outbreaks. By way of Epidemiology and Laboratory Capacity (ELC) for Infectious Diseases cooperative agreements, CDC funds all 50 state, six local, and three territorial health departments to strengthen their ability to rapidly detect, investigate, and solve outbreaks and also to accelerate data reporting, which is crucial to preventing further illnesses and outbreaks from happening again.

CDC leads efforts in approximately 30 multi-state foodborne outbreak investigations each year with local, state, and federal agency partners. Outbreak data reported to CDC through PulseNet from state and local health departments help CDC identify and coordinate responses to large and multi-state outbreaks and provide critical insight to prevent future outbreaks. Together, CDC, states, and other partners stop outbreaks, prevent illness, and demonstrate how improved prevention policies might avert future outbreaks.

CDC drives improvements in foodborne outbreak detection and response at the state level through the Integrated Food Safety Centers of Excellence. CDC's six Food Safety Centers of Excellence (located in CO, FL, MN, NY, OR, and TN) provide assistance and training to other state and local public health programs to build their

capacity to track and investigate foodborne disease. Since 2009, 39 states and large cities have achieved this upgrade, and are performing measurably better in illness tracking and outbreak response. In FY 2020, CDC will:

- Improve disease detection and outbreak response by further integrating new WGS technology into routine public health practice.
- Support state and local capacity for monitoring foodborne illness and response to outbreaks.
- Train state public health personnel in best practices for foodborne disease detection, surveillance, pathogen identification, outbreak investigation, and control.
- Implement more widely state and local program metrics that identify strengths, weaknesses, and progress in upgrading illness tracking and outbreak response.
- Expand Integrated Food Safety Centers of Excellence regional support for state and local food safety programs.

Driving prevention with data and analysis

Knowing more about the foods, germs, and settings where outbreaks occur increases CDC's understanding of their impact on human health and is the first step towards prevention. Tracking trends in foodborne infections through robust state-based surveillance systems each year uncovers problems and identifies potential solutions. CDC provides leadership for foodborne illness surveillance through systems that track specific foodborne illnesses, monitor foodborne outbreaks, and detect emerging AR among bacteria that cause foodborne infections. CDC, the FDA, and the Food Safety and Inspection Service (FSIS) of the USDA created the Interagency Food Safety Analytics Collaboration (IFSAC) to determine the amount of foodborne illness caused by various categories of food. This information helps industry, consumers, and regulatory partners focus actions on identifying high-risk foods to prevent foodborne illnesses and to measure progress of prevention measures. In FY 2020, CDC will:

- Monitor foodborne diseases through population surveys to determine the burden of foodborne illness and frequency of consuming specific foods, collect and analyze foodborne outbreak data, and evaluate WGS technologies to monitor emerging AR.
- Assess trends in foodborne illness, identify high-risk foods, and evaluate the effectiveness of prevention strategies, through the IFSAC.
- Improve data integration, analysis, usability, and sharing with food safety partners and the public.
- Reduce data gaps and improve linkage across surveillance systems by working with FDA and USDA's FSIS to improve targeting of prevention efforts.

Food Safety Funding Provided through Epidemiology and Laboratory Capacity and Emerging Infections Program Cooperative Agreements^{1,2}

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	57	57	57
- New Awards	0	0	0
- Continuing Awards	57	57	57
Average Award	\$0.377	\$0.377	\$0.377
Range of Awards	\$0.038-\$1.700	\$0.038-1.700	\$0.038-1.700
Total Awards	\$21.520	\$21.520	\$21.520

¹ Reflects estimated awards funded by CDC's Food Safety budget authority, and includes funds from FY 2018 appropriations and recipient carryover funds awarded to grantees for this budget period

² These funds are not awarded by formula.

Quarantine and Migration Budget Request

Modern air travel has enabled extraordinary global interconnectivity, providing economic, cultural, and social benefits. However, these connections also allow an infected person to fly anywhere in the world within 24 hours, often in less time than it takes to develop symptoms of disease. The recent Ebola virus, Zika virus, and Middle East Respiratory Syndrome (MERS) outbreaks demonstrate that novel pathogens and disease outbreaks in distant locations are only a flight or two away from posing a threat to communities in the United States.

CDC's integrated global migration and quarantine activities create a multi-layered system of public health defenses to mitigate the risk of communicable disease spreading into and within the United States. These layers expand the perimeter of U.S. health security and surveillance to other countries where diseases may originate and where interventions are often more cost-effective. They also ensure that U.S. public health authorities and partners have multiple, early opportunities during an individual's or population's travel to intervene and protect public health, rather than wait until these travelers arrive in the United States with communicable diseases.

Abroad: Improving the health of globally-mobile populations reduces the risk of disease importation.

- Innovative and cross-cutting approaches to building public health capacity in at-risk countries and rapid capability to deploy and assist with exit screening reduce the risk that an outbreak spreads beyond the affected country.
- Cutting-edge understanding of global travel data helps determine where the risk of exportation exists and where to deploy public health resources efficiently and effectively.
- Advances in the CDC Technical Instructions provided to more than 750 panel physicians improve the required immigration medical exams to ensure healthy individuals come to live and work in the United States.
- Collaborations with U.S. Government partners enhance the cost effectiveness of public health interventions for U.S.-bound refugees by screening and treating overseas prior to resettlement.

During travel: Targeted risk and health communication encourages people to travel safely, while illness reporting from key partners provides CDC an early warning in the event a returning traveler is sick.

- Alerts, recommendations, and education for travelers and healthcare providers based on the best science (which includes the Yellow Book – a reference for those who advise international travelers about health risks), to prevent U.S. travelers from falling ill and bringing disease into the United States.
- Improved public health regulations require reporting of ill persons or deaths that occur during air or maritime travel, enabling CDC to respond in advance of an ill person arriving in the United States, preventing further spread.
- Partnerships with travel health physicians around the world provide key intelligence concerning disease hot spots around the globe.

At home: CDC and our public health partners stand ready to respond to illnesses at U.S. ports of entry and assist public health partners in preventing the spread of communicable disease.

- In collaboration with federal and local partners, detection and response to reports of illness through CDC's quarantine stations positioned at key points of entry strengthens public health security at the border.
- Coordination of public health responses during emergencies, coordination with state health departments on investigations of ill travelers and their contacts, and distribution of lifesaving drugs.
- Administration of the Public Health Do Not Board list, in partnership with DHS, to prevent individuals with certain infectious diseases from boarding commercial aircraft and potentially infecting other travelers.

- Detection, notification, investigation, and response to reported illnesses and infectious disease cases from individuals in border states or those who routinely cross the U.S. Mexico border for work, family, or leisure.
- Public health guidance for U.S. communities on how to prevent the spread of respiratory diseases (e.g., pandemic influenza) in schools, mass gatherings, workplaces, and other places where people live, work, and socialize.

CDC has made progress in a number of activities focused on preventing the introduction and spread of communicable disease into the United States. In collaboration with the Department of State, U.S. Customs and Border Protection, and the Australian Government Department of Home Affairs, CDC established eMedical, an electronic medical record system for immigration processing for 642 U.S. panel physicians at 363 sites in 159 countries worldwide. CDC developed, tested, and constructed the eMedical system and created a robust quality assurance program to ensure proper rollout with zero missed data. Once in operation, this system will result in improved detection of inadmissible health conditions and suspected tuberculosis cases for treatment prior to entry. CDC staff also deployed to support to the Ministries of Health, WHO, and other partners in Madagascar and the Democratic Republic of the Congo to develop measures to prevent international spread of pneumonic plague and Ebola, respectively.

Budget Request

CDC's FY 2020 request of **\$31,572,000** for Migration Health and Quarantine is level with the FY 2019 Enacted level. CDC will use these funds in FY 2020 to implement public health programs to protect U.S. communities from infectious diseases and medically screen people who are relocating to the United States from another part of the world.

In FY 2020, CDC will also continue to fund domestic and international partners through existing and new cooperative agreements. These awards protect the health of U.S. communities, the health of people coming to live and work in the United States, and the health of international travelers; improve the tracking of disease outbreaks and trends; and build epidemiologic and public health capacity to respond to public health emergencies. Additional efforts during FY 2020 will include:

Continuing to strengthen public health security, especially at U.S. ports of entry:

- Operating CDC's 20 quarantine stations to ensure that people, animals, and animal products coming to the United States do not spread disease.
- Providing essential drugs to hospitals to save the life of someone with malaria, botulism, or diphtheria. The proximity of CDC quarantine stations to airports enables CDC to rapidly respond in emergency situations. In FY 2018, CDC released 129 shipments of these life-saving drugs.
- Responding to major health emergencies involving travel to and within the United States.
- Collaborating with local, state, and federal partners in developing all-hazards biodefense strategies for both naturally emerging threats (e.g., pandemics including influenza, Ebola, Zika, MERS, yellow fever, plague, and others) and those purposely synthesized for malicious intent as biologic weapons.

Keeping Americans healthy during travel and while living abroad:

- Tracking and analyzing occurrences of disease throughout the world to help U.S. travelers and healthcare providers stay informed.
- Continuing to provide updated information to travelers on emerging infectious disease threats through the Travelers' Health website, cutting-edge mobile applications, and the Yellow Book.

Improving the health of individuals coming to live and work in the United States:

- Delivering evidence-based guidelines for mandatory medical screening and comprehensive tracking of diseases in these populations.
- Providing information to health departments and healthcare providers for medical follow-up of individuals coming to live and work in the United States.
- Expanding cost-effective overseas interventions to vaccinate and treat parasitic diseases for U.S.-bound refugees.
- Working collaboratively with the Office of Refugee Resettlement and other partners in exploring opportunities and mechanisms to enhance the cost-effectiveness of public health interventions for U.S.-bound refugees by moving these services overseas where they can be delivered prior to departure to the United States.

Partnering to protect the health of U.S. communities along the southwest border:

- Detecting, notifying, investigating, and responding to illness reports and infectious disease cases in individual traveling to and living in U.S. communities along the southwest border.

Within the requested amount, up to \$1.0 million is to remain available until expended for quarantine-related medical and transportation costs of travelers with highly contagious diseases such as multi-drug resistant (MDR) and totally drug resistant (TDR) tuberculosis. Isolating and quarantining travelers with highly contagious diseases such as MDR and TDR tuberculosis is common defense of public health in the United States.

Epidemiology and Laboratory Capacity State Table Funding^{1,2}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$2,228,245	TBD	TBD	TBD
Alaska	\$2,409,592	TBD	TBD	TBD
Arizona	\$3,220,501	TBD	TBD	TBD
Arkansas	\$2,797,227	TBD	TBD	TBD
California	\$9,342,774	TBD	TBD	TBD
Colorado	\$5,005,648	TBD	TBD	TBD
Connecticut	\$3,249,683	TBD	TBD	TBD
Delaware	\$1,558,828	TBD	TBD	TBD
Florida	\$4,326,965	TBD	TBD	TBD
Georgia	\$3,706,793	TBD	TBD	TBD
Hawaii	\$3,369,190	TBD	TBD	TBD
Idaho	\$1,070,317	TBD	TBD	TBD
Illinois	\$3,834,311	TBD	TBD	TBD
Indiana	\$3,237,432	TBD	TBD	TBD
Iowa	\$3,865,167	TBD	TBD	TBD
Kansas	\$2,635,359	TBD	TBD	TBD
Kentucky	\$2,927,220	TBD	TBD	TBD
Louisiana	\$1,905,752	TBD	TBD	TBD
Maine	\$2,171,237	TBD	TBD	TBD
Maryland	\$4,976,754	TBD	TBD	TBD
Massachusetts	\$5,225,581	TBD	TBD	TBD
Michigan	\$7,009,591	TBD	TBD	TBD
Minnesota	\$8,574,475	TBD	TBD	TBD
Mississippi	\$1,331,405	TBD	TBD	TBD
Missouri	\$1,709,595	TBD	TBD	TBD
Montana	\$2,289,933	TBD	TBD	TBD
Nebraska	\$3,229,294	TBD	TBD	TBD
Nevada	\$2,315,937	TBD	TBD	TBD
New Hampshire	\$2,533,042	TBD	TBD	TBD
New Jersey	\$3,458,983	TBD	TBD	TBD
New Mexico	\$3,095,310	TBD	TBD	TBD
New York	\$9,596,030	TBD	TBD	TBD
North Carolina	\$3,635,564	TBD	TBD	TBD
North Dakota	\$1,561,948	TBD	TBD	TBD
Ohio	\$4,438,146	TBD	TBD	TBD
Oklahoma	\$1,929,574	TBD	TBD	TBD
Oregon	\$3,758,242	TBD	TBD	TBD
Pennsylvania	\$3,868,432	TBD	TBD	TBD
Rhode Island	\$2,656,700	TBD	TBD	TBD
South Carolina	\$2,661,551	TBD	TBD	TBD
South Dakota	\$1,260,114	TBD	TBD	TBD
Tennessee	\$8,358,857	TBD	TBD	TBD
Texas	\$9,919,486	TBD	TBD	TBD
Utah	\$3,775,777	TBD	TBD	TBD
Vermont	\$1,997,454	TBD	TBD	TBD
Virginia	\$4,499,480	TBD	TBD	TBD
Washington	\$7,966,877	TBD	TBD	TBD
West Virginia	\$2,037,899	TBD	TBD	TBD
Wisconsin	\$6,753,564	TBD	TBD	TBD
Wyoming	\$1,571,071	TBD	TBD	TBD

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Cities				
Chicago	\$2,245,815	TBD	TBD	TBD
Houston	\$1,875,414	TBD	TBD	TBD
LA County	\$3,739,694	TBD	TBD	TBD
New York City	\$8,020,394	TBD	TBD	TBD
Philadelphia	\$1,995,662	TBD	TBD	TBD
Washington, D.C.	\$2,386,625	TBD	TBD	TBD
Territories				
American Samoa	\$19,598	TBD	TBD	TBD
Federated States of Micronesia	\$176,942	TBD	TBD	TBD
Guam	\$837,109	TBD	TBD	TBD
Marianna Islands	\$253,880	TBD	TBD	TBD
Marshall Islands	\$360,824	TBD	TBD	TBD
Republic of Palau	\$516,581	TBD	TBD	TBD
U.S. Virgin Islands	\$1,434,506	TBD	TBD	TBD
Puerto Rico	\$1,181,073	TBD	TBD	TBD
Subtotal States	\$190,858,907	TBD	TBD	TBD
Subtotal Cities	\$20,263,604	TBD	TBD	TBD
Subtotal Territories	\$4,780,513	TBD	TBD	TBD
Zika Supplemental	\$13,985,949	\$0	\$0	\$0
All Other	\$201,917,075	TBD	TBD	TBD
Total Resources	\$215,903,024	TBD	TBD	TBD

¹ The table includes ELC awards that fund all 50 states as well as select local and territorial/U.S. affiliated grantees. Awards include funding from lines both within and outside of the National Center for Emerging and Zoonotic Infectious Diseases. Amounts include funds from FY 2018 appropriations and recipient carryover funds (which may include supplemental appropriations) awarded to grantees for this budget period. Figures as of September 30, 2018.

² FY 2019 is the first year of a new cooperative agreement that will not be awarded until after the release of the FY 2020 Budget.

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CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$912.307	\$932.821	\$347.145	-\$585.676
PPHF	\$247.550	\$254.950	\$604.105	+\$349.155
Total Request	\$1,159.857	\$1,187.771	\$951.250	-\$236.521
FTEs	844	844	844	0
Tobacco Prevention and Control	\$209.709	\$210.000	*	N/A
PPHF (non-add)	\$126.000	\$129.600	*	N/A
Nutrition, Physical Activity and Obesity	\$54.775	\$56.920	*	\$0.000
School Health	\$15.347	\$15.400	\$15.371	\$0.029
Prevention Research Centers	\$25.373	\$25.461	\$0.000	-\$25.461
Heart Disease and Stroke	\$139.762	\$140.062	*	N/A
PPHF (non-add)	\$53.275	\$57.075	*	N/A
Diabetes	\$147.797	\$148.129	*	N/A
PPHF (non-add)	\$52.275	\$52.275	*	N/A
National Diabetes Prevention Program	\$25.212	\$25.300	\$19.962	-\$5.338
PPHF (non-add)	N/A	N/A	\$19.962	N/A
Cancer Prevention and Control	\$366.401	\$371.549	\$337.424	-\$34.125
Comprehensive Cancer (non-add) (PPHF)	\$0.00	\$0.00	\$67.143	+\$67.143
Oral Health	\$18.934	\$19.000	\$17.000	-\$2.000
PPHF (non-add)	N/A	N/A	\$17.000	N/A
Safe Motherhood and Infant Health	\$45.840	\$58.000	\$58.000	\$0.000
Maternal Mortality Review Committees (non-add)	N/A	\$12.000	\$12.000	\$0.000
Arthritis	\$10.962	\$11.000	*	N/A
Racial and Ethnic Approaches to Community Health (REACH) (PPHF)	\$50.829	\$55.950	\$0.000	-\$55.950
Good Health and Wellness in Indian Country (non-add) (PPHF)	\$16.000	\$21.000	\$0.000	-\$21.000
Million Hearts® (PPHF)	\$4.000	\$4.000	\$0.000	-\$4.000
National Early Child Care Collaboratives (PPHF)	\$4.000	\$4.000	\$0.000	-\$4.000
Hospitals Promoting Breastfeeding (PPHF)	\$8.000	\$8.000	\$0.000	-\$8.000
Other Chronic Disease Prevention	\$32.916	\$35.000	\$3.493	-\$31.507
Alzheimer's Disease (non-add)	\$4.485	\$5.500	\$3.493	-\$2.007
America's Health Block Grant (PPHF)	N/A	N/A	\$500.000	\$500.000

* Denotes programs that could be supported by the America's Health Block Grant.

¹ FY 2018 Final and 2019 Enacted Other Chronic Disease Prevention and Health Promotion budget structure is comparably adjusted to reflect Other Chronic Diseases funding line in the FY 2020 President's Budget.

Enabling Legislation Citation: PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317D*, PHSA § 317H*, PHSA § 317K, PHSA § 317L*, PHSA § 317M*, PHSA § 317P*, PHSA § 330E*, PHSA § 398A, PHSA § 399B*–399E*, PHSA § 399Q, PHSA § 399R*, PHSA § 399V-3*, PHSA § 399V-6, PHSA § 399W*, PHSA § 399X*, PHSA § 399Y*, PHSA § 399Z*, PHSA § 399LL, PHSA § 399NN*, PHSA § 417E(d), PHSA § 1501–1509*, PHSA § 1706*, Comprehensive Smoking Education Act of 1984, Fertility Clinic Success Rate And Certification Act of 1992 (PUB. L. 102-493), Firefighter Cancer Registry Act of 2018 (Pub. L. 115-194)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/expiring noted with *

Allocation Methods: Direct Federal Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and Competitive Contracts

Chronic diseases—such as heart disease, cancer, chronic lung diseases, stroke, and diabetes—account for most deaths in the United States and globally, and are the major causes of sickness, disability, and healthcare costs in the nation.

- They are responsible for 7 of 10 deaths among Americans each year.
- They are also leading drivers of the nation’s \$3.5 trillion in annual health care costs.³⁴

The vast majority of chronic diseases result from a few key risk factors. For example:

- Nearly 1 of 7 adults smoke, and every day about 2,300 youth younger than 18 years try their first cigarette. Each year, nearly half a million American adults die prematurely of smoking or exposure to secondhand smoke. Another 16 million live with a serious illness caused by smoking.
- Nearly 4 out of 10 American adults have obesity, a risk factor for multiple chronic diseases including type 2 diabetes.
- Only about half of American adults and about a quarter of adolescents (grades 9-12) get enough aerobic physical activity. About 10% of U.S. adults and 2% of adolescents (grade 9-12) consume the recommended amount of vegetables.
- 40 million of the 78 million American adults with high blood pressure do not have it under control.
- 114 million people have prediabetes or diabetes. Diabetes is a leading cause of kidney failure, blindness, and amputations.

While chronic diseases affect all populations, they are not evenly distributed. Disease rates vary by race, ethnicity, education, and income level, with the most disadvantaged Americans often suffering the highest burden of disease. For example, African-American women had a 39% higher rate of breast cancer mortality (27.6 deaths per 100,000) than white women (19.8 deaths per 100,000) in 2015. Diagnosed diabetes is over 65% higher among Hispanics/Latinos, and twice as high among American Indians and Alaska Natives, than non-Hispanic whites. Among adults 25-64 years of age, 31% with a high school diploma or less are current smokers, compared to 9% of adults with a bachelor’s degree or higher.

CDC’s Framework for Chronic Disease Prevention

Domain	Domain Description
Epidemiology and Surveillance	Provides robust data and information to understand chronic diseases and risk behaviors, inform interventions, and track progress in addressing them
Environmental approaches	Supports and reinforces healthy behaviors in communities, work places, schools, and anywhere people are located
Healthcare system interventions	Increases the effective delivery and use of clinical and other preventive services
Community programs linked to clinical services	Ensures people with or at high risk for chronic conditions have the support they need to reduce their risks, manage their conditions, and improve their quality of life

CDC’s chronic disease prevention framework³⁵ guides its efforts to collaboratively and efficiently build and strengthen the systems and environments that support Americans in taking charge of their own health. Four domains—or activity areas—comprise the framework. Work in each domain contributes to CDC’s overarching

³⁴ <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html>

³⁵ Bauer UE Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. *Lancet* 2014;384:45-52.

goals of preventing and reducing chronic diseases, conditions, and associated risk factors and behaviors; promoting health; and eliminating health disparities.

CDC's FY 2020 request of **\$951,250,000**, including \$604,105,000 from the Prevention and Public Health Fund for the Chronic Disease Prevention and Health Promotion program, is \$236,521,000 below the FY 2019 Enacted level.

The FY 2020 request carries forward proposed eliminations of Racial and Ethnic Approaches to Community Health (REACH), Million Hearts, National Early Child Care Collaboratives, and Hospitals Promoting Breastfeeding from the FY 2019 President's Budget. The request includes resources to support States, tribes, and territories to address leading chronic diseases through the *America's Health* Block Grant and supports the prevention of diabetes through the National Diabetes Prevention Program.

In FY 2020, CDC will continue to lead U.S. efforts to prevent and control chronic diseases and associated risk factors by:

- Supporting a robust public health response at all levels by implementing targeted chronic disease prevention interventions through state, tribal, local, and territorial health departments; community-based organizations; and non-governmental partners.
- Monitoring chronic diseases, conditions, and risk factors to track national trends and evaluate effective interventions.
- Conducting and translating public health research and evaluation to enhance the uptake of effective public health strategies.
- Providing national leadership and technical assistance to build the evidence for effective prevention programs.
- Communicating to partners and the general public about chronic disease burden, risks, and prevention opportunities.
- Informing sound public health policies that effectively combat chronic diseases and associated risk factors.

Eliminations

Racial and Ethnic Approaches to Community Health

The FY 2020 request carries forward proposed elimination of funding for the Racial and Ethnic Approaches to Community Health (REACH) program from the FY 2019 President's Budget. The FY 2020 Budget integrates existing disease-based activities into a new Block Grant to increase flexibility to States and Tribes to more efficiently and effectively address the leading causes of death and disability specific to each State. State, local, or tribal recipients of the \$500 million *America's Health* Block Grant will continue work on the leading causes of death and disability in these communities.

Million Hearts

The FY 2020 request carries forward proposed elimination of dedicated funding for the Million Hearts® program from the FY 2019 President's Budget; these activities have previously been funded by the Prevention and Public Health Fund. This program is a collaboration between CDC and the Centers for Medicare and Medicaid Services (CMS) to enhance cardiovascular disease prevention activities across the public and private sector.

National Early Child Care Collaboratives

The FY 2020 request carries forward proposed elimination of dedicated funding for the National Early Child Care Collaboratives program from the FY 2019 President's Budget; these activities have previously been funded by the Prevention and Public Health Fund. State, local, or tribal recipients of the *America's Health* Block Grant could

continue to promote similar prevention activities in the Early Child Care and Education (ECE) setting as a way to prevent obesity. This program implements obesity prevention initiatives targeting ECE settings to help establish and improve healthy nutrition and physical activity habits of young children. To carry out this work, CDC supports ECE learning collaboratives in ten states to facilitate best practices in nutrition, breastfeeding support, physical activity, and screen time.

Hospitals Promoting Breastfeeding

The FY 2020 request carries forward proposed elimination of dedicated funding for the Hospitals Promoting Breastfeeding program from the FY 2019 President's Budget. This program was created in FY 2012, funded by the Prevention and Public Health Fund. This program promotes and supports evidence-based strategies in states, communities, and hospitals to help women who choose to breastfeed to start and continue breastfeeding. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote breastfeeding as a way to prevent obesity and type 2 diabetes.

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

BY THE NUMBERS...

Chronic Diseases are the leading cause of death, disability, and health care costs in the United States: 1 in 2 adults has a chronic disease and 1 in 4 adults has two or more chronic diseases.¹

Poor nutrition, lack of physical activity, and tobacco use are key risk factors. CDC programs produce lasting change when it comes to addressing these costly conditions. Based on the most recent data available:

- **Nearly 19 percent**--Children and adolescents ages 2-19 and almost 40% of adults have obesity,² increasing risks for high blood pressure, heart disease, cancer, and diabetes.
- **6 percent**—Increase (over 4 years) in the percentage of adults receiving care in health systems participating in CDC funded state programs who have their high blood pressure under control.
- **260,000**—People reducing or reversing their risk of type 2 diabetes by participating in CDC’s National Diabetes Prevention Program.
- **1 million**—People with diabetes who have received diabetes self-management and education support services through CDC funded state programs, reducing their risk for diabetes complications.
- **Almost 1 million**—Cavities prevented in low income children as a result of dental sealants supported by CDC grant programs. About 1 in 6 children ages 6 to 11 have at least one untreated decayed tooth.³
- **2.7 million**—Children who have easier access to fruits and vegetables due to CDC activities.
- **47**—States that developed action plans to support farm to school or farm to early care and education (ECE) providers as a result of CDC investments.⁴
- **26 percent**--Schools that, with support from CDC, provide access to their physical activity spaces and facilities for all persons outside of the school day. CDC investments also enabled 32 states and Washington, D.C. to adopt state-level Complete Streets policies that make it easier to cross the street, walk to shops, and bicycle to work.^{5,6}
- **1 in 14**—U.S. high school students who smoke cigarettes in 2017—an all time low.⁷
- **3.6 million**—U.S. youth who used e-cigarettes in 2018, an increase of 78% from 2017.⁸
- **500,000**—Smokers who, between 2012 and 2015, quit for good with the help of the CDC’s Tips from Former Smokers media campaign.⁹
- **More than 5.4 million**—Women served by the National Breast and Cervical Cancer Early Detection Program since 1991. Screenings detected more than **207,000** precancerous cervical lesions of which 39% were high grade, and **65,000** cases of invasive breast cancer.

*References:

¹ Ward BW, Schiller JS. Prevalence of Multiple Chronic Conditions Among US Adults: Estimates From the National Health Interview Survey, 2010. *Prev Chronic Dis* 2013; 10: E65. https://www.cdc.gov/pcd/issues/2013/12_0203.htm.

² Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of obesity among adults and youth: United States, 2015–2016. *NCHS data brief*, no 288. Hyattsville, MD: National Center for Health Statistics. 2017. <https://www.cdc.gov/nchs/data/databriefs/db288.pdf>.

³ Fleming E, Afful J. Prevalence of Total and Untreated Dental Caries Among Youth: United States, 2015–2016. *NCHS Data Brief*, no. 307. Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention; 2018.

⁴ <https://www.cdc.gov/nutrition/downloads/fruits-vegetables/2018/2018-fruit-vegetable-report-508.pdf>.

⁵ Everett Jones, S., Wendel, A.M., 2015. Characteristics of joint use agreements in school districts in the United States: findings from the school health policies and practices study, 2012. *Prev. Chronic Dis.* 12, E50.

⁶ <https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/policy-development/policy-atlas/>.

⁷ Wang TW, Gentzke A, Sharapova S, Cullen KA, Ambrose BK, Jamal A. Tobacco Product Use Among Middle and High School students - United States, 2011-2017. *MMWR* 2018; 67(22):629-633. <https://www.cdc.gov/mmwr/volumes/67/wr/mm6722a3.htm>.

⁸ Cullen KA, Ambrose BK, Gentzke AS, Apelberg BJ, Jamal A, King BA. Notes from the Field: Use of Electronic Cigarettes and Any Tobacco Product Among Middle and High School Students – United States, 2011-2018. *MMWR Morb Mortal Wkly Rep* 2018;67:1276-1277. DOI: <http://dx.doi.org/10.15585/mmwr.mm6744a2>.

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

References (cont'd):

⁹ Murphy-Hoefer R, Davis K, Beistle D, King BA, Duke J, Rodes R, Graffunder C. Impact of the Tips from Former Smokers Campaign on Population-Level Smoking Cessation, 2012-2015. *Preventing Chronic Disease* 2018;15:E71.

¹⁰ Alzheimer’s Association. 2018 Alzheimer’s disease facts and figures. *Alzheimer’s Dement* 2018; 13(3):367-429. Access at: https://www.alz.org/documents_custom/2018-facts-and-figures.pdf.

*Unless otherwise noted, all information and calculations are from CDC program data

Chronic Disease Prevention and Health Promotion Funding History	
Fiscal Year	Dollars (in millions)
2016 (BA)	\$837.701
2016 (PPHF)	\$338.950
2017 Final (BA)	\$775.682
2017 Final (PPHF)	\$337.950
2018 Final (BA)	\$912.307
2018 Final (PPHF)	\$247.550
2019 Enacted (BA)	\$932.821
2019 Final (PPHF)	\$254.950
2020 President’s Budget (BA)	\$347.145
2020 President’s Budget (PPHF)	\$604.105

Chronic Disease Prevention Block Grant Budget Request

The proposed five-year chronic disease prevention and health promotion block grant, *America's Health*, provides flexibility for states, tribes, localities, and territories to focus on the top public health challenges present in their jurisdictions. These challenges are overwhelmingly chronic diseases, which account for seven of the ten leading causes of death, cause major suffering and disability to individuals and families, and are responsible for most of the nation's healthcare costs. They could include preventing and better managing two of the most common and costly chronic diseases, heart disease and diabetes; preventing or reducing child obesity; and addressing arthritis, the leading cause of work-related disability in the United States.

Budget Request

For FY 2020, CDC requests **\$500,000,000** for the *America's Health* Block Grant, all from the Prevention and Public Health Fund, to reform state-based chronic disease programs to provide additional flexibility to states.

Approach

With block grant funding, States and Tribes have the flexibility to organize prevention and control efforts and deploy evidence-based interventions in a manner that makes the most sense to their jurisdictions and circumstances. Grantees could implement customized strategies to:

- Improve the health and quality of life of people living with heart disease, diabetes, obesity, and arthritis.
- Help people manage and control their high blood pressure.
- Help people who use tobacco to stop using and people who don't use tobacco to stay tobacco-free.
- Help people make sensible, healthy food and beverage choices wherever they are.
- Increase opportunities for people to be physically active at home, at work, in communities, and throughout the day.

Effective public health interventions increase choices and opportunities for Americans to prevent and manage their chronic diseases, choose healthy foods and beverages, be physically active, and avoid tobacco use. As a result, grantees will be able to demonstrate real improvements in health by addressing the public health challenges facing their specific population.

Grantees will have the opportunity to work with governmental and nongovernmental partners, community programs and associations, employers, businesses, healthcare delivery systems, foundations, and philanthropies, among others, to bring additional skills, expertise, resources, and capacity to their chronic disease prevention and health promotion efforts.

Grantees will also be allowed to use funding for the national public health accreditation process. Accreditation by the Public Health Accreditation Board (PHAB) signifies that a health department is meeting standards in providing essential public health services in the community.

Funding Approach

The extramural portion of the *America's Health* Block Grant program is comprised of two components—a core block grant component and an innovation component. The **core component** (at least 85% of extramural funding) will fund state (50) and territorial (8) health departments, the Washington, D.C. health department (1), and Tribal Epidemiology Centers (12). The **innovation component** (up to 15% of extramural funding) will fund, on a competitive basis, large cities (up to 10), rural and frontier areas (up to 15), and tribes (up to 15). Entities eligible to apply for the core component can also apply for funding through the innovation component—either on their own or on behalf of and with the support of a city, rural/frontier area, or tribe.

Potential Goals and Outcomes

Potential goals include, but are not limited to:

- Improved health status and health outcomes for people with heart disease, diabetes, or arthritis.
- Increased control of high blood pressure.
- Reduced tobacco use.
- Improved nutrition.
- Increased physical activity.

Shorter-term outcomes may include:

- The percent of adults with high blood pressure who have their blood pressure under control.
- The percent of adults who have their cholesterol managed.
- The percent of adults with diabetes who have an A1c level below 9 percent.
- The number of adults with prediabetes who enroll in a CDC-recognized diabetes prevention program.
- The percent of adults with arthritis who engage in regular physical activity.
- Prevalence of cigarette smoking in the total population.
- Percent of children/adolescents and adults who consume at least two servings of fruit and two servings of vegetables each day.
- Percent of children/adolescents and adults who meet the Guidelines for Physical Activity recommendations.
- Percent of children/adolescents and adults who achieve and maintain optimal weight.

Longer-term outcomes may include:

- Decreased prevalence of obesity among children/adolescents and adults.
- Decreased incidence of type 2 diabetes.
- Decreased complications from type 2 diabetes, such as amputations, diabetes-related blindness, and kidney failure.
- Reduced mortality from diabetes or heart disease.
- Decreased prevalence of tobacco use.
- Decreased hospitalizations due to heart disease, diabetes, or arthritis.

Cancer Prevention and Control Budget Request

Cancer affects an estimated one in three Americans, either through their own diagnosis or that of a loved one. It is the second leading cause of death in the United States, resulting in over 595,000 deaths annually—more than 1,630 deaths each day.

Cancer affects every age group and is responsible for more years of life lost than all other causes of death combined. Because of an aging and growing population, the total number of new cancer cases is estimated to increase to 1.9 million in 2020. This represents a more than 25% increase in the number of annual cancer cases since 2010.

While advances in cancer detection and treatment help reduce the proportion of people who die from cancer, not everyone is benefitting equally. Significant disparities in cancer prevention, screening, early detection, and quality of care persist. More than half of the cancer deaths in the United States could be avoided if strategies promoting cancer screening, early detection, and prevention were fully adopted.

CDC works with state health departments, national cancer organizations, and other key groups to improve cancer prevention and early detection through interventions that help Americans lower their cancer risk and increase the use of recommended cancer screenings.

Budget Request

CDC's FY 2020 request of **\$337,424,000** for Cancer Prevention and Control, including \$67,143,000 from the Prevention and Public Health Fund, is \$34,125,000 below the FY 2019 Enacted level.

In FY 2020, the budget request includes dedicated funding to support: the National Breast and Cervical Cancer Early Detection Program (NBCCEDP); Breast Cancer Awareness for Young Women; WISEWOMAN (Well-Integrated Screening and Evaluation for Women Across the Nation); Johanna's Law; National Program of Cancer Registries (NPCR); National Comprehensive Cancer Control Program (NCCCP); and Cancer Survivorship Resource Centers. Through the Comprehensive Cancer program, CDC will support activities to more effectively address the overall risk factors associated with specific types of cancers.

National Breast and Cervical Cancer Early Detection Program (NBCCEDP)

Breast cancer is the most common cancer affecting women: in 2015, almost 242,000 women were diagnosed and more than 41,500 died from this disease. Cervical cancer is also an issue. In 2015, more than 12,800 women were diagnosed with cervical cancer and approximately 4,100 women died from the disease. Breast and cervical cancer screening are proven methods to find cancers early, when treatment is more effective. Unfortunately, persistently lower-than-optimal breast and cervical cancer screening rates, especially notable in some population sub-groups, continue to result in women being diagnosed at later stages and more deaths that may have been prevented.

CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP) serves women who are uninsured or underinsured and at high risk for these cancers nationwide in 50 states, Washington D.C., 13 tribes/tribal organizations, and six U.S. territories. Cervical cancer screenings are primarily provided to women who have never or rarely been screened for cervical cancer. Breast cancer screenings, are primarily provided to women 50 years of age and older. NBCCEDP grantees pay for direct cancer screening services for low-income, uninsured, or underinsured women. Programs also implement proven strategies that improve health system delivery of services, such as patient and provider reminder systems or patient navigation. These strategies help increase the number of all eligible women who complete the screening process. Recent accomplishments include:

- New Hampshire’s “Let No Woman Be Overlooked” Program collaborated with community health workers to implement the Pink Care Initiative in the Manchester Community Federally Qualified Health Center (MCFQHC) to decrease the no show rate of patients who did not keep their scheduled appointments. The MCFQHC had a 30-40% no show rate prior to the initiative. With the Pink Care Initiative, community health workers (CHWs) identified clients who were overdue for breast and cervical cancer screening and provided them with same day scheduling—resulting in a decrease in the no show rate to 3% after 6 months (July 2017 – Jan 2018).
- To maximize program outreach, NBCCEDP grantees use data to identify screening eligible women in their states. Pennsylvania, New Jersey, Maryland, Virginia, and Washington, D.C. worked with CDC to review available data that described their populations and respective cancer burdens. This resulted in an increase in the targeted number of women to be screened from 18,500 to 30,938 (59% increase) during program year 2017-2018.
- South Carolina’s Best Chance Network Program implemented its CAN SCREEN Initiative, a quality improvement learning collaborative in the Eau Claire and Little River Medical Centers focused on increasing the breast and cervical cancer screening rates of their providers. They improved and standardized their policies and program implementation processes, and best practices are being noted for potential replication in other clinics. As a result, the state re-screening rate has increased 9.7% overall from 49% one year ago (2017) to 54% currently (2018), with the Pee Dee region, which has the highest incidence and mortality rates, currently at 61%.

In FY 2020, CDC will continue to fund grantees to support screening services for underserved women. Grantees will also help healthcare providers make improvements to healthcare delivery systems and increase the use of proven interventions to address barriers to screening.

Breast Cancer Awareness for Young Women

While breast cancer mostly occurs among older women, 11% of all cases in the United States are reported in women younger than 45 years of age. Risk for breast cancer among young women varies based on factors such as family and personal history of cancer.

CDC’s Bring Your Brave campaign is a digital advertising and social media campaign aimed at raising awareness in young women about their risk. The campaign shares the stories of women affected by breast cancer. These stories about prevention; exploring a woman’s own history and her family history of cancer; and talking with healthcare professionals bring to life the idea that young women can be affected by breast cancer—and that they can do something about managing their risk. Bring Your Brave has generated more than 113 million impressions on Twitter, Facebook, Pinterest, YouTube, and Tumblr; 2.6 million video views; more than 300,000 visits to the Bring Your Brave website; and more than 1.4 million engagements on social media through retweets, shares, and conversations.

Well-Integrated Screening and Evaluation for WOMen Across the Nation (WISEWOMAN)

Each year, more than 384,000 women die from heart disease and stroke. In FY 2020, CDC will continue to use funding from the Breast and Cervical Cancer budget line to support the WISEWOMAN (Well-Integrated Screening and Evaluation for Women Across the Nation) program. Women referred to WISEWOMAN by the Breast and Cervical Cancer Early Detection Program receive screenings for heart disease, high cholesterol, and diabetes. The program also provides referrals to proven lifestyle programs and community services to support the adoption of healthy behaviors to reduce cardiovascular disease risk factors.

Between July 2015 and June 2016, the program provided more than 25,000 screenings and more than 38,000 behavioral support services. In FY 2020, WISEWOMAN will be in the third year of its five-year funding cycle.

Johanna's Law

CDC's Inside Knowledge: Get the Facts About Gynecologic Cancer (Inside Knowledge) campaign supports the Gynecologic Cancer Education and Awareness Act of 2005, or Johanna's Law, which was signed into law on January 12, 2007. This campaign raises awareness of the five main types of gynecologic cancer: cervical, ovarian, uterine, vaginal, and vulvar. The campaign educates women of all ages, races, and ethnic groups, especially those aged 40 years and older, and healthcare providers about the signs, symptoms, risk factors, and prevention strategies related to gynecologic cancers. The campaign informs women that it is important for them to pay attention to their bodies and know what is normal for them so they can recognize the warning signs of gynecologic cancers. Inside Knowledge public service announcements (PSAs) have generated 7.2 billion audience impressions worth more than \$200 million in donated placements.

National Program of Cancer Registries

CDC's National Program of Cancer Registries (NPCR) provides the technical expertise and funding necessary for 46 states, Washington, D.C., Puerto Rico, the U.S. Pacific Island Jurisdictions, and the U.S. Virgin Islands to collect data about cancer cases and cancer deaths for 96% of the population. The NPCR provides researchers and federal, state, and local decision-makers with the data needed to:

- Define and monitor burden.
- Identify trends in incidence.
- Investigate patterns of cancer treatment.
- Evaluate the effectiveness of investments to prevent cancer and to identify cancers early so there is a greater chance of survival.

NPCR coordinates with the National Cancer Institute (NCI) to produce the U.S. Cancer Statistics (USCS), the official federal cancer statistics providing the latest cancer data on 100% of the U.S. population. In August 2017, CDC released the USCS data through a public use database, which had over 350 users and five peer-review journal articles published a year after being released. CDC also released a data visualizations tool in March 2017, which allows users to customize views of cancer statistics at the national, state, and county levels.

States use registry data to better understand and address differences in cancer outcomes and to expand the reach of their screening and education programs. Recent accomplishments include:

- The Rhode Island Cancer Registry used 20 years of cancer surveillance data to demonstrate that the odds of being overweight or having obesity were significantly higher among people with breast cancer. Rhode Island and its partners are now developing state-wide cancer prevention content to educate consumers and public health professionals.
- The New York State Department of Health and its partners are creating a Cancer Prevention Registry for the state. Fifty health centers were connected to the cancer screening registry representing 78% of all Federally Qualified Health Centers (FQHCs) in New York State, exceeding the project goal to connect 75% of health centers. Data was tracked by groups of FQHCs based on when they joined the registry. Screening rates for breast, cervical, and colorectal cancer have increased by at least 8.8%, with the exception of one group. The greatest increase was a 71.2% increase in colorectal cancer screening rates which was seen in the first group of centers to join the registry.

In FY 2020, CDC will fund the fourth year of a five-year cooperative agreement.

National Comprehensive Cancer Control Program

At least half of all cancer deaths can be prevented through adoption of healthier behaviors. CDC's National Comprehensive Cancer Control Program (NCCCP) awardees create tailored plans that support effective activities

to prevent and reduce cancer within their state or jurisdiction. Priorities of the program—which funds 50 states and Washington, D.C., eight tribal organizations, and seven U.S. territories—are:

- Helping people who want to adopt healthier behaviors to do so, decreasing their cancer risk.
- Assisting healthcare systems to improve access to cancer screening services and quality cancer care and treatment.
- Improving quality of life for cancer survivors.

NCCCP awardees coordinate cancer prevention and control efforts, using local data to produce a cancer control plan tailored to the needs of that particular state or jurisdiction. Awardees convene coalitions of stakeholders from community and partner organizations, leverage resources, and develop and implement plans that prioritize evidence-based strategies. Awardees have flexibility to focus on the most common cancers and cancer risk factors for which clear public health prevention strategies exist in their respective jurisdictions.

Recent program accomplishments include:

- In FY 2017, CDC’s Colorectal Cancer Control Program grantees partnered with over 643 health system clinics that served over 1,114,000 patients age-eligible for CRC screening to increase cancer screening. Among clinics recruited in the first year of the program, screening rates increased 9.1 percentage points from a median rate of 42.9% in FY 2016 to 52.0% in FY 2017. In contrast, national screening rates for the U.S. only increased approximately 1% over two years from 2014 (66.3%) to 2016 (67.3%).
- Leveraging demonstrated success from New Hampshire’s program model, South Carolina’s Colorectal Cancer Prevention Network (CCPN) uses nurses as patient navigators to walk patients through the screening process from making an appointment to finding transportation to the clinic. To track program impact, CCPN developed a shared “data warehouse” that allows clinics to track the type of screening test, results, follow-up care for each patient, and get automatic reminders when a patient is due for another screening. CCPN staff can use the warehouse to create reports within 24 hours. Without the system, it could take a year or more to collect data and look at it to find patterns or changes. Using data from the data warehouse, CCPN was able to show that if those patients had not been screened, treatment costs for the resulting cancers would have totaled around \$27.5 million between 2013 and 2016. The database structure can also be used for free by any group that has its own data storage capabilities.
- To reduce incidences of cervical cancer, the South Dakota Comprehensive Cancer Control Program (SDCCCP) partnered with other stakeholders to increase Human Papillomavirus (HPV) vaccination rates. Client reminders, provider assessment and feedback, and community education interventions resulted in increases in the number of youth who completed the three-dose HPV vaccine series from 25% in June 2015 to 32% in June 2016. South Dakota reported a 14-percentage point decrease (from 64% to 50%) in the number of youth who had not received any doses of HPV vaccine. More than 3,000 doses of HPV vaccine were administered, and more than 41,500 client reminders were sent out. During 2016–2017, SDCCCP and Sanford Health partnership added 32 additional clinics across South Dakota.
- Compared to the state average, American Indian populations in Michigan have higher smoking rates and start smoking at younger ages. The Michigan Comprehensive Cancer Control Program partnered with the Inter-Tribal Council of Michigan to develop and implement a clinic policy to screen youth (ages 12 – 18) in two tribes in the state for commercial tobacco use and to refer tobacco users to appropriate treatment services. This project resulted in increased rates for screening and referral to cessation services in both tribal clinics. The Saginaw Chippewa Nimkee Wellness Center achieved a 100% screening and referral rate. The Keweenaw Bay Indian Community built their policy into their electronic health record system and achieved a screening and referral rate of 71.6%.

Cancer Survivorship Resource Center

There are currently more than 15.5 million cancer survivors in the United States and this number is projected to increase to 26 million by 2040³⁶. CDC works to address the needs of survivors by making cancer survivorship a public health priority, conducting epidemiological and applied research and surveillance, and supporting programs for survivors.

CDC works with partners on a variety of activities including: promoting smoking cessation for survivors to reduce risk of second cancers and improve their overall health; evaluating a self-management intervention for young survivors using patient navigation, care planning, and texting to promote adherence to care and lifestyle recommendations; and helping disseminate effective weight management and physical activity programs tailored to meet survivors' needs. In FY 2020, CDC will continue to work with public, non-profit, and private organizations to evaluate and disseminate promising practices and interventions to promote health and improve the quality of life of cancer survivors.

³⁶ Bluethmann SM, Mariotto AB, Rowland, JH. Anticipating the "Silver Tsunami": Prevalence Trajectories and Comorbidity Burden among Older Cancer Survivors in the United States. *Cancer Epidemiol Biomarkers Prev.* 2016;25:1029-1036.

National Diabetes Prevention Program Budget Request

About 30.3 million Americans have diabetes and each year another 1.7 million Americans ages 20 years or older are newly diagnosed. Additionally, CDC estimates that 84.1 million American adults—more than one of three—have pre-diabetes, a serious health condition that increases the risk of developing type 2 diabetes, heart disease, and stroke.

Living with diabetes is hard and can lead to premature death: annually, more than 250,000 people in the United States die from diabetes-related complications. Diabetes is also expensive. In 2017, the total estimated cost of diabetes was \$327 billion, which included \$237 billion in medical costs and \$90 billion for costs due to reduced productivity because of disability, loss of work, and premature death³⁷.

CDC's National Diabetes Prevention Program (National DPP) puts into practice groundbreaking clinical trial findings that type 2 diabetes can be prevented or delayed through lifestyle changes by high-risk adults.

Budget Request

CDC's FY 2020 request of **\$19,962,000** for the National Diabetes Prevention Program (National DPP), all from the Prevention and Public Health Fund is \$5,338,000 below the FY 2019 Enacted level.

CDC's National DPP is a partnership of public and private organizations working together to make it easier for people with pre-diabetes to participate in an evidence-based, affordable, and high-quality lifestyle change program. The National DPP focuses on four components:

- Training: build a workforce that can cost effectively implement the lifestyle change program.
- Recognition: ensure quality and standardized reporting by program providers.
- Intervention: delivery of the lifestyle change program through organizations nationwide.
- Promotion: increase referrals to and participation in the lifestyle change program.

Individuals who participate in the National DPP lifestyle change program learn how to eat healthy without giving up all the foods they love; add physical activity to their life; deal with stress; and get back on track if they stray from their plan.

The funding request for FY 2020 will support CDC's efforts to:

- Fund national or regional organizations to establish and sustain CDC-recognized diabetes prevention programs in underserved areas of the country and to reach priority populations, including those in rural areas and those at high risk for type 2 diabetes.
- Maintain a National DPP Customer Service Center to expand technical assistance and training for CDC-recognized program delivery organizations, employers, insurers, healthcare systems, and other key stakeholders.
- Conduct the data collection and analysis for ongoing monitoring of program quality for the National DPP through the CDC Diabetes Recognition Program.
- Maintain support for the Centers for Medicare and Medicaid Services' expansion of the Medicare Diabetes Prevention Program as a covered service for Medicare beneficiaries with prediabetes.

Accomplishments of the National DPP include:

- Effective April 1, 2018, the National DPP lifestyle change program became a covered service under Medicare—the first preventive service model from the CMS Innovation Center to become eligible for expansion and a landmark for public health. Approximately 23 million American adults with prediabetes are 65 years or older and could directly benefit from this program.

³⁷ American Diabetes Association, Economic Costs of Diabetes in the U.S. in 2013. *Diabetes Care* 2013; 36:1033-1046, 2013.

- As of December 2018, nearly 1,700 organizations have received CDC recognition and the National DPP has served over 260,000 participants.
- With support from CDC, state health departments and other partners have secured health insurance coverage for the National DPP for over 3.4 million public employees and dependents in 19 states, and about 100 commercial insurance companies and employers currently provide some form of coverage for the National DPP for their plan members or employees with prediabetes. In addition, nine states (MN, MT, VT, CA, NJ, MD, OR, PA, AR) currently have full or partial coverage through Medicaid authorities, demonstrations, or pilots.
- Through collaborative work with the American College of Preventive Medicine, nine new health care organizations are working to develop and institutionalize protocols to screen, test, and refer patients with prediabetes to CDC-recognized program delivery organizations, and to share their approaches with other interested healthcare organizations/providers.
- In 2016, CDC partnered with the American Medical Association (AMA), the American Diabetes Association (ADA), and the Ad Council to launch the first National Prediabetes Awareness campaign, a health communication and marketing campaign aimed at increasing awareness and understanding of prediabetes and providing information about how to prevent progression to type 2 diabetes. As of 2018, a total of 2.1 million tests to determine an individual's risk for prediabetes were completed, well exceeding initial goals of 30,000-50,000 per year.
- Your Health with Joan Lunden and CDC, a mini-series launched in 2017 to educate and inform people in the United States about diabetes and prediabetes, resulted in over 300 million media impressions including broadcast television, digital TV screens through the Health Media Network, and 11 heavily trafficked airports across the United States.

Safe Motherhood and Infant Health Budget Request

For more than 50 years, CDC has worked to improve the health of moms and babies by promoting optimal and equitable health through surveillance, science, and service. This effort not only supports societal goals, but makes financial sense: preterm births (less than 37 weeks) cost the U.S. healthcare system more than \$26 billion per year, and the annual cost of unintended pregnancy is approximately \$21 billion.^{38,39}

Budget Request

CDC's FY 2020 request of **\$58,000,000** for Safe Motherhood and Infant Health is level with the FY 2019 Enacted level. This level includes \$12,000,000 to continue activities initiated in FY 2019 to address maternal mortality through Maternal Mortality Review Committees.

In FY 2020, CDC will continue to support Safe Motherhood and Infant Health, focusing on the following activities:

- Perinatal Quality Collaboratives (PQCs): Support 13 states to improve the quality of maternity care and health outcomes for women and newborns. Projects in the PQCs include: studying the utilization of progesterone to reduce recurrent preterm birth; efforts to address preeclampsia (dangerously high blood pressure during and after pregnancy); improving treatment for opioid use disorder during pregnancy; and reducing hospital stays and length of treatment for newborns experiencing symptoms of drug withdrawal (Neonatal Abstinence Syndrome).
- Sudden Unexpected Infant Death (SUID) Case Registry: Support 23 states to provide comprehensive information about the circumstances associated with SUID and sleep-related infant deaths. This information can be used to develop targeted prevention and intervention strategies, and improve data collection by medical and law enforcement personnel.
- Maternal Mortality Prevention and Surveillance: Fund state Maternal Mortality Review Committees to support data collection and data-driven action to prevent maternal mortality. CDC also supports the Pregnancy Mortality Surveillance System, a national surveillance system for pregnancy-related deaths to help us better understand circumstances surrounding these deaths.
- Monitor Assisted Reproductive Technology (ART): Collect data through the National ART Surveillance System (NASS) from every clinic in the United States that uses ART to treat infertility.
- Pregnancy Risk Assessment Monitoring System (PRAMS): Support 48 states, New York City, Washington, D.C., Puerto Rico, and the Great Plain Tribal Chairmen’s Health Board to collect data through PRAMS. This data identifies factors that put women and infants at risk for health problems; monitors access to care and services; identifies trends in behavior and health status; and measures progress in improving the health of mothers and infants.

Pregnancy Risk Assessment Monitoring System (PRAMS) Grant Program¹			
(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	51	51	51
- New Awards	0	0	0
- Continuing Awards	51	51	51
Average Award	\$0.143	\$0.143	\$0.143
Range of Awards	\$0.122– \$0.158	\$0.122– \$0.158	\$0.122– \$0.158
Total Awards	\$7.300	\$7.300	\$7.300

¹ These funds are not awarded by formula.

³⁸ Behrman RE, and Butler AS. Preterm Birth: Causes, Consequences, and Prevention. Institute of Medicine, 2007.

³⁹ Sonfield A and Kost K. Public Costs from Unintended Pregnancies and the Role of Public Insurance Programs in Paying for Pregnancy-Related Care: National and State Estimates for 2010, New York: Guttmacher Institute, 2015.

Oral Health Budget Request

Dental cavities, when left untreated, can cause pain, infection, and problems with eating, speaking, and learning. Dental sealants prevent 80% of cavities in the back teeth (where 9 in 10 cavities occur). Although the number of students in the United States with sealants has increased over time, low-income children are 20% less likely to receive sealants and twice as likely to have untreated cavities as higher income children.

CDC’s oral health program supports states to reduce differences in the rate of cavities and oral diseases among youth in different population groups, and to integrate oral health programs into chronic disease prevention efforts and medical care services. CDC focuses resources on children at high-risk for oral health problems through school-based dental sealant programs in schools where at least 50% of students participate in free and reduced-cost meal programs.

In addition, CDC promotes science-based interventions that prevent decay and promote oral health, including community water fluoridation, one of the most practical, cost-effective, and safe measures communities can take to prevent cavities and improve the oral health of all residents. CDC develops and promotes guidelines for infection prevention and control in dental settings, as well as tools and resources to increase adherence to guidelines. CDC investigates possible disease transmission in dental offices. CDC also hosts a Dental Public Health Residency Program to support workforce development by training skilled specialists in dental public health who can work collaboratively with their public health and dental colleagues in an array of health settings to achieve improved oral health for populations.

Budget Request

CDC's FY 2020 request of **\$17,000,000** for Oral Health, all from the Prevention and Public Health Fund, is \$2,000,000 below the FY 2019 Enacted level.

In FY 2020, CDC will continue funding a 5-year funding opportunity, building on strengths and successes from prior state awards and a pilot project to test models of collaboration between state chronic disease prevention and oral health programs. These resources, plus technical assistance and training, help states promote good oral health, track oral health behaviors and problems, and conduct and evaluate prevention programs.

CDC will also continue to conduct research, analysis, and translation of national- and state-level data on oral disease burden, dental care service use, preventive services, and cost-effectiveness analyses.

Oral Health Grant Program¹			
(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	20	20	20
- New Awards	20	0	0
- Continuing Awards	0	20	20
Average Award	\$0.420	\$0.420	\$0.420
Range of Awards	\$0.370–\$0.570	\$0.370–\$0.570	\$0.370–\$570
Total Awards	\$8.400	\$8.400	\$8.400

¹ These funds are not awarded by formula.

Other Chronic Disease Prevention Budget Request

Many chronic conditions warrant monitoring and investigation as a consequence of the burden they place on individuals and their caregivers, and the need for increased understanding of their prevalence and disease progression.

Alzheimer's disease, for example, is the most common form of dementia. It involves parts of the brain that control thought, memory, and language, and can seriously impair a person's ability to carry out activities of daily living. Alzheimer's disease is the sixth leading cause of death for all Americans, and rates of Alzheimer's disease deaths have increased more than 50% since 1999. In 2018, as many as 5.7 million Americans are living with Alzheimer's disease. By 2050, 14 million Americans are expected to have Alzheimer's disease, a nearly three-fold increase. Alzheimer's disease affects more than just the individual diagnosed. More than 15 million Americans provide more than 18 billion hours of unpaid care for family and friends with Alzheimer's disease and other dementias. The total value of that unpaid care is estimated to be more than \$230 billion.^{40,41}

Budget Request

CDC's FY 2020 request of **\$3,493,000** for Other Chronic Disease Prevention activities is \$31,507,000 below the FY 2019 Enacted level.

The FY 2020 request carries forward the proposed elimination of Glaucoma, Visual Screening Education, Inflammatory Bowel Disease, Interstitial Cystitis, Excessive Alcohol Use, Chronic Kidney Disease, Epilepsy, and the National Lupus Patient Registry from the FY 2019 President's Budget. Funding will support Alzheimer's disease activities, but at a reduced level—\$2,007,000 below the FY 2019 Enacted amount.

Alzheimer's Disease

In 2018, CDC and its partners released The Healthy Brain Initiative's (HBI) "State and Local Public Health Partnerships to Address Dementia, The 2018-2023 Road Map"⁴² (Road Map) detailing key activities for state and local public health agencies to address cognitive impairment and caregiving, and increase cognitive health awareness among the public and health professionals. The Road Map aligns with the U.S. Department of Health and Human Services' congressionally-mandated National Plan to Address Alzheimer's Disease and the Essential Services of Public Health. Alignment of the Road Map with Essential Services of Public Health ensures that initiatives to address Alzheimer's can be incorporated easily and efficiently into existing public health initiatives.⁴³

In FY 2020, CDC will continue to use funding to support two national groups—the Alzheimer's Association and the Balm in Gilead—to promote implementation of the Road Map at the national, state, and local levels. FY 2020 funding will also support states and territories to collect, analyze, and disseminate data from CDC's state Behavioral Risk Factor Surveillance System (BRFSS) on cognitive decline and adult caregiving, as well as cognitive functioning on the National Health and Nutrition Examination Survey (NHANES). The data provide information on adult perceptions about subjective cognitive decline, and the provision of regular care or assistance to family and friends with a chronic illness or disability. CDC and its partners developed and widely disseminated state-specific products with the BRFSS and NHANES data. CDC has updated its Healthy Aging Data Portal⁴⁴ to provide easy access to data on key indicators of cognitive and physical health and well-being, screenings and vaccinations, and older adult mental health.

⁴⁰ Hebert LE, Weuve J, et al. Alzheimer disease in the United States (2010–2050) estimated using the 2010 census. *Neurology* 2013;80:1778-83.

⁴¹ Alzheimer's Association. 2017 Alzheimer's Disease Facts and Figures. Accessed on January 30, 2018. https://www.alz.org/documents_custom/2017-facts-and-figures.pdf

⁴² <https://www.cdc.gov/aging/healthybrain/roadmap.htm>

⁴³ <http://aspe.hhs.gov/daltcp/napa/NatlPlan2013.pdf>

⁴⁴ <http://www.cdc.gov/aging/agingdata/index.html>

School Health Budget Request

CDC plays a unique role in bringing together the education and public health sectors to support physical education, physical activity and healthy nutrition opportunities, management of chronic conditions, and overall health education. Improving students' health also means improving academic achievement and behavioral outcomes, reducing absenteeism, and increasing kids' connections to their school and community.

Very few of our nation's children are meeting basic nutrition and physical activity recommendations. According to the 2017 Youth Risk Behavior Survey, 1 in 3 U.S. high school students are overweight or obese. In addition, 25% of students are affected by a chronic condition, such as obesity, asthma, epilepsy, or diabetes.

CDC's Healthy Schools program provides science-based guidance, tools, and training for states, parents, and communities to improve student health. Students graduating healthy means they are ready to learn, work, and serve their community and nation.

Budget Request

CDC's FY 2020 request of **\$15,371,000** for School Health is \$29,000 below the FY 2019 Enacted level.

With this funding, CDC's Healthy Schools program will continue to support states, schools and school districts, and non-governmental organizations, to improve health outcomes for K-12 students and improve the management of students' chronic conditions.

Addressing Childhood Obesity in Schools

CDC's Healthy Schools Program focuses on childhood obesity prevention through support for physical education, physical activity, and improved nutrition. CDC promotes creating a healthier food environment with more physical activity opportunities for all students as the first approach to addressing childhood obesity in schools. In addition, CDC develops resources to help schools and school groups engage parents in how to support healthier choices for their children and how to model these choices at home. CDC also supports referrals to community and medical providers to reduce childhood obesity. For schools that assess student body mass index (BMI), CDC provides guidelines to effectively communicate weight status to parents, link families to resources, and reduce the potential for stigma. CDC will continue to support these activities in FY 2020.

Physical Education and Activity

CDC tools, training, and funded partners support schools to incorporate more physical activity throughout the school day. CDC promotes a Comprehensive School Physical Activity Program (CSPAP) which helps schools incorporate more opportunities for students to be physically active, meet the nationally-recommended 60 minutes of physical activity each day, and develop the knowledge, skills, and confidence to be physically active for a lifetime. This includes: 1) quality physical education; 2) physical activity before school (e.g., Safe Routes to School); 3) during school (e.g., recess, physical activity breaks and integrating physical activity into all classes); and 4) after school (e.g., active aftercare options, interscholastic sports, running clubs); 5) staff involvement; and 6) family and community engagement.

Improved Nutrition

CDC provides schools with tools and training to create a school nutrition environment that allows students to make healthier choices. Recent surveys show that more schools are using strategies to increase fresh fruit and vegetable offerings, decrease sodium content in school meals, and reduce promotion of unhealthy foods. Nutrition education helps support these choices and develop life-long healthy habits. In addition, CDC tools and resources help schools increase the availability of drinking water, and increase water consumption as a healthy

beverage option. These efforts are succeeding, with 88% of schools now providing students with access to free drinking water (e.g., water bottle refilling stations) in cafeterias during meal times.

School Health Services and Managing Chronic Conditions

Students who are able to manage their chronic health conditions tend to have better academic outcomes. CDC promotes family engagement, care coordination, and communication with the student's healthcare provider as essential components for helping students with chronic conditions stay healthy and ready to learn. In addition, CDC-funded states assess and update their policies and practices to better support students with chronic conditions and develop action plans. This has resulted in increased: training for school health services staff (e.g., diabetes management and managing food allergies in schools); understanding the causes of school absence; and the number of students with chronic conditions who have a primary care physician who coordinates their care.

State Table: National Breast and Cervical Cancer Early Detection Program¹

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$3,400,000	\$3,400,000	\$3,400,000	\$0
Alaska	\$2,204,831	\$2,204,831	\$2,204,831	\$0
Arizona	\$3,153,328	\$3,153,328	\$3,153,328	\$0
Arkansas	\$1,800,000	\$1,800,000	\$1,800,000	\$0
California	\$7,721,730	\$7,721,730	\$7,721,730	\$0
Colorado	\$2,000,000	\$2,000,000	\$2,000,000	\$0
Connecticut	\$1,240,300	\$1,240,300	\$1,240,300	\$0
Delaware	\$999,788	\$999,788	\$999,788	\$0
Florida	\$6,000,000	\$6,000,000	\$6,000,000	\$0
Georgia	\$4,573,261	\$4,573,261	\$4,573,261	\$0
Hawaii	\$1,026,835	\$1,026,835	\$1,026,835	\$0
Idaho	\$1,493,500	\$1,493,500	\$1,493,500	\$0
Illinois	\$7,000,000	\$7,000,000	\$7,000,000	\$0
Indiana	\$1,800,000	\$1,800,000	\$1,800,000	\$0
Iowa	\$2,000,000	\$2,000,000	\$2,000,000	\$0
Kansas	\$2,956,397	\$2,956,397	\$2,956,397	\$0
Kentucky	\$2,536,253	\$2,536,253	\$2,536,253	\$0
Louisiana	\$1,900,000	\$1,900,000	\$1,900,000	\$0
Maine	\$1,500,000	\$1,500,000	\$1,500,000	\$0
Maryland	\$2,900,781	\$2,900,781	\$2,900,781	\$0
Massachusetts	\$1,450,000	\$1,450,000	\$1,450,000	\$0
Michigan	\$4,496,200	\$4,496,200	\$4,496,200	\$0
Minnesota	\$3,950,000	\$3,950,000	\$3,950,000	\$0
Mississippi	\$2,315,717	\$2,315,717	\$2,315,717	\$0
Missouri	\$2,700,000	\$2,700,000	\$2,700,000	\$0
Montana	\$1,757,407	\$1,757,407	\$1,757,407	\$0
Nebraska	\$2,800,000	\$2,800,000	\$2,800,000	\$0
Nevada	\$3,598,658	\$3,598,658	\$3,598,658	\$0
New Hampshire	\$1,380,000	\$1,380,000	\$1,380,000	\$0
New Jersey	\$2,629,900	\$2,629,900	\$2,629,900	\$0
New Mexico	\$2,322,430	\$2,322,430	\$2,322,430	\$0
New York	\$7,700,000	\$7,700,000	\$7,700,000	\$0
North Carolina	\$2,914,481	\$2,914,481	\$2,914,481	\$0
North Dakota	\$1,500,000	\$1,500,000	\$1,500,000	\$0
Ohio	\$3,214,755	\$3,214,755	\$3,214,755	\$0
Oklahoma	\$1,000,000	\$1,000,000	\$1,000,000	\$0
Oregon	\$2,000,000	\$2,000,000	\$2,000,000	\$0
Pennsylvania	\$2,448,978	\$2,448,978	\$2,448,978	\$0
Rhode Island	\$1,512,970	\$1,512,970	\$1,512,970	\$0
South Carolina	\$4,500,000	\$4,500,000	\$4,500,000	\$0
South Dakota	\$952,161	\$952,161	\$952,161	\$0
Tennessee	\$2,125,887	\$2,125,887	\$2,125,887	\$0
Texas	\$6,004,457	\$6,004,457	\$6,004,457	\$0
Utah	\$2,900,000	\$2,900,000	\$2,900,000	\$0
Vermont	\$844,341	\$844,341	\$844,341	\$0
Virginia	\$2,590,163	\$2,590,163	\$2,590,163	\$0
Washington	\$5,500,000	\$5,500,000	\$5,500,000	\$0
West Virginia	\$2,132,302	\$2,132,302	\$2,132,302	\$0
Wisconsin	\$2,200,000	\$2,200,000	\$2,200,000	\$0
Wyoming	\$800,000	\$800,000	\$800,000	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Territories				
American Samoa	\$358,210	\$358,210	\$358,210	\$0
Guam	\$470,245	\$470,245	\$470,245	\$0
Marshall Islands	\$75,000	\$75,000	\$75,000	\$0
Northern Mariana Islands	\$400,000	\$400,000	\$400,000	\$0
Palau	\$700,000	\$700,000	\$700,000	\$0
Other Grantees	\$10,648,734	\$10,648,734	\$10,648,734	\$0
Indian Tribes	\$9,408,373	\$9,408,373	\$9,408,373	\$0
University of Puerto Rico	\$390,361	\$390,361	\$390,361	\$0
Washington, D.C.	\$850,000	\$850,000	\$850,000	\$0
Subtotal, States	\$138,954,311	\$138,954,311	\$138,954,311	\$0
Subtotal, Territories	\$2,003,455	\$2,003,455	\$2,003,455	\$0
Subtotal, Other Grantees	\$10,648,734	\$10,648,734	\$10,648,734	\$0
Total Resources	\$151,606,500	\$151,606,500	\$151,606,500	\$0

¹This state table is a snapshot of selected programs that fund most states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://wwwn.cdc.gov/Fundingprofiles/FundingProfilesRIA/>

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BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$140.086	\$155.560	\$112.000	\$43.560
<i>Neonatal Abstinence Syndrome (non-add)</i>	<i>N/A</i>	<i>\$2.000</i>	<i>\$2.000</i>	<i>\$0.000</i>
<i>Surveillance for Emerging Threats to Mothers and Babies (non add)</i>	<i>N/A</i>	<i>\$10.000</i>	<i>\$10.000</i>	<i>\$0.000</i>
FTEs	203	203	203	0

Enabling Legislation Citation: PHS A § 301, PHS A § 304, PHS A § 307, PHS A § 308(d), PHS A § 310, PHS A § 311, PHS A § 317, PHS A § 317C(a)*, PHS A § 317J*, PHS A § 317K, PHS A § 317L*, PHS A § 317Q, PHS A § 327, PHS A § 352, PHS A § 399M*, PHS A § 399Q, PHS A § 399S, PHS A § 399S-1, PHS A § 399T, PHS A § 399V-2, PHS A § 399AA*, PHS A § 399BB*, PHS A § 399CC, PHS A Title XI, PHS A § 1102, PHS A § 1108*, PHS A § 1110, PHS A § 1112, PHS A § 1113, PHS A § 1114, PHS A § 1132*, PHS A § 1706*, The Prematurity Research Expansion And Education For Mothers Who Deliver Infants Early Act § 3 (42 U.S.C. 247b-4f)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants, Cooperative Agreements and Contracts

CDC’s birth defects, developmental disability, and blood disorders programs advance CDC’s mission of preventing the leading causes of disease, disability, and death, while promoting the health of people of all ages.

CDC enriches the quality of life for America’s young and most vulnerable populations while reducing healthcare costs by:

- Identifying and addressing the causes of birth defects and related conditions.
- Helping children reach their potential by understanding developmental disabilities.
- Reducing complications of blood disorders.
- Improving the health of people living with disabilities.

BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

BY THE NUMBERS...

CDC's mission to promote the health of babies, children, and adults is driven by the fact that:

- In one hour, **450** babies will be born, and of these babies:
 - **15** will have a major birth defect including **1** with congenital deafness.¹
 - **4** will be diagnosed with Neonatal Abstinence Syndrome.²
 - **8** will be diagnosed with autism by kindergarten.³
 - **6** of their peers will be identified with one of the many complex genetic conditions (Sickle Cell Disease, Muscular Dystrophy, and Hemophilia).⁴
 - **54** will be identified with Attention-Deficit/Hyperactivity Disorder (ADHD) as they move through grade school.⁵
- In addition, nationwide:
 - **One in 33** babies are born with a major birth defect.^{1,6}
 - **One in 6** children have developmental disabilities.⁷
 - **Millions** of people are affected by blood disorders like hemophilia and venous thromboembolism.⁸
 - **61 million** Americans live with a disability—approximately equivalent to the combined populations of New York and California.⁹

*References:

^{1,6} L Rynn, J Cragan, MD, A Correa, MD, PhD, Div of Birth Defects and Developmental Disabilities, National Center on Birth Defects and Developmental Disabilities, CDC. "Update on Overall Prevalence of Major Birth Defects—Atlanta, Georgia, 1978–2005". Available at <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5701a2.htm> First Reference

² Winkelman et al. Incidence and Costs of Neonatal Abstinence Syndrome Among Infants With Medicaid: 2004–2014. *Pediatrics*. 2018 Apr;141(4). pii: e20173520. doi: 10.1542/peds.2017-3520.

³ Baio J, Wiggins L, Christensen DL, et al. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years—Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2014. *MMWR Surveill Summ* 2018;67(No. SS-6):1–23. DOI: <http://dx.doi.org/10.15585/mmwr.ss6706a1>

⁴ B Therrell, National Newborn Screening and Genetics Resource Center, Austin, Texas. F Lorey, Genetic Diseases Laboratory, California Dept of Health Svcs. R Eaton, Univ of Massachusetts Medical School, Boston, Massachusetts. D Frazier, Div of Genetics and Metabolism, Univ of North Carolina at Chapel Hill. G Hoffman, Wisconsin State Laboratory of Hygiene. C Boyle, D Green, Div of Birth Defects and Developmental Disabilities, O Devine, National Center for Birth Defects and Developmental Disabilities; H Hannon, Div of Laboratory Sciences, National Center for Environmental Health, CDC. (2008, September 19). *Impact of Expanded Newborn Screening --- United States, 2006*. Available at <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5737a2.htm>

⁵ Division of Human Development and Disability, National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention (2017, November 13). *Attention-Deficit / Hyperactivity Disorder (ADHD), Data and Statistics*. Available at <https://www.cdc.gov/ncbddd/adhd/data.html>

⁷ Coleen A. Boyle, Sheree Boulet, Laura A. Schieve, Robin A. Cohen, Stephen J. Blumberg, Marshalyn Yeargin-Allsopp, Susanna Visser, Michael D. Kogan " Trends in the Prevalence of Developmental Disabilities in US Children, 1997–2008". Available at <http://pediatrics.aappublications.org/content/early/2011/05/19/peds.2010-2989>

⁸ CDC, National Center on Birth Defects and Developmental Disabilities (NCBDDD) (2017, September 19). *Protecting People*. Available at <https://www.cdc.gov/ncbddd/aboutus/protecting-people/index.html>

⁹ Okoro CA, Hollis ND, Cyrus AC, Griffin-Blake S. Prevalence of Disabilities and Health Care Access by Disability Status and Type Among Adults — United States, 2016. *MMWR Morb Mortal Wkly Rep* 2018;67:882–887. DOI: <http://dx.doi.org/10.15585/mmwr.mm6732a3>.

*Unless otherwise noted, all information and calculations are from CDC program data.

Birth Defects and Developmental Disabilities Funding History	
Fiscal Year	Dollars (in millions)
2016	\$131.781
2017	\$135.610
2018 Final	\$140.086
2019 Enacted	\$155.560
2020 President's Budget	\$112.000

Budget Request

CDC's FY 2020 request of **\$112,000,000** for Birth Defects, Developmental Disabilities, Disabilities and Health, is \$43,560,000 below the FY 2019 Enacted level. The FY 2020 request continues activities initiated in FY 2019 related to Neonatal Abstinence Syndrome and Surveillance for Emerging Threats to Mothers and Babies.

At the FY 2020 funding level, CDC will continue focusing its birth defects and developmental disabilities portfolio on core public health activities that align with CDC’s mission and have proven interventions to make a positive impact on Americans’ health.

Neonatal Abstinence Syndrome

CDC is on the front lines of understanding the impact of the opioid and substance use emergency on infants and children. This includes confirming the feasibility of using existing birth defect surveillance systems to monitor for outcomes of opioid exposure and assess possible connections between opioid prescribing and birth defects. CDC’s funded partners found that children born with neonatal abstinence syndrome (NAS) were more likely to have a developmental delay or speech or language impairment in early childhood compared to children born without NAS.

In FY 2020, CDC will continue working with partners to advance our understanding of neonatal abstinence syndrome (NAS) and translate these findings to improve the care of mothers and babies. CDC will focus on integrating NAS into the existing biosurveillance among states able to support adaptation using a newly established standard surveillance case definition. This will increase the number of states monitoring NAS as an outcome, leveraging existing birth defects surveillance and improving the quality of voluntary, de-identified prenatal and newborn health data. Data management and analyses will further inform the occurrence and prevalence of NAS and help jurisdictions to identify opportunities to reduce associated risks and optimize care for mothers, babies and families. In collaboration with clinical and public health partners, CDC will refine case reporting and translate public health data, including pharmacological issues and epidemiologic findings, into clinical and public health recommendations.

Protecting Mothers and Babies from Emerging Threats

The creation and implementation of the innovative surveillance of the Zika pregnancy and infant registry represented a paradigm shift to ensure that mothers and babies are adequately monitored and quickly informed about the impact of an emerging threat including serious birth defects. This enhanced surveillance network coordinated by CDC in collaboration with state, tribal, territorial, and local health departments addressed Emerging Threats to Mothers and Babies, prompting these major impacts:

- Tracking Zika’s impact on babies in the United States, finding an increase in babies born with birth defects most strongly linked to Zika virus infection during pregnancy in parts of the United States that have had local Zika virus transmission;

- Continued documentation and identification of additional health problems not apparent at birth in babies born to mothers with Zika virus infection during pregnancy, with nearly 1 in 7 babies with infection in pregnancy having health problems in the first year of life linked to Zika; and
- Updating healthcare provider guidance for the evaluation and care of infants from pregnancies with lab evidence of possible Zika virus infection.

In FY 2019, CDC began implementation of the Surveillance for Emerging Threats to Mothers and Babies initiative. CDC plans to support up to 8 jurisdictions and public health partners to prepare for and respond to Emerging Threats to Mothers and Babies. With these activities, CDC will provide a more accurate picture of infants and children impacted by the Zika virus infection during pregnancy (up to age 2) included in CDC's Zika Pregnancy and Infant Surveillance System. These critical data will help inform the needs of and optimal care for children and families. CDC also will pilot the innovative Zika surveillance system to monitor and respond to additional/emerging threats, including prenatal opioid exposure and related infections and their impact on mothers and babies.

In FY 2020, CDC will continue using these innovative surveillance approaches as a key component of preparedness and rapid response activities for these populations. CDC will focus on monitoring the impact of Zika, the opioid crisis, infectious diseases, and natural disasters on mothers and babies to:

- Act early to protect mothers and babies;
- Identify health problems, developmental delays, and functional disabilities;
- Inform prevention strategies, safe medication use, and clinical management; and
- Link affected families to medical and social services.

Birth Defects

Birth defects are common, costly, and critical. Every 4 ½ minutes, a baby is born with a major birth defect in the United States. That is approximately 1 in every 33 babies—or 120,000 babies every year.⁴⁵ In the United States, more than \$23 billion per year is spent on hospital costs for the treatment of birth defects.⁴⁶ Babies born with a birth defect are much more likely to die before their first birthday, while those who survive are likely to have lifelong challenges, such as problems with physical movement, learning, and social interaction. In addition to structural birth defects, 1-5% of infants are affected by fetal alcohol spectrum disorders, and about 100 newborns are diagnosed with neonatal abstinence syndrome (NAS) every day in the United States.^{47,48,49,50}

CDC and its partners are changing these outcomes for babies and families. By uniting scientists and researchers throughout the United States, CDC is able to prevent birth defects and assist children and adults with birth defects. Together, these groups identify causes of birth defects and related outcomes, like neonatal abstinence syndrome, find opportunities to prevent them, and improve the health of those living with birth defects and infant disorders. CDC's state and local collaborations alert CDC to trends, tell who is affected, provide clues to prevention, and help measure success. CDC's prevention programs translate these findings into actions that women, families, healthcare providers, and decision makers can take to help ensure babies are born healthy and thrive.

CDC's commitment to addressing birth defects and related outcomes resulted in these important findings:

- Identified associations between certain medications, such as opioids, and major birth defects.
- Confirmed the role of smoking as a cause of cleft lip and palate.
- Verified the role of pre-pregnancy obesity and diabetes as important risk factors for major birth defects.
- Provided critical answers about Zika's effects on pregnant women and babies:
 - Confirmed the causal link between Zika and major birth defects, such as brain and eye abnormalities and microcephaly;
 - Recognized the pattern of birth defects associated with Zika virus infection called congenital Zika syndrome;
 - Identified that Zika infections during all trimesters have been associated with birth defects.
- Demonstrated the impact of newborn screening for critical congenital heart disease (CCHD), finding that infant deaths from CCHD decreased more than 33% in states with mandatory screening compared to states with no mandatory screening policies. Additionally, deaths from other or unspecified cardiac causes decreased by 21%.⁵¹

⁴⁵ <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5701a2.htm>

⁴⁶ Arth AC, Tinker SC, Simeone RM, Ailes EC, Cragan JD, Grosse SD. Inpatient Hospitalization Costs Associated with Birth Defects Among Persons of All Ages — United States, 2013. *MMWR Morb Mortal Wkly Rep* 2017;66:41–46. DOI: <http://dx.doi.org/10.15585/mmwr.mm6602a1>.

⁴⁷ May PA, Baete A, Russo J, Elliott AJ, Blankenship J, Kalberg WO, Buckley D, Brooks M, Hasken J, Abdul-Rahman O, Adam MP, Robinson LK, Manning M, Hoyme HE. Prevalence and characteristics of fetal alcohol spectrum disorders. *Pediatrics*. 2014;134:855-66.

⁴⁸ May PA, Gossage JP, Kalberg WO, Robinson LK, Buckley D, Manning M, Hoyme HE. Prevalence and epidemiologic characteristics of FASD from various research methods with an emphasis on recent in-school studies. *Dev Disabil Res Rev*. 2009;15:176-92.

⁴⁹ May PA, Chambers CD, Kalberg WO, Zellner J, Feldman H, Buckley D, Kopald D, Hasken JM, Xu R, Honerkamp-Smith G, Taras H, Manning MA, Robinson LK, Adam MP, Abdul-Rahman O, Vaux K, Jewett T, Elliott AJ, Kable JA, Akshoomoff N, Falk D, Arroyo JA, Hereld D, Riley EP, Charness ME, Coles CD, Warren KR, Jones KL, Hoyme HE. Prevalence of Fetal Alcohol Spectrum Disorders in 4 US Communities. *Journal of American Medical Association*. 2018;319(5):474–482.

⁵⁰ Winkelman et al. Incidence and Costs of Neonatal Abstinence Syndrome Among Infants With Medicaid: 2004-2014. *Pediatrics*. 2018 Apr;141(4). pii: e20173520. doi: 10.1542/peds.2017-3520.

⁵¹ Rahi, A., Grosse, SD, Ailes, EC, Oster, ME. Association of US State Implementation of Newborn Screening Policies for Critical Congenital Heart Disease With Early Infant Cardiac Deaths. *JAMA*. 2017;318(21):1-8.

As we learn more about causes of birth defects, CDC implements proven strategies to prevent them. As a result:

- About 1,300 American babies are born *without* a neural tube defect (NTD) every year as a result of folic acid fortification.⁵² This represents an estimated annual savings of about \$580 million for the NTD-affected births that were prevented.⁵³
- The FDA approved corn masa flour fortification and allowed producers to include folic acid in their products, addressing the higher rates of neural tube defects among Hispanic babies.
- Mothers and babies have been protected from Zika infection by recommendations that pregnant women not travel to areas with risk of Zika as well as knowledge about preventing mosquito-borne and sexual transmission of the virus.
- Healthcare providers have updated evidenced-based guidance on caring for pregnant women and infants affected by Zika.^{54,55}

In FY 2020, CDC will continue to build upon the science needed to develop and strengthen birth defects prevention strategies. CDC will primarily support birth defects surveillance, public health research, intervention, and prevention activities.

⁵² <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a2.htm>

Williams et al. Updated Estimates of Neural Tube Defects Prevented by Mandatory Folic Acid Fortification — United States, 1995–2011. *MMWR Morb Mortal Wkly Rep* 2015

⁵³ <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a2.htm>

Williams et al. Updated Estimates of Neural Tube Defects Prevented by Mandatory Folic Acid Fortification — United States, 1995–2011. *MMWR Morb Mortal Wkly Rep* 2015

⁵⁴ Oduyebo T, Polen KD, Walke HT, et al. Update: Interim Guidance for Health Care Providers Caring for Pregnant Women with Possible Zika Virus Exposure — United States (Including U.S. Territories), July 2017. *MMWR Morb Mortal Wkly Rep* 2017;66:781-793. DOI:

<http://dx.doi.org/10.15585/mmwr.mm6629e1>

⁵⁵ Adebajo T, Godfred-Cato S, Viens L, et al. Update: Interim Guidance for the Diagnosis, Evaluation, and Management of Infants with Possible Congenital Zika Virus Infection — United States, October 2017. *MMWR Morb Mortal Wkly Rep* 2017;66:1089–1099. DOI:

<http://dx.doi.org/10.15585/mmwr.mm6641a1>

Developmental Disabilities

Developmental disabilities are among the most significant child health issues facing American families. They include conditions like autism spectrum disorder (ASD), hearing loss, and Attention-Deficit/Hyperactivity Disorder. These conditions begin during the developmental period, may impact day-to-day functioning, and usually last throughout a person's lifetime. Children with developmental disabilities are also at significantly greater risk for other co-occurring mental, emotional, and behavioral disorders that often cause additional burden of illness for these children and their families. CDC helps children reach their full potential by providing families, educators, healthcare providers, and community leaders with a comprehensive understanding of these conditions and offering information that guides decisions so children and their families get the support they need.

Autism Spectrum Disorder

CDC data published in 2018 found that about 1 in 59 children in the United States monitoring network have autism spectrum disorder.⁵⁶ CDC analyses also show that parenting a child with ASD is associated with high stress.⁵⁷ The costs of medical care, special education services, therapy, caregiver time, and other expenses were estimated to be between \$11.5 billion–\$60.9 billion (2011 US dollars).⁵⁸ CDC's investments in monitoring, research, and improved early identification are leading us to a better understanding of ASD and better results for children and their families. CDC's tracking and monitoring provide the nation's clearest picture of the real impact of autism on families and communities and are the foundation for national, state, and local policy and planning.

CDC made the following important findings about children with ASD:

- 1 in 59 children in the United States have ASD. CDC documented an increasing prevalence of autism since 2000, when 1 in 150 children were estimated to have ASD.⁵⁹
- ASD is about 4 times more common among boys than among girls.⁶⁰
- A higher percentage of white children continue to be identified with autism compared to black children, and even more so compared to Hispanic children; however, the prevalence among black and Hispanic children is approaching the prevalence in white children. This finding could indicate that communities are improving in identification of autism spectrum disorder in minority populations, among other factors.⁶¹
- In 2013, the American Psychiatric Association changed the criteria for making a diagnosis of ASD. Estimates of the percentage of children identified with ASD based on the old and new surveillance case definitions were similar, especially among children with an existing ASD diagnosis or eligibility for autism special education services.⁶²
- Most children (85%) identified with ASD had concerns about their development noted in their records by age 3. Yet, less than half (42%) of children with ASD received developmental evaluations by age 3. This lag between first concern and first evaluation may affect when children with ASD can begin to get the services they need.⁶³

⁵⁶ Baio J, Wiggins L, Christensen DL, et al. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2014. *MMWR Surveill Summ* 2018;67(No. SS-6):1–23. DOI: <http://dx.doi.org/10.15585/mmwr.ss6706a1>

⁵⁷ http://pediatrics.aappublications.org/content/119/Supplement_1/S114

⁵⁸ <https://www.ncbi.nlm.nih.gov/pubmed/17690969>

⁵⁹ Baio J, Wiggins L, Christensen DL, et al. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years—Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2014. *MMWR Surveill Summ* 2018;67(No. SS-6):1–23. DOI: <http://dx.doi.org/10.15585/mmwr.ss6706a1>

⁶⁰ *Ibid.*

⁶¹ <https://www.cdc.gov/mmwr/volumes/67/ss/ss6706a1.htm>

⁶² <https://www.cdc.gov/mmwr/volumes/67/ss/ss6706a1.htm>

⁶³ <https://www.cdc.gov/mmwr/volumes/67/ss/ss6706a1.htm>

- Children born to older parents are more likely to have autism. First children of 2 older parents were 3 times more likely to develop autism than were third- or later-born offspring of mothers aged 20-34 years and fathers aged less than 40 years.⁶⁴
- ASD commonly co-occurs with other psychological, genetic, and developmental conditions. The co-occurrence of one or more non-ASD developmental diagnoses is 83%.⁶⁵

CDC prevalence estimates for ASD and information about the severity of the disorder in children with ASD are used by state and local health departments and social service agencies to plan for future demands and target children and communities most at need. Since 2000, CDC has captured data from medical and education records in multiple locations to monitor changes in the number of children diagnosed with ASD and to learn more about the characteristics of the children who are impacted.

CDC also plays a leading role in uncovering the potential modifiable causes of autism through the largest autism epidemiologic research programs in the United States. CDC is exploring the possible effects of other exposures during pregnancy on the risk for autism, including medications (e.g., opioid use) and infections. CDC's autism research is unique because of the number of families enrolled in the study, the population-based nature of the study, and the inclusion of multiple sites across the country.

As children with ASD age into adolescence and adulthood, there is little data to help understand their challenges and needs. ASD captures a wide spectrum of developmental disability—from people who are unable to live independently to those who are navigating nuances of social interactions at the office. More knowledge is needed to guide efforts to best support adolescents and adults with autism and reduce unnecessary costs on the healthcare and educational systems.

In FY 2018, CDC began a new effort to better understand the impact of autism in adolescents and young adults by funding research to follow up with children, who were initially examined at a young age, into adolescence.

CDC is funding surveillance projects in FY 2019 that will examine high school-age children (at 16 years), extending the scope of ASD surveillance beyond the preschool and early school age years.

In FY 2020, CDC will continue to support the tracking and research that help us better understand autism, how children and families are affected, and how we can best help them. CDC will also continue contributing to the enhanced understanding of children with autism as they reach adolescence to inform critical periods in development and transition to adulthood.

Milestones for Early Child Development

Even though ASD can be identified in children before age 2, most children with ASD and other developmental conditions are not diagnosed until after age 4. Early screening and monitoring of developmental progress are important to help children get earlier access to services during their most critical developmental period. This helps reduce the need for more costly interventions over time. CDC aims to improve early identification of children with ASD and the 1 in 6 children with a developmental disability so children and their families can get the services and support they need as early as possible. CDC is well established as a leader in providing tools and resources to increase developmental monitoring and improve the early identification of autism and other developmental disabilities. CDC's developmental monitoring resources are used in homes and pediatrician offices, WIC clinics and Head Start programs, and on iPhones and Androids. CDC [research](#) has shown children are receiving comprehensive developmental evaluations earlier than before. This indicates progress has been made in identifying children at younger ages.

⁶⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2638544/>

⁶⁵ <https://www.ncbi.nlm.nih.gov/pubmed/20431403>

CDC's [Learn the Signs. Act Early. \(LTSAE\)](#) program promotes early identification through developmental monitoring to parents, early care and education providers, and healthcare providers. CDC offers free, easy-to-use resources to encourage the tracking of child development and acting early on concerns, including:

- Developmental milestone [checklists](#) along with photos and videos to help explain milestones
- Innovative children's books that educate parents on milestones while they read with their child
- Free online continuing education training on [identifying, diagnosing, and managing ASD](#) and on developmental [monitoring in child care](#)
- A free Milestone Tracker app which allows parents and caregivers to track milestones in real time and facilitates a discussion about concerns with health care providers

Learn the Signs. Act Early. is a prominent feature of far-reaching U.S. Department of Health and Human Services (HHS) early childhood initiatives such as [Birth to 5: Watch Me Thrive](#) and Too Small to Fail. Additionally, [Act Early Ambassadors](#) and [Act Early State Systems](#) grantees work with early childhood programs at the state and local level to promote developmental monitoring of all young children.

Finally, the LTSAE program has been successfully integrated into select state early child services systems, including childcare settings and WIC clinics. The LTSAE program has been shown to effectively identify children at potential risk for developmental delays and help those children obtain referrals for evaluations to address developmental concerns.

Early Hearing Detection and Intervention

CDC addresses another common condition that can lead to developmental delays if not identified early—hearing loss in children. Estimates of childhood hearing loss vary from loss detected in 900 to 14,000 infants each year.⁶⁶ Hearing loss can affect a child's ability to develop speech, language, and social skills. Early identification and intervention of hearing loss can significantly improve developmental outcomes for deaf and hard of hearing children.

CDC is solely responsible for collecting and analyzing [Early Hearing Detection and Intervention \(EHDI\) data](#) from across the United States, and is currently funding 39 states and four territories to modernize their EHDI information systems (EHDI-IS), which are state-based surveillance systems that collect information on hearing screening, diagnostic, and intervention services. CDC also provides a [system functional standard](#) for state and territories to reference. CDC uses EHDI data to help health departments, service providers, and early intervention programs estimate caseloads, plan for services, and determine needed resources. CDC experts assist all states and territories on the early identification of deaf and hard of hearing infants. Finally, CDC funds the development and use of data systems and benchmarks, such as the Joint Committee on Infant Hearing's EHDI 1-3-6 [Guidelines](#) that help states and territories ensure deaf and hard of hearing children receive essential diagnostic and intervention services in a timely manner.

CDC works with the Health Resources and Services Administration (HRSA) to help states implement and strengthen their EHDI programs. HRSA depends on CDC's EHDI data to assess their progress and inform their future research and programmatic activities related to EHDI.

Because of CDC's efforts to help children with hearing loss reach their full potential:

- Over 98% of infants born in the United States are now screened for hearing loss or deafness.⁶⁷

⁶⁶ Mehra, S., Eavey, R., Keamy, D. The Epidemiology of Hearing Impairment in the US: Newborns, Children, and Adolescents. *Otolaryngology-Head and Neck Surgery*. 2009;140 (4), 461-472

⁶⁷ https://www.cdc.gov/ncbddd/hearingloss/2014-data/screen_2014_web_b.pdf

- The percentage of infants who received needed follow-up services to determine if they are deaf or hard of hearing has steadily increased from 30% in 2005 to 63% in 2016.
- CDC has demonstrated that newborn hearing screening and intervention within the recommended time period results in children with hearing loss having the same language and communication skills as their peers without hearing loss.⁶⁸
- CDC has shown that the newborn hearing screening program saves \$200 million in education costs each year.⁶⁹

While newborn hearing screening is now part of routine newborn care, CDC is committed to ensuring that all deaf and hard of hearing infants receive critical and timely screening, diagnostic, and intervention services. In FY 2020, CDC will focus on strengthening the capacity of states and territories to:

- Identify infants who are deaf and hard of hearing, and
- Use data and program evaluation to reduce diagnostic and intervention service gaps for deaf and hard of hearing infants.

Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of childhood that affects an estimated 1 in 11 children aged 2 to 17 years.⁷⁰ Early and effective treatment of ADHD is the key to children's success at home, in school, in the community, and as they transition into adulthood. With excess expenses related to ADHD costing Americans up to \$72 billion per year, it is important for children diagnosed with ADHD to receive treatment consistent with these clinical best practices.⁷¹

CDC analyzes national and community data to identify the number of children living with ADHD, the type of treatment that these children receive, and outcomes for children with ADHD. CDC also identifies policies and practices related to ADHD treatments and develops tools and resources for families, educators, healthcare providers, and other decision-makers to help in making informed healthcare decisions. CDC works with national organizations, such as the Association of University Centers on Disabilities and the Children and Adults with Attention-Deficit/Hyperactivity Disorder, to promote evidence-based treatment for ADHD, support research to improve diagnostic accuracy of ADHD, and identify factors that promote healthy development of children with ADHD.

In FY 2018, CDC published updated estimates showing that the number of children aged 2–5 years with ADHD had risen to approximately 335,000 children in 2016. Among those children, only an estimated 60% had received behavioral treatment, the recommended treatment for children with ADHD, in the past year.⁷² When children get early appropriate treatment, it ensures that they are ready to launch successfully into school.

In FY 2019, CDC continues to support the National Survey of Children's Health (directed by HRSA and conducted by Census) to provide national and state-level estimates of key measures of child health and well-being, including ADHD and co-occurring mental, emotional, and behavioral conditions. CDC is also partnering to build state capacity to use locally relevant data on children's mental health to monitor population health and connect more families with effective treatment.

⁶⁸ Yoshinaga-Itano C, Sedey AL, Wiggin M, et al. Early Hearing Detection and Vocabulary of Children With Hearing Loss. *Pediatrics*. 2017;140(2):e20162964

⁶⁹ Gross, SD. Education cost savings from early detection of hearing loss: New findings. *Volta Voices* 2007; 14(6):38-40

⁷⁰ Danielson, M. L., Bitsko, R. H., Ghandour, R. M., Holbrook, J. R., Kogan, M. D., & Blumberg, S. J. (2018). Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents, 2016. *Journal of Clinical Child & Adolescent Psychology*, 47(2), 199-212. doi:10.1080/15374416.2017.1417860http://doi.org/10.1016/j.jaac.2013.09.001

⁷¹ Jalpa A. Doshi et al., Economic Impact of Childhood and Adult Attention-Deficit/Hyperactivity Disorder in the United States, 51 *J. AM. ACAD. CHILD & ADOLESCENT PSYCHIATRY* 990, 1000 (2012).

⁷² Danielson, M. L., Bitsko, R. H., Ghandour, R. M., Holbrook, J. R., Kogan, M. D., & Blumberg, S. J. (2018). Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents, 2016. *Journal of Clinical Child & Adolescent Psychology*, 47(2), 199-212. doi:10.1080/15374416.2017.1417860http://doi.org/10.1016/j.jaac.2013.09.001

In FY 2020, CDC will continue to develop evidence and tools to support evidence-based practices in diagnosis and treatment of ADHD to facilitate earlier identification and connection to effective treatment. CDC will also continue to study the treatment patterns of children and adolescents with ADHD.

Blood Disorders

People with blood disorders are living longer than ever before, but with far too many costly and preventable medical complications. While some of these conditions individually are rare, about 1 in 76 Americans have a blood disorder. CDC addresses the needs of Americans with blood disorders like hemophilia and thalassemia by gathering data on patient outcomes, targeting education campaigns to improve understanding of how to be healthy while living with these diseases, and works with partners to ensure doctors and patients know how to prevent complications from these heritable disorders.

Blood disorders have serious, lifelong health consequences, and cost our healthcare system billions of dollars every year. Improvements in quality of care, prophylaxis, and risk identification can significantly and measurably decrease the physical and financial burden caused by preventable complications. There is enormous potential to reduce the disease burden and associated healthcare costs through application of best healthcare practices, informed by CDC's surveillance and patient data analysis. Working with partners in academia, national professional organizations, state and local health departments, and other federal agencies, CDC identifies:

- How often and in what settings blood disorders occur to better understand who is at risk.
- Effective blood disorder prevention strategies.
- Ways to reduce complications from blood disorders.

CDC invests in activities that increase understanding of blood disorders and their complications, advance medical care and treatments to improve health, and reduce costs.

Hemophilia

CDC works closely with hospitals and clinics across the country to track and analyze patient data for people with inherited blood disorders like hemophilia. Hemophilia is an inherited life-long bleeding disorder that can cause damage to internal organs and chronic joint disease and pain. About 15-20% of people with hemophilia will develop an inhibitor, an antibody to the products used to treat or prevent bleeding.⁷³ Inhibitors make treatments less effective, increasing hospitalizations, compromising physical functioning, and increasing risk of death,⁷⁴ potentially causing a single patient's treatment costs to exceed \$1 million a year.⁷⁵ Discovering and treating inhibitors early helps improve outcomes and reduce costs.

Through data gathered by CDC's bleeding disorders surveillance programs, CDC has made the following important contributions:

- CDC has worked with Hemophilia Treatment Centers to increase the lifespan of individuals with hemophilia by 30 years through laboratory studies and drug therapy programs.
- CDC data has shown that a person with hemophilia who is treated at a federally supported specialized care center has a 40% decrease in the risk of death as compared to those treated at a non-specialized center.⁷⁶

[Community Counts](#), CDC's newest bleeding disorders surveillance program, gathers individual and population-level data that helps physicians and scientists improve the lives of people with hemophilia. Using Community Counts data, CDC developed national laboratory [testing guidance](#) to detect a hemophilia patient's resistance to treatment. As a result, Community Counts now incorporates annual inhibitor testing to identify inhibitors earlier and prevent costly complications. In addition, CDC successfully developed an alternative inhibitor testing scheme, and a mechanism to quickly identify patients using new hemophilia treatment products. This type of

⁷³ <http://www.cdc.gov/ncbddd/hemophilia/inhibitors.html>

⁷⁴ <https://www.ncbi.nlm.nih.gov/pubmed/25616111>

⁷⁵ <https://www.ncbi.nlm.nih.gov/pubmed/22151000>

⁷⁶ <http://www.bloodjournal.org/content/96/2/437.full?sso-checked=true>

CDC-led innovation is essential to CDC's continued support of improved patient care and reduction in inhibitor-related preventable complications.

In FY 2020, CDC will:

- Continue to optimize testing protocols to provide the most accurate inhibitor testing for patients with hemophilia in the changing landscape of treatment products, leading to earlier detection and clinical interventions for patients who develop inhibitors.
- Continue dissemination of an interactive website that will allow patients, providers and policymakers to access Community Counts data and provide insight on the impact of inhibitors and other complications on people with hemophilia.
- Continue the public health education campaign to increase awareness about the signs, symptoms, and diagnosis of bleeding disorders among the estimated 1.5 million women in the U.S. that have an undiagnosed bleeding disorder.
- Continue to exceed the 2017-2018 goal of 6,000 federally-funded Hemophilia Treatment Centers enrolled into the Community Counts surveillance system, by surpassing the current 6,414 participants that use this data to inform best practices for doctors in these clinics.

Venous Thromboembolism

CDC works to prevent avoidable medical complications, such as venous thromboembolism (VTE), which are blood clots in the veins. VTE affects as many as 900,000 American patients each year; one in 10 of these patients die from VTE, many without ever being diagnosed.⁷⁷ VTE costs our healthcare system an estimated \$10 billion annually and many of these events are preventable.⁷⁸ CDC's [new data](#) found current estimated incidence rates of VTE appear to be significantly higher than previously estimated including a marked increase among black populations. This discrepancy in incidence data indicates a higher national burden that should be both adequately measured and addressed.

Half of all VTE events are healthcare associated. CDC is uniquely positioned to study a layered approach to reducing the number of VTEs occurring in hospitals today by partnering with organizations who encounter diverse populations and utilize varied resources. Working with partners, CDC continues to learn more about care-based interventions and electronic medical record surveillance systems. This work helps create a comprehensive view of both the current best practices to prevent hospital-associated VTE and understand and map the trajectory of electronic surveillance that will dramatically increase provider awareness of VTE risk factors and reduce complications for these patients. Together, these investments can save healthcare systems millions of dollars annually.

CDC has made the following important contributions towards decreasing the impact of VTE:

- CDC launched a health care-associated VTE challenge to hospitals and health systems, where approximately 50% of VTE are acquired. These hospitals implemented innovative, effective and sustainable VTE prevention methods, and are promoting their models nationwide.
- CDC funded the national campaign [Stop the Clot, Spread the Word](#) to promote the awareness of the signs, symptoms, and risk factors for VTE which achieved more than 300 million impressions since 2016.
- CDC collaborated with Emory University to develop and use IDEAL-X, a novel open source information extraction (IE) system, to evaluate its accuracy for identifying VTE diagnosis directly from electronic health records. As a result of this work, CDC expanded the implementation of this system in two other hospital settings in FY 2018. Reports from the hospital settings are being finalized and plans for a manuscript are in development.

⁷⁷ <http://www.sciencedirect.com/science/article/pii/S0749379709009465?via%3Dihub>

⁷⁸ <http://www.sciencedirect.com/science/article/pii/S0749379709009465?via%3Dihub>

In FY 2020, CDC will focus on building an inventory of hospital associated-VTE prevention best practices and work closely with partner institutions to improve and tailor pilot VTE surveillance mechanisms at healthcare institutions. CDC will also continue to develop and deploy a communication campaign targeted at pregnant women and cancer patients who are at higher risk for VTE.

Disabilities and Health

Approximately 61 million Americans live with a disability.⁷⁹ The annual healthcare costs associated with disabilities are nearly \$400 billion—over 25% of all health-care expenditures for adults residing in the United States.⁸⁰ CDC science shows that as a group, people with disabilities are more likely to be physically inactive, be overweight, have heart disease or diabetes, and yet are less likely to access needed preventive care programs and services.

Disabilities may include difficulty with movement, hearing, seeing, communicating, concentrating, remembering, or making decisions. People with disabilities need public health programs and healthcare services for the same reasons anyone does—to be well, active, and part of the community. CDC is dedicated to ensuring that people with disabilities can participate in every aspect of life to the best of their abilities and desires.

CDC is a leader in the development, use, and improvement of public health surveillance systems that identify critical information about the health of people with disabilities. CDC's surveillance and analyses contribute to increased understanding of prevalence, healthcare utilization and costs, disparities in access to healthcare services, and treatment options associated with disease progression and survival. CDC has expanded the knowledge base related to disability and health across the lifespan and, as described below, many federal agencies and research entities rely on CDC's surveillance systems and expertise in this area.

CDC also educates healthcare providers and families on the best treatment and care options to manage disabilities and related conditions across the lifespan. To support these education efforts, CDC partners with healthcare providers and national organizations to develop clinical guidance, track medication and treatment use and effectiveness, and reduce preventable medical complications.

Health Promotion for People with Disabilities

CDC funds two National Centers on Health Promotion for People with Disabilities—National Center on Health, Physical Activity and Disability (NCHPAD) and Special Olympics—to work with people with mobility limitations and intellectual disabilities. Specifically, these national organizations develop, implement, evaluate, and report on activities aimed at reducing health differences between people with and without disabilities, and improving the health of people with mobility limitations and/or intellectual disabilities across their lifespans.

NCHPAD primarily focuses on improving the health, wellness, and quality of life of people with disabilities by identifying models, programs, practices, and policies to support inclusion of people with disabilities in existing and future public health promotion programs geared toward improving health behaviors (e.g., physical activity and nutrition). For example, NCHPAD is collaborating with three CDC-funded State Disability and Health Programs to implement evidence-based interventions, including adapted versions of the SNAP-Ed nutrition and obesity prevention program in South Carolina, and a diabetes prevention program PREVENT T2, in Florida and Minnesota. In FY 2020, CDC will continue to work with NCHPAD to implement evidence-based strategies to reduce diabetes and obesity among people with mobility limitations.

Special Olympics provides year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities. CDC funds the Special Olympics Healthy Athletes® and Healthy Communities Programs to provide Special Olympics athletes with increased access to free health screenings, education, and referrals for follow-up healthcare as well as year-round health promotion and disease prevention programs. In FY 2018, Healthy Athlete screenings were conducted at 567 national events. Through these screenings, CDC supported specialized training on how to provide care for people with

⁷⁹ Okoro CA, Hollis ND, Cyrus AC, Griffin-Blake S. Prevalence of Disabilities and Health Care Access by Disability Status and Type Among Adults — United States, 2016. *MMWR Morb Mortal Wkly Rep* 2018;67:882–887. DOI: <http://dx.doi.org/10.15585/mmwr.mm6732a3>.

⁸⁰ Anderson, W. L., Armour, B. S., Finkelstein, E. A., & Wiener, J. M. (2010). Estimates of State-Level Health-Care Expenditures Associated with Disability. *Public Health Reports*, 125(1), 44–51.

intellectual disabilities in their practices for nearly 13,000 healthcare professionals in the U.S. Additionally, Special Olympics, in collaboration with the American Academy of Developmental Medicine and Dentistry, used CDC funds to support the integration of training on intellectual disabilities into the existing curricula of six medical schools and residency/fellowship programs across the country. Also with CDC funding and support, Special Olympics launched the Center for Inclusive Health in June 2018 to improve access and quality of community healthcare, education, and services by strengthening the capacity of healthcare organizations, providers, educators, and influencers to make policies, programming, and services inclusive of people with intellectual disabilities.

In FY 2020, CDC will continue to work with Special Olympics to screen and connect athletes with healthcare resources within their communities and improve integration of best practices to optimize the health of people with intellectual disabilities within State Disability and Health Programs. CDC will continue to partner with Special Olympics International (SOI) and support its ongoing collaboration with the American Academy of Developmental Medicine and Dentistry to expand the integration of training on intellectual disabilities into the existing curricula of medical schools and residency/fellowship programs nationwide. Finally, CDC will work with SOI to expand the Center for Inclusive Health and develop an online resource to further the center's goals.

State Disability and Health Programs

CDC's [Disability and Health Data System \(DHDS\)](#) is an interactive data system that provides state-level, regional, and national data on the health of adults with disabilities. States and communities rely on this information to understand the health status of their population with disabilities and to tailor their health protection programs for this vulnerable, high need population. The type of information that states and communities can find on CDC's Disability and Health Data System include disability status, demographic characteristics, and approximately 30 measures of health (e.g., smoking, physical activity, obesity, hypertension, heart disease, and diabetes). In FY 2018, CDC updated DHDS to include the latest 2016 Behavioral Risk Factor Surveillance System (BRFSS) data on U.S. adults with disabilities, including cognitive, mobility, vision, self-care, independent living, and – for the first time – hearing.

CDC funds 19 State Disability and Health Programs to improve health outcomes among people with mobility limitations and intellectual disabilities by promoting the inclusiveness and accessibility of state public health programs. In FY 2018, these 19 states reached approximately 3.2 million people nationwide by implementing 39 evidence-based strategies and interventions focusing on physical activity, nutrition, diabetes, and other health topics significant for this population. CDC also launched a Community of Practice on Disability and Diabetes in FY 2018 to share and document best practices for implementing Diabetes Prevention Programs for people with disabilities. A subset of the 19 State Disability and Health Programs are using Medicaid administrative claims data to characterize the health and health care utilization patterns of people with Intellectual/developmental disabilities (IDD). Initial findings demonstrate areas of needed focus, including diabetes and epilepsy. Additionally, a peer reviewed paper describing the prevalence of IDD in five states was published in FY 2018⁸¹; six additional articles are under development and will be completed in FY 2019.

In FY 2020, CDC will continue to make its subject matter experts and resources available to assist federal, state, local, and nonprofit partners to adapt and improve public health programs and services to be more inclusive of people with disabilities. CDC will also continue to collaborate with its partners to reduce health disparities of people with disabilities by addressing stigma and barriers commonly experienced by people with disability as well as including them in public health surveys, public health promotion and disease prevention programs, and accessible healthcare services.

⁸¹ McDermott S, Royer J, Cope T, Lindgren S, Momany E, Lee JC, McDuffie MJ, Lauer E, Kurtz S, Armour B. Using Medicaid Data to Characterize Persons with Intellectual and Developmental Disabilities in Five U.S. States. *American Journal on Intellectual and Developmental Disabilities* 2018; 123(4):371-381.

Muscular Dystrophy

[Muscular dystrophies \(MDs\)](#) are a group of genetic muscle diseases, that, over time, cause muscle weakness and wasting leading to decreased mobility and make the tasks of daily living difficult. There are many muscular dystrophies; CDC studies nine types, including Duchenne muscular dystrophy. CDC funds and manages the only population-based surveillance system collecting health information on people living with muscular dystrophy in the United States. This surveillance system is called the [Muscular Dystrophy Surveillance Tracking and Research Network \(MD STARnet\)](#). This population-based data provide accurate estimates of prevalence and survival, and describe the disparities in access to care and the types of treatments received by this population. CDC data also support the establishment and evaluation of policies and healthcare services. Additionally, MD STARnet data allows CDC and other researchers to understand the impact of muscular dystrophy on the lives of affected individuals and their families.

Since the establishment of MD STARnet in 2002, investigators have produced 43 publications contributing to important public health and clinical research for Duchenne and Becker muscular dystrophies (DBMD). A summary of the key findings and impact of MD STARnet was recently published.⁸² Important contributions include:

- Estimated prevalence of DBMD is 1 in every 7,250 males aged 5–24 years.⁸³
- Found a substantial delay exists between first signs and symptoms and the age at which a diagnosis of a muscular dystrophy is made, which potentially delays treatment for 2 1/2 years.
- Created growth charts for boys with DBMD who are still walking and who have or have not been treated with corticosteroids.
- Documented the increasing use of corticosteroid treatment among males with DBMD and how treatment with corticosteroids delays when males stop walking and development of cardiomyopathy.

CDC is committed to improving the standard of care for people living with muscular dystrophy. CDC has developed and disseminated comprehensive care considerations for healthcare providers to use with their patients living with Duchenne muscular dystrophy (DMD) and four other types of muscular dystrophy. The 2010 DMD Care Considerations provided a standard level of care for individuals with DMD and has been well-received and widely disseminated, including internationally, by partner groups and the Duchenne muscular dystrophy community. Updated care considerations for Duchenne muscular dystrophy were published in three installments in *Lancet Neurology* March-May, 2018.^{84,85,86} Additionally, CDC supported a DMD Care Pediatrics Supplement, a set of 13 articles that expands on the clinical care for each subspecialty outlined in the *Lancet Neurology* articles. The supplement provides new resources, including a toolkit to help individuals with DMD transition into adult medical care.

In FY 2020, CDC also will:

- Collect data, including new International Classification of Disease (ICD)-10 codes for DBMD and Facioscapulohumeral Muscular Dystrophy (FSHD), on patients with muscular dystrophy as part of MD STARnet.

⁸² Kahay K, Smith T, Conway K et al. A review of MD STARnet's research contributions to pediatric-onset dystrophinopathy in the United States; 2002–2017. *J Child Neuro*. 2018 Oct 22 (epub).

⁸³ (Romitti PA, Zhu Y, Puzhankara S, James KA, Nabukera SK, Zamba GK, Ciafaloni E, Cunniff C, Druschel CM, Mathews KD, Matthews DJ, Meaney FJ, Andrews JG, Conway KM, Fox DJ, Street N, Adams MM, Bolen J; MD STARnet. Prevalence of Duchenne and Becker muscular dystrophies in the United States. *Pediatrics*. 2015 Mar;135(3):513-21.)

⁸⁴ Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 1: diagnosis, and neuromuscular, rehabilitation, endocrine, and gastrointestinal and nutritional management. *Lancet Neurol*. 2018 Mar;17(3):251-267

⁸⁵ Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 2: respiratory, cardiac, bone health, and orthopaedic management. *Lancet Neurol*. 2018 Apr;17(4):347-361

⁸⁶ Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 3: primary care, emergency management, psychosocial care, and transitions of care across the lifespan. *Lancet Neurol*. 2018 May;17(5):445-455.

- Analyze MD STARnet data, publish manuscripts, and present results at stakeholder meetings, particularly for the more recently added MDs.
- Serve on the steering committee and workgroups for the pilot DMD screening program in New York State.
- Support the development of a webinar series to educate pediatric and adult providers on the latest in DMD care as specified in the updated 2018 DMD care considerations.

Spina Bifida

Approximately 1,500 babies born in the United States each year are affected by [spina bifida](#), a complex, disabling condition that affects the spine and is usually apparent at birth. Some risk factors are known (e.g., folic acid insufficiency, maternal diabetes, prepregnancy obesity), and we are learning more about other possible risk factors (e.g., opioids, certain antiretroviral medications).^{87,88,89} Spina bifida has a tremendous impact on individuals and families, including high healthcare costs associated with frequent surgeries and hospitalizations. Healthcare services are often difficult to access as well. The lifetime direct costs to treat just one child with spina bifida are estimated at \$790,000.⁹⁰

In 2008, CDC established the [National Spina Bifida Patient Registry \(NSBPR\)](#), the only surveillance system in the United States gathering critical information on patients living with spina bifida, including prevalence, risk factors, health outcomes, and treatment options. CDC's spina bifida program helps researchers, healthcare providers, and families affected by spina bifida understand health outcomes and the quality and effectiveness of existing healthcare services for spina bifida patients. CDC sends annual data reports to U.S. spina bifida clinics on the current health status of and the best treatment and care management options for this population. CDC's spina bifida surveillance system is viewed as a model for other public health surveillance systems monitoring rare diseases.

CDC's efforts have led to enormous successes in preventing spina bifida and for Americans living with spina bifida, including:

- Identifying optimal folate levels needed for the prevention of spina bifida and other neural tube defects.
- Publishing 15 papers using National Spina Bifida Patient Registry data. A recent publication titled, "Surgeries and health outcomes among patients with spina bifida," was published in *Pediatrics*, August 2018. In this paper, CDC scientists describe the lifetime occurrence of key surgical procedures and health outcomes in individuals with spina bifida. This information will help clinicians and parents know which surgical procedures may occur at what age, and what health outcomes to expect among individuals with spina bifida.
- Developing a urologic protocol that establishes a sequence of care activities and medical tests aimed at preserving normal kidney function as newborns with spina bifida grow. The protocol aims to minimize the severity of urological issues, preserve normal renal function, and ultimately reduce the occurrence of costly End Stage Renal Disease. This protocol is now yielding data and publications that will impact clinical care for newborns with spina bifida.
- Launched a training module about the prevention of skin breakdowns, a common condition among spina bifida patients. This module was distributed to clinics participating in CDC's spina bifida surveillance system. These clinics are helping CDC evaluate the implementation and impacts of this module on the prevention of skin breakdowns.

⁸⁷ Parker SE, Yazdy MM, Tinker SC, Mitchell AA, Werler MM. The impact of folic acid intake on the association among diabetes mellitus, obesity, and spina bifida. *Am J Obstet Gynecol*. 2013 Sep;209(3):239.e1-8. doi: 10.1016/j.ajog.2013.05.047. Epub 2013 May 24.

⁸⁸ Yazdy MM, Mitchell AA, Tinker SC, Parker SE, Werler MM. Periconceptual use of opioids and the risk of neural tube defects. *Obstet Gynecol*. 2013 Oct;122(4):838-44. doi: 10.1097/AOG.0b013e3182a6643c.

⁸⁹ Rasmussen, Barfield, Honein. Protection Mothers and Babies: A delicate balancing act. *NEJM*, July, 2018. <https://infectonews.wordpress.com/2018/07/24/protecting-mothers-and-babies-a-delicate-balancing-act/>

⁹⁰ <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a2.htm>

CDC and the Spina Bifida Association also collaborate with clinics and healthcare providers to share resources and to more effectively connect patients and their families to specialists and services that may not be available to them in their area. In particular, CDC supported the Spina Bifida Association as they developed and disseminated the Guidelines for the Care of People with Spina Bifida, which were published in October 2018.

To educate healthcare providers on the latest in spina bifida care, CDC funded the American Academy of Pediatrics to develop a series of webinars targeted to general and specialty care providers with the goal of standardizing and improving care for children and adults with spina bifida. Relatedly, CDC supported the American Academy of Pediatrics to conduct interviews of providers who care for individuals living with spina bifida and to assemble an expert group for the “Transition from Pediatric to Adult Care for Children with Spina Bifida Quality Improvement Project.”

In FY 2020, CDC will continue to:

- Improve our understanding of risk factors for spina bifida and optimize prevention efforts.
- Work with partners to understand the changes in treatment, unique needs, and health outcomes for adolescents with spina bifida face as they transition into adulthood.
- Educate physicians about the needs and treatment options for adults living with spina bifida and other chronic congenital diseases.
- Use CDC's spina bifida surveillance system to study treatments and compare outcomes for patients over time in order to identify the best care for people living with spina bifida.

Congenital Heart Defects

[Congenital heart defects \(CHDs\)](#) affect the structure of the heart and the way the heart functions. Collectively, CHDs are the most common type of birth defect. Thanks to advancements in medical care and treatment, infants with CHDs are living longer and healthier lives. In states implementing mandatory screening for critical congenital heart disease between August 2011 and June 2013 using pulse oximetry, infant deaths from critical congenital heart disease (CCHD) decreased more than 33% compared to states with no mandatory screening policies. Additionally, deaths from other or unspecified cardiac causes decreased by 21%.⁹¹ More children are now living into adulthood who now face new questions such as medical care during pregnancy and availability of healthcare providers to treat adults with a congenital condition. CDC leads efforts to answer questions about survival, healthcare utilization, and longer term outcomes of those affected by CHDs. CDC has documented the challenges that can be barriers to life-saving care and family health, including cost, distance to healthcare providers, and family stress.^{92,93,94}

In FY 2020, CDC will continue its focus on coordinating the multi-site surveillance of CHD across the lifespan to better understand the needs of children, adolescents, and adults living with CHD. The surveillance effort will improve our understanding of the epidemiology of CHDs across the life span, age-specific prevalence, and factors associated with dropping out of appropriate specialty care, which could lead to disability, death, or increased medical costs. CDC will also continue to explore the impact of CHD during pregnancy, and factors associated with the best outcomes for mothers and babies. In addition, CDC will continue to explore improved screening for critical congenital heart defects to further decrease infant deaths.

⁹¹ Rahi, A., Grosse, SD, Ailes, EC, Oster, ME. Association of US State Implementation of Newborn Screening Policies for Critical Congenital Heart Disease With Early Infant Cardiac Deaths. *JAMA*. 2017;318(21):1-8.

⁹² McClung N, Glidewell J, Farr SL. Financial burdens and mental health needs in families of children with congenital heart disease. *Congenit Heart Dis*. 2018 Apr 6. doi: 10.1111/chd.12605. [Epub ahead of print]

⁹³ Downing KF, Oster ME, Farr SL. Preparing adolescents with heart problems for transition to adult care, 2009-2010 National Survey of Children with Special Health Care Needs. *Congenit Heart Dis*. 2017 Jul;12(4):497-506. doi: 10.1111/chd.12476. Epub 2017 May 19.

⁹⁴ Farr SL, Oster ME, Simeone RM, Gilboa SM, Honein MA. Limitations, depressive symptoms, and quality of life among a population-based sample of young adults with congenital heart defects. *Birth Defects Res A Clin Mol Teratol*. 2016 Jul;106(7):580-6. doi: 10.1002/bdra.23498. Epub 2016 Mar 17

State table: Early Hearing Detection and Intervention¹

	FY 2018 Final	FY 2019 Estimate	FY 2020 Estimate	FY 2020 +/- FY 2019
Alabama	\$149,174	\$149,174	\$149,174	\$0
Alaska	\$150,000	\$150,000	\$150,000	\$0
Arizona	\$150,000	\$150,000	\$150,000	\$0
Arkansas	\$150,000	\$150,000	\$150,000	\$0
California	-	-	-	-
Colorado	\$149,879	-	-	-
Connecticut	\$150,000	-	-	-
Delaware	\$145,870	\$145,870	\$145,870	\$0
Florida	\$150,000	\$150,000	\$150,000	\$0
Georgia	\$250,000	\$200,000	\$200,000	\$0
Hawaii	-	-	-	-
Idaho	\$150,000	\$150,000	\$150,000	\$0
Illinois	\$150,000	\$150,000	\$150,000	\$0
Indiana	\$149,096	\$149,242	\$149,242	\$0
Iowa	\$150,000	\$150,000	\$150,000	\$0
Kansas	\$150,000	\$150,000	\$150,000	\$0
Kentucky	\$145,821	\$145,821	\$145,821	\$0
Louisiana	\$241,465	\$243,657	\$243,657	\$0
Maine	\$149,999	\$150,000	\$150,000	\$0
Maryland	-	-	-	-
Massachusetts	\$250,000	\$250,000	\$250,000	\$0
Michigan	\$150,000	\$150,000	\$150,000	\$0
Minnesota	\$250,000	\$250,000	\$250,000	\$0
Mississippi	\$150,000	\$150,000	\$150,000	\$0
Missouri	\$102,159	\$102,159	\$102,159	\$0
Montana	-	-	-	-
Nebraska	\$150,000	\$150,000	\$150,000	\$0
Nevada	\$149,933	\$148,966	\$148,966	\$0
New Hampshire	\$150,000	\$150,000	\$150,000	\$0
New Jersey	\$248,837	\$250,000	\$250,000	\$0
New Mexico	\$150,000	\$150,000	\$150,000	\$0
New York	\$150,000	\$150,000	\$150,000	\$0
North Carolina	\$200,000	\$200,000	\$200,000	\$0
North Dakota	\$150,000	\$150,000	\$150,000	\$0
Ohio	\$150,000	\$150,000	\$150,000	\$0
Oklahoma	\$150,000	\$150,000	\$150,000	\$0
Oregon	\$250,000	\$250,000	\$250,000	\$0
Pennsylvania	\$150,000	-	-	-
Rhode Island	\$150,000	\$150,000	\$150,000	\$0
South Carolina	\$73,256	\$73,256	\$73,256	\$0
South Dakota	\$148,459	-	-	-
Tennessee	-	-	-	-
Texas	\$150,000	\$150,000	\$150,000	\$0
Utah	\$150,000	\$150,000	\$150,000	\$0
Vermont	\$150,000	\$150,000	\$150,000	\$0
Virginia	\$122,290	\$122,290	\$122,290	\$0
Washington	\$250,000	\$250,000	\$250,000	\$0
Washington, D.C.	-	-	-	-
West Virginia	-	-	-	-
Wisconsin	\$250,000	\$250,000	\$250,000	\$0

	FY 2018 Final	FY 2019 Estimate	FY 2020 Estimate	FY 2020 +/- FY 2019
Wyoming	\$148,225	\$148,225	\$148,225	\$0
Territories				
America Samoa	\$141,925	\$141,925	\$141,925	\$0
Guam	\$150,000	\$150,000	\$150,000	\$0
Marshall Islands	\$124,548	\$124,548	\$124,548	\$0
Micronesia	-	-	-	-
Northern Marianas	\$65,040	\$65,040	\$65,040	\$0
Puerto Rico	\$147,373	\$147,373	\$147,373	\$0
Palau	-	-	-	-
Virgin Islands	-	-	-	-
Subtotal, States	\$7,274,463	\$6,380,066	\$6,380,066	\$0
Subtotal, Territories	\$628,886	\$628,886	\$628,886	\$0
Total Resources	\$7,903,349	\$7,008,952	\$7,008,952	\$0

¹This State Table is a snapshot of selected programs that fund states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

State Table: Disability and Health Grants^{1,2}

	FY 2018 Final	FY 2019 Estimate	FY 2020 Estimate	FY 2020 +/- FY 2019
Alabama	\$300,000	\$300,000	\$300,000	\$0
Alaska	-	-	-	-
Arizona	-	-	-	-
Arkansas	\$439,943	\$439,943	439,943	\$0
California	-	-	-	-
Colorado	-	-	-	-
Connecticut	-	-	-	-
Delaware	-	-	-	-
Florida	\$300,000	\$300,000	\$300,000	\$0
Georgia	-	-	-	-
Hawaii	-	-	-	-
Idaho	-	-	-	-
Illinois	-	-	-	-
Indiana	-	-	-	-
Iowa	\$390,000	\$390,000	\$390,000	\$0
Kansas	\$389,995	\$389,995	\$389,995	\$0
Kentucky	\$150,000	\$150,000	\$150,000	\$0
Louisiana	-	-	-	-
Maine	-	-	-	-
Maryland	\$150,000	\$150,000	\$150,000	\$0
Massachusetts	\$439,588	\$439,588	\$439,588	\$0
Michigan	\$390,000	\$390,000	\$390,000	\$0
Minnesota	\$300,000	\$300,000	\$300,000	\$0
Mississippi	-	-	-	-
Missouri	\$150,000	\$150,000	\$150,000	\$0
Montana	\$390,000	\$390,000	\$390,000	\$0
Nebraska	-	-	-	-
Nevada	-	-	-	-
New Hampshire	\$440,000	\$440,000	440,000	\$0
New Jersey	-	-	-	-
New Mexico	-	-	-	-
New York	\$440,000	\$440,000	\$440,000	\$0
North Carolina	-	-	-	-
North Dakota	-	-	-	-
Ohio	\$300,000	\$300,000	\$300,000	\$0
Oklahoma	-	-	-	-
Oregon	\$440,000	\$440,000	\$440,000	\$0
Pennsylvania	-	-	-	-
Rhode Island	-	-	-	-
South Carolina	\$440,000	\$440,000	\$440,000	\$0
South Dakota	-	-	-	-
Tennessee	-	-	-	-
Texas	-	-	-	-
Utah	\$150,000	\$150,000	\$150,000	\$0
Vermont	\$150,000	\$150,000	\$150,000	\$0
Virginia	-	-	-	-
Washington	-	-	-	-
West Virginia	-	-	-	-
Wisconsin	-	-	-	-
Wyoming	-	-	-	-

	FY 2018 Final	FY 2019 Estimate	FY 2020 Estimate	FY 2020 +/- FY 2019
Territories				
America Samoa	-	-	-	-
Guam	-	-	-	-
Marshall Islands	-	-	-	-
Micronesia	-	-	-	-
Northern Marianas	-	-	-	-
Puerto Rico	-	-	-	-
Palau	-	-	-	-
Virgin Islands	-	-	-	-
Subtotal, States	\$6,149,526	\$6,149,526	\$6,149,526	\$0
Subtotal, Territories	\$0	\$0	\$0	\$0
Total Resources	\$6,149,526	\$6,149,526	\$6,149,526	\$0

¹ This State Table is a snapshot of selected programs that fund states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://www.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

² <http://www.cdc.gov/ncbddd/disabilityandhealth/programs.html>

PUBLIC HEALTH SCIENTIFIC SERVICES

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 19
Budget Authority	\$496.710	\$504.397	\$45.000	-\$459.397
PHS Evaluation Funds	\$0.000	\$0.000	\$423.000	+\$423.000
Total Request	\$496.710	\$504.397	\$468.000	-\$36.397
FTEs	1,413	1,413	1,413	0
Health Statistics	<u>\$159.855</u>	<u>\$160.397</u>	<u>\$155.000</u>	<u>-\$5,397</u>
Health Statistics <i>PHS Evaluation Transfer (non-add)</i>	\$0.000	\$0.000	\$155.000	+\$155.000
Health Statistics - BA	\$159.855	\$160.397	\$0.000	-\$160.397
Surveillance, Epidemiology, and Public Health Informatics ¹	<u>\$286.027</u>	<u>\$293.000</u>	<u>\$268.000</u>	<u>-\$25.000</u>
Surveillance, Epidemiology, and Public Health Informatics - BA	\$286.027	\$293.000	\$0.000	-\$293.000
<i>Lab Safety and Quality (non-add)</i>	\$7.970	\$8.000	\$0.000	-\$8.000
<i>Surveillance, Epidemiology, and Public Health Informatics - PHS Evaluation Transfer (non-add)</i>	\$0.000	\$0.000	\$268.000	+\$268.000
<i>Lab Safety and Quality - PHS Evaluation Transfer (non-add)</i>	\$0.000	\$0.000	\$8.000	+\$8.000
Public Health Workforce and Career Development	\$50.828	\$51.000	\$45.000	-\$6.000

¹ FY 2018 Operating Level and FY 2019 President's Budget Surveillance, Epidemiology, and Public Health Informatics amounts are comparably adjusted to reflect \$8 million transfer to Lab Safety and Quality from Emerging and Zoonotic Infectious Diseases account.

Enabling Legislation Citation: PHS A § 241, PHS A § 301, PHS A § 304, PHS A § 306*, PHS A § 307, PHS A § 308, PHS A § 310, PHS A § 317, PHS A § 317G, PHS A § 318A*, PHS A § 319, PHS A § 319A*, PHS A § 353, PHS A § 391, PHS A § 399S-1, PHS A § 399V*, PHS A § 778*, PHS A § 1102, PHS A § 2315, PHS A § 2341, E-Government Act of 2002 Pub. L. 107-347, Food, Conservation, and Energy Act of 2008 § 4403 (7 U.S.C. 5311a), Intelligence Reform and Terrorism Prevention Act of 2004 § 7211*, Pub. L. 101-445 § 5341, Title V (44 U.S.C. 3501 note)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants/Cooperative Agreements, Contracts

CDC's Public Health Scientific Services (PHSS) leads, promotes, and facilitates science standards and policies to protect the health of American's here and abroad by:

- Providing leadership and training for a competent, sustainable, and empowered public health workforce
- Providing the needed infrastructure to modernize public health surveillance systems and overseeing CDC's Surveillance Strategy⁹⁵
- Improving access to information needed by public health professionals who monitor and respond to disease outbreaks and other threats

CDC's FY 2020 request of **\$468,000,000** for Public Health Scientific Services (PHSS), including \$423,000,000 in PHS Evaluation Transfer, is \$36,397,000 below the FY 2019 Enacted level. The budget request includes a programmatic realignment of \$8,000,000 for Lab Safety and Quality moved from the Emerging and Zoonotic Infectious Diseases account. At this funding level, CDC will continue to support the most effective public health workforce training and workforce development programs. Core health statistics activities will also continue at this level.

⁹⁵ <https://www.cdc.gov/ophss/docs/cdc-surveillance-strategy-final.pdf>

PUBLIC HEALTH SCIENTIFIC SERVICES

BY THE NUMBERS...

- Public Health Scientific Services funding provides surge capacity during the opioid epidemic and natural disasters, including recent hurricanes Harvey, Irma and Maria; and public health emergencies, such as the Ebola and Zika virus responses.
- **100 percent**—Proportion of the American population covered by the National Notifiable Disease Surveillance Systems infectious disease surveillance, allowing for the identification of more than 120 diseases and conditions providing early detection and defense against public health threats.^{1,2}
- **85 percent**— Proportion of drug overdose deaths where CDC’s National Center for Health Statistics collaborated with jurisdictions to identify specific drugs implicated, providing critical information for focused program and policy development to help combat the opioid epidemic.
- **63 percent**—The proportion of mortality records collected electronically from the states within 10 days of death in 2018, an increase from 7 percent in 2014.
- **14 billion**—Laboratory tests per year—about 40 tests per year for every person living in the United States—conducted by 260,000 U.S. clinical and public health laboratories with access to CDC training, guidance, and standards.³
- **2,000**—Laboratory spaces on CDC campuses receiving safety inspections each year from CDC laboratory safety officials.
- **17,000**—Laboratory safety-training course completions by CDC staff. CDC has developed 20 new laboratory safety training courses.
- **131**—Rigorous scientific reviews by CDC Laboratory Safety Review Board of protocols for the transfer of biological materials out of high-containment laboratories, to ensure the safety and verified inactivation of dangerous pathogens.
- **141**—STEM teachers from 35 states trained in basic epidemiology and public health in FY 2018 by the CDC Science Ambassador Fellowship program. It is estimated the trained teachers will reach more than 4,000 unique teachers and educators, and more than 15,000 students.⁴
- **\$3.4 million**—Estimated value of CDC continuing education (CE) credits awarded, for free, to public health professionals.
- **32**—Opioid reports published from 2016 to 2018 in the Morbidity and Mortality Weekly Reports (MMWR), a leading resource for reliable information on the opioid crisis.⁵ These include CDC Guidelines for Prescribing Opioids for Chronic Pain—United States, 2016. Between July 2017 and September 2018, almost 13,000 physicians and nurses earned continuing education credits based on the guidelines.

*References:

¹ Centers for Disease Control and Prevention, National Notifiable Disease Surveillance System (NNDSS). Available at <https://www.cdc.gov/nndss/conditions/notifiable/2018/>

² Centers for Disease Control and Prevention, 2018 NNDSS Event Code List. Available at

https://www.cdc.gov/nndss/document/National_Notifiable_Diseases_Surveillance_System_Event_Code_List_2018_v1.xlsx

PUBLIC HEALTH SCIENTIFIC SERVICES

References (cont.):

⁴ <https://www.cdc.gov/careerpaths/scienceambassador/index.html> and <https://www.cdc.gov/careerpaths/scienceambassador/overview.html>

⁵ Centers for Disease Control and Prevention (2017). MMWR Opioid Reports. Morbidity and Mortality Weekly. Available at https://www.cdc.gov/mmwr/opioid_reports.html

*Unless otherwise noted, all information and calculations are from CDC program data.

Public Health Scientific Services Funding History	
Fiscal Year	Dollars (in millions)
2016	\$481.061
2017	\$491.022
2018	\$496.710
2019 Enacted	\$504.397
2020 President's Budget (BA)	\$45.000
2020 President's Budget (PHS Eval)	\$423.000

Health Statistics Budget Request

CDC's National Center for Health Statistics (NCHS) serves as the principal statistical agency designated by the Office of Management and Budget (OMB) to produce official health statistics for the nation. Federal health statistics provide critical information and evidence to shape policies, monitor programs, track progress, and measure change. CDC's health statistics data provide information to support a robust portfolio of evidence informing a wide variety of program decisions in CDC, HHS, and in other federal agencies.

Budget Request

CDC's FY 2020 request of **\$155,000,000** for health statistics in PHS Evaluation Transfer, is \$5,397,000 below the FY 2019 Enacted level.

As the nation's health statistics agency, CDC collaborates with numerous federal partners and provides the data platform to maximize the efficient use of taxpayer dollars. These investments result in an integrated data strategy that has reduced duplication and increased the analytic capacity of CDC and HHS.

The ability of governments, businesses, and the general public to make informed choices about budgets, employment, investments, taxes, and a host of other important matters depends critically on the availability of relevant, accurate, timely, and objective statistics. One of only 13 agencies so designated, CDC's National Center for Health Statistics (NCHS), along with the Census Bureau, the Bureau of Justice Statistics, and other agencies, make up the Federal Statistical System. The data produced by this System forms a robust evidence-base to support both public and private decision-making.

Health statistics are essential for CDC programs to monitor and measure progress in prevention and treatment. For example, CDC uses mortality statistics on suicide, homicide, and drug overdoses to highlight these critical health problems. The agency's population surveys help grantees from CDC's chronic disease prevention programs report on their progress by providing national benchmarks for states.

In August 2017, CDC launched the release of monthly provisional drug overdose counts as part of the Vital Statistics Rapid Release program, providing access to the timeliest vital statistics for public health surveillance. Within months, the agency identified the need to account for underreporting and developed new methods to reduce the potential for misinterpretation of data that are essential for monitoring the opioid crisis.

In 2018, OMB selected CDC data on drug overdose mortality as their "Case Study on Value," noting that CDC provided timely and accurate data "which informs the discussion and planning on how best to confront the issue."⁹⁶

At the FY 2020 requested level, CDC will:

- Continue focusing on providing quality information for evidence based policymaking by maintaining existing health data systems at current functionality, targeting investments to track progress in major health objectives for the nation.
- Maintain the core data systems used by CDC and HHS to monitor changes in the healthcare system and ensure that content addresses the most critical data needs of public health importance.
- Target efforts to expand access to public use files and restricted microdata, while protecting confidential information.
- Return survey sample size to baseline, the lowest sample size which permits the production of estimates on key health indicators at the national level.

⁹⁶ Office of Management and Budget. "Statistical Programs of the United States Government, Fiscal Year 2018." Washington, DC: Government Printing Office, 2018. <https://www.whitehouse.gov/wp-content/uploads/2018/05/statistical-programs-2018.pdf>

- Safeguard investments and minimize duplication by increasing coordination and integration of data collection activities across federal agencies.

Major Data Collection Activities

Data Collection Systems	Method of Data Collection
National Vital Statistics System	Obtains information on the 4 million births and 2.5 million death events in the U.S. each year to monitor natality and mortality.
National Health Interview Survey	Flagship survey for HHS conducting in-person household interviews on health status and conditions, disability, access to and use of health services, health insurance coverage, immunizations, risk factors, and health-related behaviors.
National Health and Nutrition Examination Survey	The only federal health survey that assesses the physical health and nutritional status of a nationally representative sample of adults and children conducting in-person household interviews, physical examinations and laboratory tests in mobile examination centers.
National Health Care Surveys	Collects information from health care providers about their organizational structure, services rendered, and patients served, including claims and clinical data from electronic health records.

Health Statistics: CDC and HHS rely on relevant and objective health statistics to measure, monitor, and track performance and progress, but the information produced by the official health statistics agency is used widely by other federal agencies.

- The Department of Homeland Security uses the average weight of Americans reported by NHANES for public safety purposes related to passenger weight and vessel stability.
- The Federal Aviation Administration and the Coast Guard used NHANES as the authoritative source for average weight in the U.S. for carrying capacity in multiple modes of transportation.
- The Office of the Chief Actuary (OCA) of the Social Security Administration applies health statistics to project the solvency of programs such as Social Security.
- The Department of Defense and Veterans Affairs use mortality data from NVSS to plan prevention activities, such as the prevention of suicide among the military.
- At the request of Congress, the National Institutes of Health (NIH) implemented a process to provide better consistency and transparency in the reporting of its funded research. Using CDC’s health statistics data alongside the budgeting categories, NIH is able to provide the public and policymakers with information about its research portfolio and its relationship to public health needs.

National Vital Statistics System

The National Vital Statistics System⁹⁷ (NVSS) provides key information on the 6.5 million births and deaths in the United States each year, and is the oldest, most successful example of intergovernmental data sharing in public health. This statistical system produces information on natality, infant mortality, life expectancy, mortality, and the leading causes of death. The NVSS is the result of a successful long-standing collaboration with vital registration jurisdictions that has improved the quality and utility of vital statistics data.

CDC staff have studiously engaged with medical examiners and coroners, resulting in improved data quality for mortality. For example, the percentage of drug overdose deaths for which the specific drugs involved were identified has continued to increase over time, with ranges of 75–79 percent from 1999 to 2013 increasing to 85-87 percent in 2017.

⁹⁷ <http://www.cdc.gov/nchs/nvss.htm>

Improvements in mortality data have sped up the collection and reporting of death information—a foundational part of public health surveillance—in order to inform an impactful response. With the epidemic of opioid overdoses threatening more lives every day, exploring how to make more of these improvements is vital.

Similarly, disaster-related mortality data are used to assess the scope of catastrophic events and identify public health interventions. To improve this reporting, CDC published a reference guide for the certification of disaster-related deaths. The guide was a product of the coordinated efforts of CDC, the National Association for Public Health Statistics and Information Systems, and the Council of State and Territorial Epidemiologists.

National Health Interview Survey

The National Health Interview Survey⁹⁸ (NHIS) has been the nation’s principal health survey for almost 60 years and is the flagship survey for HHS. Data collected through personal household interviews in the NHIS are instrumental in tracking health status, risk factors, health conditions, and access to care. NHIS is an invaluable source of information on the health of the U.S. population.

The NHIS serves as a highly efficient platform for the collection of data within HHS and for other federal agencies. The Medical Expenditure Panel Survey and other surveys rely on this infrastructure for minimizing duplication and maximizing resources. CDC and HHS surveys use the NHIS as a critical benchmark for comparison of programs using state level data; states like California benchmark their health surveys to the NHIS. Health surveys in the private sector rely on the NHIS because the survey provides the official federal estimates for health policy and health research.

After more than 20 years, the NHIS has undergone a major re-design to improve the measurement of covered health topics, reduce respondent burden by shortening the questionnaire, harmonize content with other federal health surveys, and incorporate advances in survey methodology. The re-design will ensure that the NHIS continues to collect the highest quality data on the health of the nation and meets the needs of data users. New questions have been developed in critical public health topics, such as prescription opioid use and pain management--information that will help CDC evaluate the impact of the 2016 CDC Guidelines on Prescribing Opiates for Chronic Pain.

National Health and Nutrition Examination Survey

The National Health and Nutrition Examination Survey⁹⁹ is the only federal survey combining household interviews with physical examinations and laboratory tests. The survey collects nationally representative data on the prevalence of both diagnosed and undiagnosed conditions in the population. Conditions include diabetes, hypertension, and high cholesterol. NHANES provided evidence of the rise in obesity in the United States for both adults and children, informing program planning and prevention efforts across HHS. NHANES also provides information for national standards for measurements of height, weight, and blood pressure.

CDC and other federal agencies, including NIH and USDA, rely heavily on NHANES to provide measurements for targeting resources and planning and evaluating programs. For example, NHANES data have been instrumental in providing a complete picture of opioid use among population subgroups—groups for whom we often do not have sufficient information for developing program or policy. CDC measures more than 300 chemicals and nutrition indicators from NHANES and publishes findings in the regularly updated *National Report on Human Exposure to Environmental Chemicals* and *National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population*.

⁹⁸ <http://www.cdc.gov/nchs/nhis.htm>

⁹⁹ <http://www.cdc.gov/nchs/nhanes.htm>

National Health Care Surveys

The National Health Care Surveys¹⁰⁰ are a family of nationally representative provider-based surveys. The surveys cover a broad spectrum of health care settings to answer questions about the use of health care services and the delivery of care. Healthcare facilities, inpatient hospital units, and physician offices provide information on their practices, the delivery of services, and individual patient encounters. The National Hospital Care Survey¹⁰¹ (NHCS) obtains information on emergency department (ED) visits, including critical information on drug-related ED visits. This survey is advancing the collection and integration of Electronic Health Records (EHRs), increasing the efficiency and speed of data collection and providing high quality, timely clinical health care data to inform policy and advance research.

Data Access and Analysis: To maximize efficiencies and improve the utility of the data, the Research Data Center (RDC) program has successfully participated with other HHS Operating Divisions to consolidate access to information while reducing burden to the government and data users. Additional partnerships were established to expand access to health data, resulting in decreased costs and increased opportunities. Reduced funding would reduce the operations of the RDC for federal research and policy uses.

Strengthening the Use of Evidence and Evaluation: The principal statistical agencies have a long history of sharing research findings and products with other agencies and within HHS. Data from CDC have become the linchpin for models of access to care and help estimate the impact of changes in national policy on various segments of the U.S. population. Measurement and data collection provide information and evidence needed for making sound health policy. This information also enhances monitoring the performance of programs that expend taxpayer dollars.

¹⁰⁰ <http://www.cdc.gov/nchs/dhcs.htm>

¹⁰¹ <http://www.cdc.gov/nchs/nhcs.htm>

Surveillance, Epidemiology, and Public Health Informatics Budget Request

CDC's ability to provide comprehensive, timely, and high quality public health surveillance data and best practice information about what works to save lives is at the crux of every major public health achievement, from smallpox eradication to reductions in smoking. Increased investments in innovative disease surveillance, enhanced workforce capacity, and evidence-based practice are vital to building the strong, sustainable public health system needed to address the nation's urgent and emerging public health challenges.

CDC collaborates with all levels of public health—local, tribal, state, territorial, federal, and international—to share notifiable disease-related health information. In FY 2018, CDC began a comprehensive, cross-cutting effort to improve data at CDC by modernizing tools, technology, and strategy around data. The [CDC Public Health Data Strategy](#)¹⁰² will support public health surveillance, research, and ultimately decision making. The strategy addresses key issues, including: improving timeliness and quality of data; better coordination of data activities and systems; reduction of burden and access to data on partners; and integrating emerging technologies. The plan will help CDC and its partners chart a course to a future where data drives action in real time—efficiently, flexibly, rapidly, and with impact. As CDC continues to transform public health data, staff are working across the agency, and beyond, to integrate data from different programs and sources, better connect public health and healthcare, and create efficiencies through shared IT services.

Budget Request

CDC's FY 2020 request of **\$268,000,000** for Surveillance, Epidemiology, and Public Health Informatics in PHS Evaluation Transfer is \$25,000,000 below the FY 2019 Enacted level. This request continues the proposed transfer of **\$8,000,000** for Laboratory Safety and Quality activities, previously allocated to the Emerging and Zoonotic Infectious Diseases account.

At the requested level, CDC will:

- Support core public health surveillance activities.
- Provide limited surge capacity during public health emergencies. Surge capacity allows CDC to rapidly gather surveillance data to monitor disease trends, identify emerging threats, and share new scientific information in response to emerging public health threats like Zika.
- Support the development and implementation of new laboratory testing capabilities to effectively combat infectious disease threats and train clinical and public health laboratory professionals who serve as our first line of defense during disease outbreaks.

Surveillance

CDC's scientific services include a suite of surveillance and information systems, which serve as the foundation for the collection and use of a variety of public health indicators. These systems support infectious disease, syndromic, and population health surveillance and data transmission. This information allows local, state, and federal health agencies to track, monitor, and share information in support of infectious and non-infectious disease incidents and outbreaks. Agencies characterize unusual health events or activity to determine if further investigation or response is required, and understand risk behaviors and the use of preventive health services.

CDC works in partnership with state and territorial health departments through cooperative agreements to administer the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is the world's largest continuously

¹⁰² <https://www.cdc.gov/surveillance/improving-surveillance/index.html>

conducted telephone health survey, through both landline and cell phones. The BRFSS is the primary source of data for local entities and states on the health-related behaviors of adults.

Behavioral Risk Factor Surveillance System (BRFSS) Grants^{1,2}

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	57	57	57
- New Awards	0	0	57
- Continuing Awards	57	57	0
Average Award	\$0.253	\$0.253	\$0.253
Range of Awards	\$0.010 - \$0.318	\$0.010 - \$0.318	\$0.010-\$0.318
Total Awards	\$14.393	\$14.393	\$14.393

¹ Table includes core funding from the Surveillance, Epidemiology, and Public Health Informatics budget activity and other CDC programs.

² These funds are not awarded by formula.

State and local efforts to monitor, control, and prevent the occurrence and spread of infections and noninfectious diseases are dependent on timely, high-quality data obtained from disease surveillance, a cornerstone of public health practice. The National Notifiable Diseases Surveillance System (NNDSS) is a CDC collaboration with 57 state, local and territorial public health jurisdictions to receive infectious disease data collected by 3,000 health departments. As a result, approximately 120 diseases and conditions are under continuous nationwide surveillance. With the evolution of technology and data exchange standards, CDC continues to strengthen and modernize the infrastructure supporting NNDSS, allowing for more effective data-sharing and collaboration. Through work started as part of the CDC Surveillance Strategy, the NNDSS Modernization Initiative (NMI) is enhancing the system’s ability to provide more comprehensive, timely, and higher quality data to CDC programs which enables them to implement timelier public health interventions and develop more informed health policies. By the end of 2019, CDC will have updated specifications to allow all current notifiable diseases to be sent using new messaging standards while streamlining the system's ability to receive, process, and disseminate information. Funding provided to state and territorial health departments assists them in updating their surveillance systems to better adapt to emerging conditions, new scientific findings, and advances in information technology. By the end of 2020, the health departments will be sending a majority of their notifiable disease data to CDC using the new messaging standards. This effort has significantly improved CDC’s ability to track disease occurrence, identify potential outbreaks, recognize emerging trends, and monitor the impact of public health interventions.

The Health Level 7 (HL7) case notification message format is the foundational tool in support of modernized data standardization in reporting disease data. HL7 provides standards for the exchange, integration, sharing, and retrieval of electronic health information and is widely used in healthcare. Using this same framework, CDC has standardized the reporting of disease data to programs. Using these standards reduces the reporting burden on state partners, increases the quality and timeliness of the data received, and leads to better disease detection and outbreak management. Currently, 41 of the 57 reporting jurisdictions are at various stages of bringing new HL7 case notification Message Mapping Guides (MMG) online; 31 of those jurisdictions have implemented at least one of the new HL7 messages, and 11 of these 31 have implemented more than one. This continued progress can be attributed to the technical assistance CDC provides to states to help test, implement, and use the new MMGs to submit notifiable disease health data. Investments in this area have helped CDC support state efforts to move to a more efficient, modernized, and less burdensome disease reporting process.

National Notifiable Diseases Surveillance System (NNDSS) Grants¹

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	58	63	63
- New Awards	0	5	0
- Continuing Awards	58	58	63
Average Award	\$0.175	\$0.163	\$0.163
Range of Awards	\$0.002–\$0.424	\$0.006–\$0.331	\$0.006–\$0.331
Total Awards	\$10.000	\$10.407	\$10.407

¹ These funds are not awarded by formula.

Epidemiology

CDC supports scientifically sound decision making by providing epidemiological resources, evidence-based recommendations, scientific literature, tools, and other resources for preventing and solving threats to the public's health. Health departments, non-profit hospitals, clinicians, and others engaged in protecting the health of their communities use these resources to inform and enhance their work at state and local levels. Principal programs and tools include:

- **CDC's Data Hub**, a centrally managed data acquisition program that provides CDC programs access to some of the largest health-related datasets in the nation. This consolidation not only increases access to data for use by CDC scientists and programs but also reduces the operational costs of providing the data used to support public health responses. The Data Hub also provides access to a wide array of public health information for use by public health professionals and academia through CDC's Wide-ranging Online Data for Epidemiologic Research (WONDER).
- **Epi Info™**, a public domain suite of interoperable software tools, designed for the global community of public health to collect and analyze epidemiologic data during outbreak investigations.

Publications such as *Morbidity and Mortality Weekly Report*¹⁰³ (*MMWR*) and *CDC Vital Signs*¹⁰⁴ provide timely public health guidance and scientific findings to a wide range of stakeholders. *MMWR* and *CDC Vital Signs* content is extensively redistributed through major news media outlets, medical societies, and scholarly medical journals. During FY 2018, traditional and social media coverage of *MMWR* continued, averaging in the top 3 percent compared with other journals. For the past three years, *MMWR* has ranked 2nd among 170 public, environmental, and occupational health journals, based on numbers of citations in the published literature. In FY 2018, *MMWR* implemented visual abstracts to enhance dissemination of science content, and currently more than 70 journals and institutions are using these visual abstracts. In FY 2018, *CDC Vital Signs* issues generated more than 14,000 total media stories, including front page features on the *New York Times*, *Wall Street Journal*, and *USA Today*. *CDC Vital Signs* continues to strengthen clinical and public health linkages and inform public health policy. In FY 2018, the American Medical Association cited data from a *CDC Vital Signs* report to support public health policies on preventing the further spread of vector-borne illness. *CDC Vital Signs* also hosted a joint clinical and public health webinar featuring the US Surgeon General on opioid overdose prevention that was attended by more than 1,200 participants.

Laboratory Safety and Quality

CDC has more than 200 laboratories that safeguard the country against health threats. CDC scientists and other professionals use the latest technologies to detect infectious organisms, foodborne outbreaks, and biosecurity threats; protect America's blood supply; screen for genetic and other health risk factors; monitor the health of communities; identify environmental hazards; and much more.

¹⁰³ <https://www.cdc.gov/mmwr/index.html>

¹⁰⁴ <https://www.cdc.gov/mmwr/index.html>

In 2018, CDC built upon its recent reforms to ensure that its diverse and critical laboratories continue to be a national model of scientific excellence and safety. Under the leadership of the Associate Director for Laboratory Science and Safety—a senior official who serves as the single point of accountability for the science and safety of CDC’s laboratories—CDC has advanced key efforts to strengthen laboratory safety and science across this agency. This includes rigorous review of protocols for the inactivation of dangerous pathogens, on-the-ground safety inspections of CDC laboratories, and ensuring CDC laboratory staff have state-of-the-art training needed to meet 21st century health threats.

The Laboratory Safety and Quality budget request supports critical CDC laboratory safety infrastructure, programs, and initiatives and is the necessary complement to the Laboratory Standards and Services request, above.

In FY 2020, CDC will continue investing in key efforts to strengthen laboratory safety and excellence across the agency. Key priorities include:

- **Comprehensive safety oversight:** CDC will continue to implement and support centralized oversight of biological, chemical and radiation safety across the agency, a vital investment to ensure optimal safety and security of CDC laboratories and the public.
- **Ensuring unimpeachable laboratory quality:** CDC serves as the public health reference laboratory for the nation and around the world. In FY 2020, CDC will build on this foundation of scientific excellence and continue to provide tools, training, and expertise to enhance laboratory science and quality and aid CDC laboratories to stand up laboratory quality management systems.
- **Advancing the science of safety:** CDC aims to apply the same rigorous scientific methods to the safety of its laboratories that it uses to confront threats to the public’s health. To spur this “science of safety,” CDC will continue investing in one-time awards to laboratories across the agency that propose innovative research or solutions to critical laboratory safety challenges.

Laboratory Safety and Training

The Laboratory Safety and Training portion of the Public Health Scientific Services’ budget line will support efforts to develop competency-based laboratory training for CDC scientists. Maximizing the impact of CDC’s laboratories requires a workforce of laboratory scientists trained and competent in cutting-edge techniques and technology. A comprehensive training curriculum, including laboratory safety and quality courses, ensures that CDC’s laboratory scientists are equipped to meet current and future public health challenges. In FY 2020, CDC will continue building upon its comprehensive curriculum of laboratory safety and quality training. CDC also provides rigorous internal oversight of its laboratories that work with the most dangerous pathogens and toxins in the world. This funding supports CDC’s select agent compliance program, which will ensure its internal laboratories continue to comply with the Federal Select Agent Program’s rules to secure these agents and protect the public’s health.

Laboratory Standards and Services

CDC provides leadership for more than 260,000 certified clinical and public health laboratories that serve on the frontline of public health surveillance, emergency response, and patient care. Each year, approximately 800,000 clinical laboratory personnel conduct approximately 14 billion tests, which have become increasingly complex. In addition, laboratory test results influence as much as 70 percent^{105,106} of medical decisions. High quality standards, safe laboratory testing, and well-equipped laboratories, and competent laboratory workforce are essential for producing reliable laboratory test results that underpin public health surveillance, emergency response activities, and medical diagnosis.

¹⁰⁵ <http://journals.sagepub.com/doi/pdf/10.1258/acb.2011.011177>

¹⁰⁶ <http://journals.sagepub.com/doi/full/10.1177/2374289517701067>

In FY 2020, CDC will continue to strengthen the nation's laboratory system through a cross-cutting, systems approach. In collaboration with the public health and clinical laboratory partners, CDC will address the following priority areas:

- **Quality Laboratory Science:** CDC will provide scientific and technical guidance to the federally mandated Clinical Laboratory Improvement Amendments (CLIA) program. In partnership with the Centers for Medicaid & Medicare Services (CMS), and the Food and Drug Administration (FDA), CDC will advance the quality and safety of clinical and public health laboratory testing and operations nationwide. CDC will also collaborate with public and private sector healthcare partners to better integrate laboratory expertise in healthcare to improve diagnoses.
- **Safe and Prepared Laboratories:** CDC will enhance the role of clinical laboratories in public health surveillance response efforts. CDC will lead and influence the development of biorisk management system standards for the health and safety of laboratory communities. CDC will also collaborate with federal partners to address the need for rapid deployment and use of Emergency Use Authorization (EUA) diagnostic tests during an emergency. Additionally, CDC will liaise with public and private sector clinical laboratories to enhance laboratory surge testing capacity for public health response.
- **Excellence in Biorepository Services and Operations:** CDC will operate the Biorepository, which preserves valuable sample collections for public health surveillance, advancing diagnostic and medical research, and supporting emergency responses. CDC will also create a dedicated repository of isolates and human specimens for the development of new assays, particularly during public health emergencies.
- **Highly Competent Laboratory Workforce:** CDC will identify laboratory workforce needs and implement strategies and initiatives to address challenges in laboratory workforce recruitment, retention, and training. CDC will also develop competency-based training curricula that focuses on cross-cutting laboratory topics such as safety and informatics, for clinical and public health laboratory professionals.
- **Accessible and Useable Laboratory Data:** CDC will increase access to and use of laboratory data to support response, surveillance, and patient care. CDC will also strengthen the exchange of laboratory data between laboratories and information technology, and will analyze large laboratory-based datasets to inform public health interventions.

Public Health Workforce and Career Development Budget Request

A robust and well-trained public health workforce is critical to protecting America's health. CDC provides essential workforce and training programs that ensure a competent and sustainable public health workforce. Our workforce and training programs provide HHS, the agency, and state and local health departments with skilled staff, technical assistance, and education services across the globe. Fellows are placed in positions at CDC headquarters, quarantine stations, state and local health departments and other field assignments. They receive training and mentoring while providing direct service to their host positions. CDC designs its fellowships and curricula to meet the evolving needs of the public health workforce. A survey of human resources directors identified the highest priority workforce needs as epidemiologists, laboratory scientists, and public health informatics specialists.¹⁰⁷ CDC's fellowships are also a pipeline for training the next generation of public health leaders. For example, since the inception of the program in 1951, one-third of CDC Directors have been graduates of the Epidemic Intelligence Service (EIS) – our nation's Disease Detectives training program.

Budget Request

CDC's FY 2020 request of **\$45,000,000** for Public Health Workforce and Career Development is \$6,000,000 below the FY 2019 Enacted level.

CDC's fellowships and training programs keep America safe by building a competent and sustainable workforce capable of surging in response to imminent public health threats. A well-trained public health workforce is our first line of defense against the next outbreak, epidemic, or pandemic. The nation's public health workforce is facing ongoing and emerging challenges including having to respond to complex health problems requiring multifaceted solutions, use of new technology, collaboration with the health care sector, and the need for continuing education and training.

CDC works to attract the brightest students with a passion for service to focus on public health as a career option. From sixth grade (Science Olympiad), to medical students (Epi Elective), to doctoral graduates (Preventive Medicine Residency), CDC workforce and training programs run the gamut and do not stop at graduation. Continuing education and training is critical to maintain the credentials, licenses, and preparedness of our public health professionals to tackle new and emerging public health threats. CDC provides continuing education training at no cost to the public health workforce and remains committed to developing, training, and sustaining our nation's current and future public health workforce.

CDC hosts approximately 450 fellows across 40 fellowship programs each year. Of these, approximately three fourths of the participants are placed in state and local health departments. Fellows provide much-needed staff augmentation at a reduced cost—or even no cost—to state and local health departments.¹⁰⁸ The majority of CDC's fellowship graduates pursue careers in public health, which replenishes a critical pipeline and helps ensure we have the workforce to respond to emerging and known threats.¹⁰⁹

¹⁰⁷ Beck AJ, Leider JP, Coronado F, Harper E. State Health Agency and Local Health Department Workforce: Identifying Top Development Needs. *Am J Public Health* 2017 Sep;107(9):1418-1424. Epub 2017 Jul 20

¹⁰⁸ <http://www.cste2.org/2013eca/CSTEEpidemiologyCapacityAssessment2014-final2.pdf>

¹⁰⁹ <http://www.astho.org/phwins/National-Summary-Report-of-Workforce-Data/>

Behavioral Risk Factor Surveillance System¹ State Table

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2019 +/- FY 2020
Alabama	\$272,359	\$272,359	\$272,359	\$0
Alaska	\$303,610	\$303,610	\$303,610	\$0
Arizona	\$302,359	\$302,359	\$302,359	\$0
Arkansas	\$219,831	\$219,831	\$219,831	\$0
California	\$272,359	\$272,359	\$272,359	\$0
Colorado	\$248,664	\$248,664	\$248,664	\$0
Connecticut	\$272,359	\$272,359	\$272,359	\$0
Delaware	\$251,768	\$251,768	\$251,768	\$0
District of Columbia	\$273,610	\$273,610	\$273,610	\$0
Florida	\$273,610	\$273,610	\$273,610	\$0
Georgia	\$261,779	\$261,779	\$261,779	\$0
Hawaii	\$180,580	\$180,580	\$180,580	\$0
Idaho	\$224,597	\$224,597	\$224,597	\$0
Illinois	\$302,359	\$302,359	\$302,359	\$0
Indiana	\$272,359	\$272,359	\$272,359	\$0
Iowa	\$249,064	\$249,064	\$249,064	\$0
Kansas	\$318,359	\$318,359	\$318,359	\$0
Kentucky	\$272,359	\$272,359	\$272,359	\$0
Louisiana	\$272,359	\$272,359	\$272,359	\$0
Maine	\$204,592	\$204,592	\$204,592	\$0
Maryland	\$241,784	\$241,784	\$241,784	\$0
Massachusetts	\$272,359	\$272,359	\$272,359	\$0
Michigan	\$272,359	\$272,359	\$272,359	\$0
Minnesota	\$281,359	\$281,359	\$281,359	\$0
Mississippi	\$261,831	\$261,831	\$261,831	\$0
Missouri	\$230,580	\$230,580	\$230,580	\$0
Montana	\$256,977	\$256,977	\$256,977	\$0
Nebraska	\$302,359	\$302,359	\$302,359	\$0
Nevada	\$220,568	\$220,568	\$220,568	\$0
New Hampshire	\$302,359	\$302,359	\$302,359	\$0
New Jersey	\$302,397	\$302,397	\$302,397	\$0
New Mexico	\$272,359	\$272,359	\$272,359	\$0
New York	\$303,610	\$303,610	\$303,610	\$0
North Carolina	\$303,610	\$303,610	\$303,610	\$0
North Dakota	\$273,610	\$273,610	\$273,610	\$0
Ohio	\$272,359	\$272,359	\$272,359	\$0
Oklahoma	\$273,610	\$273,610	\$273,610	\$0
Oregon	\$302,359	\$302,359	\$302,359	\$0
Pennsylvania	\$272,359	\$272,359	\$272,359	\$0
Rhode Island	\$272,359	\$272,359	\$272,359	\$0
South Carolina	\$303,610	\$303,610	\$303,610	\$0
South Dakota	\$273,610	\$273,610	\$273,610	\$0
Tennessee	\$273,610	\$273,610	\$273,610	\$0
Texas	\$272,359	\$272,359	\$272,359	\$0
Utah	\$302,359	\$302,359	\$302,359	\$0
Vermont	\$272,359	\$272,359	\$272,359	\$0
Virginia	\$261,801	\$261,801	\$261,801	\$0
Washington	\$301,114	\$301,114	\$301,114	\$0
West Virginia	\$292,359	\$292,359	\$292,359	\$0
Wisconsin	\$283,610	\$283,610	\$283,610	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2019 +/- FY 2020
Wyoming	\$251,392	\$251,392	\$251,392	\$0
Territories				
America Samoa	\$24,426	\$24,426	\$24,426	\$0
Guam	\$243,831	\$243,831	\$243,831	\$0
Micronesia	\$69,425	\$69,425	\$69,425	\$0
Palau	\$45,000	\$45,000	\$45,000	\$0
Puerto Rico	\$171,818	\$171,818	\$171,818	\$0
Virgin Islands	\$10,000	\$10,000	\$10,000	\$0
Subtotal States	\$13,828,286	\$13,828,286	\$13,828,286	\$0
Subtotal Territories	\$564,500	\$564,500	\$564,500	\$0
Total Resources	\$14,392,786	\$14,392,786	\$14,392,786	\$0

¹ Table includes core funding from the Surveillance, Epidemiology, and Public Health Informatics budget activity and other CDC programs.

State Table: National Notifiable Diseases Surveillance System (NNDSS)^{1,2,3}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2019 +/- FY 2020
Alabama	\$242,631	\$225,901	\$225,901	\$0
Alaska	\$212,198	\$178,874	\$178,874	\$0
Arizona	\$207,910	\$178,818	\$178,818	\$0
Arkansas	\$11,479	\$142,208	\$142,208	\$0
California	\$160,978	\$229,306	\$229,306	\$0
Colorado	\$47,777	\$209,696	\$209,696	\$0
Connecticut	\$166,768	\$196,101	\$196,101	\$0
Delaware	\$107,905	\$41,219	\$41,219	\$0
Florida	\$424,925	\$254,110	\$254,110	\$0
Georgia	\$0	\$143,376	\$143,376	\$0
Hawaii	\$207,878	\$156,688	\$156,688	\$0
Idaho	\$101,180	\$73,080	\$73,080	\$0
Illinois	\$251,807	\$298,518	\$298,518	\$0
Indiana	\$257,740	\$226,180	\$226,180	\$0
Iowa	\$302,963	\$303,922	\$303,922	\$0
Kansas	\$349,348	\$233,897	\$233,897	\$0
Kentucky	\$0	\$100,903	\$100,903	\$0
Louisiana	\$126,391	\$143,055	\$143,055	\$0
Maine	\$0	\$144,818	\$144,818	\$0
Maryland	\$164,008	\$245,739	\$245,739	\$0
Massachusetts	\$335,042	\$208,586	\$208,586	\$0
Michigan	\$324,486	\$254,570	\$254,570	\$0
Minnesota	\$327,713	\$243,318	\$243,318	\$0
Mississippi	\$101,144	\$106,445	\$106,445	\$0
Missouri	\$70,631	\$74,569	\$74,569	\$0
Montana	\$179,773	\$116,465	\$116,465	\$0
Nebraska	\$164,678	\$166,170	\$166,170	\$0
Nevada	\$67,379	\$149,025	\$149,025	\$0
New Hampshire	\$0	\$146,009	\$146,009	\$0
New Jersey	\$246,204	\$205,929	\$205,929	\$0
New Mexico	\$34,204	\$159,612	\$159,612	\$0
New York	\$326,322	\$303,400	\$303,400	\$0
North Carolina	\$0	\$201,582	\$201,582	\$0
North Dakota	\$190,238	\$96,225	\$96,225	\$0
Ohio	\$250,754	\$237,350	\$237,350	\$0
Oklahoma	\$194,263	\$160,359	\$160,359	\$0
Oregon	\$205,368	\$181,665	\$181,665	\$0
Pennsylvania	\$227,378	\$200,828	\$200,828	\$0
Rhode Island	\$146,724	\$153,199	\$153,199	\$0
South Carolina	\$85,897	\$127,484	\$127,484	\$0
South Dakota	\$168,226	\$123,537	\$123,537	\$0
Tennessee	\$138,868	\$282,107	\$282,107	\$0
Texas	\$5,425	\$107,778	\$107,778	\$0
Utah	\$339,326	\$229,414	\$229,414	\$0
Vermont	\$237,162	\$196,047	\$196,047	\$0
Virginia	\$325,462	\$331,443	\$331,443	\$0
Washington	\$231,506	\$259,472	\$259,472	\$0
West Virginia	\$138,779	\$85,950	\$85,950	\$0
Wisconsin	\$323,162	\$202,372	\$202,372	\$0
Wyoming	\$79,201	\$81,787	\$81,787	\$0

	Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2019 +/- FY 2020
Territories	--	--	--	--
Guam	\$111,530	\$93,836	\$93,836	\$0
Marshall Islands	\$53,744	\$5,947	\$5,947	\$0
Micronesia	\$9,183	\$8,809	\$8,809	\$0
Northern Mariana Islands	\$2,296	\$8,089	\$8,089	\$0
Palau	\$30,173	\$43,970	\$43,970	\$0
Puerto Rico	\$0	\$22,375	\$22,375	\$0
Virgin Islands	\$62,088	\$23,564	\$23,564	\$0
Cities	--	--	--	--
Chicago	\$93,850	\$126,386	\$126,386	\$0
District of Columbia	\$121,609	\$29,602	\$29,602	\$0
Houston	\$46,908	\$145,754	\$145,754	\$0
Los Angeles	\$189,897	\$174,504	\$174,504	\$0
New York City	\$369,055	\$324,857	\$324,857	\$0
Philadelphia	\$100,466	\$120,307	\$120,307	\$0
Subtotal, States	\$8,809,201	\$9,119,106	\$9,119,106	\$0
Subtotal, Territories	\$269,014	\$366,052	\$366,052	\$0
Subtotal, Cities	\$921,785	\$921,410	\$921,410	\$0
Total Resources	\$10,000,000	\$10,406,568	\$10,406,568	\$0

¹ This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/>.

² <http://www.cdc.gov/exposurereport/>

³ CFDA NUMBER: 93-521 [Discretionary]

ENVIRONMENTAL HEALTH

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$188.112	\$192.350	\$157.000	-\$35.350
PPHF	\$17.000	\$17.000	\$0.000	-\$17.000
Total Request	\$205.112	\$209.350	\$157.000	-\$52.350
FTEs	464	464	464	0
Environmental Health Laboratory	\$62.938	\$65.750	\$55.894	-\$9.856
Environmental Health Activities	\$44.449	\$44.600	\$34.106	-\$10.494
<i>Amyotrophic Lateral Sclerosis Registry (ALS) (non-add)</i>	<i>\$9.966</i>	<i>\$10.000</i>	<i>\$0.000</i>	<i>-\$10.000</i>
<i>Climate Change (non-add)</i>	<i>\$9.966</i>	<i>\$10.000</i>	<i>\$0.000</i>	<i>-\$10.000</i>
Environmental & Health Outcome Tracking Network	\$33.884	\$34.000	\$25.000	-\$9.000
Asthma	\$28.902	\$29.000	\$25.000	-\$4.000
Trevor's Law	\$0	\$1.000	\$0.000	-\$1.000
Childhood Lead Poisoning Prevention – BA	\$17.939	\$18.000	\$17.000	-\$1.000
Lead Poisoning Prevention – PPHF	\$17.000	\$17.000	\$0.000	-\$17.000

Enabling Legislation Citation: PHSA § 301, PHSA § 307, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317A*, PHSA § 317B, PHSA § 317I*, PHSA § 317O*, PHSA § 327, PHSA § 352, PHSA § 361, PHSA § 366, PHSA § 1102, PHSA § 1706*

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements

Environmental health is the relationship between people and the environment—air, water, soil, community, workplace, school, and home. Safe and healthy environments promote healthier people and communities. CDC helps protect Americans from environmental hazards. CDC investigates the relationship between environmental factors and health; develops guidance to address environmental health issues; and builds partnerships to discuss health impacts and support collaborative decision making.

CDC's FY 2020 request of **\$157,000,000** for Environmental Health is \$52,350,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of the Amyotrophic Lateral Sclerosis Registry and the Climate and Health programs from the FY 2019 President's Budget. The FY 2020 request also eliminates funding from the Prevention and Public Health Fund for Lead Poisoning Prevention. In FY 2020, CDC will focus its environmental health portfolio on core activities to protect America's health.

ENVIRONMENTAL HEALTH

BY THE NUMBERS...

Childhood Lead Poisoning Prevention

- **\$192-270 billion**—Economic burden of lead poisoning on families, communities and the country.¹
- **24 million**—Homes in the United States with deteriorated lead-based paint and lead-contaminated house dust.²
- **535,000**—Children under the age of 6 with blood levels high enough to cause health problems, according to conservative estimates.^{1,3}

Tracking Network

- **449**—Health measures, 124 indicators, and 23 data sets in the Environmental Public Health Tracking Network, including data on air quality, water and health outcomes.
- **180 million**—People in communities where CDC state tracking network partners work.

Environmental Health Lab

- **300**—Chemicals and nutrition indicators measured by CDCs Environmental Health Laboratory among participants in the National Health and Nutrition Examination Survey (NHANES). CDC's Environmental Health Laboratory is the world's most advanced public health laboratory.
- **670**—Laboratories in 50 states and 84 countries that are directly benefiting from CDC's newborn screening quality assurance activities.

Asthma

- **26.5 million**—Americans suffering from asthma today, including more than six million children.
- **1.7 million**—Emergency department visits and almost **4,000** deaths per year due to asthma.⁴
- **\$81.9 billion**—Annual cost of care for asthma; much of this is a result of care for uncontrolled asthma.⁵

Safe Water

- **320 million**—Adults and children relying on the U.S. water supply for drinking, recreation, sanitation and hygiene.⁶
- **45 million**—Americans who use drinking water sources that are not monitored for contaminants; those in rural and tribal communities are particularly at risk.

*References

¹ Gould E (2009). Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives*, 117(7), 1162-1167.

² Centers for Disease Control and Prevention. National Center for Environmental Health (2104). Prevention Tips: How are children exposed to lead? <https://www.cdc.gov/nech/lead/tips.htm> (Accessed on December 19 2017)

³ Centers for Disease Control and Prevention. Blood Lead Levels in Children Aged 1-5 Years—United States, 1999-2010. *MMWR* 2013; 62: 245-248. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a3.htm?s_cid=mm6213a3_w (accessed on December 28 2018).

⁴ National Center for Health Statistics. Centers for Disease Control and Prevention. Asthma. <https://www.cdc.gov/nchs/fastats/asthma.htm>. (Accessed December 28 2018)

⁵ Nurmagametov T, Kuwahara R, Garbe P (2018). The economic burden of asthma in the United States, 2008-2013. *Annals of the American Thoracic Society*, 15(3), 348-356. <https://www.atsjournals.org/doi/abs/10.1513/AnnalsATS.201703-259OC> (Accessed on July 23 2018).

⁶ United States Census Bureau. U.S. Population Clock. <https://www.census.gov/popclock/> (Accessed on December 19 2017)

⁷ Centers for Disease Control and Prevention. National Center for Environmental Health (2016). Private Well Initiative. <https://www.cdc.gov/neh/hsb/cwh/pwi.htm> (Accessed December 28 2018)

Environmental Health Funding History	
Fiscal Year	Dollars (in millions)
2016 (BA)	\$166.404
2016 (PPHF)	\$13.000
2017 (BA)	\$165.303
2017 (PPHF)	\$17.000
2018 Final (BA)	\$188.112
2018 Final (PPHF)	\$17.000
2019 Enacted (BA)	\$192.350
2019 Enacted (PPHF)	\$17.000
2020 President's Budget (BA)	\$157.000
2020 President's Budget (PPHF)	\$0.000

CDC Environmental Health Activities Help Protect People throughout the Day

- **Waking up in the morning**
 - When preparing their morning coffee or tea, about 1 in 9 American residents get their drinking water from private wells.¹¹⁰ About 1 in 5 people are exposed to contaminants that can make them sick without knowing it.¹¹¹
 - CDC’s Safe WATCH program funds 14 states and five local health departments to address problems with wells and other private drinking water sources in their communities. CDC and the Connecticut Department of Public Health identified 151 wells with elevated levels of arsenic and uranium.¹¹²

- **Dropping the kids off at school**
 - After getting off the school bus or out of the car, kids in the United States spend nearly seven hours at school.¹¹³ The quality of the air kids breathe during the school day has an important impact on their respiratory health.
 - CDC’s Childhood Lead Poisoning Prevention Program encourages its grantees to partner with state and local education agencies, and CDC has developed a paper describing educational interventions for children affected by lead.
 - About 1 in 12 children currently has asthma, a disease that affects the lungs and can cause difficulty breathing.¹¹⁴ Of these children, about 60% have uncontrolled asthma or require long-term control medications to avoid asthma attacks.¹¹⁵ Uncontrolled asthma is costly and causes kids to miss school.
 - Medical expenditures due to asthma hospitalizations and emergency room visits cost around \$50.3 billion or about \$3,300 per person with asthma each year. When indirect costs from days missed at school and work are factored in, that number climbs to \$81.9 billion.¹¹⁶ Society loses over 8.7 million work days and nearly 5.2 million school days per year because of asthma.
 - Kids can control their asthma at school (and home) by taking their medicine as directed and avoiding triggers in the air around them that can cause an attack. CDC’s National Asthma Control Program advances asthma care and improves asthma management in schools through a comprehensive approach to asthma control in 25 funded states, including school asthma programs. About 2 in 5 people with asthma served by CDC-funded state asthma programs have received asthma self-management training. Self-management training teaches people with asthma how to manage their disease, avoid triggers, and prevent attacks.

- **Getting to work**
 - Whether by car, bicycle, or bus, commuting to and from work is the time of day when Americans’ exposure to air pollution is the highest.¹¹⁷ Ground-level ozone, the main part of smog, and particle pollution are just two of the many threats to air quality and commuters’ health. Air pollution can make it harder for people with asthma and other respiratory diseases to breathe.
 - CDC’s National Environmental Public Health Tracking (EPHT) program collects and delivers data about air pollutants and other environmental hazards to equip people and communities with the information they need to protect themselves. Since 2005, state and local public health officials have used Tracking Network data to complete more than 500 data-driven actions that prevent or control adverse health effects from environmental exposures.

¹¹⁰ <https://www.cdc.gov/nceh/ehs/safe-watch/background.html>

¹¹¹ <https://www.cdc.gov/nceh/ehs/safe-watch/index.html>

¹¹² <https://www.cdc.gov/nceh/ehs/safe-watch/success-stories.html>

¹¹³ https://nces.ed.gov/surveys/sass/tables/sass0708_035_s1s.asp

¹¹⁴ <https://www.cdc.gov/asthma/asthmadata.htm>

¹¹⁵ https://www.cdc.gov/asthma/asthma_stats/severity_child.htm

¹¹⁶ https://www.cdc.gov/asthma/pdfs/investment_americas_health.pdf

¹¹⁷ <https://www.sciencedirect.com/science/article/pii/S143846391500005X>

- **Eating out for lunch**
 - At mealtime, about 1 in 2 Americans will eat food prepared away from home in cafeterias, restaurants, and sports venues.¹¹⁸ More than half of all foodborne illness outbreaks in the United States are associated with restaurants.¹¹⁹
 - CDC’s Environmental Health Specialists Network investigates food preparation practices and other factors that could contribute to restaurant-related foodborne illness outbreaks. CDC improves the national food safety system¹²⁰ through CDC’s National Environmental Assessment Reporting System.
 - Over 5,200 food workers and others from all 50 states and 92 countries have registered for CDC’s free, interactive e-Learning course to learn about actions that prevent food contamination and reduce foodborne illness outbreaks.

- **Spending time at home**
 - The place where children are supposed to be the safest is the same place where children may be exposed to lead—at home. Approximately 24 million housing units across the U.S. have deteriorated lead paint and elevated levels of lead-contaminated house dust. More than 4 million of these dwellings are homes to one or more young children.¹²¹
 - Children and families may also be exposed to lead that leaches into their tap water through failing lead pipes. Roughly, 10 million U.S. homes and buildings have water service lines that are at least partially made of lead.¹²² More than half a million children under 5 years have blood lead levels above the current reference level.¹²³
 - CDC’s Childhood Lead Poisoning Prevention Program develops programs and policies to prevent childhood lead poisoning and other housing-related health hazards. CDC connects children with elevated blood lead levels to case management, which involves coordinating and monitoring the services required to reduce their blood lead levels below the reference level.

- **Enjoying community recreation**
 - CDC protects the American people during their 300 million pool visits every year. Hazards such as drowning, exposure to pool chemicals, or waterborne illness from swimming in unsafe pools and aquatic facilities combine to cause over 3,000 deaths, 5,000 hospitalizations, and thousands of illnesses annually.
 - CDC supports the prevention of waterborne illness such as Legionnaire’s disease, and other risks associated with recreational water sources through the national Model Aquatic Health Code,¹²⁴ which provides voluntary guidance for local and state agencies on the design, construction, operation, and maintenance of pools, spas, and hot tubs.

- **Responding to adverse weather events**
 - CDC defends the country by providing environmental health security. CDC works to secure communities against the effects of adverse weather events and flooding.
 - During the 2017 hurricane season, CDC deployed hundreds of staff to work on the hurricane response. These staff protected people from toxic exposures spread around by the flood waters and assessed the impact of the storm on healthcare facilities. They also worked with Federal Emergency Management Agency (FEMA) to prioritize remediation efforts; inform residents about effectively and safely cleaning up mold; and help local agencies with health communications.

¹¹⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3639863/>

¹¹⁹ <https://www.cdc.gov/nceh/ehs/ehsnet/index.htm>

¹²⁰ The food safety system is made up of food safety programs across the US. These are the state and local programs that investigate foodborne illness outbreaks, issue permits, and conduct inspections in restaurants and other facilities.

¹²¹ <https://www.cdc.gov/nceh/lead/>

¹²² U.S. Environmental Protection Agency, Office of Water. Lead and copper rule revisions. Washington, D.C. October, 2016

¹²³ CDC’s blood lead level of concern or reference value is 5 micrograms per deciliter (µg/dL). CDC recommends the initiation of public health action if a child age 1-5 has a blood lead level above 5 micrograms per deciliter (µg/dL).

¹²⁴ <https://www.cdc.gov/mahc/index.html>

Childhood Lead Poisoning Prevention Budget Request

No safe level of lead exposure for children has been identified. Lead exposure can affect nearly every system in the body. Even low levels of lead in the blood can damage a child's brain and nervous system, slow growth and development, cause problems with hearing and speech, and affect IQ, academic achievement, and behavior. Lead poisoning also poses a social and economic burden on families, communities, and the country, totaling \$192-\$270 billion dollars.¹²⁵ Eradicating lead paint hazards from older homes of low-income families with children would protect more than 311,000 children and provide \$3.5 billion in future benefits, or roughly \$1.39 per dollar invested.¹²⁶

Lead poisoning is preventable, and the effects of elevated blood lead levels can be mitigated through timely provision of educational, medical, and behavioral interventions and social services. In FY 2017, CDC's Lead Poisoning Prevention Program supported 48 state and local lead programs that identified over 75,000 children under 6 years of age with a blood lead level over CDC's reference value. By helping to identify these children and ensuring appropriate medical and environmental follow-up, it is estimated that CDC-funded programs potentially helped save \$11.7 billion in lifetime earnings that would have been lost due to lowered IQ for these children.

Despite significant reductions in lead poisoning over the last several decades, homes remain the primary sources of lead exposure for children. Nearly 24 million homes in the United States still have deteriorated lead-based paint and lead-contaminated house dust.¹²⁷ Even the most conservative estimates suggest that more than 535,000 children age 1-5 years have blood lead levels high enough to damage their health.^{128,129}

CDC's Childhood Lead Poisoning Program works with states and local health departments to monitor childhood blood lead levels to prevent lead poisoning and help those who have elevated blood lead levels by assuring appropriate follow up and linkage to services. The program also supports state and local efforts to collect vital lead data that enables them to target and implement primary prevention and response activities. The program's surveillance and technical assistance functions are unique amongst federal agencies, and provide data relied upon by state, local, and federal officials. In FY 2017, CDC established a new Lead Exposure and Prevention Advisory Committee to advise the HHS Secretary on issues related to programs and services available to individuals and communities exposed to lead, research and best practices, and identification of effective interventions and services.

Budget Request

CDC's FY 2020 request of **\$17,000,000** for Childhood Lead Poisoning Prevention is \$18,000,000 below the FY 2019 Enacted level. The program builds on CDC's past success in reducing children's blood lead levels in the United States. In FY 2020, CDC will continue to support childhood lead poisoning prevention activities at the state and local levels, which will require re-prioritization of current surveillance activities.

Funding State and Local Health Departments for Lead Surveillance

Effective surveillance is the key to successful lead poisoning prevention. CDC's support enables state and local health departments to conduct their own child blood lead surveillance. Data collection helps them to accurately

¹²⁵ Gould, E. (2009). Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives*, 117(7), 1162-1167. <https://ehp.niehs.nih.gov/wp-content/uploads/117/7/ehp.0800408.pdf> (Accessed on December 19 2017)

¹²⁶ The PEW Charitable Trusts. (2017). *10 Policies to Prevent and Respond to Childhood Lead Exposure: An assessment of the risks communities face and key federal, state, and local solutions.*

¹²⁷ National Center for Environmental Health (2014). *Prevention Tips: How are children exposed to lead?* Retrieved from <https://www.cdc.gov/nceh/lead/tips.htm>

¹²⁸ Greater than or equal to the reference value of 5 micrograms per deciliter (µg/dL)

¹²⁹ Centers for Disease Control and Prevention. Blood Lead Levels in Children Aged 1–5 Years — United States, 1999–2010. *MMWR* 2013; 62: 245-248.

identify potential sources of lead; control lead hazards before children are exposed; and target primary prevention and interventions toward people in high risk buildings, blocks, and neighborhoods.

In FY 2019, CDC is funding 53 cooperative agreement recipients that serve approximately 20 million children under age 6. CDC partners with state and local lead poisoning prevention programs to identify the children who are most likely to be exposed to lead, get them tested, and connect children with elevated blood lead levels to treatment and case management services.

Flint, Michigan Water Contamination

Between April 2014 and October 2015, approximately 99,000 residents of the City of Flint, MI, were exposed to lead when their water source was switched from the Detroit Water Authority to the Flint Water System (FWS). The lead levels in Flint tap water increased above EPA’s Lead and Copper Rule limit because the FWS did not use corrosion control. In children, lead exposure can seriously effect cognitive and physiological development. Lead can reduce kidney function and increase risk of hypertension and essential tremor among adults. The lead contamination crisis in Flint, Michigan has renewed the nation’s focus on this major problem.

The Water Infrastructure Improvement for the Nation (WIIN) Act provided \$20 million¹³⁰ to implement a lead exposure registry and an advisory committee. During the crisis, CDC assisted Flint, Michigan with monitoring blood lead levels in more than 50% of the community’s children under 6 years of age and connected more than 90% of children with elevated blood lead levels to case management. In FY 2018, CDC used WIIN funds to expand the Childhood Lead Poisoning grants by funding 14 new grantees for two years, and awarded \$3.6 million to Michigan State University to develop and administer the Flint Lead Exposure Registry. The Michigan State University funding is the second installment of a 4-year, \$14.4 million grant.

Childhood Lead Poisoning Grants^{1,2}			
(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	48	53	53
- New Awards	5	0	0
- Continuing Awards	48	53	53
Average Award	\$0.522	\$0.350	\$0.207
Range of Awards	\$0.202-0.600	\$0.100-\$0.445	\$0.100-\$0.400
Total Awards	\$19.968	\$19.968	\$10.990

1 These funds are not awarded by formula.

2 FY 2018 funding estimates include \$10,990,000 from PPHF and \$9,000,000 from the WIIN Act.

¹³⁰ Funding is available through FY 2020.

Environmental and Health Outcome Tracking Network Budget Request

The Environmental and Health Outcome Tracking Network is a dynamic, publicly available web-based system that uniquely integrates health data with environmental data for people to use. The National Environmental Public Health Tracking Program is a leader in environmental public health surveillance and develops a comprehensive data resource that brings together environmental hazard, exposure, and health data into one web-based network. This foundational surveillance system provides actionable information to decision makers to protect the nation from health issues related to environmental factors, and helps to make environmental health efforts work faster, better, and cost less. Tracking also helps researchers better understand the connections between environmental conditions and health outcomes.

Data is most useful in stopping environmental health threats when it focuses on specific geographic levels like county, city, and census tract. This makes it easier for public health professionals to respond in case of an emergency. CDC funded tracking programs work in communities that include more than 180 million people, or 59% of the U.S. population. To date, the national Tracking Network has 23 datasets, 124 indicators, and 449 health measures on data such as air quality, water, asthma, and birth defects, and the program continues to innovate to help bring more data to the public. CDC’s Tracking Program collaborates with other CDC programs, Federal agencies, and state and local health departments to increase the quality and availability of data sources and improve the utilization of Tracking Network data to protect the health of Americans.

Budget Request

CDC’s FY 2020 request of **\$25,000,000** for the Environmental and Health Outcome Tracking Network is \$9,000,000 below the FY 2019 Enacted level. At this level, CDC will focus on capacity building for existing grantees to ensure that public health actions based on these data continue.

Funding State and Local Tracking Programs

CDC funds state and local tracking programs through competitive cooperative agreements to create, maintain, and add to their own local tracking networks, as well as to contribute to and receive data from the national system. According to the Council for State and Territorial Epidemiologists, less than half of all states report having adequate environmental epidemiology capacity. CDC supports the maintenance of vital environmental health surveillance and epidemiology capacity.

CDC supports over 200 state personnel and facilitates a mentoring program with current and potential grantees. The program also helps states save money. Minnesota estimates that its public health data website saves the state \$3.6 million per year by making data publically available and reducing the number of public data inquiries the state has to process.¹³¹

Tracking Network Grants¹			
(dollars in millions)	FY 2018	FY 2019	FY 2020
	Operating	Enacted	Level
Number of Awards	26	26	26
- New Awards	0	0	0
- Continuing Awards	26	26	26
Average Award	\$0.869	\$0.869	\$0.569
Range of Awards	\$0.513–\$1.200	\$0.513–\$1.200	\$0.213–\$0.900
Total Awards	\$22.605	\$22.605	\$14.805

¹These funds are not awarded by formula.

¹³¹ <http://www.health.state.mn.us/divs/hpcd/tracking/stories/index.html>

Environmental Health Laboratory Budget Request

CDC's Environmental Health Laboratory improves the detection, diagnosis, treatment, and prevention of diseases resulting from exposure to harmful environmental chemicals and diseases needing advanced laboratory measurement for accurate diagnosis. The lab is widely recognized for its expertise in measurement science. It develops and applies innovative techniques to assess disease risk, determine exposure levels among the U.S. population, and respond rapidly to public health emergencies. It also supports state public health laboratories in assessing harmful exposures in their communities and works directly with state newborn screening programs to implement and ensure accurate tests for early detection of diseases that cause severe disability or death when untreated. In addition, the lab harmonizes diagnostic tests for chronic diseases to ensure results are sufficiently accurate and precise for diagnosing disease, guiding treatment and prevention, and supporting high-quality health research.

Budget Request

CDC's FY 2020 request of **\$55,894,000** for the Environmental Health Laboratory is \$9,856,000 below the FY 2019 Enacted level. In FY 2020, CDC will continue to maintain the world's most advanced, state-of-the-art public health laboratory—delivering the unique diagnostic methods, profiles of measurements, and measurement quality needed for public health decisions. The Environmental Health Laboratory will prioritize activities for newborn screening and diagnostic tests for hormones, at a reduced level.

Using Biomonitoring to Assess Americans' Exposure to Harmful Chemicals and Nutrition Status

CDC uses biomonitoring—measurements in human blood and urine—to help identify harmful environmental exposures or nutrition deficiencies among the U.S. population. The Environmental Health Laboratory measures more than 300 chemicals and nutrition indicators in participants of the ongoing National Health and Nutrition Examination Survey (NHANES) and publishes findings in the regularly updated *National Report on Human Exposure to Environmental Chemicals* and *National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population*. These reports are the most comprehensive assessments of Americans' exposure to environmental chemicals and Americans' nutrition status—providing national reference data that helps physicians, scientists, and public health officials identify harmful exposures and adequate nutrition levels. CDC also funds states to establish or expand their capacity to measure environmental chemicals in human samples and conduct targeted or state population-based biomonitoring.

In FY 2020, CDC expects to release new biomonitoring results, adding to previously published data for 346 chemicals and 58 nutrition indicators. CDC will also collaborate on 85 studies that assess environmental exposures in high risk population groups or investigate the relationship between environmental exposures and adverse health effects. These studies help determine harmful levels of exposure, identify true hazards, avoid unnecessary regulation, and assess the effectiveness of exposure reduction interventions.

Better Disease Diagnosis and Treatment by Improving the Quality of Laboratory Tests

Accurate and precise laboratory measurements are essential for correct diagnosis and treatment of disease. CDC uses expert measurement science to improve the accuracy, precision, and cost effectiveness of laboratory tests for environmental chemicals, nutrition indicators, heart disease, chronic diseases, and newborn screening. The lab develops reference methods and materials and provides quality assurance programs and trainings to assure the quality of tests in state, clinical, research, and academic laboratories. CDC's efforts reach more than 2,000 domestic and international laboratories, helping reduce diagnosis and treatment errors, unneeded medical procedures, and repeat laboratory tests. CDC also uses its unique, reference-quality methods to assist other federal agencies as they address emerging issues, such as ensuring the quality of blood lead measurements.

In FY 2018 and FY 2019, CDC received additional funding to improve the quality and reliability of diagnostic tests for hormones. With this funding, CDC is expanding its pilot hormone harmonization program to include new biomarkers and reach more manufacturers, hospital laboratories, and commercial laboratories. CDC added a new accuracy-based monitoring service that provides critical tracking of measurement accuracy for clinical laboratories and also developed two new reference methods for measuring total and free thyroxine, a necessary and important first step in improving the accuracy and reliability of thyroid function tests.

CDC will continue to provide other quality assurance programs and materials, conduct trainings, and transfer laboratory testing methods to state, local, research, and clinical laboratories. CDC will help state newborn screening programs use molecular testing to improve detection of diseases like cystic fibrosis and congenital adrenal hyperplasia. CDC will continue partnering with private sector companies and laboratory test manufacturers to improve accuracy and precision of test results. In FY 2020, CDC will discontinue work to harmonize hormone tests, efforts to reduce incorrect diagnosis and treatment of thyroid disease.

Earlier Identification of Diseases in Newborns by Supporting State Screening

CDC works directly with laboratories in states to implement newborn screening for new diseases, providing training, technical assistance, method development and quality assurance materials that help ensure accurate test results. In FY 2018 and FY 2019, CDC received additional funding to evaluate testing methods for new diseases in newborns, expand CDC's quality assurance materials, and fund states for critical infrastructure and development of tests for rare newborn conditions. CDC is using this funding to improve newborn screening test performance and results interpretation for better detection of newborn disorders and helping more states expand screening to include high priority, new conditions.

In FY 2018, CDC started to expand CDC's and state programs' capacity to better evaluate and interpret laboratory test data by modernizing quality assurance systems, implementing advanced technology for data analytics, supporting expert workforce in state newborn screening programs, and partnering with newborn screening stakeholders to identify and disseminate best practices. CDC also started a two-year cooperative agreement with seven states to provide necessary laboratory equipment, staffing, and supplies for population-based testing for additional conditions. In FY 2020, CDC will discontinue this expanded work and reduce from seven to three the number of states receiving funding to test for these additional conditions.

Asthma Budget Request

Nearly 26.5 million Americans suffer from asthma today, including more than six million children. Asthma takes almost 4,000 lives and causes 1.7 million emergency department visits per year. The disease also costs the nation \$81.9 billion annually.¹³² Asthma disproportionately affects African American children, who are twice as likely to be hospitalized and more than four times more likely to die from asthma than white children. The National Asthma Control Program seeks to decrease the number of deaths, hospitalizations, and emergency department visits, and reduce limitations on activity, including school days or workdays missed due to asthma, by helping millions of Americans gain control over their condition and reducing asthma attacks from poorly controlled asthma.

Budget Request

CDC's FY 2020 request of **\$25,000,000** for the National Asthma Control Program is \$4,000,000 below the FY 2019 Enacted level. Since existing healthcare systems provide access to asthma healthcare providers and medication, CDC focuses its efforts on activities that promote population health. In FY 2020, CDC will offer education and expertise, quantify risks and vulnerabilities to asthma control, and fund state health departments to implement comprehensive asthma control programs. In FY 2020, CDC will prioritize proven prevention and control efforts that reduce the number of asthma hospitalizations and emergency department visits.

Comprehensive Asthma Control Programs

No single intervention can, by itself, achieve asthma control on a population level. CDC implements a tiered approach to asthma control by using interventions with the strongest evidence of effectiveness, delivered as a comprehensive package. For people with asthma, a comprehensive approach assures availability of and access to guidelines-based medical management and appropriate medication use. For people whose asthma remains poorly controlled, additional steps provide progressively more individualized services, such as self-management education and home, and school-based trigger reduction.

CDC funds 25 state health departments for asthma prevention activities. These programs focus efforts on geographic areas or communities with a high or disproportionate burden of asthma. CDC funds have helped states achieve success. For example, in New Mexico, average emergency department visits were reduced by 83% between 2013 and 2017 among participants at a hospital that implemented a self-management education program with a certified asthma educator. The Rhode Island Asthma Control Program partners with healthcare providers, and certified asthma educators, and community health workers at local hospitals to provide intensive asthma self-management and trigger reduction education to high-risk pediatric asthma patients. These intensive sessions have reduced emergency room and hospital costs by 76%, an average of \$1,606 per program participant, with an overall return on investment (ROI) of \$1.33 per \$1 spent.

CDC focuses its efforts on comprehensive asthma control programs at the state level. In FY 2020, CDC will prioritize proven prevention and control efforts that reduce the number of asthma hospitalizations and emergency department visits among children. Collaborative efforts across states to develop best practices and to test, scale, and deploy innovative approaches that meet local needs will continue.

Asthma Surveillance

Asthma control efforts cannot succeed without effective asthma surveillance. State and local health departments rely on asthma surveillance to accurately direct their efforts to reduce the burden of asthma. CDC provides state-specific adult and child asthma prevalence data and other important measures of asthma control through existing data systems in the agency. The Behavioral Risk Factor Surveillance System (BRFSS) administers

¹³² Nurmagambetov, T., Kuwahara, R., & Garbe, P. (2018). The economic burden of asthma in the United States, 2008–2013. *Annals of the American Thoracic Society*, 15(3), 348–356. <https://www.atsjournals.org/doi/abs/10.1513/AnnalsATS.201703-259OC>

an in-depth Asthma Call-Back Survey (ACBS), and the National Health Interview Survey (NHIS) publishes national estimates of asthma burden. In FY 2020, CDC will continue to support the use of ACBS and publish national estimates of asthma burden.

Asthma Grants to Health Departments¹

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	25	25	25
- New Awards	0	0	0
- Continuing Awards	25	25	25
Average Award	\$0.604	\$0.604	\$0.468
Range of Awards	\$0.450–\$0.800	\$0.450–\$0.800	\$0.350–\$0.700
Total Awards	\$15.704	\$15.704	\$11.700

¹These funds are not awarded by formula.

Environmental Health Activities Budget Request

CDC helps provide environmental health security. CDC, in conjunction with its partners within HHS and the rest of the U.S. government, works to secure communities against the effects of adverse weather events and flooding. Americans are impacted by environmental health threats to the water we drink, the air we breathe, the food we eat, and the spaces where we live, work, and play. The World Health Organization (WHO) estimates that, overall, 13% of the disease burden in the United States is due to environmental factors. The WHO also estimates that 5.6 million disability-adjusted life years and 398,000 deaths annually can be attributed to environmental factors in the United States.¹³³

CDC programs funded under Environmental Health Activities monitor environmentally related diseases; respond to urgent public health threats; provide training and guidance for the nation's environmental health workforce; assist in emergency preparedness and response efforts; and support grants that improve state and local capacity.

Environmental health threats include drinking water contamination; unsafe retail food practices; flooding and extreme heat; the expansion of disease vectors; and radiation and chemical emergencies. CDC, in conjunction with partners within HHS and across the federal government, protects and secures the American people from these threats by identifying the environmental exposures that make people sick; investigating how those exposures are transmitted in the environment; and finding ways to eliminate the threat to people's health—thereby saving money and lives.

Budget Request

CDC's FY 2020 request of **\$34,106,000** for Environmental Health Activities is \$10,494,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of the Amyotrophic Lateral Sclerosis (ALS) Registry and the Climate and Health program from the FY 2019 President's Budget. In FY 2020, the Environmental Health Activities budget funds safe water, food safety, and environmental health security, preparedness, and emergency response activities.

Amyotrophic Lateral Sclerosis Registry

The FY 2020 request carries forward proposed elimination of the ALS registry and the related research program from the FY 2019 President's Budget. External researchers may still use biospecimens previously obtained from the ALS biorepository. The Budget would eliminate funding for extramural researcher-initiated studies to explore the causes of ALS and potential risk factors and the registry.

Climate and Health

The FY 2020 request carries forward proposed elimination of the Climate and Health program from the FY 2019 President's Budget. Elimination of the program would end direct funding to states regarding health effects of climate change. States will continue to have access to other funds that would allow them to prepare and respond to public health emergencies, including natural disasters and adverse weather events. Program elimination would end funding for 18 state and local health departments and six tribal and territorial organizations.

Environmental Health Security, Emergency Preparedness, and Response

CDC works to secure communities against the effects of adverse weather events and flooding. During the 2017 and 2018 hurricane seasons, CDC deployed hundreds of staff to work on the hurricane response, including disaster epidemiologists and environmental health experts. These staff protected people from toxic exposures

¹³³ Pugh, KH and Zarus, GM. May 2012. "The Burden of Environmental Disease in the United States." *Journal of Env. Health*. Volume 74, Number 9.

spread around by the flood waters and assessed the impact of the storm on healthcare facilities. They also worked with the Assistant Secretary for Preparedness and Response (ASPR) and FEMA to prioritize remediation efforts; inform residents about effectively and safely cleaning up mold; help local agencies with health communications, and more. CDC also works to keep recreational water ways safe from environmental toxins.

CDC provides critical assistance and expertise to help federal, state, and local entities respond to disease outbreaks and emergencies; investigate and respond to toxic health threats; provide unique expertise and training regarding radiation; and work to ensure that the nation has a strong and knowledgeable environmental health workforce now and in the future. CDC's environmental health workforce supports all non-infectious disease emergency response scenarios (chemical, radiological, and natural disasters).

Preparedness for and response to radiological and nuclear incidents are uniquely challenging for public health and require specific skill sets not readily available within state and local public health communities. The release of radioactive material would require consideration of protective measures (e.g., evacuation and shelter-in-place), provision of subject matter expertise in support of multi-agency coordination of consequence management activities, and consideration of radiological and nuclear impacts upon critical response and recovery.

During a radiological and nuclear incident, there would be significant competing demands for relevant subject matter experts at every level of the response. In addition, risk communication, specialized laboratory response, epidemiology, and medical countermeasures activities require personnel with expertise and competencies in radiological and nuclear response. CDC has the unique staffing expertise required to lead the public health response to radiological and nuclear incidents.

As a key public health authority on radiation and health, CDC's radiation guidelines help public officials and clinicians prepare for and respond to radiation emergencies and treat exposures. Radiation experts from CDC assisted in major nuclear disasters, such as the Fukushima Daiichi incident in 2011, and stand ready for a 24/7 response to new threats. Since FY 2013, CDC has provided more than 4,300 emergency radiation preparedness toolkits to clinicians and state and local public health workers which were shown to be valuable resources for planning (pre-event) and just-in-time (intra-event) use. In FY 2016, CDC launched online training modules for public health professionals on risk communication and use of federal assets during a radiation emergency. CDC's guidance and expertise informed the planning for and response to a national-level exercise that simulated detonation of an improvised nuclear device in lower Manhattan.

Environmental emergencies and disease outbreaks can threaten people anywhere in the country at any time. CDC's environmental health experts assist in federal and state responses to disease outbreaks and emergencies. For example, in FY 2018, CDC provided expert epidemiology and medical toxicology leadership to state and local health departments, poison control centers, health care providers, and laboratories during a large, multi-state outbreak investigation of brodifacoum poisoning. Repeated exposure to brodifacoum, a long-acting anticoagulant used as a rodenticide, among persons who used synthetic cannabinoids resulted in more than 320 cases, including 8 deaths, of severe coagulopathy (bleeding that occurs because the blood will not clot) during March–October 2018 across 10 states.

Public health and emergency management officials rely on CDC's disaster epidemiology experts and its rapid needs assessment toolkit—Community Assessment for Public Health Emergency Response (CASPER)—to identify information gaps; initiate public health action; quickly prioritize resources in response to a disaster or emergency; and assess new or changing community needs. Since FY 2016, CDC has conducted 33 CASPERs, provided technical assistance on 89 others, and trained over 2,000 public health staff on the CASPER methodology. CDC's Environmental Health Training in Emergency Response courses teach state and local officials how to restore clean drinking water, dispose of sewage properly, ensure food is protected from unsafe environmental conditions, and prevent the spread of diseases after disasters. CDC disaster epidemiologists also provide guidance on collecting and reporting data on morbidity and mortality during public health emergencies.

In FY 2018, CDC examined circumstances of deaths that occurred in the contiguous United States following Hurricane Irma and identified two unique subcategories of heat-related and oxygen-dependent deaths in which power outage contributed to exacerbation of an existing medical condition. These results emphasized the importance of conducting detailed assessments of circumstances of death following natural disasters to help public health practitioners develop more effective public health interventions to prevent deaths in future disasters.

In FY 2020, CDC will continue to respond to environmental health emergencies, address environmental causes of foodborne and waterborne illness outbreaks, provide training and guidance for the nation's environmental health workforce, provide expertise on disaster epidemiology, and provide expertise on radiation and health.

Safe Water

Clean and safe drinking water is necessary to sustain human health. The 319 million adults and children in the United States rely on our nation's water supply for drinking, recreation, sanitation, and hygiene. Environmental contamination and waterborne illness occur naturally, as well as through industrial processes and accidents; water system failure; and changing environmental conditions, including extreme weather events such as storms and floods.

It is estimated that 45 million Americans use drinking water sources that are not monitored for contaminants; those in rural or tribal communities are particularly at risk. CDC's Safe Water program helps protect public health by decreasing environmental threats and reducing exposures to waterborne contaminants in water systems. The Safe Water program provides expertise with an environmental health focus to state, local, tribal, and territorial health officials to address or eliminate environmental threats to water systems and reduce exposures to waterborne contaminants. In FY 2018, CDC estimated contaminant levels in well water; assessed the disease and economic burden of exposure to arsenic in private wells; and evaluated the effectiveness of interventions to prevent harmful exposures related to unmonitored water sources.

CDC directly funds 19 (14 state and five county) health departments through a five-year Safe Water cooperative agreement. These cooperative agreements fund recipients to identify and address drinking water program performance gaps, improve program efficiency and effectiveness, and identify and reduce exposures to contaminated drinking water. These efforts include identifying at-risk water systems with elevated levels of chemical, radiological, and biological contaminants (e.g., arsenic, uranium, nitrates, and E. coli). In FY 2018, CDC grantees sampled 12,328 wells and found that approximately 20% of the wells had contaminated water considered unsafe to drink.

CDC works with communities to examine the impact of exposure to per- and polyfluoroalkyl substances (PFAS), a large group of man-made chemicals. CDC also developed the PFAS Exposure Assessment Technical Tools to help state and local health agencies accurately assess exposures to PFAS in their communities. Most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used. Over the last decade, interest in PFAS has been growing. CDC/ATSDR and our partners in state health departments are investigating exposure to PFAS at a number of sites.

Harmful algal blooms (HABs), the rapid growth of algae that produce toxins and can cause a variety of illnesses in people and animals, are becoming more frequent. CDC provides emergency response and scientific services to support state and local officials dealing with HABs. Overall, water-related illness, such as Legionnaires' disease, results in an estimated 40,000 hospitalizations and \$970 million in healthcare costs each year.¹³⁴

¹³⁴ Collier, SA et al. 2012. "Direct healthcare costs of selected diseases primarily or partially transmitted by water," *Epidemiol. Infect.* 140: 2003-2013.

CDC directly funds 23 (19 state and 4 local) health departments through the five-year Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement. These cooperative agreements fund recipients to better detect and stop outbreaks of Legionnaires’ disease. CDC works with grantees to develop safe water management plans to control the presence of legionella bacteria in building plumbing systems. Over 65% of documented waterborne disease outbreaks are caused by Legionella bacteria. As a result, CDC has increased its focus on the prevention of Legionella outbreaks. CDC’s Safe Water program has been integral to CDC’s prevention and response activities. In FY 2018, CDC responded to outbreaks in Missouri, North Carolina, Illinois, Georgia, Ohio, California, Pennsylvania, New Hampshire, Minnesota, Michigan and on cruise ships. In FY 2017, CDC responded to outbreaks in Washington, D.C., California, Texas, Georgia, and Illinois. In FY 2016, CDC responded to outbreaks in New York City, Illinois, Ohio, and Texas. CDC also published guidance and tools for the environmental prevention of Legionella, including a Vital Signs report on “Legionnaires’ Disease: Use of water management programs in buildings to help prevent outbreaks.”

In FY 2020, CDC will continue to support state, territorial, local, and tribal governments to protect their citizens from waterborne contamination and illness, including prevention and response to Legionellosis outbreaks and other contaminants found in building plumbing systems. CDC will also continue to prioritize efforts to keep small drinking water systems free from contamination.

Safe Water Grants (SafeWATCH)¹			
(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	19	19	19
- New Awards	0	0	0
- Continuing Awards	19	19	19
Average Award	\$0.130	\$0.130	\$0.130
Range of Awards	\$0.100–\$0.134	\$0.100–\$0.134	\$0.100–\$0.134
Total Awards	\$2.455	\$2.455	\$2.455

¹These funds are not awarded by formula.

Food Safety

Every year, 48 million Americans get sick from foodborne diseases, and 3,000 people die. The United States spends approximately \$78 billion per year on costs (healthcare, workplace, and other) related to foodborne illnesses.¹³⁵ Environmental factors are responsible for many of these foodborne illnesses, particularly in restaurants, where two-thirds of these outbreaks begin. To prevent foodborne illness outbreaks before they start, CDC investigates environmental contributors to foodborne disease and outbreaks; collects data; develops a well-trained environmental health workforce; and provides technical assistance and training to federal partners, states, communities, tribes, and territories to better understand environmental causes of foodborne illness outbreaks and how to address and prevent them. CDC is focused on the environmental contributors to foodborne disease and outbreaks, including how a harmful agent makes its way into the environment and reaches a susceptible host in concentrations high enough to cause illness. CDC staff and programs provide environmental health expertise to internal and external partners.

CDC collects and translates high-quality surveillance data through the National Environmental Assessment Reporting System (NEARS). NEARS represents the only national effort to systematically collect, analyze, interpret, and disseminate environmental data to prevent outbreaks by improving practices at the state and local level.

¹³⁵ Scharff, R. (2012). Economic burden from health losses due to foodborne illness in the United States. *Journal of Food Protection*, 75(1), 123–131.

CDC supports state and local health departments to investigate and address the environmental causes of foodborne disease through the Environmental Health Specialists Network cooperative agreements.

State and local health departments participating in CDC's Environmental Health Specialists Network (EHS-Net) are better equipped to identify and address the root causes of foodborne illness such as unsafe food handling practices, ill restaurant workers, and a lack of certified kitchen managers in restaurants. In FY 2020, CDC will continue efforts to promote best practices and conduct trainings to ensure food safety in retail establishments at a reduced scope.

State Table: Environmental Health Funding

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$500,000	\$500,000	\$200,000	-\$300,000
Alaska	\$355,958	\$355,958	\$142,383	-\$213,575
Arizona	\$1,271,269	\$1,271,269	\$664,936	-\$606,333
Arkansas	\$125,074	\$125,074	\$0	-\$125,074
California	\$3,810,207	\$3,810,207	\$2,734,621	-\$1,075,586
Colorado	\$1,782,008	\$1,782,008	\$1,199,293	-\$582,715
Connecticut	\$1,846,710	\$1,846,710	\$1,315,871	-\$530,839
Delaware	\$423,550	\$423,550	\$169,420	-\$254,130
District of Columbia	\$351,737	\$351,737	\$140,431	-\$211,306
Florida	\$2,424,445	\$2,424,445	\$1,499,556	-\$924,889
Georgia	\$1,199,750	\$1,199,750	\$750,131	-\$449,619
Hawaii	\$1,040,000	\$1,040,000	\$641,568	-\$398,432
Idaho	\$0	\$0	\$0	\$0
Illinois	\$2,109,747	\$2,109,747	\$1,004,209	-\$1,105,538
Indiana	\$1,512,435	\$1,512,435	\$938,130	-\$574,305
Iowa	\$1,475,670	\$1,475,670	\$861,212	-\$614,458
Kansas	\$1,342,047	\$1,342,047	\$881,313	-\$460,734
Kentucky	\$1,227,125	\$1,227,125	\$684,825	-\$542,300
Louisiana	\$1,409,789	\$1,409,789	\$852,941	-\$556,848
Maine	\$2,134,958	\$2,134,958	\$1,265,010	-\$869,948
Maryland	\$2,238,442	\$2,238,442	\$861,212	-\$1,377,230
Massachusetts	\$3,601,294	\$3,601,294	\$2,588,975	-\$1,012,319
Michigan	\$5,637,497	\$5,637,497	\$1,303,511	-\$4,333,986
Minnesota	\$2,707,527	\$2,707,527	\$1,665,930	-\$1,041,597
Mississippi	\$1,100,750	\$1,100,750	\$740,300	-\$360,450
Missouri	\$2,234,670	\$2,234,670	\$1,527,172	-\$707,498
Montana	\$450,000	\$450,000	\$383,011	-\$66,989
Nebraska	\$543,163	\$543,163	\$217,265	-\$325,898
Nevada	\$734,637	\$734,637	\$409,355	-\$325,282
New Hampshire	\$2,787,285	\$2,787,285	\$1,979,174	-\$808,111
New Jersey	\$2,388,387	\$2,388,387	\$1,778,293	-\$610,094
New Mexico	\$1,972,149	\$1,972,149	\$1,387,729	-\$584,420
New York	\$4,891,062	\$4,891,062	\$3,157,440	-\$1,733,622
North Carolina	\$1,185,065	\$1,185,065	\$610,902	-\$574,163
North Dakota	\$0	\$0	\$0	\$0
Ohio	\$1,174,291	\$1,174,291	\$836,096	-\$338,195
Oklahoma	\$560,358	\$560,358	\$224,143	-\$336,215
Oregon	\$2,357,446	\$2,357,446	\$1,432,785	-\$924,661
Pennsylvania	\$1,522,224	\$1,522,224	\$846,786	-\$675,438
Rhode Island	\$2,141,272	\$2,141,272	\$1,308,524	-\$832,748
South Carolina	\$600,750	\$600,750	\$240,300	-\$360,450
South Dakota	\$0	\$0	\$0	\$0
Tennessee	\$1,028,352	\$1,028,352	\$757,241	-\$271,111
Texas	\$2,136,991	\$2,136,991	\$1,149,171	-\$987,820
Utah	\$2,837,224	\$2,837,224	\$2,254,841	-\$582,383
Vermont	\$2,231,466	\$2,231,466	\$1,348,733	-\$882,733
Virginia	\$2,685,231	\$2,685,231	\$980,473	-\$1,704,758
Washington	\$1,451,636	\$1,451,636	\$369,260	-\$1,082,376
West Virginia	\$627,108	\$627,108	\$329,629	-\$297,479
Wisconsin	\$2,446,236	\$2,446,236	\$1,525,025	-\$921,211

CDC FY 2020 Congressional Justification

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wyoming	\$0	\$0	\$0	\$0
Territories	\$0	\$0	\$0	\$0
American Samoa	\$0	\$0	\$0	\$0
Guam	\$0	\$0	\$0	\$0
Marshall Islands	\$0	\$0	\$0	\$0
Micronesia	\$0	\$0	\$0	\$0
Northern Marianas	\$0	\$0	\$0	\$0
Puerto Rico	\$499,714	\$499,714	\$499,714	\$0
Palau	\$0	\$0	\$0	\$0
Virgin Islands	\$0	\$0	\$0	\$0
Subtotal, States	\$82,614,992	\$82,614,992	\$48,159,126	-\$34,455,866
Subtotal, Territories	\$499,714	\$499,714	\$499,714	\$0
Total Resources	\$83,114,706	\$83,114,706	\$48,658,840	-\$34,455,866

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INJURY PREVENTION AND CONTROL

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$647.974	\$648.559	\$628.839	-\$19.720
FTEs	330	388	417	29
Intentional Injury	\$102.381	\$102.730	\$102.730	\$0.000
NVDRS	\$23.421	\$23.500	\$23.500	\$0.000
Unintentional Injury	\$8.770	\$8.800	\$6.737	-\$2.063
Injury Prevention Activities	\$28.851	\$28.950	\$20.293	-\$8.657
Opioid Abuse and Overdose Prevention	\$475.579	\$475.579	\$475.579	\$0.000
Injury Control Research Centers	\$8.972	\$9.000	\$0.000	-\$9.000

Enabling Legislation Citation: PHSA § 214, PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 308, PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 319, PHSA § 319D*, PHSA § 327, PHSA § 352, PHSA § 391, PHSA § 392, PHSA § 393, PHSA § 393A*, PHSA § 393B, PHSA § 393C, PHSA § 393D, PHSA § 394, PHSA § 394A*, PHSA § 399P*, PHSA § 1102, PHSA § 1706*, Bayh-Dole Act of 1980 (PUB. L. 96-517), Family Violence Prevention and Services Act § 303*, Family Violence Prevention and Services Act § 314*, SUPPORT for Patients and Communities Act (Pub. L. 115-271)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and Competitive Contracts

CDC is the nation’s leading authority on violence and injury prevention. CDC is committed to saving lives, protecting people, and lowering the social and economic costs of violence and injuries through our public health approach--surveillance, scientific expertise, and service to the nation. CDC collects data to identify problems and monitor progress, uses research to understand what works, and promotes evidence-based strategies to inform real-world solutions. CDC's goal is to offer individuals, communities, and states timely and accurate information, funding, and resources to keep people safe where they live, work, play, and learn.

CDC provides for the common defense of the country against injury and violence-related health threats. CDC does this by: conducting research to understand what works; monitoring injuries and violent deaths to inform prevention; and providing state and local partners with direct funding and scientific expertise.

INJURY PREVENTION AND CONTROL

BY THE NUMBERS...

- **4,371,775**—Prescription Drug Monitoring Program (PDMP) data requests completed by the state of Illinois in June 2018. As of the summer 2018, Illinois has integrated Prescription Drug Monitoring Program (PDMP) data with at least 800 sites. PDMPs assist in reducing the misuse and diversion of controlled substances, such as prescription opioids.
- **14.2 million**—Estimated reduction in opioid prescriptions filled as of December 2017, following the publication of CDC’s “Guideline for Prescribing Opioids for Chronic Pain” in March 2016. The Guideline gives providers guidance on best practices when prescribing opioids.
- In 2018, CDC released a landmark Vital Signs MMWR, showing increasing suicide rates across the country. Suicide rates had increased more than 30% in half of states since 1999.¹
- **61,000**—Number of downloads between January 2017 and June 2018 of CDC’s State Specific Fact Sheets on. These fact sheets provide a useful tool to highlight current data and proven strategies for reducing injury and saving lives.
- **12,700**—Number of downloads in the first month after publication of CDC’s Pediatric Mild Traumatic Brain Injury Guidelines. The Guidelines contain a practical suite of implementation tools to help healthcare providers take action to improve the health of their patients and provide parents with symptom-based recovery tips.
- **60 percent**—The proportion of women screened through a pilot Traumatic Brain Injury (TBI) screening program who were positive for a TBI. The project was undertaken by the Nebraska Core State Violence Injury Prevention Program team working with the Brain Injury Alliance (BIA) and leveraging block grant money. It took place in four domestic violence shelters across the state. The BIA was able to leverage the work from this project to secure additional funding with a grant from Women Investing in Nebraska.
- Essentials for Childhood states engage stakeholders to help states make informed decisions about child abuse and neglect prevention programs that have the strongest evidence base.
 - Colorado extended the Nurse-Family Partnership program to all **64** counties.
 - North Carolina extended the Positive Parenting Program (Triple P) from 14 to all **100** counties.
 - Research has shown both programs can prevent child abuse and neglect.
- CDC is working to prevent youth violence by supporting five National Centers of Excellence in Youth Violence Prevention (YVPC) across the U.S.
 - Chicago showed a **17%** decrease in homicides in their intervention community while homicides increased by **10%** in other similar communities without the intervention.
 - In Michigan, youth in the intervention area were **25%** less likely to be victims of a violent assault than those in a comparison area.
 - North Carolina showed a **47%** reduction in non-school based offenses, **10%** reduction in school based offenses, **29%** reduction in delinquent complaints, **18%** reduction in aggravated assaults, and **12%** reduction in short-term suspensions in the intervention county.
 - Virginia Commonwealth University showed a **13%** lower risk of youth violence in areas receiving the intervention relative to areas of the community not receiving the intervention.

*References:

¹ Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. MMWR Recomm Rep 2016;65(No. RR-1):1–49. DOI: <http://dx.doi.org/10.15585/mmwr.rr6501e1>

*Unless otherwise noted, all information and calculations are from CDC program data.

Injury Prevention and Control Funding History	
Fiscal Year	Dollars (in millions)
2016	\$170.447
2017	\$236.059
2018 Final	\$647.974
2019 Enacted	\$648.559
2020 President's Budget	\$628.839

CDC's FY 2020 request of **\$628,839,000** for Injury Prevention and Control is \$19,720,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of the Older Adult Falls program and the Injury Control Research Centers from the FY 2019 President's Budget.

Intentional Injury Prevention Budget Request

Violence not only harms individuals but can also harm communities by impacting local economies, straining law enforcement, and depleting social services. In 2016, over 19,000 people were victims of homicide, and almost 45,000 people died as a result of suicide. In 2018, CDC released a landmark Vital Signs MMWR that showed increasing suicide rates across the country. Suicide rates had increased more than 30% in half of states since 1999.

Using a public health approach, CDC provides national leadership in violence prevention by collecting and disseminating data; implementing and evaluating prevention programs through state and local public health agencies, universities, and non-governmental organizations; and developing tools and resources to enhance public health practice.

To support states and communities in implementing prevention activities, CDC developed a suite of resources, called technical packages, on the prevention of key violence topics: youth violence, suicide, child abuse and neglect, intimate partner violence, and sexual violence. These technical packages are collections of strategies representing the best available evidence to prevent or reduce violence. Almost 100,000 copies have been disseminated to states, territories, and other partners. These seminal documents help assure that community and state public health programs are implementing effective prevention strategies. In 2018, CDC released additional guidance to help states and communities implement strategies in the technical packages.

Budget Request

CDC's FY 2020 request of **\$102,730,000** for Intentional Injury Prevention is level with the FY 2019 Enacted level.

Domestic Violence and Sexual Violence Surveillance, Research, and Prevention

The Rape Prevention and Education (RPE) program provides funding to state health departments in all 50 states, the District of Columbia, and territories to prevent sexual violence (SV). CDC supports recipients to implement and evaluate SV prevention programs, and to address local needs. A new Notice of Funding Opportunity for the RPE program was released in FY 2019, and in FY 2020, recipients will continue to build upon their progress to decrease SV risk factors and increase SV protective factors, implement and evaluate effective prevention strategies, and increase implementation of community-level prevention strategies. Recipient efforts will be informed by programs, practices, and policies identified within CDC's STOP SV: A Technical Package to Prevent Sexual Violence, with emphasis on promoting social norms, providing opportunities to empower and support girls and women, teaching healthy relationship skills, and creating protective environments.

Rape and other forms of sexual violence are preventable through a public health approach. RPE is one of few government funding sources dedicated to primary prevention of SV and it conducts critical work. For example, CDC funds the New Mexico State Health Department to implement a program to change youth norms around sexual violence. From 2013-2015, more than 2,500 students participated in the multi-session education program. Over the same time period, the Youth Risk Behavior Surveillance System (YRBSS) data showed that 5% fewer students reported ever being physically forced to have sexual intercourse.

CDC supports the evaluation of sexual violence prevention programs and increased capacity of state health departments through a two-prong approach. First, all 50 states participate in a data collection and management system, encouraging adoption of proven prevention approaches, and assisting all states and territories to measure and evaluate progress. Second, five RPE funded state programs receive supplemental funding to do a deeper dive, working with academic institutions to rigorously evaluate the effectiveness of primary prevention programs, policies, or practices implemented by RPE grantees to increase the knowledge base of what works in prevention. This two-prong approach helps states and communities evaluate and enhance current programs so that they are effective in helping prevent violence and also remain cost effective.

Rape Prevention and Education Grants¹

(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	55	55	55
- New Awards	0	0	0
- Continuing Awards	55	55	55
Average Award	\$0.706	\$0.706	\$0.706
Range of Awards	\$0.045-\$3.680	\$0.045-\$3.680	\$0.045-\$3.680
Total Awards	\$39.000	\$39.000	\$39.000

¹ A new Notice of Funding Opportunity, for which all U.S. states and territories are eligible, has been issued in FY 2019 and awards are pending. Funding is awarded by formula, and the new NOFO also offers an option to apply for competitive funding to support additional program evaluation and implementation. As such, FY 2019 and FY 2020 award projections are subject to change.

CDC also collects data on the burden of intimate partner and sexual violence in the United States. CDC found that the economic burden, including medical costs, lost work productivity, criminal justice activities, and victim property loss/damage associated with these types of violence is profound. CDC led a research study in 2018 to assess the economic burden of intimate partner violence (IPV), and found the estimated lifetime cost was \$103,767 per female victim and \$23,414 per male victim.

CDC's National Intimate Partner and Sexual Violence Survey (NISVS) is an ongoing, nationally representative survey that assesses sexual violence, stalking, and intimate partner violence victimization among adults in the United States. According to NISVS, 1 in 3 women and nearly 1 in 6 men experienced contact sexual violence in their lifetime. Additionally, 1 in 6 women and 1 in 17 men were stalked, and 1 in 4 women and 1 in 10 men experienced contact sexual violence, physical violence, and/or stalking by an intimate partner. In 2017, CDC found that nearly half of female victims are killed by a current or former male intimate partner. NISVS also uniquely measures the impact of violence on health outcomes, which informs research on how violence is associated with immediate risks as well as with chronic health conditions. Timely and reliable data are critical to inform prevention policies and programs, establish priorities at the national, state, and local levels, and to track progress in preventing these forms of violence.

In 2018, CDC began a new 5-year cooperative agreement to prevent IPV: Domestic Violence Prevention Enhancements and Leadership through Alliances (DELTA) Impact. DELTA Impact funds 10 state domestic violence coalitions to implement proven IPV prevention approaches, which are provided in CDC's intimate partner and prevention technical package, *Preventing Intimate Partner Violence Across the Lifespan: A Technical Package of Programs, Policies, and Practices*, and evaluate the impact of these approaches in different communities. For example, the Ohio Domestic Violence Network (ODVN) is planning to implement Coaching Boys into Men, which mobilizes boys and men to be allies in sexual violence prevention, in two public high schools. They plan to expand to three more schools, reaching up to 950 athletes and conducting community-level social norms campaigns at each school.

Child Abuse and Neglect Surveillance, Research, and Prevention

Adverse childhood experiences (ACE) are stressful or traumatic events for children including abuse, neglect, and household challenges such as witnessing domestic violence. ACEs can have a major impact across the lifespan and across generations. They are associated with increased risk of mental illness, substance abuse, chronic and infectious diseases, perpetrating or becoming a victim of future violence later in life, lower educational outcomes, and higher unemployment in adults. For example, research published by CDC in 2018 showed that, for each person in the United States who experiences nonfatal child abuse and neglect, the cost to society is more than \$830,000.

CDC implements the Essentials for Childhood (EfC) framework for child abuse and neglect prevention. In FY 2020, CDC's EfC state initiative will fund seven state health departments to implement EfC. The states receiving funding are California, Colorado, Kansas, Massachusetts, North Carolina, Utah, and Washington. From 2018 –

2022, these health departments will address state-specific needs and will implement comprehensive strategies and approaches designed to reduce child abuse and neglect along with other ACEs. Recipients will focus on implementation strategies and approaches in CDC’s technical package, *Preventing Child Abuse and Neglect: A Technical Package of Policy, Norm, and Programmatic Activities*. CDC also makes tools and trainings available to the public and specific practitioners. In just two months after online introductory ACEs trainings were published, nearly 400 people had completed them.

The Colorado State Health Department and its EfC partners are focusing on informing community approaches to increase family friendly business practices across Colorado. They worked with partners to develop a Family Friendly Workplace Tool Kit and to develop a Workplace Assessment. Over 1,800 hard copies of their Workplace Tool kit have already been distributed. The toolkit also resulted in the creation of business forums where leaders from the business sector, healthcare, public health, education, and others convened to learn about best family-friendly practices in their fields. They also led a partnership with their Child Fatality Review teams to integrate family-friendly work policies into their prevention recommendations.

Additionally, research has demonstrated a strong relationship between ACEs and substance abuse disorders, including opioid misuse. Individuals reporting three or more ACEs were five times more likely to report taking opioids more than prescribed, and seven times more likely to take opioids without a prescription. Given that interdependent relationship, CDC will support programs that expand ACEs work to reduce downstream negative health outcomes. This work is being funded through Opioid Abuse and Overdose Prevention and is described further in that section.

Youth Violence and Teen Dating Violence Prevention

CDC supports five communities through local health departments (Baltimore City Health Department, Houston Health Department, Minneapolis Health Department, Monterey County Health Department, and Multnomah County Health Department) to prevent multiple forms of violence affecting adolescents, including peer-to-peer, teen dating violence, and bullying. CDC also funds five National Centers of Excellence in Youth Violence Prevention (YVPC) whose research shows that prevention of youth violence is possible. The Chicago Center for Youth Violence Prevention (CCYVP) brought together researchers, community representatives, practitioners, and policy makers in Chicago to reduce youth violence and promote the healthy and safe development of youth and families in several area schools and neighborhoods. In one neighborhood, Humboldt Park, implementing a comprehensive set of youth violence prevention strategies led to a 17% decrease in homicides in that community, while homicides increased by 10% in other similar communities without intervention.

In FY 2020, CDC will continue to:

- Collaborate with all 50 states, District of Columbia, and territories to implement sexual violence prevention strategies through the Rape Prevention and Education Program (RPE). CDC will continue to work with recipients to enhance evaluation of RPE program activities, and in FY 2020, all RPE recipients will continue to comprehensively evaluate efforts to reduce sexual violence.
- Collect the most comprehensive national- and state-level data on intimate partner violence, sexual violence, and stalking victimization in the United States through the National Intimate Partner and Sexual Violence Survey (NISVS).
- Continue to support state domestic violence coalitions implementing IPV prevention strategies through the DELTA Impact program. DELTA Impact is focused on implementing strategies that address community and societal level risk and protective factors.
- Work with high-risk communities across the country to implement evidence-informed youth violence prevention strategies through the YVPCs and technical assistance to local health departments working on youth violence prevention.
- Fund and collaborate with a cohort of states to prevent child abuse and neglect through the Essentials for Childhood initiative.

- Continue to improve surveillance around adverse childhood experiences, particularly in relation to substance misuse.
- Continue to fund five local health departments to implement programs to address and prevent factors that may lead to both teen dating violence and youth violence.

National Violent Death Reporting System Budget Request

The National Violent Death Reporting System (NVDRS) is critical to the nation’s efforts to prevent violence. NVDRS is the only state-based surveillance system that pools information from multiple data sources into a usable, anonymous database in order to provide a complete picture on the circumstances of all types of violent deaths—including homicide and suicide (as well as opioid-related suicides). In 2018, CDC supported NVDRS programs in all 50 states, Puerto Rico, and the District of Columbia for a national level surveillance system; CDC will provide this same support in 2019 and 2020.

NVDRS informs prevention efforts in states and communities to guide decisions about preventing violence and monitor progress over time. For example, Colorado conducted an analysis of state data to better understand suicide deaths among first responders. Colorado’s data showed that suicide victims who were first responders were more likely to have been veterans, compared to the general population of suicide victims in their state. These findings helped Colorado direct their outreach services, and led them to promote resources focused on positive mental and physical health for first responders, active military personnel, veterans, and their families.

Demonstrating NVDRS’s value and relevance, CDC published a Vital Signs in 2018 revealing rising suicide rates across the country. Suicide rates increased in all but one state from 1999 through 2016. Rates went up more than 30% in half of states and the data showed that more than half of people who died by suicide did not have a known mental health condition. This group suffered more from relationship problems and other life stressors such as problematic substance use, job/financial problems, and recent or impending crises. Such circumstances were also common in people with mental health conditions. CDC’s research showed that mental health conditions are often seen as the cause of suicide, but suicide is rarely the result of any single factor.

Budget Request

CDC’s FY 2020 request of **\$23,500,000** for NVDRS is level with the FY 2019 Enacted level.

In FY 2020, CDC will:

- Support 52 recipients to collect data as part of the NVDRS system and provide technical assistance to help recipients implement the system, monitor and report data, and use these data to inform prevention efforts.
- Increase the use of NVDRS data for characterizing suicide at different levels (national, state, and local) and in various populations (ethnic, racial, rural, sexual minorities, etc.).
- Work with data providers to identify ways to improve data collection and timeliness.

(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	52	52	52
- New Awards	10	0	0
- Continuing Awards	42	52	52
Average Award	\$0.313	\$0.313	\$0.313
Range of Awards	\$0.176-\$0.942	\$0.176-\$0.942	\$0.176-\$0.942
Total Awards	\$16.258	\$16.258	\$16.258

¹ These funds are awarded by formula.

Unintentional Injury Prevention Budget Request

Unintentional injuries are the leading cause of death for individuals 1–44 years of age in the U.S. and are projected to cost more than \$129 billion annually in medical costs. CDC’s Unintentional Injury Prevention program promotes safety by using data to identify opportunities for prevention and by developing and evaluating recommendations for effective interventions. Unintentional injuries include issues such as older adult falls, motor vehicle crashes, and traumatic brain injuries (TBI). Interventions in these areas are implemented in clinical settings, schools, and at the state level through various mechanisms including CDC’s Core State Violence and Injury Prevention Program (Core SVIPP).

Budget Request

CDC’s FY 2020 request of **\$6,737,000** for Unintentional Injury Prevention is \$2,063,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of the Older Adult Falls program from the FY 2019 President’s Budget.

Each year, traumatic brain injuries (TBI) contribute to a substantial number of deaths and disabilities among Americans. CDC’s public health research and programs work to prevent TBI and help people better recognize, monitor, and care for those who sustain a TBI. CDC has a unique role in providing training to coaches, families, and athletes through its HEADS UP initiative in order to identify and prevent TBIs. More than 4 million individuals completed the online trainings to date. CDC provides support to enhance state surveillance, evaluate solutions, identify best practices for prevention, and improve treatment of TBIs in partnership with healthcare providers. In February 2018, CDC released a Report to Congress on The Management of Traumatic Brain Injury (TBI) in Children, detailing the impact a TBI can have on children and their families. The report identifies gaps in care, outlines opportunities for action to reduce the gaps, and highlights policy strategies to address the short and long-term consequences of a TBI.

To optimize care of young patients, in September 2018 CDC released the first ever evidence-based guideline on the diagnosis and management of pediatric mild TBI (mTBI) in the United States. This clinical guideline filled a critical gap in for healthcare providers on this issue. Efforts are underway to ensure the guideline is implemented nationwide. Within weeks of its release, the guideline had more than 60,000 webpages views and was featured in over 50 news outlets. CDC will also soon release an online training, developed in partnership with the American Academy of Pediatrics, which is designed to educate healthcare providers about the important clinical recommendations contained in the new guideline.

Additionally, CDC began pilot testing a methodology and case definition that can form the foundation of a potential national concussion surveillance system. Such a system would provide the first comprehensive estimates of TBI (and youth sports concussion) in the United States and identify the leading causes of concussion so that efforts can be taken to prevent TBIs from occurring in the first place.

In FY 2020, CDC’s TBI program will:

- Continue to support essential state-based TBI prevention efforts related to surveillance and program implementation through the Core SVIPP program.
- Target resources, amplify messaging, and leverage partnerships to promote CDC’s pediatric mTBI guideline to assist in proper diagnosis and management of mTBIs among children and adolescents.
- Continue to support HEADS UP via educational initiatives that share the common goals of protecting kids and teens by raising awareness and informing action to improve prevention, recognition, and response to concussion and other serious brain injuries.
- Identify and develop an evidence base for effective return-to-learn practices through an evaluation of promising programs.

- Continue working in partnership with the American Academy of Pediatrics to develop and test new telehealth programs that seek to address the unique challenges that rural healthcare providers and school personnel face in caring for children after a TBI.

Injury Prevention Activities Budget Request

Violence and injuries affect everyone, regardless of sex, race, or economic status. CDC works to prevent injuries and violence through a variety of programs spanning surveillance, development of recommendations, evaluation of programs, and implementation of effective strategies. These activities are high priority and offer flexibility to address emerging and high burden injury and violence areas as needs arise.

Budget Request

CDC's FY 2020 request of **\$20,293,000** for Injury Prevention Activities is \$8,657,000 below the FY 2019 Enacted level. At this funding level, CDC will conduct prevention activities in areas of greatest need, including high burden topics such as suicide and motor vehicle crash-related injury prevention. The Injury Prevention Activities budget line also supports cross-cutting programs, such as the Core State Violence and Injury Prevention Program (Core SVIPP).

High Burden Topics

CDC has been working on the growing public health problem of suicide. Historically, suicide prevention largely focused on identifying and referring suicidal persons to mental health treatment and preventing reattempts.¹³⁶ Yet evidence shows a need for a comprehensive public health approach to address suicide from all vantage points to prevent attempts and ensure resilient individuals and communities. As the nation's public health agency, CDC's expertise and leadership is essential in preventing suicide. CDC provides data for states and communities to understand who dies by suicide, why, and how to prevent suicide. CDC's strategy to address the increasing trend in suicide is to collect and analyze data and use what is learned to inform action.

Mentioned above is the data collected on suicide through NVDRS. States and communities use this specific data to choose the best prevention programs, policies, and practices for their communities by identifying common circumstances associated with suicide deaths of a specific type or a specific area (e.g., a cluster of suicides). Since 2004, at the request of local authorities, CDC has sent epidemic intelligence service officers to investigate suicide clusters in Maine, South Dakota, Delaware, Virginia, California, Utah, Ohio, and New York. Each of these investigations has resulted in specific tailored recommendations. For example, in 2017, the Utah Department of Health requested CDC assistance to investigate suicide among Utah youth. CDC found that the annual suicide rates among Utah youth increased 136% compared to a 24% increase nationally, which led to the creation of the Governor's Teen Suicide Prevention Task Force. The Task Force released recommendations to reduce the number of youth suicides in the state including: expanding the use of a mobile app for young people to access real-time support, expanding the number of mobile crisis outreach teams, and creating a suicide prevention fund.

CDC also plays a unique role in preventing motor vehicle crash-related injuries and death by working with state health departments to support effective interventions, data collection and linkage, and evaluation, and by providing guidance on effective programs such as alcohol ignition interlocks and those that increase seat belt use. CDC also focuses on targeted interventions to reduce deaths and injuries among certain populations, including children, teens, older adults, and American Indians and Alaska Natives (AI/AN). In 2018, CDC released a new version of the Motor Vehicle Prioritizing Interventions and Cost Calculators for States (MV PICCS 3.0), updated with more recent data and a more user-friendly interface. The MV PICCS tool can help state decision makers prioritize and select effective preventive interventions to save lives, prevent injuries, and calculate costs. CDC's long-term outcome of a national system to capture surveillance data on nonfatal motor vehicle crashes was advanced through two Data Linkage Learning Labs. The Learning Labs, convened in 2018 with the National Governors Association, brought 11 state teams together to make data linkage plans, discuss lessons learned, and

¹³⁶ Zalsman G, Hawton K, Wasserman D, et al. Suicide prevention strategies revisited: 10-year systematic review. *Lancet Psychiatry* 2016;3:646–59. [https://doi.org/10.1016/S2215-0366\(16\)30030-X](https://doi.org/10.1016/S2215-0366(16)30030-X)

discuss best practices for linking police crash reports, hospital admissions, and discharge data. Linking and analyzing these data will enable states to have a more comprehensive understanding of the public health consequences of the three million non-fatal motor vehicle crash injuries every year, including risk and protective factors, and medical outcomes and costs. Participating states expanded their capacity for data linkage, allowing them to more effectively target interventions and prevention activities. The states shared progress and outcomes via webinars for all 50 states. In 2019, CDC will release “Linked Information for Nonfatal Crash Surveillance (LINCS): A Guide for Integrating Motor Vehicle Crash Data to Keep Americans Safe on the Road.” This guide will provide technical assistance to states to initiate or expand non-fatal motor vehicle crash data linkage activities.

Supporting Cross-Cutting Programs

CDC’s Core State Violence and Injury Prevention Program (Core SVIPP) funds 23 states to strengthen injury surveillance programs and implement, evaluate, and disseminate effective violence and injury prevention interventions. This funding provides critical support to state health departments to address issues of injury and violence. Currently, states receive base program funding to focus on four priority areas: motor vehicle injury prevention, youth sports concussion/traumatic brain injury (TBI), child abuse and neglect, and sexual violence/intimate partner violence. These topics have shared risk and protective factors across the different mechanisms of injury.

Core SVIPP provides support for passenger safety outreach for tribal communities. The Arizona SVIPP program coordinator provided a car seat technician training at the Salt River Pima-Maricopa Indian Community in October 2017 and trained 20 new car seat technicians and two lead instructor candidates from the Salt River Pima-Maricopa Indian Community and the Gila River Indian Community. Since the training, the instructors have held seven car seat compliance checkpoint trainings and 20 curbside checkpoints and have distributed 247 car seats.

Furthermore, in Oklahoma, the Core SVIPP program is working with state agencies to provide child passenger safety certification training courses and educational courses to parents, home visiting nurses, child welfare workers, perinatal professionals, and other related stakeholders. Oklahoma is providing evidence-based prevention strategies through the Governor’s Impaired Driving Prevention Advisory Council. This is a statewide task force charged with implementing the statewide strategic plan to reduce the incidence of impaired driving in Oklahoma.

Core SVIPP recipients are also able to leverage their expertise to identify and respond to emerging and/or high burden issues. For example, Virginia Core SVIPP is implementing the Safe Environment for Every Kid (SEEK) Program. This model is designed to help detect child abuse and neglect in primary care settings through screening and referral to services. Virginia is working to pilot the SEEK model in the Care Connection for Children network and compile a resource guide for practitioners. Care Connection for Children is a statewide network of centers of excellence for children and youth with special healthcare needs that provide leadership in the enhancement of specialty medical services.

In FY 2020, CDC’s Injury Prevention Activities will:

- Assist states with the development and implementation of programs to address motor vehicle crash-related injuries. Also, CDC will focus on improving the safe mobility of older adults by releasing the Older Adult Mobility Planning Tool. This tool helps older adults plan for how they can remain mobile and independent as they age.
- Assist states with the development and coordination of programs to address child abuse and neglect, suicide prevention, intimate violence and sexual violence, and traumatic brain injury through Core SVIPP.

- Amplify data linkage for non-fatal motor vehicle crash injury surveillance in partnership with public health entities at the state level.
 - In 2020, the LINCIS Guide will increase state awareness about the value of linked data to enhance our understanding of the role alcohol, drugs, restraint use, and speed play in non-fatal motor vehicle crashes, which injure more than three million people every year. Using the LINCIS guide, states will be able to build their own data linkage systems and improve their surveillance of non-fatal crashes to learn what happened before, during, and after a crash including the medical outcomes and associated costs.
- Support efforts to prevent suicide by conducting surveillance, research, and developing evidence-based strategies. CDC will continue to support fatal and non-fatal surveillance systems for self-directed violence, including collection of data at the national, state, and local levels, which provides information for decision makers. These important data and research will help CDC determine the effectiveness of strategies to prevent suicidal behavior and expand the number of proven prevention activities.
- Provide critical support to Core SVIPP states through funding as well as tools for implementation and scientific evidence on best practices. Core SVIPP states will continue to implement and evaluate injury and violence prevention strategies, lead regional networks to enhance capacity across all states, and support improved injury and violence surveillance.

Core State Violence and Injury Prevention Program Grants^{1,2}

(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	23	23	23
- New Awards	23	0	0
- Continuing Awards	0	23	23
Average Award	\$0.292	\$0.292	\$0.292
Range of Awards	\$0.248-\$0.475	\$0.248-\$0.475	\$0.248-\$0.475
Total Awards	\$6.723	\$6.723	\$6.723

¹ All 23 Core SVIPP recipients receive base funding. Select states are funded for expanded components above their base funding.

² These funds are not awarded by formula.

Opioid Abuse and Overdose Prevention Budget Request

The United States remains in the midst of an epidemic of opioid overdoses and overdose deaths involving both prescription opioids and illicit opioids like heroin and illicitly-manufactured fentanyl. More than 70,000 Americans died from drug overdoses in 2017 alone. Deaths are only part of the problem: for each death involving prescription opioids, hundreds of people abuse or misuse these drugs. The Council of Economic Advisers estimated the cost of the opioid crisis to be \$504 billion in 2015.¹³⁷ Over 399,000 people have died from overdoses involving opioids—prescription or illicit—in the United States from 1999 through 2017. CDC plays a critical role in opioid overdose prevention by strengthening surveillance, helping providers improve prescribing practices, and working to identify and scale up effective interventions. CDC’s funding initiatives equip state, territorial, local, and tribal health departments with resources to combat the epidemic. CDC uses data to drive action to prevent and address opioid overdoses as well as other negative health effects of this epidemic. CDC authored the “CDC Guideline for Prescribing Opioids for Chronic Pain” in March 2016 in order to give providers guidance on best practices when prescribing opioids. A study establishing the impact of the guideline noted that there were approximately 14.2 million fewer opioid prescriptions filled from March 2016 to December 2017.¹³⁸

CDC has unique scientific expertise to collect and analyze data to better understand the epidemic and to use those data to drive public health response and prevention activities. As the epidemic has evolved, CDC has tailored its response. To address the rise in deaths attributable to illicit opioids, CDC is strengthening surveillance and response to inform and engage public safety and substance use treatment efforts. Further, CDC will dedicate more attention to the surveillance and prevention of polysubstance use and abuse. In addition, CDC initiated efforts at the community and local levels to empower consumers to make safe choices and to reach vulnerable populations such as Tribes and rural communities.

Budget Request

CDC’s FY 2020 request of **\$475,579,000** for Opioid Abuse and Overdose Prevention is level with the FY 2019 Enacted level.

Combatting the current opioid overdose epidemic is a priority for both the Administration and the HHS Secretary. CDC’s activities to address the opioid overdose epidemic support the Administration’s Strategy, which brings together prevention, treatment, recovery, law enforcement, interdiction, and source-country efforts to address the continuum of challenges facing this country as a result of drug use. The strategy involves multiple tactics to break the cycle of drug abuse and death. CDC’s role in this strategy is to prevent opioid-related harms and overdose deaths.

With the resources provided in the FY 2020 request, CDC will continue current activities to support all 50 states and territories, as well as local jurisdictions, to track and prevent overdose deaths. At this level, CDC will prioritize support to states and territories to collect and report real-time overdose and robust overdose mortality data. CDC will also be able to address critical public health response needs that leverage previous investments in workforce, systems, and infrastructure.

Specifically, CDC will improve data and surveillance, and enhance state and local capacity to use data to drive public action on opioids. This will include amplifying the reach of Overdose (OD) Maps Data and funding communities to implement targeted strategies in response. Additional resources will support the goal of achieving real-time opioids situational awareness through enhanced surveillance and ensure that prescription drug monitoring program (PDMP) data is shared across jurisdictional boundaries to increase its effectiveness.

¹³⁷ U.S. Council of Economic Advisors. 2017. The Underestimated Cost of the Opioid Crisis. Accessed at: <https://www.whitehouse.gov/sites/whitehouse.gov/files/images/The%20Underestimated%20Cost%20of%20the%20Opioid%20Crisis.pdf>

¹³⁸ Bohnert AS, Guy GP, Losby JL. Opioid Prescribing in the United States Before and After the Centers for Disease Control and Prevention’s 2016 Opioid Guideline. *Ann Intern Med.* ;169:367–375. doi: 10.7326/M18-1243

These critical enhancements will be coupled with a new approach for rapid public health response in areas where there are anticipated disruptions to the illicit drug market or “hot spot” regions where a spike in opioid overdose deaths has been seen. CDC will continue to modernize death coding and work with medical examiners and coroners to improve the data regarding opioid overdose fatalities to allow for rapid response to these unanticipated events. CDC will also equip emergency departments with strategies to be implemented following overdoses and take a “whole health system” approach to opioid overdose prevention to include increased engagement with primary care physicians and others on the front lines.

The Administration’s Strategy

CDC’s activities to address the opioid overdose epidemic support the Administration’s strategy of reducing drug demand through education, awareness, and preventing over-prescribing. CDC is working directly on these priorities to save lives by expanding opportunities for proven treatments for substance use disorder. The strategy involves multiple tactics to break the cycle of drug abuse and death, and CDC’s role in this strategy is to prevent opioid-related harms and overdose deaths in the following ways:

1. Conducting surveillance and research: Surveillance and research are being funded to expand and advance understanding about what works to prevent opioid overdose, and will improve the ability of state and local health departments to implement and improve interventions that will save lives.
2. Building state, territorial, local, and tribal capacity: CDC is building capacity in these communities through improved data collection, education for providers on getting high quality, more comprehensive, and timelier data to use those data to inform and target prevention and response efforts at the state and local level.
3. Supporting providers, health systems, and payers: Planned activities will work with health systems, insurers, and communities to improve opioid prescribing and offer non-opioid and non-pharmacologic options when appropriate, as well as a new priority on enhancing linkages to care. This includes creating and updating translational materials from the 2016 Guideline for providers and other public health practitioners.
4. Partnering with public safety: CDC is engaged in an unprecedented public health/public safety partnership with 11 High Intensive Drug Trafficking Areas (HIDTAs) covering 24 states with the shared mission of reducing fatal and nonfatal opioid overdoses by developing and sharing information about heroin, fentanyl, and other opioids across agencies and by offering evidence-based intervention strategies.
5. Empowering consumers to make safe choices: CDC’s Rx Awareness campaign increases awareness and knowledge among Americans about the risks of prescription opioids, and increases the number of people who avoid non-medical use or medical use of opioids for pain management.

CDC’s funding initiatives equip state health departments with resources to reduce drug demand through prescriber education, awareness, and prevention efforts to stop over-prescribing. CDC uses data to drive action to prevent and address opioid overdoses as well as other negative health effects of this epidemic. To that end, this request outlines activities in four broad categories, which capitalize on CDC’s scientific expertise:

- State, Territorial, Tribal, and Partner Support
- Communication, Education, and Training
- Health Systems, Health Information Technology, and Surveillance Improvements
- Building the Evidence Base Through Science

State, Territorial, and Tribal, and Partner Support

CDC works to strengthen surveillance and prevention activities in states, territories, tribes and within communities. With proposed funding, CDC will support recipients along the trajectory of moving from data to action. More specifically, program components will focus on two interrelated components: surveillance and prevention. These components, including the infrastructure and expertise needed to accomplish these surveillance and prevention efforts, are interdependent and should be planned and implemented as part of a dynamic system.

This budget request will strengthen surveillance activities across all 50 states, Washington, D.C., localities, territories, and in tribal communities. CDC will continue to advance its understanding of the evolving opioid overdose epidemic by increasing the timeliness and improving the quality of morbidity and mortality data. CDC will move science to action by partnering with states, localities, territories, and tribes to implement innovative strategies. Investments will allow funded jurisdictions to build upon promising work already underway. For example, Ohio is using CDC funding to collect and analyze data on drug-related visits to emergency departments, findings from which can be used to alert local health departments as to whether targeted public health response activities are warranted. In Missouri, CDC funds were used to support collection and analysis of non-fatal drug overdose data that contributed to comprehensive plans within the state on how best to target naloxone distribution in communities identified as high-need. Improved surveillance across sectors and in every corner of the United States will allow for a more targeted response to changes in the epidemic. In addition, enhancements will be made to increase surveillance capabilities for polysubstance use and abuse, which will continue to strengthen prevention efforts within high-risk communities and populations.

Funded jurisdictions will also identify and track timely data on key risk factors and substances contributing to drug overdose death trends in communities by abstracting, analyzing and disseminating data gleaned from a variety of sources including detailed information on toxicology, death scene investigations, and other circumstances surrounding death using a composite of different data sources that together provide a comprehensive picture of what happened related to a drug overdose fatality. Such comprehensive analysis across a wide range of data sources will improve our understanding of the ever-evolving opioid overdose epidemic and will allow for an informed response to address risk and protective factors in states as well as localities.

Further, this budget request aims to scale up programmatic prevention initiatives across all 50 states, Washington, D.C., localities, territories, and in tribal communities, and build upon the strong foundation resulting from recent CDC investments. This increase will provide critical resources needed to promote the use of Prescription Drug Monitoring Program (PDMP) data to inform action (e.g., provider use of PDMP data at patient level encounters), amplify messaging within states to educate about the risks associated with opioids, strengthen prevention activities at the community level for a more customized response, and target populations of particular need, including rural and tribal communities. In West Virginia, CDC funds were used to improve proactive reporting of prescribing data accessed through the state PDMP. Such data have been used to target information to outlier prescribers and to identify high-burden communities within the state. Funds received through this budget request will also be used to conduct a rigorous evaluation of interventions being implemented in CDC's state programs to help us adjust and scale programs throughout the United States.

CDC will also strengthen collaboration between public health and other stakeholders at the state and community levels by enhancing surveillance efforts with medical examiner/coroner reporting—improving both timeliness and comprehensiveness of data—to better identify the causes of death and allow for a more targeted response. As a result of collaborations across state entities and execution of data sharing agreements, Kentucky's Drug Overdose Fatality Surveillance System (DOFSS) collates data from death certificates, toxicology result reports, coroner reports, and the state Prescription Drug Monitoring Program (PDMP). Such enhancements have resulted in improved identification of specific drugs involved in overdose deaths and has assisted in the identification of high-risk populations within the state.

The prevention component of this budget request will implement and evaluate interventions at the state and local levels for preventing opioid overuse, misuse, use disorder, and overdose. The prevention and response strategies will follow from and address the needs identified by surveillance data and targeted toward the state and local level. Intervention strategies will address both prescription and illicit opioids, and may address drugs to the extent that they are associated with and/or exacerbate the opioid overdose epidemic (e.g., cocaine mixed with fentanyl). Efforts will support integration of state and local prevention and response efforts, provide support for providers and health systems prevention (including use of PDMPs as a clinical decision support tool), enhance partnerships with public safety and first responders, establish and improve linkages to Medication-Assisted Treatment (MAT) and other supportive services, and empower individuals to make informed choices. In Kentucky, CDC funds were used to develop the state's "Find Help Now" website. This site was a collaborative effort with Kentucky's Office of the Governor, Cabinet for Health and Family Services, Department of Public Health, Office of Drug Control Policy, and the University of Kentucky to link individuals to over 360 treatment facilities represented by 146 different providers.

While collaboration across all sectors is necessary, given the rise of deaths related to illicit opioids, public safety partners play a particularly critical role in responding to opioid overdoses and will be engaged in prevention and response efforts. In addition to integrating public health and public safety partnerships at the state and local levels, CDC will support regional partnerships that will enhance data sharing across sectors as well as advance evidence-based strategies. This budget request provides resources to enhance partnerships at the regional level, such as those activities implemented through High-Intensity Drug Trafficking Area (HIDTA) units. CDC is an active federal partner in implementing the Opioid Response Strategy, which is currently operational within 11 HIDTAs across 24 states. In particular, CDC contributes its public health expertise by gathering, analyzing, and sharing public health data with public safety colleagues in support of data-driven program initiatives, interagency collaboration, and advancements of surveillance, treatment, and prevention initiatives within states and regions.

This budget request also includes funding for community-based projects, which enhance partnerships with public safety including collaborating with the Office of National Drug Control Policy (ONDCP). CDC has partnered with ONDCP to provide funding for 13 community-based projects as part of the Opioid Response Strategy's Combatting Opioid Overdose through Community-level Intervention (COOCLI). This effort will support implementation of innovative strategies within a targeted geographic area with the aim of building the evidence base for response activities that other communities can employ. Projects include efforts on post-overdose strategies to link people to care using patient navigators and recovery coaches, justice-involved populations and access to MAT, buprenorphine induction in the emergency departments, neo-natal abstinence syndrome, and adverse child experiences. One example of this work is The Martinsburg Initiative, an innovative, multisector partnership focused on opioid overdose prevention that can act as a model for other communities. The project expands community resources and link law enforcement, schools, communities, and families in a dynamic partnership that will assess participants' Adverse Childhood Experience (ACE) scores and subsequently link them to necessary resources and support.

In addition, CDC will build on previous investments to provide support to tribes/tribal organizations to optimize the quality and performance of tribal public health system, including infrastructure, workforce, data and information systems, programs and services, resources and communication, and partnerships. Work in these areas will increase the capacity of Indian Country to identify, respond to, and mitigate public health threats and decrease the burden of disease among American Indians/Alaskan Natives. In FY 2018, CDC supported 15 tribes and 11 Tribal Epi Centers for improvements to prevention and surveillance of fatal and non-fatal overdoses.

Finally, CDC will support upstream prevention programs, to address the interdependent relationship between Adverse Childhood Experiences (ACE) and substance abuse disorders. CDC is expanding ACEs data collection by supporting six states to include an ACE module in their 2019 Behavioral Risk Factor Surveillance System (BRFSS) survey. Previously, these states had not been collecting ACEs data through BRFSS. CDC also is funding BRFSS to make the ACE module available to all 50 states in the 2020 survey. BRFSS asks questions related to substance

abuse so it can be used to measure the impact of ACEs on substance abuse and vice versa. CDC is also including ACE and opioid misuse surveillance questions on an internet panel survey to provide better insight into trends in ACEs and the connection to opioid misuse over time—a key function of sound public health surveillance and one that is not currently supported by existing data systems which rely solely on retrospective reports from adults. ACEs are a known risk factor for opioid misuse, and the insights gained through this survey will enable more effective targeted prevention efforts of both ACEs and opioid misuse.

In FY 2020, CDC will continue working with local public health departments in communities experiencing high rates of drug overdoses or suicide to implement and test a comprehensive community approach for the primary and secondary prevention of ACEs in order to lower those rates. The project will integrate the strengths of high-performing local and state health departments with community-engaged organizations possessing a record of accomplishment of effective collaborations that influence social determinants of health. The project is expected to identify innovative strategies to organize the communities' awareness and identification of prevention techniques in ways that build ownership and investment to combat this critical health threat. The project will include the expertise of public health institutes to establish a rigorous evaluation component that facilitates scaling up of methods and lessons to additional communities.

Additionally, CDC's Essentials for Childhood (EfC) recipients are addressing risk and protective factors for opioid misuse and preventing ACEs. This supplemental funding supports partnership development, program implementation, data collection, and evaluation activities conducted by state health departments implementing EfC around opioids. This program supplement supports activities necessary for the delivery of prevention strategies based on the best available evidence to prevent ACEs and to address risk and protective factors for opioid misuse and overdose.

Communication, Education, and Training

In FY 2020, CDC also will continue efforts to expand its communication, education and training activities, including CDC's Rx Awareness Campaign. One of CDC's priorities is raising awareness about the risks of prescription opioid misuse. The aim is to implement primary prevention strategies such that individuals reduce their risk of opioid misuse, abuse or opioid use disorder. To provide individuals with the resources and information they need to make informed choices, CDC's Rx Awareness Campaign features testimonials from people recovering from opioid use disorder and people who have lost loved ones to opioid overdose. The goal of the campaign is to educate the public about the risks of prescription opioids and the importance of discussing safer and more effective pain management with their healthcare providers. CDC is also promoting awareness of risks associated with non-medical use of opioids, factors that increase risks (such as fentanyl in the local drug supply), and approaches to reduce risks. Additionally, CDC will explore the need to expand communication about polysubstance and illicit use and abuse.

In FY 2020, CDC will work to enhance the Rx Awareness Campaign in three main areas: (1) expanding campaign product development (including messages for special populations and risk groups) and additional focus on polysubstance and illicit use and abuse, (2) increasing dissemination efforts (including through state programs), and (3) evaluation. This will complement the existing communications efforts in which states are currently engaged.

CDC will also support activities to enhance provider education about best practices in safer and more effective pain management, based on the CDC Guideline for Prescribing Opioids for Chronic Pain. Activities will include development of continuing medical education and other health professional training modules and updates to existing resources. CDC will advance better practices for pain management, with specific focus on vulnerable populations such as individuals living in rural areas or individuals living in tribal communities. CDC will also provide training support to health systems to improve the quality of pain management by supporting collaborations between state health departments and health systems in all 50 states.

Health Systems, Health Information Technology, and Surveillance Improvements

CDC will encourage uptake and use of CDC’s Guideline for Prescribing Opioids for Chronic Pain within and across clinical settings. Examples of proposed activities could include expanding quality improvement (QI) and coordinated care implementation strategies beyond primary care setting, incorporating the guideline into electronic health records (EHR) through clinical decision support tools, and continued efforts around PDMP and EHR integration. Efforts also include conducting data analysis to advance the science around effective health system strategies. This will also be used to build on previous investments to expand guidance around acute pain and indication specific guidance.

In addition, CDC is collaborating with the Office of the National Coordinator for Health Information Technology (ONC) to create sharable clinical decision supports to integrate guideline recommendations into EHRs (for example, alerts for morphine milligram equivalent thresholds, defaults on prescribing amounts for initiation of opioids, and prompts to check the PDMP). Three clinical sites—Carolinas Medical Center, Houston Methodist, and Yale—are making changes to their EHR and will report prescribing rates.

CDC will also work to prioritize provider education. CDC will assess the most recent science to inform curricula at both the medical undergraduate and graduate educational levels. In addition, CDC will reinforce its guidance by developing and disseminating training materials relevant throughout clinical practice.

Building the Evidence Base through Science

In FY 2020, CDC will continue to develop and rigorously evaluate primary or secondary preventive interventions that address prescription and illicit overdose, including polysubstances. Funded research projects may address interventions that integrate public health and public safety approaches, linkage of people with opioid use disorder to treatment, opioid prescribing behavior, risk and protective factors related to co-use of prescription opioids and heroin, engagement of employers as means for intervention delivery, or social determinants and community barriers to effective prevention or recovery. Additionally, CDC may support research that further examines the link between substance abuse, ACEs, and suicide.

In FY 2020, CDC will:

- Continue support to states, localities, territories, and tribal communities, in part by:
 - Encouraging more timely collection and dissemination of both fatal and non-fatal overdose data.
 - Supporting data-informed and data-driven public health response and prevention activities.
 - Allow funded jurisdictions to tailor and target their program activities based on their respective needs.
 - Maximizing capabilities and use of state-based PDMPs as a clinical decision-making and public health surveillance tool, which includes improving both intrastate and interstate interoperability of PDMPs.
 - Targeting efforts and support for populations of particular need, including rural communities and federally recognized tribes.
 - Sharpening the focus on local and community-level needs in the event that “hot spots” for overdose outbreaks are identified within states.
 - Strengthening the coordination of efforts across state-level entities, as well as between state and local jurisdictions.
 - Supporting innovative tactics for ensuring identification and linkage to medication-assisted treatment (MAT) and other supportive services for individuals at risk of overdose.
 - Encouraging peer-to-peer learning and coaching among CDC-funded entities to facilitate the sharing of practices to maximize success and overcome any challenges encountered.
- Continue efforts to expand the reach of CDC’s Rx Awareness Communications Campaign in partnership with state and local public health entities to raise awareness and reduce stigma.

- Support the continued development and rollout of tools and materials to assist with implementation of recommended care, along with the evaluation of implementation activities.
- Increase uptake among providers of the CDC Guideline for Prescribing Opioids for Chronic Pain to improve the prescribing of opioids and treatment.
- Continue to support and finalize the study of MAT and other types of treatment modalities.
- Strengthen collaboration with other federal partners in support of a multi-prong strategy, including the Centers for Medicare and Medicaid Services, the Office of the National Coordinator for Health Information Technology, the Office of the National Drug Control Policy, the Drug Enforcement Administration, the Food and Drug Administration, the Bureau of Justice Assistance, the Health Resources and Services Administration, and the U.S. Department of Agriculture.
- Identify and scale up promising prevention practices in the nation's hospitals and health systems, including coordinated care models for high-risk opioid patients to ensure they receive safe, effective treatment, and quality improvement strategies to improve opioid prescribing practices.
- Continue to use NVDRS data to enhance understanding of the opioid crisis. Analysis of NVDRS data, including toxicology results, can help increase understanding of associations between opioids and violent death, such as suicide, and help to guide prevention strategies.

Opioid Prevention in States Grants^{1,2,3}

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	101	75	75
- New Awards	54	75	0
- Continuing Awards	47	0	75
Average Award	\$4.440	TBD	\$3.730
Range of Awards	\$0.200-\$8.378	\$1.000-\$5.000	\$1.000-\$5.000
Total Awards	\$244.191	\$280.000	\$280.000

¹ These funds are not awarded by formula.

² FY 2018 includes combined base and supplemental funds for Prevention for States (PFS), Data-Driven Prevention Initiative (DDPI), Enhanced State Surveillance of Opioid-Involved Morbidity and Mortality (ESOOS), and Opioid Prevention in States - Surge Support (OPIS-S2) programs. PFS and DDPI awards are mutually exclusive, but ESOOS and OPIS-S2 awards are not, meaning there is an overlap in number of awards.

³ FYs 2019 and 2020 reflect the new funding structure that combines the previously separate prevention and surveillance programs into one program. The number of eligible jurisdictions will increase from FY2018, lowering the estimated average award amount.

State Table: Core State Injury Program^{1,2,3,4}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$0	\$0	\$0	\$0
Alaska	\$0	\$0	\$0	\$0
Arizona	\$250,000	\$250,000	\$250,000	\$0
Arkansas	\$0	\$0	\$0	\$0
California	\$0	\$0	\$0	\$0
Colorado	\$475,000	\$475,000	\$475,000	\$0
Connecticut	\$0	\$0	\$0	\$0
Delaware	\$0	\$0	\$0	\$0
Florida	\$0	\$0	\$0	\$0
Georgia	\$249,999	\$249,999	\$249,999	\$0
Hawaii	\$250,000	\$250,000	\$250,000	\$0
Idaho	\$0	\$0	\$0	\$0
Illinois	\$249,989	\$249,989	\$249,989	\$0
Indiana	\$0	\$0	\$0	\$0
Iowa	\$0	\$0	\$0	\$0
Kansas	\$0	\$0	\$0	\$0
Kentucky	\$399,997	\$399,997	\$399,997	\$0
Louisiana	\$250,000	\$250,000	\$250,000	\$0
Maine	\$0	\$0	\$0	\$0
Maryland	\$475,000	\$475,000	\$475,000	\$0
Massachusetts	\$475,000	\$475,000	\$475,000	\$0
Michigan	\$250,000	\$250,000	\$250,000	\$0
Minnesota	\$248,384	\$248,384	\$248,384	\$0
Mississippi	\$0	\$0	\$0	\$0
Missouri	\$0	\$0	\$0	\$0
Montana	\$0	\$0	\$0	\$0
Nebraska	\$250,000	\$250,000	\$250,000	\$0
Nevada	\$0	\$0	\$0	\$0
New Hampshire	\$0	\$0	\$0	\$0
New Jersey	\$0	\$0	\$0	\$0
New Mexico	\$0	\$0	\$0	\$0
New York	\$250,000	\$250,000	\$250,000	\$0
North Carolina	\$325,000	\$325,000	\$325,000	\$0
North Dakota	\$0	\$0	\$0	\$0
Ohio	\$250,000	\$250,000	\$250,000	\$0
Oklahoma	\$250,000	\$250,000	\$250,000	\$0
Oregon	\$250,000	\$250,000	\$250,000	\$0
Pennsylvania	\$0	\$0	\$0	\$0
Rhode Island	\$250,000	\$250,000	\$250,000	\$0
South Carolina	\$0	\$0	\$0	\$0
South Dakota	\$0	\$0	\$0	\$0
Tennessee	\$250,000	\$250,000	\$250,000	\$0
Texas	\$0	\$0	\$0	\$0
Utah	\$250,000	\$250,000	\$250,000	\$0
Vermont	\$0	\$0	\$0	\$0
Virginia	\$250,000	\$250,000	\$250,000	\$0
Washington	\$325,000	\$325,000	\$325,000	\$0
West Virginia	\$0	\$0	\$0	\$0
Wisconsin	\$250,000	\$250,000	\$250,000	\$0
Wyoming	\$0	\$0	\$0	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Territories				
American Samoa	\$0	\$0	\$0	\$0
Guam	\$0	\$0	\$0	\$0
Marshall Islands	\$0	\$0	\$0	\$0
Micronesia	\$0	\$0	\$0	\$0
Northern Mariana Islands	\$0	\$0	\$0	\$0
Puerto Rico	\$0	\$0	\$0	\$0
Republic Of Palau	\$0	\$0	\$0	\$0
Virgin Islands	\$0	\$0	\$0	\$0
Total Resources	\$6,723,369	\$6,723,369	\$6,723,369	\$0

¹ CFDA NUMBER: 93.136 Discretionary

² This state table is a snapshot of selected programs that fund states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://www.cdc.gov/Fundingprofiles/FundingProfilesRIA/>

³ All Core SVIPP grantees receive base funding for the program. A select group of states also receive funding for two enhanced components: a) Regional Network Coordinating Organization (Colorado, Maryland, Massachusetts, North Carolina, and Washington), and b) Surveillance Quality Improvement (Colorado, Kentucky, Maryland, and Massachusetts). For more information on these additional components, please go to <https://www.cdc.gov/injury/stateprograms/>

⁴ FY2020 will be the final year of the funding opportunity cycle. Award amounts are estimates. A new funding opportunity cycle will begin in FY2021.

State Table: Rape Prevention and Education^{1,2,3}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$632,652	\$632,652	\$632,652	\$0
Alaska	\$255,924*	\$255,924	\$255,924	\$0
Arizona	\$788,146	\$788,146	\$788,146	\$0
Arkansas	\$460,301	\$460,301	\$460,301	\$0
California	\$3,679,955*	\$3,679,955	\$3,679,955	\$0
Colorado	\$569,939*	\$569,939	\$569,939	\$0
Connecticut	\$520,046*	\$520,046	\$520,046	\$0
Delaware	\$273,603	\$273,603	\$273,603	\$0
District of Columbia	\$246,622	\$246,622	\$246,622	\$0
Florida	\$1,954,109	\$1,954,109	\$1,954,109	\$0
Georgia	\$1,094,204	\$1,094,204	\$1,094,204	\$0
Hawaii	\$316,531	\$316,531	\$316,531	\$0
Idaho	\$336,395	\$336,395	\$336,395	\$0
Illinois	\$1,374,692	\$1,374,692	\$1,374,692	\$0
Indiana	\$791,067	\$791,067	\$791,067	\$0
Iowa	\$472,594	\$472,594	\$472,594	\$0
Kansas	\$454,226	\$454,226	\$454,226	\$0
Kentucky	\$553,068	\$553,068	\$553,068	\$0
Louisiana	\$610,872	\$610,872	\$610,872	\$0
Maine	\$312,595	\$312,595	\$312,595	\$0
Maryland	\$725,943	\$725,943	\$725,943	\$0
Massachusetts	\$798,703*	\$798,703	\$798,703	\$0
Michigan	\$1,103,565	\$1,103,565	\$1,103,565	\$0
Minnesota	\$683,081*	\$683,081	\$683,081	\$0
Mississippi	\$464,278	\$464,278	\$464,278	\$0
Missouri	\$744,668	\$744,668	\$744,668	\$0
Montana	\$282,039	\$282,039	\$282,039	\$0
Nebraska	\$359,774	\$359,774	\$359,774	\$0
Nevada	\$442,076	\$442,076	\$442,076	\$0
New Hampshire	\$311,726*	\$311,726	\$311,726	\$0
New Jersey	\$981,346*	\$981,346	\$981,346	\$0
New Mexico ⁵	\$380,391	\$380,391	\$380,391	\$0
New York	\$1,985,547*	\$1,985,547	\$1,985,547	\$0
North Carolina	\$956,472	\$956,472	\$956,472	\$0
North Dakota	\$253,259	\$253,259	\$253,259	\$0
Ohio	\$1,256,760	\$1,256,760	\$1,256,760	\$0
Oklahoma	\$538,990	\$538,990	\$538,990	\$0
Oregon	\$547,719	\$547,719	\$547,719	\$0
Pennsylvania	\$1,393,715	\$1,393,715	\$1,393,715	\$0
Rhode Island	\$287,128	\$287,128	\$287,128	\$0
South Carolina	\$622,207	\$622,207	\$622,207	\$0
South Dakota	\$265,823	\$265,823	\$265,823	\$0
Tennessee	\$780,378	\$780,378	\$780,378	\$0
Texas	\$2,553,898	\$2,553,898	\$2,553,898	\$0
Utah	\$449,509*	\$449,509	\$449,509	\$0
Vermont	\$247,589	\$247,589	\$247,589	\$0
Virginia	\$935,186	\$935,186	\$935,186	\$0
Washington	\$819,574*	\$819,574	\$819,574	\$0
West Virginia	\$360,683	\$360,683	\$360,683	\$0
Wisconsin	\$717,463	\$717,463	\$717,463	\$0

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wyoming	\$241,354	\$241,354	\$241,354	\$0
Territories				\$0
American Samoa	\$0	\$0	\$0	\$0
Guam	\$44,875	\$44,875	\$44,875	\$0
Marshall Islands	\$0	\$0	\$0	\$0
Micronesia	\$0	\$0	\$0	\$0
Northern Mariana Islands	\$44,875	\$44,875	\$44,875	\$0
Puerto Rico	\$529,269*	\$529,269	\$529,269	\$0
Republic Of Palau	\$0	\$0	\$0	\$0
Virgin Islands	\$44,875	\$44,875	\$44,875	\$0
Subtotal States	\$38,336,413	\$38,336,413.00	\$38,336,413.00	\$0
Subtotal Territories	\$663,894	\$663,894.00	\$663,894.00	\$0
Total Resources	\$39,000,307	\$39,000,307	\$39,000,307	\$0

¹ CFDA NUMBER: 93.136 Discretionary

² This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <https://www.cdc.gov/fundingprofiles/>

³ A new Notice of Funding Opportunity, for which all U.S. states and territories are eligible, has been issued in FY 2019 and awards are pending. Funding is awarded by formula, and the new NOFO also offers an option to apply for competitive funding to support additional program evaluation. As such, FY 2019 and FY 2020 award projections are subject to change.

*Twelve states receive supplemental funding for evaluation activities in 2018. Starting in FY2019, certain states will receive funding for evaluation activities under Category B of the funding opportunity.

State Table: National Violent Death Reporting System^{1,2}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$318,224	\$318,224	\$318,224	\$0
Alaska	\$198,216	\$198,216	\$198,216	\$0
Arizona	\$361,628	\$361,628	\$361,628	\$0
Arkansas	\$263,123	\$263,123	\$263,123	\$0
California	\$942,085	\$942,085	\$942,085	\$0
Colorado	\$324,518	\$324,518	\$324,518	\$0
Connecticut	\$226,854	\$226,854	\$226,854	\$0
District of Columbia	\$178,398	\$178,398	\$178,398	\$0
Delaware	\$177,313	\$177,313	\$177,313	\$0
Florida	\$691,468	\$691,468	\$691,468	\$0
Georgia	\$423,111	\$423,111	\$423,111	\$0
Hawaii	\$189,575	\$189,575	\$189,575	\$0
Idaho	\$204,021	\$204,021	\$204,021	\$0
Illinois	\$460,379	\$460,379	\$460,379	\$0
Indiana	\$343,935	\$343,935	\$343,935	\$0
Iowa	\$232,662	\$232,662	\$232,662	\$0
Kansas	\$246,555	\$246,555	\$246,555	\$0
Kentucky	\$278,857	\$278,857	\$278,857	\$0
Louisiana	\$318,086	\$318,086	\$318,086	\$0
Maine ³	\$260,476	\$260,476	\$260,476	\$0
Maryland	\$449,773	\$449,773	\$449,773	\$0
Massachusetts	\$259,248	\$259,248	\$259,248	\$0
Michigan	\$424,950	\$424,950	\$424,950	\$0
Minnesota	\$271,572	\$271,572	\$271,572	\$0
Mississippi	\$255,229	\$255,229	\$255,229	\$0
Missouri	\$357,064	\$357,064	\$357,064	\$0
Montana	\$195,175	\$195,175	\$195,175	\$0
Nebraska	\$194,245	\$194,245	\$194,245	\$0
Nevada	\$267,984	\$267,984	\$267,984	\$0
New Hampshire	\$190,604	\$190,604	\$190,604	\$0
New Jersey	\$279,134	\$279,134	\$279,134	\$0
New Mexico	\$247,417	\$247,417	\$247,417	\$0
New York	\$458,404	\$458,404	\$458,404	\$0
North Carolina	\$414,140	\$414,140	\$414,140	\$0
North Dakota	\$176,151	\$176,151	\$176,151	\$0
Ohio	\$441,503	\$441,503	\$441,503	\$0
Oklahoma	\$303,637	\$303,637	\$303,637	\$0
Oregon	\$272,792	\$272,792	\$272,792	\$0
Pennsylvania	\$468,690	\$468,690	\$468,690	\$0
Puerto Rico	\$272,935	\$272,935	\$272,935	\$0
Rhode Island	\$175,996	\$175,996	\$175,996	\$0
South Carolina	\$310,478	\$310,478	\$310,478	\$0
South Dakota	\$184,173	\$184,173	\$184,173	\$0
Tennessee	\$351,681	\$351,681	\$351,681	\$0
Texas	\$761,508	\$761,508	\$761,508	\$0
Utah	\$258,243	\$258,243	\$258,243	\$0
Vermont ³	\$0	\$0	\$0	\$0
Virginia	\$345,871	\$345,871	\$345,871	\$0
Washington	\$323,065	\$323,065	\$323,065	\$0
West Virginia	\$228,720	\$228,720	\$228,720	\$0

CDC FY 2020 Congressional Justification

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wisconsin	\$302,738	\$302,738	\$302,738	\$0
Wyoming	\$175,686	\$175,686	\$175,686	\$0
Total Resources	\$16,258,289	\$16,258,289	\$16,258,289	\$0

¹ CFDA NUMBER: 93.136 Discretionary.

² This State Table is a snapshot of selected programs that fund states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit <http://wwwn.cdc.gov/Fundingprofiles/FundingProfilesRIA/>

³ Maine and Vermont are funded together, with Maine as the lead state under the award.

State Table: Opioid Abuse and Overdose Prevention Programs^{1,2}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Alabama	\$3,044,281	TBD	TBD	TBD
Alaska	\$4,260,531	TBD	TBD	TBD
Arizona	\$6,382,806	TBD	TBD	TBD
Arkansas	\$2,870,980	TBD	TBD	TBD
California	\$6,795,310	TBD	TBD	TBD
Colorado	\$4,806,474	TBD	TBD	TBD
Connecticut	\$5,791,357	TBD	TBD	TBD
Delaware	\$4,182,270	TBD	TBD	TBD
District of Columbia	\$4,516,383	TBD	TBD	TBD
Florida	\$2,387,011	TBD	TBD	TBD
Georgia	\$3,981,074	TBD	TBD	TBD
Hawaii	\$290,000	TBD	TBD	TBD
Idaho	\$3,109,837	TBD	TBD	TBD
Illinois	\$6,337,195	TBD	TBD	TBD
Indiana	\$6,345,334	TBD	TBD	TBD
Iowa	\$2,184,065	TBD	TBD	TBD
Kansas	\$3,543,911	TBD	TBD	TBD
Kentucky	\$7,978,660	TBD	TBD	TBD
Louisiana	\$4,047,702	TBD	TBD	TBD
Maine	\$4,844,284	TBD	TBD	TBD
Maryland	\$7,558,067	TBD	TBD	TBD
Massachusetts	\$7,975,713	TBD	TBD	TBD
Michigan	\$6,242,442	TBD	TBD	TBD
Minnesota	\$3,130,158	TBD	TBD	TBD
Mississippi	\$1,500,000	TBD	TBD	TBD
Missouri	\$3,250,746	TBD	TBD	TBD
Montana	\$2,417,896	TBD	TBD	TBD
Nebraska	\$3,588,249	TBD	TBD	TBD
Nevada	\$4,096,335	TBD	TBD	TBD
New Hampshire	\$4,002,527	TBD	TBD	TBD
New Jersey	\$5,304,990	TBD	TBD	TBD
New Mexico	\$6,531,935	TBD	TBD	TBD
New York	\$6,309,998	TBD	TBD	TBD
North Carolina	\$6,510,574	TBD	TBD	TBD
North Dakota	\$1,867,784	TBD	TBD	TBD
Ohio	\$8,378,369	TBD	TBD	TBD
Oklahoma	\$4,123,976	TBD	TBD	TBD
Oregon	\$4,629,853	TBD	TBD	TBD
Pennsylvania	\$7,434,529	TBD	TBD	TBD
Rhode Island	\$6,366,972	TBD	TBD	TBD
South Carolina	\$4,314,454	TBD	TBD	TBD
South Dakota	\$2,104,059	TBD	TBD	TBD
Tennessee	\$6,843,471	TBD	TBD	TBD
Texas	\$2,663,997	TBD	TBD	TBD
Utah	\$6,114,829	TBD	TBD	TBD
Vermont	\$4,696,965	TBD	TBD	TBD
Virginia	\$5,769,691	TBD	TBD	TBD
Washington	\$6,322,415	TBD	TBD	TBD
West Virginia	\$6,309,523	TBD	TBD	TBD
Wisconsin	\$5,363,349	TBD	TBD	TBD

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Wyoming	\$1,043,925	TBD	TBD	TBD
Territories				
Marshall Islands	\$200,000	TBD	TBD	TBD
Micronesia	\$1,437,107	TBD	TBD	TBD
Northern Mariana Islands	\$586,460	TBD	TBD	TBD
Puerto Rico	\$1,499,996	TBD	TBD	TBD
Subtotal States	\$228,828,582	TBD	TBD	TBD
Subtotal Territories	\$3,723,563	TBD	TBD	TBD
Total Resources	\$232,552,145	TBD	TBD	TBD

¹ This table combines all state opioid overdose prevention programs.

² The various prevention and surveillance programs will be replaced by one new comprehensive grant in FY 2019. Awards are estimated to be announced in late FY2019. Given the new funding structure, number of eligible jurisdictions (including localities), and formula, a funding breakdown for FY19 and FY20 cannot be approximated at this time.

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NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Discretionary Total ¹	\$334.067	\$336.300	\$190.000	-\$146.300
FTEs	1,080	1,080	1,080	0
Mandatory Programs Total	\$520.574	\$571.914	\$596.702	+\$24.788
Energy Employees Occupational Illness Compensation Program Act (EEOICPA)	\$50.431	\$55.358	\$55.358	\$0.000
World Trade Center Health Program (WTCHP) ¹	\$470.143	\$516.556	\$541.344	+\$24.788

¹ Reflects the federal share of WTCHP only. These amounts are based on trend analysis and are the best estimates at the time, but are subject to change.

Enabling Legislation Citation: PHSA § 301, PHSA § 304, PHSA § 306*, PHSA § 307, PHSA § 308(d), PHSA § 310, PHSA § 311, PHSA § 317, PHSA § 317A*, PHSA § 317B, PHSA § 319, PHSA § 327, PHSA § 352, PHSA § 399MM, PHSA § 1102, PHSA § 2695, Black Lung Benefits Reform Act of 1977 § 19 (Pub .L. 95-239), Bureau of Mine Act, as amended by PUB. L. 104-208, Energy Employees Occupational Illness Compensation Program Act of 2000, Federal Mine Safety and Health Act of 1977, PUB. L. 91-173 as amended by PUB. L. 95-164 and PUB. L. 109-236, Firefighter Cancer Registry Act of 2018 (Pub. L. 115-194), James Zadroga 9/11 Health And Compensation Reauthorization Act (2015), Division O, Title Iii (Pub. L. 114-113), Occupational Safety and Health Act of 1970 §§20–22, PUB. L. 91-596 as amended by PUB. L. 107-188 and 109-236 (29 U.S.C. 669–671), Radiation Exposure Compensation Act, §§ 6 and 12, Toxic Substances Control Act, PUB. L. 94-469 as amended by 102-550

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite

Allocation Methods: Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Contracts, Other

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

BY THE NUMBERS...

- **\$250 billion**—Annual cost of work-related fatalities, injuries, and illnesses in the U.S.¹
- **3.6 million**--Nonfatal injuries and illnesses reported by employers annually.²
- **2.7 million**--Workers treated for work-related injuries in emergency departments, resulting in **85,000** hospitalizations in 2017.
- **\$24 billion**—Cost of work-related falls in work loss, medical, legal, liability, and pain and suffering expenses.³
- **112,000**—Downloads of the NIOSH Ladder Safety Smartphone app. The app provides graphical guidance on safe ladder use and includes a patented innovation that allows users to set safe ladder angles more accurately and quickly than other methods.
- **99 percent**--Reduction in respirable silica dust emissions from sand movers from the CDC developed Mini-baghouse Retrofit Assembly, voluntarily adopted by the oil and gas industry.
- Almost **10,000**--underground and surface coal miners screened by NIOSH's mobile unit through its Coal Workers' Surveillance Program (CWHSP). CDC offers mobile screening to coal miners at no cost in coal-mining states in the U.S. The screenings include a work history questionnaire, a chest radiograph, a respiratory assessment questionnaire, and spirometry testing.
- **250**--Requests per year from employers and employees to the Health Hazard Evaluation Program (HHE) to assist in identifying and ameliorating health hazards in workplaces throughout the country. Follow-up activities indicate that **91 percent** of HHE participants believe that NIOSH HHEs helped improve workplace conditions.
- **1,150**--NIOSH staff with unique multidisciplinary expertise in biology, chemistry, industrial hygiene, engineering, occupational medicine, and other areas critical to protecting U.S. employers and workers from workplace injury, disease, and death.

*References:

¹ Leigh JP. Economic burden of occupational injury and illness in the United States. Milbank Q 2011;89:728–72. <https://www.ncbi.nlm.nih.gov/pubmed/22188353>

² Employer-reported workplace injuries and illnesses in 2015. Bureau of Labor Statistics. <https://www.bls.gov/news.release/pdf/osh.pdf>

³ US Consumer Product Safety Commission [2014].

*Unless otherwise noted, all information and calculations are from CDC program data.

CDC's Occupational Safety and Health Research protects the nation's 161 million workers and provides the only dedicated federal investment for research needed to prevent injuries and illnesses that cost the United States \$250 billion annually.¹³⁹ CDC/NIOSH is the only federal agency with an occupational safety and health research mission. Different than the regulatory approach to safety and health, NIOSH works cooperatively with employers and employees to adapt research findings into workable solutions. The National Institute for Occupational Safety and Health (NIOSH) was established by the Occupational Safety and Health Act of 1970 to generate new knowledge in occupational safety and health and to transfer that knowledge to employers and employees. Research efforts are aligned under the National Occupational Research Agenda (NORA), which is a public-private partnership that identifies critical needs and transfers scientific findings to keep people safe and healthy at work. CDC also receives mandatory funding for the Energy Employees Occupational Illness Compensation Program Act and the World Trade Center Health Program.

Budget Request

CDC's FY 2020 request of **\$190,000,000** in discretionary funding for NIOSH is \$146,300,000 below the FY 2019 Enacted level. NIOSH will continue to conduct intramural research to reduce worker illness and injury, and to advance worker well-being. NIOSH will not provide grants to states and academic centers for occupational safety and health research.

NIOSH uses a Burden, Need, and Impact¹⁴⁰ method to ensure accountability for appropriated dollars. Employer and employee needs for solutions drive CDC's Occupational Safety and Health Research. In FY 2020, CDC will address high priority occupational hazards in various industry sectors to address the specific problems for which research solutions are needed. Examples of high-priority occupational hazards include respirable dust in mining, falls in construction, cancer among firefighters, preparedness for emergency responders, chemical exposures and infectious diseases in healthcare workers, noise in manufacturing, lung diseases in oil and gas extraction, and motor vehicle crashes across all industries.

In FY 2020, CDC will conduct research, make evidence-based prevention recommendations, and use the interventions available to reduce hazardous exposures in the construction industry. Projects will cut across a number of important causes of construction worker injuries, disease, and deaths such as falls, electrical hazards, noise, and asphalt fumes. In mining, CDC will develop and make available new technologies and recommended practices that will reduce injuries and fatalities from machinery and rock falls, as well as exposures to harmful mine dusts, airborne pollutants, heat, and noise. CDC will work with mining partners to develop innovative control technologies and prevention practices.

CDC will also address emerging occupational safety and health issues that may require new approaches to prevention, such as worker exposure to opioids (such as law enforcement exposure to fentanyl), occupational use of robots, and nanotechnology. Employees within nanotechnology-related industries are potentially exposed to uniquely engineered materials with novel sizes, shapes, and physical and chemical properties. CDC will work with private sector partners to develop effective interventions to control worker exposure, with specific prevention recommendations for employers that will support responsible development of the technology, resulting in sustainable economic growth and job creation through increased investments in nanotechnology.

CDC field scientists will assess workplace hazards through Health Hazard Evaluations (HHEs) to determine if workers are being exposed to hazardous materials or harmful conditions and if these exposures are affecting employee health. HHEs are available as a frontline service provided by CDC by request from employers, employees, and employee representatives. CDC will also help keep Americans safe at work through Personal

¹³⁹ Leigh JP. Economic burden of occupational injury and illness in the United States. *Milbank Q* 2011;89:728–72. <https://www.ncbi.nlm.nih.gov/pubmed/22188353>

¹⁴⁰ <https://www.cdc.gov/niosh/programs/bni.html>

Protective Technology (PPT) research, criteria development, and conformity assessment including testing, quality, evaluation, and respirator approval activities.

National Institute For Occupational Safety and Health Discretionary Funding History	
Fiscal Year	Dollars (in millions)
2016	\$338.621
2017	\$334.405
2018	\$334.067
2019 Enacted	\$336.300
2020 President's Budget	\$190.000

Occupational Safety and Health Research Grants¹

(dollars in millions)	FY 2018 Final²	FY 2019 Enacted	FY 2020 President's Budget
Number of Awards	147	147	0
- New Awards	25	33	0
- Continuing Awards	122	114	0
Average Award	\$0.611	\$0.611	\$0.000
Range of Awards	\$0.016-\$5.750	\$0.016-5,570	\$0.000
Total Awards	\$90.094	\$90.094	\$0.000

¹ These funds are not awarded by formula.

² FY 2018 data reflects current estimates and is subject to change.

Energy Employees Occupational Illness Compensation Program Act (EEOICPA) Budget Request

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
EEOICPA – Mandatory ¹	\$50.431	\$55.358	\$55.358	\$0.000

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) is a mandatory federal program that provides compensation to U.S. Department of Energy employees or survivors of employees who have been diagnosed with a radiation-related cancer, beryllium-related disease, or chronic silicosis because of their work in producing or testing nuclear weapons. CDC conducts dose reconstructions to estimate an employee’s occupational radiation exposure for certain cancer cases, evaluates petitions for adding classes of workers to the Special Exposure Cohort (SEC), and provides administrative support to the Advisory Board on Radiation and Worker Health (Advisory Board). The U.S. Department of Labor uses CDC's estimates in making compensation determinations. In FY 2018, CDC:

- Completed 2,400 dose reconstructions.
- Received eight SEC petitions.
- Supported 23 meetings of the Advisory Board, its Subcommittees, and Work Groups.
- Informed recommendations of the Advisory Board, which prompted the HHS Secretary to add three classes of employees to the SEC, bringing the total number of classes added as of September 30, 2018 to 124.

CDC’s FY 2020 estimate of **\$55,358,000** in mandatory funding for EEOICPA is level with the FY 2019 Enacted level. As mandated by EEOICPA, CDC will use this funding to:

- Complete 2,400 radiation dose reconstructions to support the U.S. Department of Labor's adjudication of claims.
- Evaluate an estimated 10 petitions to add classes of employees to the Special Exposure Cohort.
- Provide administrative and technical support for the Advisory Board as it reviews technical documents and procedures used for dose reconstruction.
- Publicize—to the extent possible—acquired information related to radiation exposure at facilities involved with nuclear weapons production, testing, and disposal.

In accordance with EEOICPA, in FY 2020, CDC will complete radiation dose reconstructions for all claims requiring such information to permit final adjudication of the claim. CDC will use radiation monitoring information provided by the U.S. Department of Energy and any relevant information provided by claimants to develop a dose reconstruction report. The number of dose reconstructions completed each year has stabilized at approximately 2,400.

CDC will also evaluate petitions to add classes of employees to the SEC and present the evaluation reports to the Advisory Board, which makes recommendations to the HHS Secretary concerning whether a class of employees should be added to the SEC. SEC-related work has increased in response to the need to conduct more long-term evaluations, consider multiple classes of workers included in an individual petition, and re-evaluate previous petitions/reports as new information becomes available. CDC will engage the Advisory Board to assist in reviewing SEC evaluation reports and the scientific validity and quality of dose reconstruction efforts.

World Trade Center Health Program Budget Request^{1,2}

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
World Trade Center – Mandatory	\$470.143	\$516.556	\$541.344	+\$24.788

¹ The FY 2020 WTC Health Program amount is an estimate that may be revised during FY20 planning process.

² Reflects the federal share of WTC Health Program only. These amounts are based on trend analysis and are the best estimates at the time but are subject to change.

The September 11, 2001 terrorist attacks in New York City, at the Pentagon in Arlington, Virginia, and in Shanksville, Pennsylvania, required extensive response, recovery, and cleanup activities. Thousands of responders and survivors were exposed to toxic smoke, dust, debris, and psychological trauma. The James Zadroga 9/11 Health and Compensation Act of 2010 (P.L. 111-347) created the World Trade Center (WTC) Health Program to provide healthcare benefits to eligible responders and survivors beginning on July 1, 2011. On December 18, 2015, the James Zadroga 9/11 Health and Compensation Reauthorization Act was enacted, extending the WTC Health Program through 2090. Pursuant to this statute, the WTC Health Program provides monitoring and treatment benefits to eligible responders and survivors, conducts research on WTC-related health conditions, and maintains a health registry to collect data on those affected by the September 11, 2001 terrorist attacks. As of September 30, 2018, the WTC Health Program enrollment included 90,643 eligible responders and survivors. The Program has paid claims for eligible treatment, including medication, for more than 28,989 of these responders and survivors in the past year.

WTC Health Program Enrollment

	Sept. 30, 2017	Dec. 31, 2017	March 31, 2018	June 30, 2018	Sept. 30, 2018
New Members since July 2011 ¹	21,224	22,957	25,364	27,531	29,690
Total Members ²	82,190	83,920	86,324	88,484	90,643

¹New members enrolled under the Zadroga Act requirements (adjustments are made each quarter to account for member records changes), including Pentagon and Shanksville, PA.

²New members and members enrolled prior to 7/1/2011 (adjustments are made each quarter to account for member records changes).

WTC Health Program Paid Claims

Healthcare Services ¹	Sept. 30, 2017	Dec. 31, 2017	March 31, 2018	June 30, 2018	Sept. 30, 2018
Members who had monitoring or screening exams	34,002	34,595	34,552	34,213	34,263
Members who had diagnostic evaluations ²	21,547	22,342	23,379	23,826	23,237
Members who had out-patient treatment	19,792	20,276	21,362	22,591	23,564
Members who had in-patient treatment	686	716	723	804	877
Members who received medications	22,535	22,971	23,434	23,822	24,197

¹ Based on claims for services that were paid during the previous 12-month period

² For determining if a member has a WTC-related health condition and for certifying that health condition.

CDC's FY 2020 estimate of **\$541,344,000** in mandatory Federal share funding for the WTC Health Program is \$24,788,000 above the estimated FY 2019 level. Funds support the quality care, including treatment, of covered WTC-related health conditions for enrolled responders and survivors. Including New York City's required contribution of \$60,149,000, a total of \$601,494,000 in resources will support the WTC Health Program in FY 2020. Through September 2018, the WTC Health Program has certified 12,845 cancer cases, which is an increase of 3,642 cases over the past year. Of those members certified for at least one type of cancer, more than 6,500 members received cancer care in FY 2018 compared to approximately 4,900 in FY 2017.

Mandatory funding will support:

- Monitoring and treatment services, including services for certain types of cancer, for responders and survivors in the WTC Health Program.
- Infrastructure for the Clinical Centers of Excellence (CCEs) and the Nationwide Provider Network (NPN) to support clinical activities.
- Infrastructure for data centers.
- Extramural research projects.
- Outreach and education projects.
- WTC Health Registry activities.
- WTC Health Program Scientific/Technical Advisory Committee.

The WTC Health Program provides monitoring and treatment services via a fee-for-service model of delivery. These services are provided at no cost to the WTC Health Program members. Where applicable, the WTC Health Program recoups money from Workers' Compensation for work-related health conditions. Similarly, the WTC Health Program seeks to coordinate benefits with public and private health insurance plans for treatment provided for WTC-related health conditions that are not work-related. In FY 2020, CDC will continue contracts with CCEs and the NPN to provide administrative and member services that support the provision of healthcare benefits, and contracts with data centers to provide data collection and analysis. CDC will also renew the interagency agreement with the Centers for Medicare and Medicaid Services to reimburse the CCEs and the NPN for clinical services provided to the WTC Health Program members. The WTC Health Program provides healthcare benefits through CCEs, which work as a clinical consortium, and through the NPN according to standardized medical monitoring protocols and programmatic policies and procedures across the clinical sites. This standardization and the fee-for-service model enable the WTC Health Program to track claims-level data for monitoring and treatment, analyze the data for program compliance, and report on spending at a more detailed level across the WTC Health Program. The WTC Health Program also engages with labor representatives and members of the New York City community to ensure awareness of emerging issues.

CDC will use FY 2020 funds to continue research projects and epidemiologic studies to help answer critical questions about physical and mental health conditions related to the September 11, 2001 terrorist attacks. Additionally, a portion of the FY 2020 funds will continue the cooperative agreement with the New York City Department of Health and Mental Hygiene for the WTC Health Registry to conduct regular surveys on over 71,000 registrants. The WTC Health Registry's analysis of these surveys will continue to help assess health effects among persons impacted by exposures to the WTC disaster.

Funds will also support the WTC Health Program Scientific/Technical Advisory Committee. Upon request from the Administrator of the WTC Health Program, the Advisory Committee will make recommendations regarding additional eligibility criteria, the addition of new health conditions to the list of covered conditions, and research priorities.

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GLOBAL HEALTH

(dollars in millions)	FY 2018 Level	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Total Request	\$494.557	\$495.843	\$456.984	-\$38.859
FTEs	1,280	1,280	1,280	0
Global HIV/AIDS	\$127.985	\$128.421	\$69.547	-\$58.874
Global Tuberculosis ¹	\$7.222	\$7.222	\$7.222	\$0.000
Global Immunization	\$225.233	\$226.000	\$206.000	-\$20.000
Parasitic Diseases and Malaria	\$25.917	\$26.000	\$24.453	-\$1.547
Global Disease Detection and Other Programs	\$108.200	\$108.200	\$149.762	+\$41.562
<i>Global Health Security (non-add)</i>	<i>\$50.000</i>	<i>\$50.000</i>	<i>\$99.762</i>	<i>+\$49.762</i>

¹FY 2018 and FY 2019 amounts are comparably adjusted to reflect proposed \$7.222 million transfer from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to Global Tuberculosis in the Global Health account.

Enabling Legislation Citation:

PHSA § 301, PHSA § 304, PHSA § 307, PHSA § 310, PHSA § 319, PHSA § 327, PHSA § 340C, PHSA § 361-369, PHSA § 2315, PHSA § 2341, Federal Employees International Organization Service Act § 3, Foreign Assistance Act of 1961 § 104, Foreign Assistance Act of 1961 § 627, Foreign Assistance Act of 1961 § 628, Foreign Employees Compensation Program, PEPFAR Stewardship & Oversight Act of 2013 (Pub. L. 113-56), Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria (Pub. L.115-305), Section 212 of the Consolidated Appropriations Act, 2018 (Pub. L, 115-141, Division H)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants/Cooperative Agreements, Direct Contracts, Interagency Agreements

CDC’s mission is to protect the health of Americans, including by working across the globe to stop diseases where they occur. CDC supports global efforts to detect epidemic threats earlier, respond more effectively, and prevent avoidable catastrophes—supporting CDC’s overarching goal of ensuring global health security, while building domestic defense against health threats. With scientists and health experts embedded in countries around the globe, CDC is strengthening global public health preparedness and response capacity for outbreak and epidemic control and improving health outcomes in partner countries. These forward-deployed staff are first responders, America’s first line of defense to protect Americans when infectious disease outbreaks or other public health emergencies strike.

CDC's FY 2020 request of **\$456,984,000** for Global Health is \$38,859,000 below the FY 2019 Enacted level. It also includes \$7,222,000 for Global Tuberculosis (TB), transferred from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to continue global TB activities.

Global Health Security

Of the total funding for Global Disease Detection and Other Programs, \$99,762,000 is dedicated to Global Health Security activities, an increase of \$49,762,000 above the FY 2019 Enacted level for these activities, to protect Americans through activities that support public health capacity improvement in countries at risk from uncontrolled outbreaks of infectious diseases. Investing in global health security programs helps protect Americans from the next, inevitable emerging disease threat and safeguards against future epidemics.

GLOBAL HEALTH

BY THE NUMBERS...

- **8.21 million**—People receiving life-saving antiretroviral treatment (ART) from CDC in FY 2018, over half of the 14.6 million people receiving ART support through PEPFAR.¹
- **6.5 million**—CDC supported TB screenings, through PEPFAR, for people living with HIV in 2018. TB is the number one killer of people living with HIV.²
- **1,700**—Travelers each year who become infected with malaria abroad and then return to the U.S. CDC protects people living in America from the threat posed by imported malaria.³
- **28**—Polio cases as of November 24, 2018. Since CDC and partners began to work towards eradication, polio cases have decreased from more than 350,000 per year in 1988. While three countries remain endemic for polio (Afghanistan, Pakistan, and Nigeria), only Afghanistan and Pakistan have reported wild poliovirus cases since 2016, and CDC works closely with them to implement program improvements to achieve final eradication.⁴
- **2,250**—Outbreak responses supported by CDC’s strategically-placed Global Disease Detection Centers including SARS, polio, MERS, cholera, Nipah virus, Ebola, and Zika. These centers have also assisted in the detection and identification of 11 novel strains and pathogens.⁵
- CDC’s Field Epidemiology Training Program (FETP) has trained disease detectives in over 70 countries since 1980.
 - **12,000**—Disease detectives trained by FETP.
 - **80 percent**—Proportion of graduates who continue to work in their home countries.
 - **4,000**—Outbreaks investigated by FETP-trained disease detectives since 2005.⁶

*References:

¹ HIV & Tuberculosis. (2019, January 15). From <https://www.cdc.gov/globalhivtb/who-we-are/about-us/globalhiv/globalhiv.html>.

² DGHT Tuberculosis Factsheet (2019, January 15). From <https://www.cdc.gov/globalhivtb/images/DGHT-TB-Factsheet.pdf>.

³ Mace, K. E. (2017, June 21). Malaria Surveillance - United States, 2014. December 28, 2017, <http://dx.doi.org/10.15585/mmwr.ss6612a1>

⁴ This Week. (n.d.). Retrieved November 27, 2018, from <http://polioeradication.org/polio-today/polio-now/this-week/>.

⁵ GDD CENTERS ACCOMPLISHMENTS: 2016 AND CUMULATIVE (2017, August 08). Retrieved December 28, 2017, from https://www.cdc.gov/globalhealth/healthprotection/gdd/pdf/gdd_accomplishments_ytd_and_cumulative.pdf.

⁶ Global Health Security: Stopping Outbreaks Globally to Protect Americans Locally (August 2018). Retrieved November 30, 2018 from <https://www.cdc.gov/globalhealth/healthprotection/resources/pdf/Global-Health-Security-infographic-P.pdf>.

*Unless otherwise noted, all information and calculations are from CDC program data.

Global Health Funding History¹	
Fiscal Year	Dollars (in millions)
2016	\$446.517
2017	\$426.621
2018 Final	\$494.557
2019 Enacted	\$495.843
2020 President's Budget	\$456.984

¹FY 2018 Final and FY 2019 Enacted amounts are comparably adjusted to reflect \$7.222 million movement from Tuberculosis in the HIV/AIDS, Viral Hepatitis, STI and TB Prevention account to Global Tuberculosis in the Global account.

Global HIV/AIDS Budget Request

HIV remains a leading cause of death in many countries as well as a leading cause of mortality among women of reproductive age. Globally, there are 36.7 million people living with HIV, with nearly 5,000 new infections each day. Continued work to control the HIV epidemic will reduce the number of new infections and total number of persons living with HIV, and in turn, save lives and decrease future costs of the epidemic.

CDC plays an essential role in combatting HIV by using data and science to drive rapid changes in practice to accomplish the most efficient, high impact public health results. Serving more than 45 countries and regions in Africa, Asia, Central America, and the Caribbean, CDC provides HIV scientific and programmatic support, leadership, and mentoring. CDC's critical HIV laboratory capacity and scientific expertise also provides significant innovations in laboratory diagnostics and testing, as well as scientific leadership. Celebrating its 15th year as a primary implementer¹⁴¹ of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), CDC supports strong international HIV programs and public health systems that can effectively lead a country's sustainable response to the epidemic, and to other global health threats, ultimately protecting Americans at home. CDC leverages its public health science expertise, and its long-standing partnerships with ministries of health, community organizations, and other global partners to establish country-driven programs and systems that focus on ensuring evidence-based decision making through high-quality HIV monitoring and evaluation.

The U.S. government's support of life-saving antiretroviral therapy (ART) and large-scale implementation of combination prevention programs saves lives, prevents new infections, improves health, and protects families and communities. Through PEPFAR, CDC, in collaboration with ICAP at Columbia University, led the Population-based HIV Impact Assessments (PHIAs), which directly measured reductions in new HIV infections and high rates of viral load suppression at a national level, while also identifying sub-populations yet to be fully reached. The PHIA results affirm that global efforts to end HIV are working. CDC, through its work with PEPFAR, global partners, and in-country partners has helped reduce AIDS-related deaths by nearly half since 2005. CDC has done this by focusing on accountability, quality, and the use of data to improve decision-making and program focus. In 2017, as a key driver of U.S. progress through PEPFAR, CDC was responsible for:

- Life-saving antiretroviral treatment for 8.21 million men, women, and children, of the 13.3 million supported by PEPFAR.
- Voluntary medical male circumcision procedures for 1.9 million men, of the 3.7 million supported by PEPFAR.
- Quality test results from 11,454 laboratory and point-of-care testing sites enrolled in a continuous quality improvement program supported by PEPFAR.

Budget Request

CDC's FY 2020 request of **\$69,547,000** for Global HIV/AIDS is \$58,874,000 below the FY 2019 Enacted Level. At this funding level, CDC will continue to support program implementation and scientific and technical experts at headquarters and in the field with concentrated efforts on countries, populations, and programs where resources will have the greatest public health impact. CDC will also optimize staffing and technical resources to address the highest-priority global HIV needs, and ensure that ongoing activities are consistent with overall PEPFAR priorities. To achieve transformative epidemic impact, CDC will work with 13 priority countries closest to reaching epidemic control. In these countries, CDC will provide a targeted public health response through:

- Focused case finding through testing family members and partners of those receiving HIV services.
- Introducing rapid recency testing that informs providers how recently someone was infected with HIV.
- Health information systems that consolidate data from multiple sources allowing stronger analysis to inform decision making.

¹⁴¹ <http://www.cdc.gov/globalhivtb/>

- Monitoring sentinel events and detecting transmission cycles through case-based surveillance.

CDC will provide technical support to countries to sustain current levels of treatment and voluntary medical male circumcision, two interventions that decrease HIV incidence. CDC continues to focus on achieving epidemic control. Specifically, CDC will work to rapidly achieve sustained epidemic control in countries over the next three to four years to produce cost-savings that can be repurposed to other critical countries in future years. CDC will continue targeted expansion of annual viral load testing services, which measure the effectiveness of HIV treatment for individuals on PEPFAR-supported antiretroviral therapy. In FY 2020, CDC will continue to promote country support of more effective and efficient service delivery. This includes immediate treatment for HIV-positive persons upon diagnosis which saves lives and prevents new infections. Tuberculosis (TB) remains the number one cause of death for those living with HIV. Therefore, CDC will continue to support the PEPFAR effort to increase the number of people living with HIV on TB preventive treatment.

Data-Driven Implementation for Rapid Program Improvement

CDC uses data to promote evidence-based program planning, impact, sustainability, and accountability through innovative methods. CDC, in collaboration with partners, is leading HIV focused population surveys, sometimes referred to as Population-based HIV Impact Assessments (PHIA). These surveys are used to monitor performance, measure impact, provide needed data to inform and drive rapid change, and have often measured reductions in new HIV infections and high rates of viral load suppression at a national level. To date, eleven surveys have been completed and show that there are still significant gaps to reach men and young persons. People in this group feel well and do not seek treatment or are unaware of the need for treatment. In FY 2020, CDC will continue to use these data to inform rapid change in programs to include intensive case finding and immediate initiation of treatment for men and young women, while improving treatment initiation and retention of children living with HIV.

Essential Public Health Platforms Expertise

Two essential elements to any public health platform are laboratories and surveillance. Laboratories are vital to an effective response to HIV and other public health threats. CDC supports HIV research and innovation activities, including the detection and study of drug resistance and the development of new, superior HIV testing technologies that can be used both domestically and internationally. CDC developed and implemented Dried Tube Specimen (DTS) technology, used globally for the development of safe, cost-efficient proficiency testing materials to assure the quality and accuracy of HIV rapid tests. CDC also developed a low-cost laboratory-based assay that distinguishes between recent and long-term HIV infections and is used to estimate HIV-1 incidence. CDC has continued to innovate this technology to a rapid, point of care HIV test that can simultaneously diagnose HIV infection and distinguish between recent and long-term infection. In FY 2020, CDC will strategically focus its support of country-driven efforts to provide quality diagnostic services for prevention, surveillance, and treatment programs across diseases. Surveillance helps determine what is happening on the ground and what interventions might work. These data provide information about behavior, incidence, prevalence, and mortality in population's pre- and post- HIV diagnosis. CDC's surveillance activities are a primary driver of decisions for the program. CDC is the lead supporting author of the WHO Biobehavioral Survey Guidelines, which provide global guidance on surveying those most difficult to sample. In FY 2020, CDC will focus on priority surveillance and health information systems, at a reduced level.

Global Tuberculosis

Tuberculosis (TB) is the world's deadliest infectious disease. Each year TB claims 1.7 million lives. 2 billion people, one quarter of the world's population, are infected with TB. In particular, multidrug-resistant TB (MDR-TB) must be met with a coordinated and focused global response, as global reduction in TB will reduce rates here in the United States.

The rate of decline in global TB incidence has stalled. In 2017, 10 million people fell ill from TB and 1.6 million people died, which is the equivalent of nearly 4,400 people dying of TB every day. Even more threatening is MDR-TB, or TB that has become resistant to treatment with at least two of the most powerful first-line anti-TB drugs. It is estimated that only one in five people eligible for MDR-TB treatment are on treatment, which allows for further spread of the disease. There are three key factors continuing to drive the epidemic: (1) undiagnosed TB, (2) low resourced TB control programs and associated breakdowns in healthcare infrastructure, and (3) the HIV epidemic.

Budget Request

CDC's FY 2020 request of **\$7,222,000** for Global Tuberculosis (TB) is level with the FY 2019 Enacted level. In FY 2020, CDC proposes to consolidate its Global TB funding within the Center for Global Health's Division of Global HIV/AIDS to better coordinate Global TB activities across the agency and leverage resources for maximum impact. These funds, \$7,222,000, will be realigned from the HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections, and Tuberculosis budget to the Global Health budget. This reflects the programmatic consolidation of CDC's global TB activities which occurred in FY 2017. This consolidation has maximized CDC's impact on TB at home and overseas by better providing a single interface and coordination point focused on global TB activities.

In FY 2020, CDC's Global TB activities will focus on the following priorities:

- **Find:** improve case-finding approaches, particularly for high-risk populations, and improve diagnostic algorithms to optimize use of new and existing diagnostics.
 - CDC is the only U.S. government agency partnering with countries and WHO to conduct TB prevalence and drug resistance surveys to document the global burden of disease, allowing countries to better target their health interventions and efforts.
- **Cure:** optimize TB and MDR-TB treatment regimens; improve linkage to care and treatment, especially among people living with HIV; improve treatment adherence and cure rates among patients with drug-resistant TB; and assess costs to patients and barriers to care.
- **Prevent:** implement effective TB infection control practices in health facilities and congregate settings; scale-up preventive treatment for people living with HIV, young children, and those with compromised immune systems.
- **Sustain:** scale-up laboratory external quality assurance systems and training; strengthen surveillance systems to improve TB and MDR-TB burden estimates and track program performance; train ministry of health and national TB program staff on critical technical and programmatic areas, including infection control, diagnostics and quality assurance, data management, and operational research.
 - CDC's TB Reference Lab provides expert technical assistance to National TB Programs and National TB Reference Laboratories to ensure the efficiency of diagnostic networks and accuracy of laboratory and point of care testing, in-house quality assurance testing, and determination of TB drug resistance patterns.

Global Immunization Budget Request

Vaccines are one of the most cost effective lifesaving public health interventions. Although strong immunization programs in the United States have reduced the domestic disease burden and remain critical to keeping Americans safe and healthy, Americans remain at risk from other imported vaccine-preventable diseases (VPDs), such as polio and measles. CDC's global immunization activities focus on people in developing countries who are at the highest risk for illness and death from VPDs in order to stop these diseases before they reach our borders. CDC's global immunization program plays an essential role in identifying where VPDs emerge and teaches other nations the basic skills needed to control disease outbreaks at the source.

In 2015, the United States experienced a large, multi-state measles outbreak. 125 cases in eight states were linked to an amusement park in California¹⁴². Analysis by CDC laboratories identified the measles virus type in this outbreak as identical to the virus type that caused a large measles outbreak in the Philippines in 2014.¹⁴³ Nearly all measles cases in the United States are caused by international importation of the measles virus as measles has been eliminated from the United States since 2000.¹⁴⁴

In addition to causing disease and death, VPD outbreaks are expensive to state and local health departments and the U.S. healthcare system. For example, a CDC analysis published in 2013 found that the economic burden on just local and state public health institutions that dealt with measles outbreaks during 2011 ranged from an estimated \$2.7 million to \$5.3 million in total costs.¹⁴⁵ Overall, the cost to local health departments to investigate an outbreak of VPDs is approximately \$50,000 to \$100,000 per case.¹⁴⁶

Budget Request

CDC's FY 2020 request of **\$206,000,000** for Global Immunization is \$20,000,000 below the FY 2019 Enacted level. CDC, as a part of the Global Polio Eradication Initiative, is committed to the global eradication of polio and robust control of VPDs. Worldwide polio eradication is estimated to save up to \$50 billion by 2035 in costs associated with polio treatment, immunization programs, and lost productivity.¹⁴⁷ As of July 24, 2018, the annual case count for polio was 13.

In FY 2020, CDC will strategically target its core VPD activities, such as measles and rubella elimination, to countries with the highest disease burden. At this funding level, CDC will continue to support scientific and technical experts at CDC headquarters and in the field to respond to VPD outbreaks at a reduced level.

In FY 2020, CDC will focus its polio eradication efforts on core public health activities that align with CDC's mission and use proven interventions to move towards global eradication to ensure Americans are no longer at risk from this deadly disease.

Polio Eradication

CDC is the U.S. lead for scientific and technical efforts in polio eradication. CDC's leadership and guidance in accountability, environmental surveillance, and scientific and programmatic implementation has contributed substantially to the more than 99.9% decline in global and U.S. polio cases. However, to achieve and maintain worldwide polio eradication, CDC and its partners must minimize the risk of poliovirus reintroduction to areas declared polio-free through dedicated, ongoing surveillance. In FY 2020, CDC will conduct surveillance of polio viruses designed to ensure prompt detection that would prevent potential outbreaks of paralytic polio disease, but will have limited capacity to verify interruption of virus circulation in high-risk countries. CDC will continue

¹⁴² www.cdc.gov/mmwr/preview/mmwrhtml/mm6414a1.htm

¹⁴³ <http://www.cdc.gov/measles/cases-outbreaks.html>

¹⁴⁴ <http://www.cdc.gov/measles/downloads/report-elimination-measles-rubella-crs.pdf>

¹⁴⁵ <https://www.ncbi.nlm.nih.gov/pubmed/24135574>

¹⁴⁶ <https://www.ncbi.nlm.nih.gov/pubmed/24135574>

¹⁴⁷ <https://www.ncbi.nlm.nih.gov/pubmed/21029809>

collaboration with public-private partners and ministries of health intended to provide epidemiologic, laboratory, and programmatic support in developing, monitoring, and evaluating programs and national level surveillance. CDC will continue its activities in quality assurance, diagnostic confirmation, and genomic sequencing of samples obtained worldwide; as well as to promote national ownership, oversight, and accountability.

Assuming wild poliovirus circulation interruption in FY 2020, CDC will also begin executing polio legacy transition planning, which seeks to sustain functions that are essential to maintaining a polio-free world. These efforts include ensuring routine polio vaccination, vaccine stockpile, and ongoing laboratory containment of polioviruses, as well as enhancing surveillance, laboratory, and emergency operations center capabilities for epidemic prone diseases such as cholera, Ebola, typhoid, and yellow fever. Focusing on countries with significant polio assets, which also have the highest burden of measles, CDC will work to improve vaccine coverage for all recommended vaccines, support global goals for elimination of measles and rubella, and enhance global capacity for early detection and response to vaccine-preventable outbreaks.

Measles and other vaccine-preventable diseases

CDC's leadership and global immunization expertise date back to 1966 when the agency established the CDC Smallpox Eradication Program. CDC's global immunization efforts to control, eliminate, and eradicate VPDs and strengthen worldwide immunization programs to protect people living in the United States from VPDs that have been eliminated or no longer circulate in our country, including measles and rubella. Estimates place the cost of global control of measles and rubella at \$98 billion annually in program and treatment costs and lost productivity¹⁴⁸. The proven intervention—routine childhood immunization—has the highest return on investment in low-and middle-income countries, a ratio of \$44 return per \$1 invested.¹⁴⁹

Since 2001, tremendous progress has been made towards both measles and rubella elimination. Measles-related deaths are down 84% from 2000 levels as of 2016, preventing 20 million measles-related deaths. Rubella/congenital rubella syndrome (CRS) has been eliminated from the Americas. Despite these advances, neither measles nor rubella elimination are on track for eradication worldwide, putting Americans at risk for these diseases. A focus on improving surveillance and ongoing immunization programs is required to ensure that gains in measles and rubella control can be sustained. In FY 2020, CDC will focus measles vaccine purchase and campaigns, including mass vaccination activities, to those countries with the highest disease burden. CDC will strengthen the collection and use of surveillance data to better guide program strategy and implementation for measles and rubella control, and continue to collaborate with countries with the highest burden of VPDs to assist these countries with building capacity to sustain their own immunization programs and surveillance systems. CDC will have limited capacity to rapidly deploy internationally to support vaccination and surveillance efforts at the country level in the event of an outbreak of measles or other VPDs, including Yellow Fever and cholera. At this funding level, CDC will strategically limit reference laboratory services and viral sequencing to priority areas, including CDC's polio, measles, and rubella reference laboratories' diagnostic services.

¹⁴⁸Thompson KM, Odahowski CL. Risk Analysis 2016;36(7):1357-1382

¹⁴⁹Ozawa S, et al. Health Affairs 2016;35(2):199-207 <http://content.healthaffairs.org/content/35/2/199>. Exhibit 3

Parasitic Diseases and Malaria Budget Request

CDC's parasitic diseases and malaria activities seek to reduce related death, illness, and disability in the United States, eliminate the global burden of malaria and targeted neglected tropical diseases (NTDs), and advance research to detect, prevent, and eliminate parasitic diseases.

Serving as a global leader in malaria and parasitic disease research and technical innovation, CDC engages in strategic and applied research to accelerate global control and elimination of these deadly diseases. CDC's laboratory, including the insectary and parasitic disease lab, support the critical scientific leadership required to achieve these priorities.

Budget Request

CDC's FY 2020 request of **\$24,453,000** for Parasitic Diseases and Malaria is \$1,547,000 below the FY 2019 Enacted level.

Parasitic Diseases in the United States

CDC diagnoses, supports treatment, and prevents sickness and death in the United States and globally from parasitic infections. CDC maintains the national parasitic disease reference laboratories, including an online, interactive diagnostic resource, and coordinates national surveillance for notifiable parasitic diseases, including malaria. Because diagnostic capacity for parasitic diseases at the state-level has declined in recent years, states and counties rely on these CDC systems to monitor, accurately diagnose, and treat parasitic diseases. CDC also provides 24/7 expert consultation to health departments, physicians, hospitals, and laboratories and releases life-saving medications that are not available commercially.

In 2017, CDC labs tested more than 6,700 specimens from U.S. residents and government overseas staff for parasitic diseases and responded to approximately 6,300 inquiries via its 24/7 hotline, many of them urgent requests related to life-saving consultations, diagnosis, and treatment. CDC expects the demand for its reference laboratory and consultation services to continue increasing in FY 2020 due to increases in global travel and imports, awareness of domestically acquired parasitic infections, and declining state laboratory capacity. These activities save lives. For example, CDC led or assisted with 14 investigations of parasitic infections associated with organ transplantation involving 20 organ recipients in 2017.

Large outbreaks of Cyclosporiasis¹⁵⁰, a foodborne parasitic illness occur annually and have been associated with various types of imported fresh produce. In 2018, hundreds of cases were reported to public health officials, including at least two large outbreaks: one linked to salads at a fast food chain and another to packaged vegetable trays. Due to complex parasite biology and a lack of adequate laboratory tools, Cyclosporiasis remains a challenging foodborne illness to detect and investigate. CDC is working to develop new molecular tools¹⁵¹ that will help link cases with shared exposures and identify sources of contaminated foods.

Global Malaria

CDC is a global leader in preventing and treating malaria, providing scientific expertise to endemic countries and partners to improve surveillance, laboratory systems, and management of malaria cases. CDC also jointly implements the President's Malaria Initiative (PMI) with USAID in 24 African focus countries and the six-country Greater Mekong sub-Region. CDC plays a unique role within PMI by providing technical leadership and advice to the USG Malaria Coordinator on surveillance, monitoring and evaluation, and operational research. CDC is the key implementer of these activities and plays a critical role in driving progress toward malaria elimination.

¹⁵⁰ <https://www.cdc.gov/parasites/cyclosporiasis/index.html>

¹⁵¹ <https://www.cdc.gov/amd/project-summaries/detecting-intestinal-illness.html>

CDC works with ministries of health and other partners to strengthen laboratory diagnostics, surveillance, and evaluation to prevent and control malaria. The most sustainable approach to address the malaria threat is to eliminate it. Current malaria surveillance approaches focus on periodic tracking of commodity purchase and coverage rates. However, to enable progress toward malaria elimination, countries will need to carry out on-going, real time disease surveillance of laboratory-confirmed cases. CDC's work leading the Malaria Zero Consortium in Hispaniola demonstrates real progress towards malaria elimination and provides evidence-based guidance to inform other countries working towards malaria elimination.

Despite progress, malaria remains endemic in many regions and countries. The parasites that cause malaria continue to evolve, and are showing signs of resistance to current treatment drugs, making it more difficult to successfully treat the disease. In addition, with large-scale implementation of prevention strategies, there is a need to develop program efficiencies, improve interventions and tools, and ensure that new technologies developed in the lab are quickly adapted for use in the field. CDC conducts strategic and applied research to address these issues and accelerate malaria control and elimination. Without these next generation tools, malaria elimination will remain an elusive goal.

A critical asset is CDC's global reference insectary, which allows scientists to better understand how mosquitos and other insect vectors transmit disease; informs how to manage and mitigate insecticide resistance; and facilitates successful field implementation of vector-control interventions, such as insecticide-treated nets, and indoor residual spraying. In 2017, CDC developed and released a field-friendly mobile app for monitoring mosquito populations. The app saves time, improves data quality, and helps vector control programs standardize information across geographical areas. CDC has conducted targeted hands-on training on the app to vector control staff from more than 25 countries, and from its initial release, the app has been downloaded over 1,000 times worldwide.

CDC will begin testing new long-lasting insecticide-treated mosquito net technologies, continue testing nets for durability and retention of insecticidal effectiveness, monitor levels of insecticide resistance among mosquitoes in President's Malaria Initiative countries, and assess new vector control methods and insecticides in FY 2020. Other areas of focus for CDC include studying how malaria cases are diagnosed and treated and improving or developing new prevention approaches (e.g., preventive treatment of pregnant women, novel drugs, vaccines, and delivery systems) which can be adopted by WHO, MOH, and other partners.

CDC's laboratory expertise plays an additional critical role. Using advanced molecular detection (AMD) tools, CDC has developed a more sensitive, rapid, and less expensive method for surveillance of malaria drug resistance. To build the next generation molecular surveillance network in the United States, CDC is transferring this technology to public health laboratories in the U.S. CDC developed standard methods and made them available publicly through an open source platform using them for malaria drug resistance surveillance in public health laboratories in the United States. This test will aid in global efforts to mitigate spread of malaria drug resistance and will help inform prevention and treatment guidelines for U.S. travelers, including military personnel.

Neglected Tropical Diseases

CDC works to reduce the substantial illnesses and disability caused by neglected tropical diseases (NTDs), with a focus on NTDs that can be controlled through mass drug administration or other low cost interventions. These diseases are Lymphatic Filariasis (Elephantiasis), onchocerciasis (river blindness), blinding trachoma, schistosomiasis, three soil-transmitted helminths (intestinal worms), and Guinea worm disease.

CDC works to improve NTD control programs, more accurately measure program impact, and improve diagnostic and epidemiological tools to support elimination. CDC's microplanning activities in Port Au Prince Haiti resulted in improvements and efficiencies for Lymphatic Filariasis (LF) mass drug administration activities, ensuring that more people received preventative treatment in FY 2018 and impacting plateaued program progress. In FY 2018,

CDC supported planning and implementation of mass drug administration campaigns in American Samoa after disease monitoring activities showed that LF remained endemic. CDC will conduct another round of mass drug administration in FY 2019, and continue disease monitoring activities through FY 2020 to ensure elimination from one of the last remaining areas of the United States with the disease.

CDC developed and validated a multiplex immunoassay that detects antibodies for more than 35 viral, bacterial, and parasitic diseases, and provides an assessment of vaccination coverage levels, using a single small blood sample. This provides a more cost-effective approach to obtain critical public health information as most surveillance activity costs are related to sample collection. Since FY 2018, CDC has used multiplex to conduct integrated serosurveillance for infectious diseases in large scale pilots in Brazil, Mexico, Paraguay, Thailand, and in the United States in the Mississippi Delta region. CDC has also developed a blood test that makes it possible to monitor the impact of trachoma elimination programs and provide early detection if trachoma returns. The test offers savings of hundreds of thousands of dollars in training costs alone, compared to clinical eye exams currently used.

As new technologies become available, CDC develops the critical evidence that informs WHO guidelines. CDC's technical assistance, enrolling and following over 6,000 participants in Haiti during a large safety and efficacy trial of a three drug combination for the treatment of Lymphatic Filariasis, provided critical evidence leading to a change in WHO guidance to recommend the use of the three drug combination in FY 2018. In FY 2020, CDC will provide technical expertise for the development of global guidance for onchocerciasis elimination and schistosomiasis control.

In FY 2020, CDC will continue to assist countries to conduct transmission assessment surveys for Lymphatic Filariasis and other NTDs, assist MOH to implement efficient methodologies that assess progress towards elimination, control, or management of NTDs and associated long-term disability, and develop and evaluate new diagnostic tools and methods for demonstrating interruption and/or elimination of NTD transmission.

Global Disease Detection and Other Health Programs Budget Request

The world faces a host of dangerous pathogens and potential epidemics, including the Ebola outbreak in West Africa, the spread of Zika, and large outbreaks of yellow fever and cholera. Disease epidemics such as these can pose threats to our national, economic, and health security. CDC is the lead technical implementing agency for the U.S. government's global health security work to keep Americans safe at home and abroad. CDC has the unique scientific and technical expertise combined with over 60 years of successful global health experience to do this work. CDC monitors disease outbreaks 24/7; maintains rapid response teams that are prepared to deploy anytime, anywhere in case of emergency; supports regional disease detection centers staffed with world-class scientists and possesses labs capable of identifying new/re-emerging pathogens; and develops preparedness and response capacities to contain outbreaks at the source.

New diseases like MERS-CoV can emerge without warning and quickly spread. To protect Americans, CDC is routinely monitoring 30-40 potential public health threats each day, and since 2006, CDC has responded to over 2,000 outbreaks and public health emergencies and has discovered 11 new pathogens and strains of dangerous diseases. However, in the fight against infectious diseases, no nation can stand alone. It can take less than 36 hours for a pathogen to spread from a remote village to major cities on all continents. Therefore, protecting Americans means making sure other countries have the knowledge and resources to stop threats before they can spread beyond their borders. Thus, CDC also works to close gaps in global preparedness to keep Americans safe and secure from infectious disease threats. This is accomplished by establishing surveillance systems for priority diseases, responding quickly to outbreaks, improving the management of public health emergencies in the countries where they occur so that diseases do not cross international borders, and by supporting the development of laboratory systems and skilled public health professionals who are able to use data to respond when a public health crisis strikes.

In addition to the tragic loss of life, disease outbreaks, both naturally occurring and those resulting from acts of bioterrorism, disrupt global business continuity, decrease tourism and travel, and lower worker productivity. Pandemic threats can disrupt the market for U.S. exports and support for U.S.-based jobs. Globally, the expected loss from potential pandemics is estimated to be more than \$60 billion per year or \$6 trillion over the 21st century.¹⁵² At the national level, in 2015, U.S. exports to CDC's health security countries exceeded \$308 billion and supported more than 1.6 million jobs across all U.S. states in agriculture, manufacturing, mining, oil and gas, services, and other sectors.¹⁵³ These exports and jobs may be at risk when outbreaks are allowed to spread unchecked, which could threaten economies.¹⁵⁴ CDC's work to contain these threats protects not only America's health and safety, but also its economy.

Investing in global health security programs helps protect Americans from the next, inevitable emerging disease threat and safeguards against future epidemics. In addition to the tragic loss of more than 11,000 lives, the cost of responding to the West Africa Ebola outbreak in 2015 was estimated at more than \$3.6 billion world-wide¹⁵⁵. Investments in global preparedness can minimize the impact to Americans as these threats could rapidly destabilize the health, security, and economy of the United States. CDC has helped countries improve their capacity to respond to Ebola, as well as other emerging infectious diseases. By supporting improved public health system capacity in places where disease threats may arise, CDC contributes to national security.

CDC's work globally protects Americans both at home and abroad and ensures that these health threats do not breach U.S. borders. No other agency has that responsibility or capacity to work along this domestic-to-global health continuum. CDC's overseas work is directly tied to a U.S. objective—from protecting the United States from health threats to ensuring that lessons learned overseas can be applied here to increase the value and

¹⁵² GHRF Commission (Commission on a Global Health Risk Framework for the Future). 2016. The neglected dimension of global security: A framework to counter infectious disease crises. <http://nam.edu/GHRFreport>. doi: 10.17226/21891.

¹⁵³ <http://online.liebertpub.com/doi/full/10.1089/hs.2017.0051>

¹⁵⁴ <https://www.liebertpub.com/doi/pdfplus/10.1089/hs.2017.0052>

¹⁵⁵ <https://www.cdc.gov/vhf/ebola/pdf/cost-response.pdf>

quality of the U.S. public health system. Imported infectious diseases are a burden to public health agencies, as personnel and resources are often redirected to meet the surge demand for preparedness and response activities. CDC is the global leader in building disease detection and response capabilities in other countries to identify emerging threats, prevent the spread of disease outbreaks, and prepare for and respond to health emergencies. CDC works closely with ministries of health, academic partners, the private sector, non-governmental organizations, and faith-based and community-based organizations to develop core response capabilities such as disease surveillance, disease detective training, emergency response, and laboratory systems to stop diseases before they reach our borders. CDC has enhanced global response capacity by establishing a Global Rapid Response Team (GRRT). This team has been instrumental in leading CDC's response to major global outbreaks and has provided over 17,000 person-days of response in the field since the fall of 2015. In 2018, GRRT responders were deployed to assist with the two outbreaks of Ebola in the Democratic Republic of Congo. These GRRT members served in critical roles in the response, particularly during the outbreak in the Equateur Province in early 2018. From leading the Emergency Operations Center, to supporting port screening, to conducting contact tracing, the GRRT members were active contributors to the country's swift response and crucial to its ability to contain the outbreak to just 54 cases. Additionally, in 2018 CDC deployed GRRT members to respond to outbreaks of cholera, polio, yellow fever, meningitis, measles, and more, as well as to assist with the responses to humanitarian emergencies and natural disasters.

In 2014, the United States made a five-year commitment to assist at least 30 countries in meeting the targets of the Global Health Security Agenda (GHSa). With five-year supplemental funding provided in FY 2015, CDC has made significant progress to strengthen global health security in 17 Phase I countries.¹⁵⁶ Some examples of notable progress include: All 17 Phase I countries now participate in the basic-level frontline, intermediate, or advanced Field Epidemiology Training Programs and CDC training of laboratory technicians. With CDC support, 10 countries have established national surveillance databases that link suspect case reports and laboratory data from all laboratory jurisdictions. Even more remarkable, 15 countries have trained emergency management specialists and experts to support a well-functioning Emergency Operations Center (EOC). The Administration has affirmed its commitment to strengthening global health security and fully supports the next phase of the GHSa, GHSa 2024.

Over the past five years, CDC—together with host nations and other global health partners—made great strides in strengthening global health security around the world by building on the foundation of successful global health programs like PEPFAR and through new investments in global health security at the country, regional, and global level. New tools such as the Joint External Evaluations (JEEs) provide transparent data on gaps in partner countries and help inform tactical investment to fulfill critical remaining gaps. To date, 75 partner countries have completed JEEs. As a result, many partner countries are now able to respond faster and more effectively to contain threats. However, critical gaps remain, and with continued investments, countries will address gaps and further strengthen disease detection and surveillance systems, build and enhance laboratory capacity to diagnose deadly diseases, develop a highly-skilled public health response workforce, and fully integrate emergency operations into their public health programs.

Budget Request

CDC's FY 2020 request of **\$149,762,000** for Global Disease Detection and Other Programs is \$41,562,000 above the FY 2019 Enacted level. This funding level includes \$99,762,000 for Global Health Security activities. With supplemental resources available over the five years from 2015 to 2019, CDC played a critical role in improving the world's health security. Looking forward, the Administration has reaffirmed its commitment to this work, and CDC is working closely with the staff of the National Security Council and interagency partners as we move into the next phase of global health security activities.

¹⁵⁶ https://www.cdc.gov/globalhealth/healthprotection/resources/pdf/GHSaReport_final.pdf

With additional funding in FY 2020, CDC will make critical investments in global health security capacity, as well as continuing efforts to detect and control infectious disease threats at the source and preventing international transmission, including:

- Better protection from disease threats by finding and stopping them at their borders, protecting the health of all Americans.
- Targeted investments in other nations' core public health capabilities needed to identify and contain outbreaks at their source.

These investments help save lives and money, and move us toward the goal of self-sufficiency for countries around the world in the prevention, detection, and rapid and effective responses to emerging infectious disease threats. To achieve this goal, CDC will build on its foundation of technical expertise to continue assisting countries to build and improve their own disease surveillance, laboratory, and public health emergency response capacities.

In FY 2020, CDC will implement an approach to global health security investments that is informed by the lessons learned over the past five years. This approach will leverage regional platforms that increase CDC's flexibility and efficiency in addressing public health opportunities and challenges as they evolve globally. By ensuring that CDC technical staff are able to "go where the disease is", this approach is building towards a sustainable level of effort that affords the U.S. greater protection against disease threats that can arise unexpectedly. CDC will maintain a focus on core public health capacities related to workforce, laboratory, surveillance, and public health emergency management, while also addressing critical public health concerns that pose the greatest threats to our health security, such as antimicrobial resistance, pandemic influenza, and viral hemorrhagic fevers. In addition, CDC will ensure that key public health systems and tools, such as immunization services, infection control in healthcare settings, and border health are capable of responding to both routine public health needs and emergency situations.

Global Disease Detection and Other Programs

CDC has established and staffed multiple regional Global Disease Detection (GDD) Centers throughout the world to engage and train other nations in the 24/7 monitoring and response of outbreaks. These institutions are strategically located globally to rapidly detect and tackle outbreaks—building local response capabilities for disease detection and monitoring. CDC's investment in GDD centers lessens the U.S. burden to respond to global public health emergencies by creating a network of centers with regional response capabilities that conduct disease surveillance and share information about hospital-acquired infections, acute febrile illness, antimicrobial resistance, bacterial blood stream infections, diarrheal disease, influenza, tuberculosis, and a number of other infectious diseases. GDD Centers work closely with host countries to develop disease detection capabilities that integrate laboratory, clinical, and epidemiological information to rapidly control outbreaks—protecting the health, safety, and security of Americans. Over the past decade, these disease detection centers have assisted in the detection and identification of 11 novel strains and pathogens in the world, as well as provided scientific support for more than 2,250 outbreaks, including SARS, polio, MERS, cholera, Nipah virus, Ebola, and Zika.

By ensuring that these countries make progress towards health security, these activities will build on existing critical investments in global health security and ensure that countries at risk from infectious disease achieve progress toward the following core health security capabilities:

- Maintaining systems to transport specimens for advanced diagnostics to national laboratories from at least 80% of intermediate level/districts within the country.
- Developing event-based disease detection system(s) to rapidly detect bio-incidents of public health concerns.

- Establishing workforce training programs to build the next generation of disease detectives able to prevent, detect, and respond to biological threats.
- Managing dedicated EOCs able to activate a coordinated emergency response or exercise within 120 minutes of the identification of a public health emergency.
- Leverage CDC leadership and staff in country offices who are the forward deployed disease detectives who keep the United States informed of and engaged in both early detection and containment of overseas health threats.
- Strengthen coordination among human and animal health, environmental, and agricultural institutions to prevent, detect, and respond to zoonotic and emerging infectious diseases of greatest national importance.

CDC will continue to monitor for global disease outbreaks that put Americans at risk and maintain limited training of frontline disease detectives, scientists, and public health professionals necessary to collect and analyze data.

CDC's Field Epidemiology Training Program (FETP), a country-based program modeled after CDC's own domestic Epidemic Intelligence Service, trains a global workforce of field epidemiologists, or "disease detectives." FETP combines classroom training with extended periods of on-the-job experience and mentoring. The resulting trained epidemiologists are the "boots on the ground" in the effort to identify and contain infectious disease threats. CDC's FETP provides countries with a sustainable protection against global health threats, with approximately 80% of FETP graduates continuing to serve in public health programs in their home countries. In FY 2020, CDC will continue FETP training in order to improve countries' abilities to identify and respond to emerging infectious diseases. These disease detectives, along with the other capabilities developed by CDC, are at the heart of the agency's work to protect Americans both at home and abroad from disease threats.

CDC Implementation of Foreign Assistance Transparency and Accountability Act (FATAA)

CDC's activities funded by PEPFAR and through USAID transfers are in compliance with the Foreign Assistance Transparency and Accountability Act (FATAA) of 2016.

To ensure consistency across USG programs implementing PEPFAR and compliance with monitoring and evaluation directives including FATAA, PEPFAR Evaluation Standards of Practice provide a robust monitoring and evaluation framework. CDC's PEPFAR program works with the Office of the Global AIDS Coordinator to implement the PEPFAR Evaluation Standards of Practice for activities implemented by CDC.

FATAA's requirements for monitoring and evaluation are codified at USAID as part of the Program Cycle Operational Policy (ADS 201). This was adjusted after the Foreign Aid Transparency and Accountability Act of 2016 (FATAA) was passed to ensure the monitoring and evaluation requirements bring the Agency into compliance with FATAA. For example, FATAA requires that Agencies establish annual monitoring and evaluation objectives and timetables to plan and manage the process of monitoring, evaluating, analyzing progress, and applying learning toward achieving results. USAID's ADS 201 requires all Operating Units to develop a Performance Management Plan (PMP) that includes both a monitoring and evaluation plan, which must be updated at least once a year.

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PUBLIC HEALTH PREPAREDNESS AND RESPONSE

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$845.525	\$855.200	\$825.000	-\$30.200
FTEs ¹	642	443	443	0
State and Local Preparedness and Response Capability	\$678.172	\$683.200	\$675.000	-\$8.200
Public Health Emergency Preparedness Cooperative Agreement	\$670.000	\$675.000	\$675.000	\$0.000
Academic Centers for Public Health Preparedness	\$8.172	\$8.200	\$0.000	-\$8.200
CDC Preparedness and Response Capability	\$161.253	\$172.000	\$150.000	-\$22.000
Strategic National Stockpile ²	\$6.100	\$0.000	\$0.000	\$0.000

¹ The FY 2018 FTE levels include the Strategic National Stockpile (SNS). FY 2019 and FY 2020 FTE levels reflect the transfer of SNS to the Office of the Assistant Secretary for Preparedness and Response (ASPR). The FY 2019 and FY 2020 FTE levels may not align with levels in MAX.

² The FY 2018 Final funding level for SNS is comparably adjusted to reflect the transfer to ASPR.

Enabling Legislation Citation: PHS A § 301, PHS A § 307, PHS A § 310, PHS A § 311, PHS A § 319, PHS A § 319C-1*, PHS A § 319D*, PHS A § 319F, PHS A § 319F-2*, PHS A § 319G*, PHS A § 351A*, PHS A § 361, PHS A § 2801, PHS A § 2812*

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct, Federal Intramural, Cooperative Agreements, including Formula Grants/Cooperative Agreements; and Contracts

CDC is committed to strengthening the nation’s health security by protecting against public health threats, whether they begin at home or abroad, or if they are natural or man-made. In the absence of a quick response, outbreaks can become epidemics, natural disasters can become crucibles for illness, and the human toll of terrorist attacks can mount.

State and local health departments should be ready to handle many different types of emergencies that threaten the health and resilience of families, communities, and the nation. Having people who know what to do, and having the resources in place to allow them to do their jobs, saves lives.

CDC’s FY 2020 request of **\$825,000,000** for Public Health Preparedness and Response is \$30,200,000 below the FY 2019 Enacted level. The FY 2020 request carries forward proposed elimination of the Academic Centers for Public Health Preparedness from the FY 2019 President’s Budget. This request also represents a \$22,000,000 proposed reduction for CDC’s Preparedness and Response Capability.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

BY THE NUMBERS...

- **62**—50 states, 4 large cities, and 8 U.S. territories participate in CDC’s Public Health Emergency Preparedness (PHEP) program. The program provides critical resources for state, local, and territorial public health departments to build and strengthen their abilities to effectively respond to public health threats ranging from infectious diseases to natural disasters to radiological events.
- **3,578**--federal, state, territorial, and local emergency responders trained in 2017 on how to receive and distribute medical countermeasures. This helps ensure that during a public health emergency, the public has timely access to lifesaving medicines and supplies.
- During the response to Hurricane Maria, CDC successfully deployed \$4.2 million in supplies to Puerto Rico.
 - **177,000**--bottles of water.
 - **42,000**--Meals ready to eat.
 - **\$2.1 million**-- worth of vaccines to prevent disease.
- **90**—CDC assigned field staff across the nation in 2017. Through this direct relationship with state and local health departments, CDC staff both provide expertise and gain on-the-ground situational awareness before, during, and after public health events where they occur.
- **487**--operational readiness reviews (ORRs) conducted by CDC and 50 state health departments nationwide between 2015 and 2016. These ORRs assessed the capacity of the 72 largest metropolitan areas to execute a large-scale response requiring medical countermeasure distribution and dispensing. By 2019, CDC expects to complete approximately 500 ORRs focusing on medical countermeasure distribution and dispensing as well as other public health preparedness capabilities.
- **24/7**--CDC’s watch desk fields calls on everything from individuals’ health concerns about animal bites and household mold to calls from clinicians on reports of potentially widespread health threats like a meningitis or a measles outbreak. The watch desk also manages requests from federal and international health partners to implement actions to protect the public from potential health threats.

***References:**

Unless otherwise noted, all information and calculations are from CDC program data.

Public Health Preparedness and Response Funding History	
Fiscal Year	Dollars (in millions)
2016	\$1,413.250
2017	\$1,401.708
2018 ¹	\$845.525
2019	\$855.200
2020 President's Budget	\$825.000

¹ FY 2018 Enacted SNS amount is comparably adjusted to reflect transfer to ASPR.

State and Local Preparedness and Response Capability Budget Request

CDC's State and Local Preparedness and Response Capability strengthens public health emergency management and response through its Public Health Emergency Preparedness (PHEP) cooperative agreements.¹⁵⁷ CDC uses its extensive in-house knowledge and expertise to help prepare and respond to a range of public health emergencies, including infectious diseases, environmental hazards, or other disasters. In addition, CDC uses its long-standing relationships with state, local, federal, and private partners to build and sustain an integrated approach to public health emergency preparedness.

The PHEP program ensures states and localities have the resources and skills to respond to public health emergencies regardless of origin. The PHEP cooperative agreement is a critical source of funding for all 50 states, 4 directly-funded localities, and 8 territories and freely associated states. Since 2002, the PHEP cooperative agreement has provided assistance to public health departments across the nation. This helps health departments build and strengthen their abilities to effectively respond to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events. Preparedness activities funded by the PHEP cooperative agreement specifically target the development of emergency-ready public health departments that are flexible and adaptable.

CDC accomplishes this through 15 capabilities that serve as national standards for public health preparedness planning. These capability standards serve as a vital framework for state, local, tribal, and territorial preparedness programs as they plan, operationalize, and evaluate their ability to prepare for, respond to, and recover from public health emergencies.

In 2017, DSLR began updating the capabilities in response to lessons learned from public health emergency responses, updates to public health preparedness science, revised guidance and resources, findings from internal reviews and assessments, subject matter expert feedback from the practice community, and input from allied federal agencies and professional associations. The capabilities update focused on streamlining language and aligning content with new national standards, updated science, and current public health priorities and strategies. The capabilities also support topics such as pandemic influenza, environmental health, at-risk populations, and tribal populations.

Budget Request

CDC's FY 2020 request of **\$675,000,000** for State and Local Preparedness and Response Capability is \$8,200,000 below the FY 2019 Enacted level. CDC's FY 2020 request carries forward proposed elimination of the Academic Centers for Public Health Preparedness from the FY 2019 President's Budget. CDC's FY 2020 request of \$675,000,000 for the Public Health Emergency Preparedness Cooperative Agreement is level with the FY 2019 Enacted level. Through the PHEP cooperative agreement, CDC will continue to fund all 62 current awardees. CDC will work with recipients to prioritize their most important preparedness activities. CDC will continue to support evaluation of recipient activities through assessments such as the Operational Readiness Review (ORR) and will use these analyses to inform the development of training and guidance to the public health preparedness field.

CDC has the expertise and long-term relationships with public health departments required to effectively manage the PHEP program. CDC's PHEP program began in 2002 in response to the September 11, 2001 terror attacks and the subsequent anthrax attacks. Since then, the PHEP program has partnered with 62 states, local, and territorial public health departments to prepare for, withstand, and recover from potentially devastating public health emergencies.

In an emergency, rapid response is vital to protecting the public's health. The PHEP program is core to CDC's efforts to support state and local health departments in developing and maintaining capable, flexible, and

¹⁵⁷ <http://www.cdc.gov/phpr/coopagreement.htm>

adaptable public health systems ready to respond rapidly to ensure Americans are protected. Public health departments use PHEP funds to develop and maintain public health emergency management systems, hire experts in public health emergency preparedness and response, develop and test systems to distribute and dispense medical countermeasures, and develop laboratory and epidemiologic systems that detect threats early, establish the cause, and respond effectively to save lives. The following table shows key improvements in public health emergency preparedness since 9/11.

Improvements in Public Health Emergency Preparedness¹		
PHEP-funded jurisdictions:	Before 9/11	2016
Can mobilize staff during an emergency	20%	98%
Have an Incident Command System with pre-assigned roles in place	5%	100%
Have identified point-of-dispensing (POD) sites	0%	100%
Have sufficient storage and distribution capacity for critical medicines and supplies	0%	98%

¹<http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2017.304038>

In 2015, CDC implemented the Medical Countermeasure Operational Readiness Review (MCM ORR) process to better evaluate state and local capacity and capability to distribute and dispense life-saving medicines and supplies to the right people at the right time during an emergency. This functional assessment measures readiness of a jurisdiction to implement its public health emergency response capabilities--specifically, to plan and successfully execute a large MCM response in the event of an intentional release of anthrax or during other public health emergencies, such as an influenza pandemic. From 2015-2016, CDC and 50 state health departments conducted 487 Operational Readiness Reviews (ORR) nationwide, evaluating states and local planning jurisdictions in the 72 largest metropolitan areas to identify strengths and areas for improvement. Following the initial ORRs, CDC refined the process to include the remaining capabilities and began a new round of ORRs in November 2017. CDC expects to have new comprehensive data to evaluate in 2019.

CDC strengthens public health preparedness of state, local, and territorial health departments through assignment of field-based staff. Through this direct interaction with health departments, CDC enhances the nation's public health system's capacity to respond to and recover from a public health event or emergency. Field staff include:

- 36 Career Epidemiology Field Officers in 32 jurisdictions to support development of surveillance, outbreak response, and community assessment capabilities.
- 25 Preparedness Field Assignees in 18 jurisdictions to support development of multiple preparedness capabilities based on specific jurisdictional needs.
- Two public health advisors in three jurisdictions and seven MCM specialists in seven regions to support development of MCM and other public health preparedness capabilities.
- Three informatics field assignees to help enhance state informatics and health information technology capabilities have been placed in Kentucky, North Carolina, and South Dakota for up to two years to advance information technology information initiatives.
- One field-based tribal liaison supporting PHEP jurisdictions in the Southwest that have parts of the Navajo Nation within their states. This is part of a pilot project intended to engage stakeholders in developing a "Pathways to Preparedness" toolkit for local, state, and federal partners on ways to effectively engage with tribes. The pilot is also designed to help the Navajo Nation build an inventory of its public health preparedness plans and resources to better coordinate their response activities with other tribal, local, state, and federal partners.

In 2018, in its continuing efforts to strengthen the nation's epidemiological and laboratory capacity, CDC awarded \$7.4 million of PHEP funds to Level 1 chemical laboratories to replace critical nerve agent metabolites (NAM) equipment.

The PHEP program also allows CDC to provide expertise and support to state and local health department efforts to prepare for and respond to public health emergencies, including those requiring coordinated healthcare and public health responses. In 2017-2018, CDC:

- Regularly communicated with the health officials in Puerto Rico and the U.S. Virgin Islands to plan for restoration of public health services and provide technical assistance in response to Hurricanes Irma and Maria.
- Mobilized its State Coordination Task Force during the 2017-2018 hurricane response. The task force provides a direct line of communication with state, local, and territorial health departments. During the response, the task force worked directly with affected jurisdictions to identify and coordinate response needs, prioritize response activities, and determine strategies for communicating with affected populations.
- Worked with state and local public health officials to prepare for a radiation or nuclear event. Activities included conducting a national webinar followed by focused consultation conference calls with Guam, Northern Mariana Islands, and Hawaii to discuss specific jurisdictional priorities and concerns.

CDC continues to work closely with PHEP recipients to improve MCM operations, including holding a series of 2018 regional MCM summits, providing monthly training opportunities, and demonstrating how community planners can use tools such as the “Pandemic Influenza Electronic Exercise Tool” in their MCM planning and exercising.

In FY 2020, CDC’s project officers and PHEP program experts will continue to work closely with funded state, local, and territorial health departments to:

- Evaluate recipient progress in addressing gaps identified through the MCM operational readiness review process and ensure recipients continue to improve their MCM distribution and dispensing capacity as well as expand ORR to address additional capabilities and threat specific scenarios. This process is informed by and relies heavily on MCM and other expertise at CDC.
- Provide planning resources such as the 15 updated preparedness capabilities and an updated toolkit to enable recipients to better integrate the access and functional needs of at-risk individuals in public health, healthcare, and behavioral health response strategies.
- Collaborate with state and local health departments during public health emergencies to ensure effective, efficient, and coordinated response activities.
- Represent state and local needs within CDC’s Incident Management System. This system is activated during public health emergencies to bring together subject matter experts from across the agency to facilitate efficient response activities and communication.
- Identify opportunities for continued program improvement during public health emergencies, including using lessons learned during public health responses, such as Ebola and Zika, to strengthen communication between CDC and key stakeholders.
- Sustain the day-to-day public health impact of the PHEP program by providing guidance and technical expertise to state and local health departments and ensuring infrastructure such as emergency operations centers, laboratories, and communication systems is maintained.
- Oversee CDC’s PHEP recipient programs to ensure accountability and effective use of funds and performance monitoring and reporting.

CDC Preparedness and Response Capability Budget Request

CDC's Preparedness and Response Capability supports prevention of and rapid response to public health emergencies by:

- Using its extensive knowledge in areas such as infectious disease control, environmental health, pharmacology, toxicology, and clinical guidelines to prepare and respond to a range of public health emergencies.
- Ensuring, through the Select Agent Program, that laboratories working with potentially the most dangerous biological agents and toxins do so as safely and securely as possible.
- Activating CDC's response system and centralizing responses in the Emergency Operations Center (EOC) to ensure effective and efficient preparedness and response operations.
- Sustaining and evolving the Laboratory Response Network (LRN) and providing training and quality assurance for detection and characterization of testing biological, radiological, and chemical threat agents.
- Advancing the development of a surveillance system for the timely exchange and analysis of health data, such as the National Syndromic Surveillance Program (NSSP).

Budget Request

CDC's FY 2020 request of **\$150,000,000** for CDC Preparedness and Response Capability is \$22,000,000 below the FY 2019 Enacted level. At this level, CDC will focus on the Select Agent Program and mission critical activities. In order to maintain the critical preparedness and response infrastructure, CDC may reduce ongoing core preparedness activities (e.g., preparedness exercises, timeliness of reporting critical information, and applied research for first responders) and prioritize remaining funds to address the most urgent needs.

CDC experts, including those related to MCM, provide guidance to help state, territorial, and local health departments develop, test, operationalize, and improve their preparedness plans and their ability to respond in an emergency. CDC also provides resources such as standardized laboratory protocols and tools for evaluation of public health programs. CDC guidance and technical assistance is informed by in-house subject matter experts on MCMs related to chemical, biological, radiological, and nuclear threats. Using this public health expertise in a variety of threat-specific scenarios, CDC has developed guidelines for prioritizing preparedness activities, conducting exercises, and meeting performance goals.

Regulation of Biological Agents and Toxins

Scientific research in laboratories is a critical part of our nation's defense against both naturally occurring diseases and bioterrorism. Laboratory research with select agents and toxins can lead to important breakthroughs in vaccine development, drug therapies, diagnostic testing, and other discoveries that save lives and protect the health, safety, and security of the American people. Because this work can carry risk, the United States has regulations in place to make sure it is done as safely and securely as possible, and CDC is responsible for developing and implementing these regulations to protect human health. Common examples of select agents and toxins include anthrax, Ebola virus, bubonic plague, and ricin.

CDC also regulates importation of infectious agents which affect human health in the United States. CDC's Import Permit program ensures laboratories importing infectious biological agents have appropriate biosafety measures to minimize risk of introduction or spread of these biological agents into the United States.

CDC Select Agent Program

CDC jointly manages the Federal Select Agent Program (FSAP) with the U.S. Department of Agriculture to regulate the possession, use, and transfer of 67 biological pathogens and toxins that have the potential to pose a

severe threat to human, animal, and/or plant health, and animal and plant products. Laboratories seeking to work with select agents and toxins must register with the FSAP.

CDC routinely inspects registered laboratory facilities to ensure compliance with select agent regulations. These inspections allow CDC to confirm appropriate biosafety and security measures are in place, including that laboratorians are adequately trained to implement plans and procedures for containment of select agents at each facility. CDC will maintain continuous quality improvement activities to include identifying variation and vulnerabilities in its inspection processes and determining best practices, and strive to maintain the number of inspections performed. In its regulatory role over the possession, use, and transfer of select agents and toxins, CDC:

- Develops, implements, and enforces the select agent regulations to ensure research and other activities with select agents and toxins are conducted as safely and securely as possible.
- Conducts inspections and approves registration for the nearly 300 facilities that work with select agents and toxins to make certain they have appropriate measures in place to prevent unauthorized access, theft, loss, or release.
- Approves individual access to select agents and toxins following security risk assessments performed by the FBI. (This helps prevent the misuse of these agents from individuals planning to do harm with them.)
- Receives reports of theft, loss, or release from facilities.
 - These may include laboratory-acquired infection, exposure (e.g., a needle-stick, spill, or animal bite), or the loss of select agent inventory.
 - FSAP investigates each report to ensure proper actions are taken, to notify appropriate authorities, and to identify ways to prevent repeat of similar incidents.
- Maintains a national database that enables the U.S. government to maintain awareness of facilities that possess these potentially dangerous materials.

Import Permit Program

The CDC Import Permit Program (IPP) regulates importation into the United States of infectious biological agents that cause disease in humans to ensure they are handled appropriately. Prior to issuing import permits, IPP reviews all applications to ensure facilities have appropriate biosafety measures in place for working with these imported materials. As needed, the IPP also inspects applicants to ensure that the facilities implemented appropriate biosafety measures for the infectious biological agent, infectious substance, or vector (e.g., mosquitoes, rodents, etc.) to be imported. CDC issues approximately 2,000 import permits each year.

In FY 2020, CDC will continue to provide leadership in promoting and ensuring the safe and secure handling of biological agents and toxins, monitor imports of such agents and toxins into the United States critical to national security and public health, and sustain oversight of laboratories working with select agents and toxins.

Emergency Management Program

CDC's Emergency Management Program (EMP) is responsible for the overall coordination of CDC's public health preparedness, response, and recovery activities. The EMP works by integrating public health practice with emergency management principles. One way to demonstrate effectiveness is through the operation of the Emergency Operations Center (EOC), where highly trained experts track information that could indicate a pending public health threat, prepare for known and unknown events, and provide real-time, coordinated response capability to public health emergencies. Even when there is no specific threat, the EOC has dedicated staff monitoring health reports and fielding calls from the public, physicians, and state and local officials at all times.

Since 2003, CDC has activated its Incident Management emergency response system (IMS) for 64 public health responses, including hurricanes, foodborne disease outbreaks, the H1N1 influenza pandemic, the Haiti

earthquake and cholera outbreak, and outbreaks of Ebola and Zika. CDC's response system has been activated continuously since December 2011, and as the program has matured, CDC's capacity to respond to simultaneous emergencies has evolved. For example, in February 2016, CDC was activated for four concurrent public health emergencies: Flint, Michigan Water Contamination; Ebola; Zika; and Polio. In addition to emergencies, at times, the CDC IMS has also been activated for planned events (e.g., presidential inaugurations and Olympics taking place in the United States) and to monitor for incidents that may affect the public's health.

In FY 2020, CDC will protect America by:

- Deploying scientific experts in response to public health emergencies.
- Coordinating Emergency Management Program response activities across federal, state, and local authorities.
- Providing resources to state and local public health departments.
- Coordinating risk communications for physicians, states, cities, and the general public that are timely, accurate, consistent, and actionable.
- Working with ministries of health and the World Health Organization to identify, detect, and respond to health threats in a manner that is coordinated with the United States by building EMP capability around the world.

Laboratory Response Network Assay Development and Proficiency Testing

The Laboratory Response Network (LRN) protects the country against infectious disease threats through early and definitive detection, enabling response efforts to contain small emergencies before they become big emergencies. CDC supports the LRN by providing standard assays and protocols, training, proficiency testing exercises, and quality assurance for testing biological and chemical threat agents. Over the last five years, CDC:

- Increased the number of assays to detect and characterize threat agents. Six new assays were developed and deployed to LRN-Biological (LRN-B) laboratories in response to threat analyses or emerging infectious diseases such as Middle East Respiratory Syndrome coronavirus (MERS-CoV) (2013), Ebola virus (2015), Zika virus (two assays, 2016), *Rickettsia* (causing Rocky Mountain spotted fever, 2017), and *Variola* virus (causing smallpox, 2017).
- Evaluated assays for effectiveness. Assays may be developed by CDC or by partners outside of CDC (e.g., Department of Homeland Security and Department of Defense). CDC evaluates these assays to determine if they are applicable for use in the LRN-B. In 2018, CDC evaluated a new emerging technology (mass spectrometry) for detection of botulinum toxin.
- Deployed assays, such as an improved test for smallpox (2017) and a new test for *Rickettsia* (2017), into the LRN-B for use by participating laboratories. Deployment includes providing reagents, procedures, training, and technical guidance as well as proficiency testing.
- Increased molecular testing capacity by validating new instrumentation (2017-2018), such as real-time polymerase chain reaction (RT-PCR) equipment, for use in LRN laboratories to detect biothreat agents.

The LRN is uniquely positioned to provide a unified network of integrated laboratories that can confidently and consistently detect biothreat agents as well as emerging infectious diseases. In FY 2020, the LRN will continue to develop and deploy diagnostic assays to enhance public health preparedness.

National Syndromic Surveillance Program

CDC's National Syndromic Surveillance Program (NSSP)¹⁵⁸ develops and deploys a surveillance system that enables the timely exchange of syndromic health data in near real time. Through NSSP, CDC funds state and local health departments to collect, analyze, and share syndromic data from sources such as: emergency departments, urgent care facilities, hospitals, and laboratories, and other data to detect and characterize aberrations meriting further public health investigation or response. This surveillance system supports protecting the nation by providing timely and accurate information to leaders at the local, state, and national levels enabling timelier decisions on effective interventions.

NSSP includes two key components that advance syndromic surveillance:

- The National Syndromic Surveillance Program Community of Practice: members include NSSP-funded grantees, unfunded states and jurisdictions, public health practitioners, CDC programs, other federal agencies, partner organizations, hospitals, healthcare professionals, and academic institutions that collaborate to advance the science and practice of syndromic surveillance. NSSP's Community of Practice provides a collaborative environment in which states can use pre-determined definitions or create ad-hoc definitions and algorithms that are used to help determine if there are unusual changes in trends that may be associated with diseases such as MERS-CoV, enterovirus (EV-D68), Chikungunya, Ebola, Zika, and many other conditions of interest. Trends are monitored in near real time when there are known events of public health importance.
- The BioSense Platform: a suite of analytic tools that includes ESSENCE (the platform's primary syndromic surveillance tool, developed by Johns Hopkins University), SAS (a primary data analysis and reporting tool), and R Studio Professional (a programming language and application for statistical computing and graphics) and is based in the cloud environment, providing broader, more efficient access. The platform provides users with state-of-the-art tools to analyze, visualize, and use the data jurisdictions contribute to the platform.

In FY 2018, CDC received data from 64% of emergency department visits across the United States—slightly less than its goal of 65% of visits. During the same period, CDC refined both the definition of an active facility and the method used to account for them in order to gain a more accurate total of emergency departments that provide data to the BioSense Platform. Although this will initially lower the total overall visits recorded in the Platform, the data will provide a more accurate picture of the nation's health indicators while allowing CDC to identify gaps in national coverage, target sites within these areas, and conduct active outreach to bring additional facilities onboard.

Continued investments in the use of syndromic surveillance strengthens the ability of all states to detect, characterize, respond to, monitor, and manage outbreaks and other public health emergencies while also contributing to situational awareness at regional and national levels. One example of improving situational awareness is the response to the current opioid crisis. CDC is using the National Syndromic Surveillance Program (NSSP) as its surveillance source for gathering timely data related to opioid use and overdoses. This effort allows state and local health officials to provide targeted response efforts while providing federal health officials with a national picture of the crisis' impact and the ability to target programs and resources to the hardest hit regions. Choosing to use NSSP capitalized on surveillance systems states were already using, while preventing the need to create another surveillance tool, saving money at both the state and national levels and allowing states to avoid duplicate data collection.

¹⁵⁸ <http://www.cdc.gov/nssp/index.html>

NSSP Awards¹

(dollars in millions)	FY 2018	FY 2019	FY 2020
	Final	Enacted	President's Budget
Number of Awards	31	31	31
- New Awards	0	0	0
- Continuing Awards	31	31	31
Total Awards	\$6.564	\$6.564	\$6.564

¹These funds are not awarded by formula.

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$113.570	\$163.570	\$155.000	-\$8.570
PPHF	\$160.000	\$160.000	\$0.000	-\$160.000
Total Request	\$273.570	\$323.570	\$155.000	-\$168.570
FTEs	2,049	2,049	2,049	0
Public Health Leadership and Support	\$113.570	\$113.570	\$105.000	-\$8.570
Preventative Health Block Grant Program (PPHF)	\$160.000	\$160.000	\$0.000	-\$160.000
Infectious Diseases Rapid Response Reserve Fund	N/A	\$50.000	\$50.000	\$0

Enabling Legislation Citation: PHS § 301, PHS § 304, PHS § 306*, PHS § 307, PHS § 308, PHS § 310, PHS § 310A*, PHS § 311, PHS § 317, PHS § 317F*, PHS § 319, PHS § 319A*, PHS § 319D*, PHS § 322, PHS § 325, PHS § 327, PHS § 361-369, PHS § 391, PHS § 399G Part N,* PHS § 399U*, PHS § 2821*

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2020: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

BY THE NUMBERS...

- **311**—Public Health Associate Program (PHAP) associates working in public health organizations in 44 states; Washington, DC; Puerto Rico; the U.S. Virgin Islands; and Guam. PHAP provides jobs to recent college graduates and increased delivery of essential public health services to the public every day. Of those, 23 PHAP associates worked in tribal host sites or in tribally-focused assignments.
- **25**—American Indian and Alaska Native (AI/AN) tribal nations and regional AI/AN tribally designated organizations received funding from CDC through a new five-year agency-wide cooperative agreement (Tribal Public Capacity Building Capacity and Quality Improvement). This funding is critical to addressing emerging needs in their communities and enhance the quality and performance of the tribal public health system.
- **524**—Leaders from diverse sectors received training through the National Leadership Academy for the Public's Health since 2012 to improve health within their communities. Projects have included systems and environmental change to tackle substance abuse, community resilience to respond to emergency events, and partnerships to address community health and realize health equity.
- **1,703**—Public health professionals who have attended the CDC-supported Public Health Improvement Training and/or Mobilizing for Action through Planning and Partnerships training since 2013 and gained skills in community health assessment and improvement, quality improvement, performance management, partnership development, and workforce development.
- CDC completed the first aggregate evaluation of the Preventive Health and Health Services Block Grant. Results indicate that:
 - **74 percent**- of grantees used funds to assure the information systems capacity of health departments.
 - **68 percent** of grantees used funds to address emerging public health needs.
 - **67 percent** of grantees used funds to improve the effectiveness and efficiency of health department operations and services.¹
- CDC's Public Health Law Program supported informed decision making on resurging and emerging health issues at various jurisdictional levels.
 - **53,803**—Public health professionals trained to use law as a public health tool.
 - **More than 200**—Federal, state, tribal, local, and territorial public health stakeholders provided technical assistance on topics such as infectious disease control, opioids, information privacy, and tribal public health.
 - **139,500 subscribers**—Reached by CDC's Public Health Law newsletter monthly.
- **73 percent**—Portion of U.S. population served by an accredited health department as of December 2018. This includes 33 state health departments, 276 local health departments and 2 tribal health departments.² More than 90 percent of accredited health departments report benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and greater collaboration.^{3,4}
- **300,000**—Inquiries to CDC INFO answered each year on topics including Zika, Ebola, HIV/AIDS, measles, seasonal flu, harmful algal blooms, travel vaccines, and foodborne outbreaks.⁵

*References:

¹Evaluation of the Preventive Health and Health Services Block Grant. Available at: <https://www.cdc.gov/pshsbblockgrant/2017evaluationreport.htm>

²Public Health Accreditation Board. Accredited Health Departments. Available at: <http://www.phaboard.org/news-room/accredited-health-departments/>

³Kronstadt J, Meit M, Siegfried A, Nicolaus T, Bender K, Corso L. Evaluating the Impact of National Public Health Department Accreditation—United States, 2016. *MMWR* 2016; 65:803–6. DOI: <http://dx.doi.org/10.15585/mmwr.mm6531a3>

⁴NORC at the University of Chicago. "Evaluation of the Public Health Accreditation Program." December 13, 2017. Available at: http://www.phaboard.org/wp-content/uploads/Evaluation_findings_presentation_December_2017.pdf

⁵Centers for Disease Control. About CDC-INFO. Available at <https://www.cdc.gov/cdc-info/about.html>. Updated March 27, 2017

*Unless otherwise noted, all information and calculations are from CDC program data.

CDC-Wide Funding History	
Fiscal Year	Dollars (in millions)
2016 (BA)	\$113.570
2017 (PPHF)	\$160.000
2017 (BA)	\$250.977
2017 (PPHF)	\$160.000
2018 (BA)	\$113.570
2018 (PPHF)	\$160.000
2019 Enacted (BA)	\$163.570
2019 Enacted (PPHF)	\$160.000
2020 President's Budget (BA)	\$155.000
2020 President's Budget (PPHF)	\$0.000

CDC’s FY 2020 request of **\$155,000,000** for CDC-wide Activities and Program Support is \$168,570,000 below the FY 2019 Enacted level. The FY 2020 request includes \$50,000,000 for the Infectious Diseases Rapid Response Reserve Fund. The FY 2020 request carries forward proposed elimination of the Preventive Health and Health Services Block Grant from the FY 2019 President’s Budget.

Infectious Diseases Rapid Response Reserve Fund

The Infectious Diseases Rapid Response Reserve Fund (Reserve Fund), created in FY 2019, provides CDC with funding that could be used to prevent, prepare for, or respond to an infectious disease emergency, domestic or international. Rapid response is essential to emerging public health threats, and timely action for detection, investigation, and assistance that saves lives. The request of **\$50,000,000** in FY 2020, brings the total available in the Reserve Fund to **\$100,000,000** and will allow CDC to respond to infectious disease emergencies threatening the nation’s health, as necessary. As codified in statute, amounts in the Reserve Fund may also be transferred to the National Institutes of Health or the Public Health and Social Services Emergency Fund.

Public Health Leadership and Support Budget Request

The Public Health Leadership and Support line funds:

- CDC's Office of the Director.
- Urgent and emergent public health response activities.
- Offices that provide agency-wide support and leadership.
- Technical support to health officials in the field.

These funds are essential to CDC's ability to manage with efficiency, transparency, and accountability. In addition to day-to-day agency support and leadership, funds are used to provide technical assistance to the field. Some CDC offices providing agency-wide support and leadership are also partially or fully funded by CDC's Public Health Scientific Services budget.

Budget Request

CDC's FY 2020 request of **\$105,000,000** for Public Health Leadership and Support is **\$8,570,000** below the FY 2019 Enacted level. At this level of funding, CDC will focus on implementation of the highest priority cross-federal government initiatives, such as those for access, transparency and dissemination of scientific information; improving data science and analytical capabilities; and work to increase use of evaluation throughout the agency.

Office of the Director

Funds requested in FY 2020 will support CDC's public health leadership to the nation through several offices that provide services agency-wide. Public health is never static, and CDC must make investments to keep pace with evolving public health threats and new technology that enables to better respond to those threats. Funding through PHLS allows CDC's world class scientists to develop initial proofs of concept for innovative approaches, implement pilot projects and scale up more mature projects to ensure they are effective at a larger scale before rolling out to states, localities and other public health partners.

Center for State, Tribal, Local and Territorial Support (CSTLTS)

CDC supports strong health departments, the Nation's front line of public health defense. Every day, thousands of health departments are working to provide accessible, timely, quality, and sustainable public health services to protect Americans' health and safety. These health departments need tools, resources, and a sustainable, well-trained workforce to work better, faster, smarter. CSTLTS assists health departments in improving delivery of services to the public, reducing costs, and improving health through public health strategies that foster innovation.

CDC's CSTLTS improves the capacity of state, tribal, local, and territorial public health departments to manage and improve performance and deliver high-quality programs and services to protect the public's health by:

- Building capacity to use public health law to protect and improve public health.
- Building the public health workforce through the Public Health Associate Program to train early-career public health professionals.
- Helping health departments improve their performance and accountability based on national standards and advance toward national accreditation.
- Providing consultation and technical support to assist health officers with specific high-priority needs within their jurisdictions.
- Collaborating with national public health partners on system-wide improvements for more efficient, effective, and sustainable delivery of public health.

- Overseeing and managing the CDC/ATSDR government-to-government Tribal Advisory Committee and coordinating tribal consultations to improve the health of American Indians and Alaska Natives.
- Building the capacity of Indian Country to identify, respond to, and mitigate public health threats, improving the health, safety, and wellbeing of American Indian/Alaska Native communities.
- Providing leadership and support for public health strategies, policies, programs, and systems improvements in the five U.S. territories and three freely associated states.
- Providing ready-to-use tools and surge capacity for supporting health departments in protecting the public's health during emergencies.

Office of the Chief of Staff

The Office of the Chief of Staff provides support to CDC's director and manages all executive secretariat functions across CDC. The office reviews, analyzes, and clears policy documents and CDC director correspondence. The office works with Government Accountability Office (GAO) and the Office of the Inspector General (OIG) to facilitate audits and engagements, including entrance conferences, information requests, exit conferences, and review/comment on draft reports.

Office of Laboratory Science and Safety

CDC is strengthening laboratory safety practices across the agency through training, oversight, and facilitating a culture of safety. This office, led by the Associate Director for Laboratory Science and Safety, provides high-level oversight and coordination of critical laboratory science policies and operations, particularly those associated with laboratory safety and quality management programs. The office is working with CDC's laboratory scientists to build a strong culture of laboratory science and safety through leadership, collaboration, training, and continuous quality improvement.

Communications Office

The Communications Office provides support to all CDC programs to provide accessible, accurate, relevant, and timely health information and interventions to protect and promote the health of individuals, families, and communities.

Policy Office

The Policy Office provides agency-wide support to lead CDC's public health and healthcare collaboration activities. This office also monitors public health implications at federal, state, and local levels and disseminates key information inside and outside CDC. In addition, the Policy Office builds relationships with external organizations to advance public health.

Science Office

The Science Office provides leadership in advancing the quality and integrity of CDC science, and provides agency-wide leadership on scientific matters. The Science Office:

- Develops policies related to intramural and extramural research to ensure CDC science activities and staff maintain the highest standards of scientific integrity and ethics.
- Provides oversight of scientific clearance of CDC publications and promotes best practices in external peer review.
- Promotes and strengthens a common scientific culture for enhanced information exchange internally and externally.
- Develops and implements policies to increase public access to CDC funded scientific research results.

Office of Minority Health and Health Equity

The Office of Minority Health and Health Equity includes the Office of Women’s Health and the Diversity Management Program, and provides leadership for CDC-wide policies, strategies, planning, and evaluation to eliminate health disparities.

Office of Equal Employment Opportunity

The Office of Equal Employment Opportunity provides agency leadership on all matters related to equal employment opportunity (EEO), alternative dispute resolution, and reasonable accommodations. This office:

- Provides oversight for EEO complaints processing.
- Ensures alternative dispute resolution is available to all CDC and ATSDR employees for resolving conflict or disputes informally and confidentially.
- Maintains a work environment in which persons with disabilities receive full and fair consideration for any job for which they apply.
- Provides reasonable accommodation to employees with disabilities in order to perform their essential job functions.

Infectious Diseases Community of Practice

The Deputy Director of Infectious Diseases (DDID) leads a community of practice providing agency-wide leadership to promote and facilitate science, programs, and policies to reduce the burden of infectious diseases in the United States and globally. This includes:

- Supporting internal and external partners to advance infectious disease prevention programs and priorities.
- Providing national and global leadership and expertise in preventing and controlling infectious diseases by developing a strong foundation for advancing public health research.
- Building capacity with partners throughout the world to protect Americans at home and abroad.
- Providing strategic leadership to and enhance coordination among CDC’s three infectious disease national centers.

CDC's infectious disease national centers provide national and global leadership and expertise in preventing and controlling infectious diseases, ensuring a strong foundation for advancing public health research and building capacity with partners throughout the world. OI’s national centers include:

- National Center for Emerging and Zoonotic Infectious Diseases
- National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
- National Center for Immunization and Respiratory Diseases

Non-infectious Diseases Community of Practice

The Deputy Director for Non-infectious Diseases provides agency-wide strategic direction and leadership for the prevention of noncommunicable diseases, injury, disabilities, and environmental health hazards in the United States and globally. This includes:

- Strengthening prevention of noncommunicable disease, injuries, and disabilities.
- Enhancing integration and inclusion of noncommunicable diseases, injuries, disabilities, and environmental health across CDC and within the larger public health community.
- Increasing collaboration and innovation across noncommunicable diseases, injury prevention, disabilities, and environmental health.

CDC's non-infectious diseases national centers provide leadership and expertise in preventing and controlling noncommunicable diseases, ensuring a strong foundation for advancing public health research, and building capacity with partners. These national centers include:

- National Center on Birth Defects and Developmental Disabilities
- National Center for Chronic Disease Prevention and Health Promotion
- National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
- National Center for Injury Prevention and Control

Public Health Science and Surveillance Community of Practice

The Deputy Director for Public Health Science and Surveillance coordinates leads, promotes, and facilitates science, surveillance, standards and policies to reduce the burden of diseases. CDC national centers and offices in the Public Health Science and Surveillance Community of Practice provide national leadership in health statistics, disease surveillance, laboratory safety and services and science policy. They include:

- National Center for Health Statistics
- Center for Surveillance, Epidemiology and Laboratory Service
- Office of Science
- Office of Laboratory Science and Safety

Public Health Services and Implementation Science Community of Practice

The Deputy Director for Service and Implementation Science and staff is to lead, promote, and facilitate science, programs and policies to identify and respond to public health threats, both domestically and internationally. CDC national centers and offices in the Service and Implementation Science Community of Practice provide leadership to states, territories, tribes, localities and to other countries and multilateral organizations regarding public health services. They include:

- Center for Preparedness and Response
- Center for Global Health
- Center for State, Tribal, Local and Territorial Support
- Office of Minority Health and Health Equity

Office of the Chief Operating Officer

Business services offices support CDC by administering the agency's budget, grants and contracts, facilities, physical security, workforce health and wellness, human resources, and information technology programs. The Public Health Leadership and Support budget funds the Office of Appropriations and the OCOO Office of the Director. The OCOO leads activities in alignment with the President's Management Agenda and the Cross-Agency Priority (CAP) goals.

CDC Washington Office

The CDC Washington Office (CDC/W) provides support to CDC on legislative and policy issues. CDC/W also represents the agency in Washington, D.C., to the Department of Health and Human Services, other agencies, and the Washington, D.C. policy community. CDC/W is the main point in CDC for receiving requests for information and assistance from the Congress. CDC/W works closely with CDC's Office of the Director, program leadership, policy offices, and CDC's Office of Appropriations to respond to those requests.

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BUILDINGS AND FACILITIES

(dollars in millions)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Budget Authority	\$270.000	\$30.000	\$30.000	\$0.000
Nonrecurring Expenses Fund ¹	\$240.000	N/A	N/A	N/A
Total Request	\$510.000	\$30.000	\$30.000	\$0.000

¹ Nonrecurring Expenses Fund transfer of \$240.0M was directed in the Consolidated Appropriations Act, 2018.

Safe, secure, and fully operational laboratories, buildings, and facilities equip CDC with the space needed to protect Americans from new disease threats and address evolving public health needs. Buildings and Facilities funds replace, maintain, and improve existing facilities as well as construct new facilities to meet CDC’s mission. CDC’s facilities support the dedicated personnel who work to protect Americans from health threats every day.

CDC’s building repair and improvement needs are nationwide—covering CDC-owned facilities in seven states and San Juan, Puerto Rico. Investments in facility repair and improvement remain relatively consistent, while the gross square footage of CDC’s assets has nearly doubled since 2000. The current backlog of maintenance and repair exceeds \$162 million and continues to grow. Failing equipment in laboratories, frequent water leaks, and other urgent and costly emergency repairs are a result of aging facilities. Unexpected emergencies like these hinder CDC’s ability to address the growing backlog of routine maintenance and repair and can halt laboratory and mission support work.

CDC BUILDINGS AND FACILITIES

BY THE NUMBERS...

- **7.1 million**--gross square feet of space supporting CDC’s public health mission.
- **3.1 million**--gross square feet of Biosafety Level 2, 3, and 4 infectious disease laboratories.
- **171**--owned assets, including 145 buildings and 26 support structures.
- **86**--facilities over 40 years old.
- **\$3.8 billion**--functional replacement value of CDC buildings and facilities.

CDC’s ability to respond to infectious disease threats depends upon operational readiness of laboratories. Laboratory operations are demanding on building systems, causing more rapid deterioration than for a comparable office building. The cost to maintain laboratory space is approximately 40% higher per square foot than office space.

CDC’s current High Containment Laboratory (HCL) space was constructed in 2005. The HCL's Building Automation System (BAS) is nearing its end-of-life. Estimates suggest that the BAS could fail by 2024 - putting the safety of staff and animals in the building at risk. CDC will prioritize investments in repairs and improvements to the HCL to avoid failures of the HCL's BAS. The CDC critical facilities plan includes a new High Containment Continuity Laboratory (HCCL) building, funded in FY 2018. The HCCL will be fully operational in 2025 and will enable CDC to continue to protect, defend, and respond to infectious disease threats involving high consequence pathogens. The HCCL will also increase the critical capacity needed to carry out CDC's mission while the current HCL is repaired, without impacting critical program work.

Examples of CDC’s ongoing public health activities with pathogens that require high containment laboratory capacity include:

- Risk assessment studies to determine the pandemic potential of emerging influenza viruses (H5Nx, H7N9, H3N2v) and assessments of candidate vaccine viruses.
- Work in support of the American and global smallpox research agenda, critical since CDC’s HCL space is one of only two laboratories in the world where smallpox research can be conducted.
- Ensuring U.S. preparedness and response capacity to illnesses caused by severe and life-threatening hemorrhagic fever viruses such as Ebola, Marburg, Nipah, Rift Valley fever, Crimean-Congo hemorrhagic fever, and Lassa fever viruses, and other category A select agents.
- Support for work with more than 30 highly dangerous pathogens, including hantavirus, endemic in the United States and for which reports of prevalence have increased in recent years.

Buildings and Facilities Funding History	
Fiscal Year	Dollars (in millions)
2016	\$10.000
2017	\$10.000
2018 Budget Authority	\$270.000
2018 Nonrecurring Expenses Fund ¹	\$240.000
2019 Enacted	\$30.000
2020 President's Budget	\$30.000

¹ Nonrecurring Expenses Fund transfer of \$240.0M was directed in the Consolidated Appropriations Act, 2018.

With facilities and rental properties around the United States, CDC continues to identify opportunities for future investment that will save money and ensure facilities are safe and current for the critical work that needs to be accomplished.

Budget Request

CDC’s FY 2020 request of **\$30,000,000** for Buildings and Facilities is level with the FY 2019 Enacted level. Buildings and Facilities funding supports major renovations to existing buildings, as well as repair and improvements (e.g., laboratory ventilation upgrades, structural repairs, roof replacements, and electrical and mechanical repairs) necessary to restore, maintain, and improve CDC’s assets. Separate from CDC’s buildings

and facilities funding, capital leases, utilities, and operations and maintenance contracts for CDC-owned buildings and facilities are funded through the Working Capital Fund.

CDC laboratories and facilities are the stronghold for the nation's defense against health threats, and these facilities are deteriorating. The FY 2020 request of \$30,000,000 will repair and improve CDC's active, owned buildings. The current backlog in maintenance and repair exceeds \$162 million. Significant investment in Buildings and Facilities will protect these assets through a rigorous, preventive maintenance program. This investment is critical to keeping CDC facilities fully functional and prepared to respond to the next disease threat to our nation.

CDC prioritizes repair and improvement projects by need and available funding. Fire, life safety, and emergency projects are high-priority, and several high priority projects remain undone. Aging infrastructure in laboratory buildings at all locations requires major mechanical, electrical, and plumbing system replacements. Equipment in these systems will be replaced with the FY 2020 request. Examples include: built-in laboratory equipment, roofs, chillers, and boilers. Building support systems and components need to be replaced or repaired, including elevators, foundations, fire alarm systems, and heating, ventilation, and air conditioning systems.

With the request of \$30,000,000 in FY 2020, CDC will:

- Execute fire, life safety, and mission support projects.
- Reduce the current backlog of maintenance and repair.
- Replace technologically antiquated mechanical and electrical infrastructure.
- Improve campus energy and water efficiency in alignment with federal requirements.

CDC will complete critical program support projects and facilities maintenance in FY 2020, priorities include:

- Renovate the elevators in 31 year old laboratory building on the Roybal Campus. Elevators are part of the primary building infrastructure and in need of restoration.
- Renovate or replace chillers in the central utility plant, providing a key utility for facilities at the Chamblee Campus.
- Replace the uninterruptable power supply in Environmental Health Laboratory that improves the detection, diagnosis, treatment, and prevention of diseases resulting from exposure to environmental chemicals and selected other diseases that require advanced laboratory measurement for accurate diagnosis.
- Replace the fire and potable water distribution system in Pittsburgh, PA. This is an antiquated, problematic system that is more than 40 years old and has failed numerous times disrupting occupational safety and health research.
- Partial renovation of the building automation system in CDC's existing HCL. While CDC constructs the new HCCL, CDC will maintain its existing HCL with necessary repair and improvement funds to continue to provide high containment laboratory capacity for infectious disease research and avoid disruption of critical work with high consequence pathogens.

High Containment Continuity Laboratory

CDC has begun solicitation activities for a new Biosafety Level (BSL) 4 laboratory and associated infrastructure. The new High Containment Continuity Laboratory (HCCL) will enable CDC to continue to respond to infectious disease threats involving high consequence pathogens. The project is funded through \$240 million in previously appropriated budget authority and \$240 million from HHS' Nonrecurring Expenses Fund. The HCCL will provide approximately 95,000 gross square feet for research on smallpox, Ebola, Marburg virus, influenza, and other emerging viruses that is vital to the nation's public health security and state-of-the art biosafety features

including pathogen containment through high-efficiency HEPA filters and advanced security to restrict access to HCCL labs and support spaces.

CDC announced a presolicitation for design services and pre-construction services in the summer of 2018 and plans to award the construction management pre-construction services contract in early 2019. CDC plans to complete construction of the laboratory in 2023 and commission the laboratory in 2025.

Underground Mining Research Facility

As directed in the FY 2018 Consolidated Appropriations Act, CDC is proceeding with acquiring a replacement underground mining research facility to support mining research capabilities no longer available at the former NIOSH Lake Lynn facility. CDC holds prior year Buildings and Facilities funds for the purchase of the replacement site; however, these resources will not fully fund the replacement laboratory. CDC has identified a candidate site in Mace, WV. GSA and CDC are currently conducting an Environmental Impact Statement for the property. Pending available resources for site purchase, design, and construction, CDC could purchase the site in 2019.

Cincinnati

CDC and GSA issued a site solicitation in July 2016 for a new facility to consolidate NIOSH Cincinnati Research Facilities into one central location. This project is supported through HHS' Nonrecurring Expenses Fund. A potential site has been identified and environmental impact study assessment activities are underway. Site purchase is planned for spring 2019. Design and construction are anticipated to begin in FY 2019 with anticipated completion in 2021.

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NONRECURRING EXPENSES FUND (NEF)

(dollars in thousands)

	FY 2018 ²	FY 2019 ^{3,4}	FY 2020 ^{4,5}
CDC Notification¹	\$240,000	\$49,000	N/A

¹ Pursuant to Section 223 of Division G of the Consolidated Appropriation Act, 2008, notification is required of planned use.

² There was no Congressional notification for the planned uses of these NEF funds in FY 2018. The FY 2018 Consolidated Appropriations Act directed CDC to design and construct a High Containment Laboratory utilizing \$240,000,000 from budget authority and \$240,000,000 from the Nonrecurring Expenses fund.

³ Notification #6 submitted to the Committee on Appropriations in the House of Representatives and in the Senate on December 4, 2018.

⁴ Amounts notified are approximations of intended use. Amounts displayed here are current best estimates.

⁵ HHS has not yet notified for FY 2020.

Enabling Legislation Citation: Section 223 of Division G of the Consolidated Appropriations Act, 2008

Allocation Methods: Direct Federal, Competitive Contract

Program Description and Accomplishments

The Nonrecurring Expenses Fund (NEF) permits HHS to transfer unobligated balances of expired discretionary funds from FY 2008 and subsequent years into the NEF account. Congress authorized use of the funds for capital acquisitions necessary for the operation of the Department, specifically information technology (IT) and facilities infrastructure acquisitions.

The projects described below represent those that have been approved as of February 2019. Additional projects may be approved in FY 2019.

Cybersecurity

CDC is committed to securing information and information systems and has continued to enhance cybersecurity strategies and practices to ensure adequate safeguards are in place to protect agency data. The Government Accountability Office (GAO) audited security controls over CDC's systems made recommendations that must be remediated. To successfully remediate all GAO findings, CDC will utilize existing budget authority as well as NEF funds. CDC is investing \$15.5 million in agency resources toward the identification, prioritization, and mitigation of security vulnerabilities in FY 2018 and FY 2019. CDC received \$33.7 million from the NEF in FY 2018 to support further implementation and monitoring of security controls.

High Containment Continuity Laboratory

The 2018 Consolidated Appropriations Act directed CDC to utilize \$240.0 million from budget authority and directed another \$240.0 million to be transferred from the NEF to design and construct a high containment laboratory. The new High Containment Continuity Laboratory (HCCL) will enable CDC to continue to protect, defend, and respond to infectious disease threats involving high consequence pathogens. Safe, modern containment facilities help us to better protect Americans from the deadliest disease threats and emerging pathogens. The facility will provide CDC with approximately 95,000 gross square feet for research on smallpox, Ebola, Marburg virus, influenza, and other emerging viruses that is vital to the nation's public health security.

NIOSH Cincinnati Land Development

CDC will utilize a total of \$129.0 million from the NEF for a new consolidated facility in Cincinnati, Ohio providing approximately 235,000 gross square feet of office, laboratory, and support space for occupational safety and health. CDC received \$125.7 million from the NEF in FYs 2018-9 to complete the NIOSH facility, in addition to \$3.3 million from earlier fiscal years. The original intent was to purchase and renovate an existing building. CDC and GSA issued a site solicitation and no existing buildings met program needs. A site to build a new facility has been identified. CDC plans to develop this land and install appropriate infrastructure to make it suitable for program operations. The consolidation of the research facilities into one central location will improve scientific collaboration, provide adequate research facilities for the scientific programs, and reduce the recurring operational costs associated with two independent campuses.

Critical IT Infrastructure

CDC has received \$25.0 million from the NEF in FY 2019 to replace critical core infrastructure, including network equipment to ensure compliance with Federal standards. CDC's business and program systems need to be modernized due to operating on obsolete vendor software and legacy systems that rely on outdated or obsolete technologies. Investments in IT infrastructure include alignment with government mandates, critical core services needed to execute CDC's mission, and modernization improvements optimizing service delivery. To support IT infrastructure, CDC will replace aging network equipment, scientific core computing infrastructure, cell repeater equipment, and data center servers.

WORKING CAPITAL FUND

CDC FY 2020 WORKING CAPITAL FUND TABLE¹

(dollars in thousands)	CDC Programs	FY 2019 Estimate	FY 2020 Estimate
Immunization and Respiratory Diseases		\$51,499	TBD
HIV/AIDS, Viral Hepatitis, STI and TB Prevention		\$51,124	TBD
Emerging and Zoonotic Infectious Diseases		\$73,793	TBD
Chronic Disease Prevention and Health Promotion		\$40,318	TBD
Birth Defects, Developmental Disabilities, Disability and Health		\$10,412	TBD
Environmental Health		\$23,363	TBD
Injury Prevention and Control		\$15,781	TBD
Public Health Scientific Services		\$53,985	TBD
Occupational Safety and Health		\$36,033	TBD
Global Health		\$41,770	TBD
Public Health Preparedness and Response		\$40,256	TBD
CDC Wide Activities		\$29,810	TBD
	CDC Program Total	\$468,144	TBD
Other CDC Funding Sources			TBD
<i>Agency for Toxic Substances and Disease Registry</i>		\$8,220	TBD
<i>Energy Employees Occupational Illness Compensation Program Act (EEOICPA)</i>		\$2,928	TBD
<i>Vaccines for Children</i>		\$28,504	TBD
<i>World Trade Center</i>		\$8,985	TBD
<i>PEPFAR</i>		\$33,783	TBD
<i>Other Reimbursable Income</i>		\$18,357	TBD
Other CDC Programs Contributions Total		\$100,777	TBD
	Total CDC Programs Contributions	\$568,921	TBD

¹ Estimates are based on the WCF Governance Board approved operating budget of \$568,921,472 for FY 2019. The estimate is distributed across budget lines on a pro-rata basis until consumption data is collected and bills are issued. These estimates do not include: Specialized Service Agreements, adjustments for increases or decreases to program activities, or supplemental appropriations (e.g., Ebola and GHSA), which will result in a change to the consumption/billing across budget lines.

The Working Capital Fund (WCF) is a revolving fund with extended availability and serves as the funding mechanism for centralized business services support across CDC. Business service offices provide services to CDC programs and the WCF bills programs for the services consumed based on pre-established rates. Services include office and other space management, information technology, financial transactions, and security services.

In FY 2014, CDC base operations funding (Business Services Support) was transferred to all program budget lines to cover costs to establish and maintain the Working Capital Fund. The WCF helps maintain CDC's core operations to achieve the agency's public health mission.

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REIMBURSEMENTS AND TRUST FUNDS

(dollars in millions)	FY 2017 Actual	FY 2018 Actual	FY 2019 Estimate	FY 2020 Estimate
Reimbursements and Trust Funds	\$294.869	\$192.900	\$296.865	\$326.551

Authorizing Legislation: PHSA §§ 214, 301, 306(b)(4), 311, 353; Consolidated Appropriations Act, 2016 (P.L. 114-113)

CDC's reimbursable activities provide scientific and programmatic expertise to other agencies and organizations. CDC has a long history of partnering with other federal agencies in the shared interest of improving public health and prevention programs. Examples of these activities include:

- CDC will continue its longstanding agreements with other agencies of the Public Health Service, HHS, and others associated with CDC's health statistics studies. CDC will continue to provide scientific and programmatic expertise in areas such as genetic diseases, laboratory tests, investigations, development of worker safety guidance, and training and model screening programs.
- CDC will continue the association between the Epidemiology Program at Department of Veterans Affairs (VA) and the National Center for Health Statistics (NCHS). NCHS will perform searches of the National Death Index (NDI) for VA in research and surveillance studies. The Epidemiology Program conducts research and surveillance studies on the health of veterans to understand the causes and patterns of their health and illnesses. The data and research findings from these studies help VA health professionals improve healthcare practices for veterans. The findings also help VA leadership and Congress improve health policies for veterans.
- CDC will continue to work with the U.S. Agency on International Development (USAID) on various projects including the President's Malaria Initiative. PMI was launched in 2005 with the goal of reducing malaria-related mortality by 50% across 15 high-burden countries in sub-Saharan Africa. CDC contributes scientific expertise in the areas of insecticide-treated mosquito nests (ITNs), indoor residual spraying (IRS), accurate diagnosis and treatment with artemisine-based combinations therapies (ACTs), and intermittent preventive treatment of pregnant women (IPTp). To date, excluding the five new PMI countries announced in 2017, all 19 PMI focus countries in Africa have data from paired nationwide surveys and have documented declines in all-cause mortality rates among children under five.
- In addition to reimbursable agreements and user fees, CDC receives funds from Cooperative Research and Development Agreements (CRADAs) to enhance and facilitate collaboration between the agency's laboratories and various partners. CDC provides research personnel, laboratory facilities, materials, equipment, supplies, intellectual property, and other in-kind contributions, and uses the income from CRADAs to continue to improve programs.

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PERFORMANCE BY ACTIVITY

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IMMUNIZATION AND RESPIRATORY DISEASES

Immunization Program and Program Implementation and Accountability

Performance Measure for Long Term Objective: Ensure that children and adolescents are appropriately vaccinated

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
1.2.1c Achieve and sustain immunization coverage in children 19 to 35 months of age for one dose of MMR vaccine (Intermediate Outcome)	FY 2017: 91.5% Target: 90% (Target Exceeded)	90%	90%	Maintain
1.2.1h Achieve and sustain immunization coverage of at least 90% in children 19-35 months of age for at least 4 doses of pneumococcal conjugate vaccine (Intermediate Outcome)	FY 2017: 82% Target: 90% (Target Not Met)	90%	90%	Maintain
1.2.1i Achieve and sustain immunization coverage of at least 80% in children 19- to 35-months of age for 2-3 doses of rotavirus (Intermediate Outcome)	FY 2017: 73% Target: 74% (Target Not Met)	78%	80%	+2
1.2.2a Achieve and sustain immunization coverage of at least 80% in adolescents 13 to 15 years of age for 1 dose of Tdap (tetanus and diphtheria toxoids and acellular pertussis) (Intermediate Outcome)	FY 2017: 89% Target: 90% (Target Not Met but Improved)	90%	90%	Maintain
1.2.2b Achieve and sustain immunization coverage of at least 80% in adolescents 13 to 15 years of age for 1 dose of meningococcal conjugate vaccine (MenACWY) (Intermediate Outcome)	FY 2017: 85% Target: 87% (Target Not Met but Improved)	87%	87%	Maintain
1.C Number of states (including the District of Columbia) achieving 65% coverage for 1 birth dose of hepatitis B vaccine (19–35 months of age) (Output)	FY 2017: 49 Target: 50 (Target Not Met but Improved)	51	51	Maintain
1.D Number of states (including the District of Columbia) achieving 30% coverage for influenza vaccine (6–23 months of age) (Output)	FY 2017: 48 Target: 49 (Target Not Met)	51	51	Maintain
1.E Number of states (including the District of	FY 2017: 48	51	51	Maintain

Columbia) achieving 25% coverage for up-to-date with the full series of human papillomavirus vaccine (13–17 years of age) (Output)	Target: 51 (Target Not Met)			
1.F Number of states (including the District of Columbia) achieving 45% coverage for ≥ 1 dose of Tdap vaccine (13–17 years of age) (Output)	FY 2017: 51 Target: 51 (Target Met)	51	51	Maintain
1.G Number of states (including the District of Columbia) achieving 45% coverage for ≥ 1 dose of meningococcal conjugate vaccine (13–17 years of age) (Output)	FY 2017: 51 Target: 51 (Target Met)	51	51	Maintain

Performance Measures for Long Term Objective: Increase the proportion of adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
1.3.1b Increase the percentage of adults aged 65 and older who are vaccinated with at least one dose of pneumococcal vaccine (Intermediate Outcome)	FY 2016: 67% Target: 79% (Target Not Met but Improved)	85%	85%	Maintain
1.3.2c Increase the percentage of non-institutionalized adults ages 19 to 64 at increased risk of pneumococcal disease who are vaccinated with at least one dose of pneumococcal vaccine ¹⁵⁹ (Intermediate Outcome)	FY 2017: 24% Target: 27% (Target Not Met)	29%	29%	Maintain
1.3.3a Increase the percentage of adults aged 18 years and older who are vaccinated annually against seasonal influenza (Intermediate Outcome)	FY 2017: 38% Target: 59% (Target Not Met)	66%	70%	Maintain

Performance Trends: Immunization continues to be one of the most effective public health interventions. CDC supports the implementation of state-based immunization programs making vaccines available to children, adolescents, and adults. CDC estimates that, among children born during 1994–2016, vaccination will prevent an estimated 381 million illnesses, 24.5 million hospitalizations, and 855,000 early deaths over the course of their lifetimes, at a net savings of \$360 billion in direct costs and \$1.65 trillion in total societal costs.¹⁶⁰

CDC achieved levels near or above national (Healthy People 2020) targets for most of the routinely recommended childhood vaccinations. Since FY 2010, measles, mumps, and rubella (MMR) vaccinations exceeded 90% coverage rates. Rotavirus vaccine coverage among children increased by four percentage points from 59% in FY 2010 to 73% in FY 2017. Four dose coverage of pneumococcal conjugate vaccine (PCV13) was 82% (Measure 1.2.1h) in FY 2017 and has remained about the same since FY 2010 (ranging from 82%-84%);

¹⁵⁹Measure language changed to ages 19–64, to align with the ACIP recommendation that pneumococcal vaccination start at age 19.

¹⁶⁰Benefits from Immunization during the Vaccines for Children Program Era – United States, 1994–2013. MMWR, 25 April 2014

however, coverage with three doses PCV13 has exceeded 90% since 2010. CDC has demonstrated an 87% decline in PCV13-type pneumococcal disease among children less than five years old in the U.S. Although CDC did not meet targeted coverage rates for PCV, strategies to improve the fourth dose of PCV coverage are in place and are similar to those used to improve the uptake of other vaccines, and CDC expects similar gains in the future.

Though CDC did not meet the FY 2017 target for adolescent vaccination coverage against human papillomavirus (HPV) – 48 states, plus DC vs. 50 states plus DC, partnerships and roundtables at the national, state, and local levels have helped raise HPV coverage (Measure 1.E). At the end of 2016, CDC's Advisory Committee on Immunization Practices (ACIP) revised the HPV vaccination recommendation – adolescents starting the vaccine series before age 15 years should receive two doses separated by 6–12 months, all others should receive three doses. We anticipate that the change in recommendation will make it easier for clinicians to provide quality care and protect their patients from cancers caused by HPV infections. CDC will continue to monitor the implementation of this new recommendation.

CDC missed the target for tetanus, diphtheria, and pertussis (Tdap) and meningococcal conjugate vaccine in FY 2017. While Tdap vaccine coverage increased from 74% in FY 2010 to 89% in FY 2017, it is just below the FY 2017 target of 90% (Measure 1.2.2a). Meningococcal conjugate vaccine (MCV4) coverage increased from 65% in FY 2010 to 85% in FY 2017, which is also below its 87% FY 2017 target (Measure 1.2.2b). Most states achieved target coverage rates for select child and adolescent vaccinations (Measures 1.C-1.G) in FY 2017, with little to no change from states' FY 2016 vaccination coverage rates. Strategies to improve vaccination coverage include provider assessment and feedback, use of reminder and notification systems, immunization information systems, and regular assessment of coverage levels in the National Immunization Survey.

During the past decade, vaccination coverage levels among older adults increased slightly as CDC implemented national strategies and partnered with state and local public health departments to promote adult immunization among healthcare providers and state and local governments. Pneumococcal vaccination for adults 65 and older has stayed within the range of 60% to 67% over the past five years and FY 2017 results improved over FY 2016 by three percentage points (67% vs. 64%) (Measure 1.3.1b). In 2014, ACIP recommended that adults receive two types of pneumococcal vaccine: one dose of PCV13 followed by a dose of PPSV23. Surveys assessing vaccination coverage are currently unable to determine which pneumococcal vaccine has been received; therefore, CDC is only able to assess receipt of at least one dose. CDC reset the baseline for measure 1.3.2b to correspond to these assessments. Although CDC did not meet the FY 2016 or 2017 targets for pneumococcal vaccination coverage among noninstitutionalized adults at increased risk for pneumococcal disease, there was a slight improvement over the baseline (1.3.2c). Measure 1.3.3a reflects the universal influenza vaccination recommendation and aligns with ACIP's recommendation (as of 2010) for the seasonal influenza vaccine. Seasonal influenza vaccination rates for adults ages 18 years old and over increased slightly from 42% in FY 2015 to 43% in FY 2016 then decreased to 38% in FY 2017. Interpretation of these results should take into account limitations of the survey, including reliance on self-report of vaccination status and decreasing response rates. No decreases in flu vaccination coverage were seen in preliminary estimates from claims-based data systems. Flu vaccination coverage among adults remains at about four in 10 adults reporting receipt of a flu vaccination

CDC's efforts to improve adult vaccination coverage rates include:

- Increasing patient and provider education to improve demand and implement system changes in practitioner office settings to reduce missed opportunities for vaccinations.
- Funding state and local health departments to implement the Standards for Adult Immunization Practice in large health care systems, community health centers, pharmacies, and other settings.
- Partnering with professional organizations (e.g., American Pharmacists Association, American College of Physicians, American Academy of Family Physicians, American College of Obstetricians and Gynecologists) and other organizations (e.g., National Association of Chain Drug Stores, National

Association of Community Health Centers, American Immunization Registry Association) to develop and implement strategies to improve adult immunization at provider, practice, and systems levels.

- Enhancing evidence-based communication campaigns to increase public awareness about adult vaccines and recommendations. CDC routinely conducts literature reviews and surveys of the general public and healthcare providers to provide a deeper understanding of the target audiences for development of adult immunization communication messages and campaigns.
- Partnering with the National Adult and Influenza Immunization Summit, a national coalition of partners and stakeholders represented by clinicians, public health, industry, government, and other entities with the common goal to promote immunization for adults.
- Expanding the reach of vaccination programs including new venues such as pharmacies and other retail clinics. CDC has existing partnerships to implement adult immunization practice standards, HPV vaccination, and pandemic vaccine program planning efforts to expand access to pandemic vaccine. As of 2016-2017 influenza season, nearly one in four adults who got an influenza vaccine were vaccinated in a pharmacy or retail setting.

Performance Measures for Long Term Objective: Improve vaccination safety and effectiveness

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
1.5.2 Increase the number of associations between vaccines and adverse health events evaluated to ensure the safety of vaccines used in the U.S. (Outcome)	FY 2017: 901 pairs Target: 512 pairs (Target Exceeded)	853 pairs	1,050	+197
1.H Percentage of Vaccine Events Reporting System (VAERS) reports received electronically (Output)	FY 2018: 78% Target: 43% (Target Exceeded)	46%	70%	+24

Performance Trends: CDC is the nation’s leading public health agency responsible for providing a safe, effective supply of all licensed vaccines approved for use in the United States. CDC conducts post-licensure vaccine safety monitoring on vaccines licensed and recommend for routine use in the public by ACIP. CDC uses the Vaccine Safety Datalink ¹⁶¹ (VSD) Network and the Vaccine Adverse Event Reporting System¹⁶² (VAERS) to monitor vaccine safety. VAERS is a joint effort with the U.S. Food and Drug Administration (FDA). Together, these surveillance systems evaluate vaccine risks, monitoring any known and potential adverse events for vaccines, and rapidly detecting unusual patterns of vaccine adverse events. In addition, VSD works with multiple integrated health systems to conduct vaccine safety pair studies to further assess whether any adverse health events are actually caused by vaccines. For example, recent CDC VSD studies continue to conclude that administering vaccines such as Tdap and influenza, the only two vaccines that women can receive while pregnant, are safe and do not increase the risks of premature births, structural birth defects, infant hospitalization or death, and/or severe vaccine reactions in pregnant women.

In FY 2017, there were 148 additional vaccine-adverse event pair studies conducted through VSD totaling 901 pair studies conducted to-date. This exceeds CDC’s FY 2017-2019 targets (Measure 1.5.2) and nearly doubles total vaccine-adverse event pair studies conducted since FY 2014. Data from VSD and other CDC studies show that the current U.S. vaccine supply is the safest in history.

Electronic submission of VAERS vaccine safety reports helps to improve program decision-making by increasing the timeliness, quality, and quantity of these vaccine safety reports and enhances CDC’s ability to quickly evaluate and disseminate safety information to healthcare providers and consumers. For example, VAERS reporting helped identify an issue related to vaccine administering errors for certain vaccines. Failure to

¹⁶¹<http://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vsd/index.html>

¹⁶²<http://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vaers/index.html>

administer vaccines correctly could lead vaccine recipients to be at risk for preventable diseases (e.g., pertussis and meningococcus disease) and other adverse health events. CDC continues to use this data to raise awareness to clinicians on proper methods for administering and preparing specific vaccines to prevent potential adverse events and health risks¹⁶³.

At this time, approximately 78% of all VAERS reports were submitted electronically in FY 2018, which exceeds the target and is more than a 30% increase compared to FY 2017 (Measure 1.H). CDC and FDA continue to implement these information technology enhancements to further increase electronic reporting in VAERS in 2018. Improvements include updates to the VAERS reporting interface to facilitate electronic reporting and additional revisions to the VAERS form for more direct electronic reporting. Overall, CDC and FDA expect an increase in electronic reporting to VAERS going forward.

Influenza Planning and Response

Performance Measures for Long Term Objective: Protect Americans from infectious diseases – Influenza

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
1.K Number of jurisdictions with at least 1.5 state/local health department laboratorians or influenza coordinators trained and funded through Epidemiology and Laboratory Capacity (ELC) grant (output)	FY 2018: 57 Target: 54 (Target Exceeded)	54	57	+3
1.M Number of virus specimens received and fully characterized using deep sequencing from global National Influenza Centers for use in determining vaccine strain selection annually ¹ (Output)	FY 2018: 6,980 Target: 6,000 (Target Exceeded)	7,000	7,000	Maintain
1.O Increase the percentage of influenza partner countries with a Severe Acute Respiratory Infection (SARI) surveillance system that demonstrate the capacity to improve flu detection and response by conducting syndromic surveillance for flu and other respiratory pathogens (Output)	FY 2017: 84% Target: 70% (Target Exceeded)	80%	84%	+4
1.P Percentage of influenza partner countries reporting data routinely into WHO FluNet (Output)	FY 2017: 90% Target: 80% (Target Exceeded)	80%	90%	+10

Performance Trends: As a World Health Organization (WHO) Collaborating Center for Influenza, CDC enhances global capacity to monitor influenza viruses and inform vaccine policy and treatment recommendations.

Domestic Surveillance

CDC enhances state and local capacity to gather influenza epidemiology and laboratory data for systematic and accurate surveillance of seasonal and novel influenza viruses by providing training and resources to its grantees. In FY 2018, 57 jurisdictions had at least 1.5 state/local health department jurisdiction or influenza coordinators

¹⁶³<https://www.cdc.gov/mmwr/volumes/65/wr/mm6506a4.htm>

trained and funded through the Epidemiology and Laboratory Capacity (ELC) grant, exceeding the target by three (Measure 1.K). Maintaining this support for state/local public health capacity is paramount to the success of domestic surveillance for both seasonal and pandemic influenza preparedness.

Through CDC's Influenza Reagent Resource¹⁶⁴ (IRR), CDC distributes its flu diagnostic kits to all qualified state and local public health laboratories engaged in virologic surveillance testing to ensure the availability of timely diagnostic resources domestically and globally. This significantly reduces the financial burden for states. The decrease in the number of kits shipped is an indicator of increased efficiency in the IRR system, where kits are distributed based upon need, and is not an indicator of a problem with the IRR. During the FY 2018 influenza season, CDC received and characterized 6,980 virus specimens using deep sequencing from the global National Influenza Centers for use in vaccine strain selection. While this number is an increase from FY 2017, CDC has completed its goal of fully converting to next-generation whole-genome sequencing (NGS) for virus characterization. CDC has worked extensively with its state and local partners to determine an appropriate representative sample of virus specimens to fully characterize. This process is called "right-sizing" and is a significant program performance enhancement, aimed at achieving more targeted results efficiently and streamlining resources. A targeted range of 4,000-7,000 viruses fully characterized using NGS is appropriate for each seasonal flu epidemic. This number will rise and fall annually, depending upon the incidence of disease and severity of each flu season.

Global Surveillance

CDC strengthens Global Health Security by equipping partner nations' capacity to improve and sustain their influenza detection and response capabilities through timely reporting into their respective Severe Acute Respiratory Infection (SARI) surveillance systems and the submission of influenza samples to WHO FluNet. In FY 2017, 84% of partner countries demonstrated the capacity to improve flu detection and response by conducting syndromic surveillance for flu and other respiratory pathogens (Measure 1.O), exceeding its FY 2017 target by 20%. CDC's efforts to strengthen international influenza monitoring, evaluation, lab testing, and pandemic preparedness have resulted in an increase in the number of countries reporting to WHO FluNet from 40% in FY 2005 to 90% in FY 2017. This includes increases of 10 percentage points each year from FY 2015-FY 2017 (Measure 1.P).

¹⁶⁴<https://www.influenzareagentresource.org/>

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS, AND TUBERCULOSIS

Domestic HIV/AIDS Prevention and Research

National Level Performance Measures and CDC Contextual Indicators for Long Term Objective: Reduce new HIV infections¹

Contextual Indicators	Most Recent Result	FY 2020 Target
2.1.1 Reduce the number of new HIV diagnoses by at least 25 percent	FY2016: 40,142	32,855
2.1.3 Increase the percentage of people living with HIV who know their serostatus (Outcome)	FY 2015: 85.5%	90%
2.1.9 Reduce the number of new HIV infections by 25%	FY 2015: 38,500	31,400
2.1.10 Increase the percentage of persons with diagnosed HIV infection who are virally suppressed to at least 80%	FY 2015: 59.8%	80%

¹ CDC's HIV contextual indicators have been updated and now reflect national level strategies, planning, and measurement.

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
2.1.7 Increase the proportion of adolescents (grades 9-12) who abstain from sexual intercourse or use condoms if currently sexually active (Outcome)	FY 2017: 87.1% Target: 86.9% (Target Exceeded)	87.5%	N/A	N/A

¹Targets and results reported every 2 years.

National Level Performance Measure and CDC Contextual Indicator for Long Term Objective: Increase access to care and improve health outcomes for people living with HIV

Contextual Indicators	Most Recent Result	FY 2020 Target
2.2.1 Increase the percentage of persons with newly diagnosed infections linked to HIV medical care within one month of their HIV diagnosis to at least 85 percent ¹ (Contextual Indicator)	FY 2016: 75.9% (Target Not Met but Improved)	85%

¹This contextual indicator has been changed from linkage within three months of HIV diagnosis to linkage within one month of HIV diagnosis.

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
2.2.2 Increase the percentage of HIV-infected persons in CDC-funded counseling and testing sites who were referred to	FY 2016: 90.2% Target: 85% (Target Exceeded)	85%	85%	Maintain

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
Partner Services to confidentially notify and provide HIV testing and prevention services to partners who may be infected (Outcome)				
2.2.3 Increase the percentage of HIV-infected persons in CDC-funded counseling and testing sites who were referred to HIV prevention services to reduce risk of HIV transmission to others (Outcome)	FY 2016: 83.6% Target: 80% (Target Exceeded)	80%	80%	Maintain
2.2.4 Increase the number of states that report all CD4 and viral load values for HIV surveillance purposes (Output)	FY 2017: 44 ¹ Target: 43 ² (Target Exceeded)	45 ³	45 ³	Maintain

¹ 44 + DC

² 43 + DC

³ 45 + DC

Performance Trends: As the number of persons with HIV increases due to better, life-prolonging treatments, so does the demand for CDC prevention activities. The estimated number of people with HIV in the United States is 1.1 million with an estimated 38,500 new HIV infections in 2015. CDC monitors HIV through the National HIV Surveillance System¹⁶⁵ using the data to direct prevention efforts and provide researchers, policymakers, and the public with a timely understanding of HIV trends in the U.S. Reducing the number of new HIV infections is a shared national and CDC priority. During 2010-2015, new HIV infections decreased eight percent. The percentage of persons with diagnosed HIV infection at year-end 2015, compared with 2010, increased from 83.1% to 85.5% in the United States (Contextual Indicator (CI) 2.1.9).¹⁶⁶

In 2016, there were 40,142 new HIV diagnoses in the United States, an improvement from 2015 in reducing the number of new diagnoses (CI 2.1.1). CDC's analysis of HIV diagnoses data from 2012 to 2016 reveals signs of an encouraging decrease in HIV diagnoses among several key populations, including heterosexuals, people who inject drugs (PWID), and Blacks/African Americans, with particularly steep declines among African American women. Diagnoses continue to be highest among African Americans compared to other racial/ethnic groups and higher in the South compared to other regions. Annual diagnoses among men who have sex with men (MSM) overall and young MSM aged 13-24 years remain stable, and are continuing to decline among women. These trends suggest that intensified HIV testing and prevention efforts among black gay and bisexual men are having an impact.¹⁶⁷ Diagnoses among persons aged 25-34 years, specifically MSM in this age group, as well as American Indians/Alaskan Natives and Asians increased in the same time period. Annual diagnoses also

¹⁶⁵With more than 80 percent of diagnosed cases reported, HIV and AIDS case surveillance data meet high standards for completeness of reporting.

¹⁶⁶Johnson, Anna Satcher. "Estimated HIV Incidence, Prevalence, and Undiagnosed Infections in the US States and Washington, D.C.: JAIDS Journal of Acquired Immune Deficiency Syndromes." LWW, 2017

¹⁶⁷CDC Fact Sheet: Trends in U.S. HIV Diagnoses, 2005-2014. December 2015. Available at www.cdc.gov/nchhstp/newsroom/fact-sheets.html.

continued to increase among Hispanic/Latino MSM and white PWID.¹⁶⁸ However, public health must continue these focused efforts to maintain the positive trends. Among regions most affected and among groups at substantial risk for HIV, accelerated efforts must continue to ensure access to testing, treatment, and prevention strategies, to ensure that every American has the knowledge and tools needed to protect themselves and their partners from HIV infection.

Diagnosis of HIV is only the first step in reducing infection. It is estimated that 40% of all transmissions come from those unaware of their HIV status and 38% of transmissions from those aware but not in care¹⁶⁹. Patients must be linked to, and retained in medical care to achieve and maintain viral suppression [having very low levels of HIV (viral load) present in the body]. Evidence shows that viral suppression helps people with HIV to maintain their health and also prevents sexual transmission of HIV to others. In 2015, 59.8% of persons with diagnosed HIV infection were virally suppressed, exceeding the 2014 result of 57.9% by two percentage points (CI 2.1.10). Recognizing the benefits of early treatment, and linkage to HIV medical care for all persons with newly diagnosed HIV infection, CDC's linkage to care goal changed from within three months of diagnosis to within one month of diagnosis. CDC is working to meet the national HIV prevention goal of ensuring 85% of all persons with diagnosed HIV are linked to medical care within one month of diagnosis (linkage was 70.2% in 2010 (baseline year) and improved to 75.9% in 2016, nearly meeting the FY 2016 target and an increase over the FY 2015 results (Measure 2.2.1).

The majority of Americans with HIV are aware of their infection due, in part, to expanded HIV testing efforts. CDC estimates that 85.5% of people with HIV were aware of their status in 2015, up from 83.1% in 2010 (CI 2.1.3). This means one out of seven people with HIV in 2015 did not know their status. CDC directly funds testing that identifies one-third of the HIV diagnoses each year. CDC's Expanded Testing Initiative prevented an estimated 3,380 HIV infections in its first three years and saved an estimated \$1.2 billion in direct medical costs¹⁷⁰. Data for FY 2016 indicate that CDC-funded health department HIV testing programs performed 3 million HIV tests, further increased routine HIV testing in health care and community settings, and identified about 12,000 previously undiagnosed cases of HIV infection.¹⁷¹ Testing provides a bridge to care for people with HIV. For those who receive an HIV diagnosis, the test is the first step toward care and treatment. For those who are not infected, but at risk, testing opens the door to prevention services, like pre-exposure prophylaxis (PrEP) that can keep them healthy and HIV free.

Partner services programs are essential in preventing and controlling HIV in the United States and offer benefits to three principal groups: persons with HIV, their partners, and the community. A function of partner services is notifying partners of persons with diagnosed HIV infection of their possible HIV exposure and risk. Other functions of partner services interventions include prevention counseling, testing for HIV and other STIs, treatment or linkage to medical care, and linkage or referral to other prevention and social services. Partner services have been associated with positive behavior changes and reduced risk for HIV infection, along with reduced HIV transmission. Referrals to partner services increased for people with diagnosed HIV in publically funded HIV testing sites from 85% in 2013 to 90.2% in 2016, exceeding the FY 2016 target (Measure 2.2.2). Among all people newly diagnosed with HIV, 74% were interviewed for partner services.¹⁷² In 2016, 97% of the 22,083 notifiable partners identified through partner services interventions were notified of their potential HIV exposure. Of the 6,660 partners tested and who had a documented HIV test result, 1,670 were newly identified with an HIV diagnosis.¹⁷³ Additionally, while referrals for these individuals to other HIV prevention services held steady at 78.9% in 2015, they increased in 2016 to 83.6%, exceeding the FY 2016 target (80%) by almost four

¹⁶⁸<https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2017-vol-29.pdf>

¹⁶⁹Gopalappa, C., Farnham, P.G., Chen, Y., & Sansom, S.L. (2016). Progression and Transmission of HIV/AIDS (PATH 2.0): A new, agent based model to estimate HIV transmission in the United States. *Medical Decision Making*, 37(2), 224-233.

¹⁷⁰Farnham PG, et al. Updates of lifetime costs of care and quality-of-life estimates for HIV-infected persons in the United States: Late versus early diagnosis and entry into care. *JAIDS* 2013. 64:183-189.

¹⁷¹https://www.cdc.gov/hiv/pdf/library/reports/cdc-hiv-funded-hiv-testing-report-2016_1.pdf

¹⁷²https://www.cdc.gov/hiv/pdf/library/reports/cdc-hiv-funded-hiv-testing-report-2016_1.pdf

¹⁷³<https://www.cdc.gov/hiv/pdf/library/reports/cdc-hiv-partner-services-annual-report-2016.pdf>

percentage points (Measure 2.2.3). CDC prioritizes these services in its health department HIV prevention and surveillance program because of the high proportion of newly identified HIV-positive persons. In 2018, CDC began awarding approximately \$400 million per year, over the next five years, to state and local health departments as the cornerstone of national HIV prevention and surveillance and will continue to provide expert advice and assistance to recipients to further improve performance in these areas.

CDC also supports efforts to get effective HIV biomedical prevention tools, like pre-exposure prophylaxis (PrEP), into the community and in the hands of persons who need them most. For those at high risk for HIV, PrEP can significantly reduce the risk of HIV infection if taken daily. To address barriers in prescribing PrEP among providers, in September 2016, CDC launched the Continued Education online program, Preventing HIV Infection in the Primary Care Setting: The Role of Pre-Exposure Prophylaxis (PrEP). After two years online, over 26,000 healthcare providers have learned about the use of PrEP in the primary care setting, including patient assessment and management, CDC guidelines, and tips for incorporating it into practice. More than 12,700 healthcare providers took the final test to earn credit for this program. A follow-up educational program was launched in September 2017, Advancing PrEP in Practice: Practical Strategies for Everyday Challenges. This continuing education opportunity allows providers to make clinical decisions around PrEP prescribing, monitoring and follow-up through video vignettes. As of October 1, 2018, more than 14,000 healthcare providers have accessed the course, with over 3,070 taking the final test for continuing education credits. CDC's newest online education opportunity for healthcare providers, Prescribe HIV Prevention, was launched in August 2018. This communication campaign supports healthcare providers to use PrEP and post-exposure prophylaxis (PEP) to prevent new HIV infections and improve health outcomes for patients at high risk for acquiring HIV infection. Prescribe HIV Prevention is part of CDC's Act Against AIDS communication campaign designed to help reduce HIV incidence in the United States. CDC also supports HIV prevention programs through technical assistance. Between April and November 2018, CDC responded to 126 requests for technical assistance related to PrEP and 37 PrEP-related trainings across the nation.

Data show an increase in awareness of PrEP and willingness to either use it or prescribe it, although additional awareness and implementation efforts are needed, particularly among most affected populations and their care providers, to scale up this highly effective biomedical intervention. Reflecting CDC's continued investment in supporting the nation's HIV prevention workforce and improving its overall performance, CDC will award approximately \$120 million, over the next five years, to provide capacity building assistance (CBA) for HIV prevention programs.

The crisis of prescription opioid and heroin use is increasing unsafe, nonsterile injection practices nationally, threatening the successes made by preventing new HIV infections among PWID. While HIV infections attributed to injection drug use have been declining, recent data (2010-2015) show progress is slowing. In 2016, six percent of new HIV infections in the U.S. were among PWID. CDC supports state and local communities who wish to use Federal funds to implement syringe services programs (SSPs), after consulting with CDC and in accordance with state and local law. SSPs are comprehensive community programs that address drug use and infectious diseases. Based on existing evidence, SSPs, when part of a comprehensive HIV prevention strategy, can play a role in preventing HIV among PWID, can facilitate entry into substance use disorder treatment (including medication-assisted treatment) and medical and social services, and do not increase illegal drug use. As of December 2018, health departments in 44 states, one territory, and one tribal nation have adequately demonstrated need and received CDC concurrence according to Federal law. The opportunity for CDC and its grantees to use federal funds to support certain components of SSPs provides at-risk communities with an additional HIV prevention tool.

CDC-led studies and broader scientific evidence demonstrate that school health programs can positively impact health-risk behaviors, health and educational outcomes, and are cost effective. For example, one study found that every dollar invested in a school-based HIV, sexually transmitted infections (STI), and pregnancy prevention program saves \$2.65 in medical costs and social costs (including earnings-related outcomes, public assistance,

and other outcomes)¹⁷⁴. CDC is strengthening the health infrastructure of state and local education agencies and addressing critical health issues including HIV/AIDS, STIs, and teen pregnancy prevention in schools. For example, the percentage of high school students who have ever had sexual intercourse decreased from 54.1% in 1991 to 39.5% in 2017. The percentage of adolescents in grades 9 to 12 abstaining from sexual intercourse, or using condoms if currently sexually active, increased from 86.3% in FY 2013 to 87.1% in FY 2017, exceeding CDC's FY 2017 target (Measure 2.1.7). However, condom use among currently sexually active students decreased from 63.0% in 2003 to 53.8% in 2017.

CDC, in collaboration with state and local health departments, is working to better monitor the effects of HIV medical care through expanded reporting of CD4 and viral load test results. Test results are vital indicators of which patients are in care and virally suppressed, and those patients who have fallen out of care. In FY 2017, the number of states requiring reporting of all CD4 and viral load values, through law or regulation, increased to 44 states and D.C. (Measure 2.2.4). CDC data from 40¹⁷⁵ jurisdictions with complete laboratory reporting demonstrate progress on increasing linkage to care and viral suppression compared to previous national estimates. These jurisdictions represent 85.9% of persons with diagnosed HIV. CDC continues to prioritize expanded reporting of CD4 and viral load reporting in the HIV surveillance and prevention program.

With stronger reporting, CDC's Data to Care tools increase health department capacity to use routinely collected HIV surveillance data to identify and follow up with people with HIV who are not in care. CDC continues to learn best practices through Data to Care demonstration projects and related activities in the HIV surveillance and prevention program. From 2012-2016, seven health departments used HIV surveillance and other data to re-engage 82% of persons with HIV diagnosis in their jurisdictions who were known to be out of care and offered linkage or reengagement services. CDC expanded Data to Care activities to all U.S. health department jurisdictions in 2018.

Complete reporting of laboratory results that includes viral genetic sequence data also supports efforts to rapidly detect and interrupt active HIV transmission. Cluster detection and responses uses data routinely reported to health departments to identify communities where HIV may be spreading quickly. Once clusters are identified, public health officials can identify gaps in prevention and care services and direct resources to ensure that these services (engagement in care, partner services, HIV testing, PrEP, SSPs) reach the populations that need them most, which in turn saves health care dollars associated with HIV and other related health outcomes. In 2018, CDC collaborated with state health departments to address 54 clusters of HIV infections identified through CDC molecular analysis. Additionally, a CDC-developed tool that allows health departments to identify molecular clusters of HIV infections is currently in use by 38 health departments. HIV genetic sequence data are already routinely reported in many jurisdictions and have been used previously to understand the prevalence of drug resistance to guide public health action. CDC is working to ensure that all jurisdictions can incorporate HIV sequence data into existing laboratory reporting processes and address barriers to this reporting. Using these data in near-real time to inform prevention efforts requires close coordination between surveillance and prevention programs and between state and local programs.

¹⁷⁴Wang, L. Y., Davis, M., Robin, L., Collins, J., Coyle, K., & Baumler, E. (2000). Economic evaluation of Safer Choices: a school-based human immunodeficiency virus, other sexually transmitted diseases, and pregnancy prevention program. *Archives of pediatrics & adolescent medicine*, 154(10), 1017-1024.

¹⁷⁵ There are 44 states and DC with laws that require reporting of all CD4 and viral load test results. However, 40 jurisdictions met the criteria of complete lab reporting to be included in the monitoring report (i.e., have the law, 95% of labs are reporting to the state and 95% of labs received by the state are reported to CDC).

Viral Hepatitis

Performance Measures for Long Term Objective: Reduce the rates of viral hepatitis in the United States

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
2.6.1 Reduce the rate of new cases of hepatitis A (per 100,000 population) (Outcome)	FY 2016: 0.6/100,000 Target: 0.4/100,000 (Target Not Met)	0.3/100,000	0.3/100,000	Maintain
2.6.2 Reduce the rate of new cases of hepatitis B (per 100,000 population) (Outcome)	FY 2016: 1.0/100,000 Target: 0.9/100,000 (Target Not Met but Improved)	0.5/100,000	0.5/100,000	Maintain
2.6.4 Increase the number of state and local health departments reporting acute and chronic viral hepatitis data of sufficient quality to be included in national surveillance reports ¹ (Output)	FY 2017: 34 Target: 28 (Target Exceeded)	30	32	+2
2.6.6 Reduce the rate of new cases of hepatitis C (per 100,000 population) (Outcome)	FY 2016: 1.0/100,000 (Historical Actual)	0.33/100,000	0.25/100,000	-.08

¹In previous years, only states that received enhanced surveillance funding were included in the result. Starting in FY15, results reflect the number of states reporting both chronic and acute HBV and HCV in CDC's Viral Hepatitis' Surveillance Report for that year.

Performance Trends: In the United States, hepatitis A, B, and C viruses (HAV, HBV, and HCV) are the main causes of viral-induced hepatitis. It is estimated that 2.4 million people are living with hepatitis C infection and 850,000 are living with hepatitis B infection, which together are major causes of chronic liver disease and liver cancer. In contrast to the declining rate of deaths from other cancers, deaths from liver cancer are rising in the United States, with much of the increase attributed to viral hepatitis. After decades of annual increases in hepatitis C-related mortality, death rates have declined over the last two reporting periods (2015 and 2016).

Of particular concern is the rise in the number of new cases of viral hepatitis in the United States. Reported cases of acute hepatitis C increased about 3.5-fold from 2010 through 2016. The number of reported cases of acute hepatitis B decreased 4.5% between 2015 and 2016 to a rate of 1.0/100,000 population, not meeting the FY 2016 target (Measure 2.6.2). Additionally, as of December 2018, CDC has responded to 14 states experiencing outbreaks of hepatitis A among persons experiencing homelessness and/or people who use drugs. There have been over 10,000 outbreak-associated cases, over 5,600 hospitalizations, and 86 deaths.

Rates of reported hepatitis A reached a low point in 2014 for all age groups, with only an estimated 2,500 new cases after the hepatitis A vaccine was introduced in 1996. While vaccination coverage has increased, contributing to declines in hepatitis A infections among young children and adolescents, the variability in hepatitis A incidence rates over time highlights the importance of public health surveillance to identify and respond to hepatitis A outbreaks.

The opioid crisis (and injection of other substances) is largely responsible for increases in the incidence rates of hepatitis A, B, and C. The trends reflect inadequate access to effective prevention services, including access to drug treatment, vaccination, testing and treatment for persons infected with viral hepatitis, and sterile injection equipment.

CDC provides technical assistance to states for improving viral hepatitis surveillance. In May 2017, CDC awarded fourteen states (Florida, Georgia, Indiana, Kentucky, Louisiana, Massachusetts, New Jersey, North Carolina, Ohio, Oklahoma, Tennessee, Utah, Washington, West Virginia) with new funding to improve active surveillance of new hepatitis B and C infection in statewide jurisdictions; these 14 jurisdictions represent more than 70% of new cases of hepatitis B and C reported in the U.S. in 2014. In FY 2017 34 states reported acute and chronic viral hepatitis data, improving over the baseline by six states and exceeding the 2017 target (Measure 2.6.4).

Improvements in surveillance and monitoring would help to rapidly detect and prevent new viral hepatitis infections, as well as to assure that hepatitis C-infected persons receive appropriate care and curative treatment to avoid premature death and prevent transmission. CDC is introducing a new measure to track progress on this key priority area and measure success in preventing new hepatitis C infections. In FY 2016 new cases of hepatitis C infection increased about 3.5 fold from 2010, with a rate of 1.0/100,000 population (Measure 2.6.6). In collaboration with state and local health departments, CDC has investigated and reported outbreaks and alarming increases in hepatitis C transmission and related disease, and mortality risks associated with the opioid crisis. According to surveillance data and other studies, the new cases of hepatitis C have been predominantly among young, white persons with a history of injection drug use. The highest rates of new hepatitis C infections are reported among young adults in rural and small urban areas. However, the largest proportion of all new cases of HCV are reported from suburban and large urban areas reflecting the national scope of the hepatitis C epidemic. In at least 12 sites in 2015, increases in hepatitis C transmission were joined by increases in hepatitis B caused by poor vaccination coverage among at-risk adults.

CDC estimates that 2.4 million persons are living with hepatitis C in the United States, the majority of whom have moderate to severe liver disease that can be stopped with immediate testing, treatment, and cure of their hepatitis C infection. Unfortunately, half of Americans living with hepatitis C do not know they are infected and even fewer are receiving appropriate care and fewer still are receiving life-saving treatment. With millions of Americans living with hepatitis C, the burden of this disease is substantial and poses a serious threat not only to baby boomers (born between 1945-1965) who have the highest death rate associated with hepatitis C, but also to adults younger than 40 (including women of childbearing age), who have the highest rates of new infection. To help Americans receive hepatitis C testing, CDC expanded previous risk-based recommendations to call for a routine one-time test for all persons born during 1945-1965, a population representing 75% of all infected persons. This birth cohort is at greatest risk for hepatitis C-related mortality with an average age of death of 59 years.¹⁷⁶ CDC estimates that even modest implementation of these interventions can avert over 320,000 deaths from hepatitis C in the future.¹⁷⁷

Based on data from recent national health surveys conducted by CDC, at least 850,000 hepatitis-infected persons are living in the U.S. Studies based on other data estimate that as many as 2.2 million persons are living with HBV infection. Vaccination is the cornerstone of HBV prevention. The biggest challenges are 1) a timely dose of HBV vaccine to be given to newborns preferably within 24 hours of birth, and 2) improving vaccination coverage among at-risk adults. Virtually all newborns, when infected with hepatitis B, remain infected for life resulting in one in four dying of hepatitis B-related cirrhosis and liver cancer. The elimination of mother-to-child transmission of hepatitis B was an articulated goal in the National Academies' 2017 report, "A National Strategy

¹⁷⁶Centers for Disease Control and Prevention. Recommendations for the identification of chronic hepatitis C virus infection among persons born during 1945–1965. *MMWR*. 2012;61(RR-04):1-18.

¹⁷⁷Rein DB, Wittenborn JS, Smith BD, Liffmann DK, Ward JW. The Cost-effectiveness, Health Benefits, and Financial Costs of New Antiviral Treatments for Hepatitis C Virus. *Clin Infect Dis*. 2015 Jul 15;61(2):157-68.

for the Elimination of Hepatitis B and C," as well as the national Viral Hepatitis Action Plan¹⁷⁸; it is also the priority for CDC-funded Perinatal Hepatitis B Prevention Programs (PHBPP). Evaluation data confirm that perinatal hepatitis B prevention programs are an effective way of preventing infant hepatitis B infection. CDC is supporting PHBPP by facilitating laboratory reporting of hepatitis B-infected pregnant women from national commercial laboratories, and encouraging administration of the first dose of HBV vaccine routinely before hospital discharge, as recommended by the Advisory Committee on Immunization Practices (ACIP), and a National Quality Forum¹⁷⁹ hepatitis B birth dose coverage quality measure. In addition, CDC has updated recommendations to shorten the interval for post vaccination serologic testing of infants born to hepatitis B-infected mothers. This testing is performed to assess whether the child has responded to HBV vaccination or become infected with hepatitis B.

From 2014 to 2015, the number of new cases of HBV infection increased 21%. The rate of new infections of hepatitis B are highest among adults over 30 years of age - a population with low hepatitis B vaccination coverage. The increase in hepatitis B incidence is temporally associated with increases in injection drug use behaviors and transmission of other blood-borne viruses including hepatitis C.

CDC continues to pursue opportunities for reducing new hepatitis B infections in populations other than children. For example, CDC provided technical analyses to ACIP to expand recommendations for adult hepatitis B vaccination to include persons with diabetes aged 19–59 years, given the increased risk of hepatitis B infection in this population.

HAV is vaccine preventable and is the only preventable food-borne illness in the United States. Prior to the 1996 implementation of ACIP recommendations for hepatitis A immunization, an estimated more than 21,000 infections and 100 deaths occurred as a result of acute liver failure attributed to HAV each year. Through the implementation of effective immunization strategies, nationwide HAV incidence decreased approximately 97% since 1995. Since 2008, when coverage data began being reported, hepatitis A vaccine has had the lowest coverage level for any vaccine in the infant immunization schedule. Although hepatitis A vaccination coverage is increasing in the United States among children 19-35 months, the proportion of children who were fully vaccinated was only 57.7% in 2014. CDC did not meet its FY 2016 target of 0.4 cases of HAV per 100,000 population. Most adults are susceptible to hepatitis A, through lack of childhood exposure or vaccination, and are vulnerable to infection particularly during food-borne outbreaks of hepatitis A. Adults with hepatitis A have the highest risk for liver failure and death.

CDC continues to assist states to respond to large outbreaks of HAV related to contaminated food products and community-level, person-to-person transmission. In the current ongoing outbreaks, a large proportion of the affected populations are also infected with HCV, increasing the disease and hospitalizations related to these outbreaks. Between 2012 and December 2017, there have been six large HAV outbreaks investigated by CDC, with over 1,500 total cases reported and investigated in 2017 alone. Since March 2017, CDC has assisted several state and local health departments with hepatitis A outbreaks, spread through person to person contact, that have occurred primarily among persons who are homeless, persons who use injection and non-injection drugs, and their close direct contacts. Through December 2018, over 10,000 outbreak-associated HAV cases were reported, with over 5,600 hospitalizations and 86 deaths. CDC has assisted state and local jurisdictions as requested with epidemiological and lab support. Through mid-October 2018, more than 3,675 specimens from the affected states were sent to CDC for additional testing. Additionally, CDC continues to regularly communicate with affected states through phone consultations and in-person site visits.

For example, at the request of the San Diego County Health Department, in May 2017 CDC sent two epidemiologists to San Diego to evaluate HAV outbreak response, strengthen the outbreak case definition,

¹⁷⁸U.S. Department of Health and Human Services, Office of the Assistance Secretary for Health, Office of HIV/AIDS and Infectious Disease Policy. Action Plan for the Prevention, Care, and Treatment of Viral Hepatitis (2017-2020). Washington, DC: U.S. Department of Health; January 2017

¹⁷⁹<http://www.cdc.gov/hepatitis/hbv/perinatalxmntn.htm>

identify and interview cases, and assist in creating a database for analysis to inform public health decisions. CDC is continuing to provide technical assistance to the California Department of Public Health to provide feedback and support as the state carries out their outbreak response activities, targeting the risk groups and locations that are critical for controlling the outbreak. CDC has assisted with on-the-ground support in four states and continues to work with officials to stop the outbreak. CDC will continue to provide advanced molecular laboratory and epidemiologic support to the states affected and will deploy additional staff as requested and needed by state and local officials.

In October 2018, ACIP updated the HAV vaccine recommendations to include an indication for vaccination among persons experiencing homelessness. Previously the ACIP issued recommendations for hepatitis A vaccination for persons who inject drugs and men who have sex with men (MSM).

Greater effort is needed to improve the quality of viral hepatitis surveillance data, particularly to track the burden of chronic infection and access to preventive services. The current volume of viral hepatitis testing overwhelms the existing surveillance capability of most state and local health departments. As a consequence, the number of cases reported to CDC underestimate the expected number of cases actually occurring, and do not always include sufficient information about the case. Improvements in surveillance and monitoring efforts are needed to strengthen preventive services if the U.S. is to reverse the current trend of increasing annual hepatitis C-related deaths – which exceed the total combined number of deaths from 60 other infectious diseases reported to CDC, including HIV, pneumococcal disease, and tuberculosis.¹⁸⁰

Sexually Transmitted Infections

National Level Performance Measures and CDC Contextual Indicators for Long Term Objective: Reduce pelvic inflammatory disease in the United States

Contextual Indicators	Most Recent Result	FY 2020 Target
2.7.1 Reduce pelvic inflammatory disease in the U.S. as measured by initial visits to physicians in women aged 15-44 years	FY 2017: 117,000	117,000
2.7.6e Increase the proportion of sexually active women aged 16-24 enrolled in commercial health plans who are screened for Chlamydia infections	FY 2017: 51.5%	51.51%
2.7.6f Increase the proportion of sexually active females enrolled in Medicaid plans who are screened for chlamydial infections: Females aged 16-24 years	FY 2017: 60.7%	60.7%
2.7.7 Reduce the rate of symptomatic gonorrhea cases in men	FY 2017: 148.3	148.3

¹⁸⁰Ly KN, Hughes EM, Jiles RB, Holmberg SD. Rising Mortality Associated With Hepatitis C Virus in the United States, 2003–2013. , Clin Infect Dis 2016, 62(10):1287-1288.

Performance Measures for Long Term Objective: Reduce pelvic inflammatory disease in the United States

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
2.7.5 Increase the proportion of gonorrhea patients who are treated with a CDC-recommended antibiotic regimen for gonorrhea (Outcome)	FY 2017: 82.4% Target: 87.6% (Target Not Met)	87.6%	87.6%	Maintain
2.9.1 Reduce the incidence of primary & secondary syphilis in women aged 15-44 (per 100,000 population) (Outcome)	FY 2017: 5.1 /100,000 Target: 0.8 /100,000 (Target Not Met)	0.8/100,000	0.8/100,000	Maintain
2.9.2 Reduce the incidence of congenital syphilis (per 100,000 live births) (Outcome)	FY 2017: 23.3 /100,000 Target: 6.2 /100,000 (Target Not Met)	6.2/100,000	6.2/100,000	Maintain
2.9.3 Increase percentage of pregnant women screened for syphilis at least one month before delivery (Outcome)	FY 2016: 89.5% Target: 84% (Target Exceeded)	87.2%	87.2%	Maintain
2.9.4 Increase the proportion of potential congenital syphilis cases averted	FY 2017: 72% (Baseline)	75%	75%	Maintain
2.9.5 Reduce the rate of increase of primary and secondary syphilis	FY 2017: 11% (Baseline)	9%	9%	Maintain

Performance Trends: CDC assures the provision of quality sexually transmitted infection (STI) services in both the public and private sectors through technical assistance, issuing and promoting clinical guidelines and recommendations, and providing education and training for health and medical professionals. CDC's STI work also supports surveillance, contact tracing, and connection to care for patients diagnosed with STIs and HIV, outbreak response, assurance of appropriate screening and treatment by providers, and providing reliable and trustworthy STI information to the public. Data for FY 2017 show that STI cases and rates continue to rise throughout the nation, including increases in gonorrhea, chlamydia, and syphilis. The upward trajectory of STIs, coupled with reduced resources, will require CDC to further prioritize program activities and initiatives, reducing actions where necessary, to maintain current targets.

Health departments reported nearly 2.3 million cases of chlamydia, gonorrhea, and syphilis to CDC in 2017, the highest number ever for the United States. Screening improvements and investments in other STI prevention strategies will avert infections and improve national health outcomes, and will prove cost-effective due to the high, and increasing, economic burden associated with STIs and their related health consequences¹⁸¹. Published

¹⁸¹ Chesson HW, et al. The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. Perspectives on Sexual and Reproductive Health 2004, 36(1): 11–19. Also: Maciosek, M, et al. Priorities Among Effective Clinical Preventive Services: Results of a Systematic Review and Analysis. American Journal of Preventive Medicine, 2006; (31) 1, 52–61.

estimates demonstrate that chlamydia screening among sexually active young women results in cost savings between \$2,500 and \$37,000 per quality-adjusted life-year.

CDC's long-term objectives are to eliminate congenital syphilis, prevent primary and secondary syphilis, prevent antimicrobial resistant gonorrhea, and prevent STI related pelvic inflammatory disease (PID), ectopic pregnancy, and infertility. Pelvic inflammatory disease is a major cause of infertility, ectopic pregnancy, and chronic pelvic pain. Infections due to *Chlamydia trachomatis* and *Neisseria gonorrhoea* are major causes of PID. The number of initial visits to physicians in women aged 15–44 years diagnosed with PID increased from 90,000 in 2016 to 117,000 in 2017 (CI 2.7.1).

Reported chlamydial infection rates among women have increased annually since the late 1980s. In part, this reflects expanded chlamydia screening activities, the use of increasingly sensitive diagnostic tests, increased emphasis on case reporting from providers and laboratories, and improvements in reporting systems. The increase may also reflect a true increase in morbidity. CDC will retire measures 2.7.6a-d and replace them with contextual indicators 2.7.6e-f to better reflect national level activities and CDC's contribution to those activities via chlamydia screenings.

CDC is collaborating with the health care sector to increase adherence to existing recommendations and developing tools for providers to increase awareness and assist with chlamydia screening implementation. Private and public health plans have improved screening rates for chlamydia, increasing slightly from 2012 to 2016. Although chlamydia test rates are increasing among sexually active women aged 15-25 years, the slower growth in chlamydia testing rates may relate to the change in the 2009 American Congress of Obstetricians and Gynecologists (ACOG) Pap testing guidelines, and possibly increases in long-acting reversible contraceptives. More than half of sexually active women aged 15-25 years did not have chlamydia testing, and the rate of increased chlamydia testing slowed after 2009. This suggests that innovative approaches to conduct chlamydia testing during wellness and preventive visits apart from Pap testing are still needed.¹⁸²

Following a 74% decline in the rate of reported gonorrhea during 1975–1997, the overall gonorrhea rate decreased to 98.1 cases per 100,000 population in 2009—the lowest rate since recording of gonorrhea rates began. However, during 2009-2012, the rate increased slightly each year, to 106.7 cases per 100,000. In 2013, the rate decreased to 105.3 cases per 100,000 population, followed by a yearly increase during 2013-2016. In 2017, a total of 555,608 cases were reported, and the national gonorrhea rate increased to 171.9 cases per 100,000, an increase of 18.6% from 2016. This is the highest number of cases reported in more than 20 years. The increase in the gonorrhea rate during 2016-was observed among both males and females; however, the increase was larger among males. In 2017, the rate of symptomatic gonorrhea cases (GC) in men increased from 146.1 cases per 100,000 to 148.3 cases per 100,000. Because gonorrhea rates in men are continuing to increase, CDC is proposing a new measure focusing on the rate of reduction of symptomatic GC in men. The baseline for 2015 was 113.8 and the rate increased to 148.3 cases per 100,000 men in 2017 (CI 2.7.7). CDC will retire measures 2.7.4a-b which are no longer the best measures of incidence or screening rates, and measure 2.7.4c which does not accurately measure disparity.

A strong public health infrastructure is essential to sustain STI prevention programs and respond to increases in disease. Beyond individual and community health impacts, STIs are also an economic drain on the U.S. healthcare system. Data suggest the direct cost of treating STIs in the U.S. is nearly \$16 billion annually. Preventing STIs means healthier people and billions of dollars saved by the U.S. healthcare system. Public health STI programs are increasingly facing challenges and barriers in achieving their mission, including reductions in clinic hours, contact tracing, and screening. CDC estimates that 21 local health department STI clinics closed in one recent year alone. Antimicrobial resistance remains an important consideration in the treatment of

¹⁸²Hsieh H., et. The Impact of the American College of Obstetricians and Gynecologists Guideline Changes in Pap Tests on Annual Chlamydia Test Rates, 2017. *Journal of Adolescent Health*, 2017; 1-6.

gonorrhea. In FY 2017, 82.4% of patients received treatment with a CDC-recommended antibiotic regimen for gonorrhea, falling short of the target (Measure 2.7.5).

Reported rates of primary and secondary (P&S) syphilis, the most infectious stages of the disease, are the highest that they have been in more than 20 years. CDC identified that in 2017, syphilis had increased nationally in all populations--men, women, and infants³⁶. The primary and secondary syphilis rate among women aged 15-44 increased from 4.2 cases per 100,000 in 2016 to 5.1 cases per 100,000 in 2017 (Measure 2.9.1). CDC is adding a new measure that aims to reduce the rate of increase of P&S syphilis. In 2017 the rate of increase of P&S syphilis decreased to 11% (8.6 to 9.5) from 18% (7.4 to 8.7) in 2016 (Measure 2.9.5). Because the rates of syphilis continue to increase, CDC has made significant investments in programs that focus on surveillance, screening recommendations, epidemiologic studies, and disease intervention specialists. To prevent further increases of syphilis among women, disease intervention specialists play a critical role in identifying and responding to syphilis cases among women and their male partners through case interviews and contact tracing.

Congenital syphilis (CS) has become an alarming problem that urgently requires awareness, attention, and action. Data from the 2017 STD Surveillance Report found that the number of CS cases spiked for the fifth year in a row. In 2017, there were a total of 918 cases – an increase over the previous year. It has been almost two decades since this many cases were reported. In 2017, the congenital syphilis rate was 23.3 cases per 100,000 live births (Measure 2.9.2), the highest reported rate since 1998. This increase represents a 43.8% increase from 2016 (16.2 cases per 100,000 live births) and a 153.3% increase from 2013. As has been observed historically, this increase in the congenital syphilis rate has paralleled in P&S syphilis among all women and reproductive aged women during 2013-2017 (155.6% and 142.8% increases respectively).¹⁸³

Congenital syphilis is a preventable disease, which could be eliminated through consistent and effective screening and treatment before and during pregnancy and timely treatment of infected women. The percentage of pregnant women screened for syphilis at least one month before delivery increased from 87.2% in 2015 to 89.5% in 2016 (Measure 2.9.3). Elimination of CS would contribute to reductions in lost pregnancies, stillbirths and preterm/low birth weight infants. CDC is introducing a new measure that tracks the increase in the proportion of potential congenital syphilis cases averted. This measure reflects the impact of CDC’s work, state and local health STD programs supported by CDC, as well as provider adherence to CDC and other medical guidelines. The proportion of potential congenital syphilis cases averted decreased in 2017 to 72% from 75% in 2016 (Measure 2.9.4).

Tuberculosis

Performance Measures for Long Term Objective: Decrease the rate of cases of tuberculosis (TB) among U.S. born persons in the United States

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
2.8.1 Decrease the rate of cases of tuberculosis among U.S.-born persons (per 100,000 population) (Outcome)	FY 2017: 1.0/100,000 Target: 1.2/100,000 (Target Exceeded)	1.1/100,000	1.1/100,000	Maintain
2.8.2 Increase the percentage of newly diagnosed TB patients who complete treatment within 12 months (where ≤12	FY 2015: 89.5% Target: 88% (Target Exceeded)	92%	92%	Maintain

¹⁸³ Centers for Disease Control and Prevention (CDC). Sexually Transmitted Disease Surveillance 2017. Atlanta: U.S. Department of Health and Human Services; 2018.

months of treatment is indicated) (Outcome)				
2.8.3 Increase the percentage of culture-positive TB cases with initial drug susceptibility results reported (Outcome)	FY 2017: 91.7% Target: 98.5% (Target Not Met)	98.5%	98.5%	Maintain
2.8.4 For contacts to sputum acid-fast bacillus smear-positive TB cases who have started treatment for newly diagnosed latent TB infection, increase the proportion of TB patients who complete treatment (Outcome)	FY 2016: 77.5% Target: 70% (Target Exceeded)	72%	72%	Maintain
2.T Number of state public health laboratories participating in the TB Genotyping Network (Output)	FY 2017: 50 Target: 50 (Target Met)	50	50	Maintain

Performance Trends: In 2017, the United States reported 9,105 tuberculosis (TB) cases (2.8 per 100,000 population). Despite a recent decline in overall reported cases and the rate of U.S.-born cases (1.0/100,000) (Measure 2.8.1), progress towards eliminating TB has slowed. Tuberculosis rates remain at levels 28 times higher than our goal of elimination. CDC and its state and local partners have focused on rapidly diagnosing and treating TB disease, which has been credited with decreasing numbers of cases; however, the leveling of TB incidence may signal the limits of what is achievable given current capacity.

Preventing TB disease saves lives and money. A recent analysis found that from 1995-2014, TB control efforts prevented as many as 319,000 U.S. TB cases. By preventing these cases, TB programs averted up to \$6.7 billion in costs, excluding deaths, and up to \$14.5 billion in costs, including deaths. Treating TB disease is costly. For example, although multidrug-resistant (MDR) TB is rare in the U.S. (only one percent of U.S. cases), the direct treatment cost (not including hospitalization) for a single case of MDR TB can reach \$164,000. Such a cost is often more than the entire annual budget of a state or local TB program. Drug-resistant TB is increasing globally, thus, CDC and partners remain vigilant about finding and treating persons with active TB disease.

Data and modeling suggest that TB cannot be eliminated in the United States without intensified efforts to test and treat latent TB infection (LTBI) among high-risk groups. Treatment for LTBI can prevent a person from developing active TB disease, which, in turn, protects their close family, friends, and other contacts from potential future exposure to the bacteria that causes TB. More than 80% of U.S. cases of TB disease result from reactivated LTBI, instead of from recent exposure to a person who is contagious. CDC estimates up to 13 million people in the United States have LTBI and that offering targeted testing and treatment will significantly reduce future cases, ultimately eliminating TB disease in the United States. Treating LTBI with a short-course 12-week regimen, which is less burdensome for the patient and more easily tolerated than the traditional 9-month regimen, costs about \$600 and is 90% effective in preventing TB disease. TB disease costs at least \$19,000 to treat and can cause months of debilitating illness (including coughing up blood, fever, night sweats, and severe

weight loss). CDC is working with partners, including healthcare providers in the private sector, to identify ways to expand targeted testing and treatment for LTBI.

CDC and state and local TB programs use performance indicators to measure improvement on key programmatic activities and ensure that the United States is moving toward the goal of TB elimination (defined as less than one case per million population). In addition to preventing drug resistance, completion of treatment for TB disease is the most effective way to immediately reduce the spread of TB and prevent its complications. Increasing the proportion of patients with TB disease who complete treatment is the highest priority for CDC's TB Elimination program. CDC continues to see increases in the proportion of patients with TB disease who complete treatment within 12 months. In 2015, 89.5% of patients with TB disease completed a curative course of treatment for TB (Measure 2.8.2) within 12 months, which exceeded the target of 88%. Ninety-six percent completed TB therapy overall, a considerable increase over the 1993 baseline of 63.4%.

Completion of therapy may be more difficult for people with other health problems such as HIV infection, diabetes, substance use disorders, and persons experiencing homelessness or who have been incarcerated. As a result, CDC allocates federal funding to provide additional resources to programs that serve larger proportions of populations for which therapy may be difficult. CDC, upon request, provides technical assistance to state and local health departments addressing TB outbreaks to assure all contacts of a person with TB disease are evaluated and those with TB complete therapy. CDC is also researching innovative, technology-driven methods as part of the Antibiotic Resistance Solutions Initiative¹⁸⁴, such as evaluating the use of smartphones or video to monitor patient treatment completion.

CDC supports public health laboratory testing for drug resistance and use of Advanced Molecular Detection (AMD)¹⁸⁵ tools to genetically map TB specimens to develop a database to better understand and halt the spread of the disease. For example, AMD methods have enabled CDC to identify extensive ongoing TB transmission within the U.S., particularly among high-risk populations. In FY 2017, 91.7% of culture-positive TB cases underwent initial drug susceptibility testing, which is lower than the target of 95% (Measure 2.8.3). CDC continues to meet its target of 50 state public health laboratories participating in the TB Genotyping Network (Measure 2.T).

In 2016, 77.5% of contacts to infectious TB cases who started treatment for newly diagnosed LTBI also completed their preventive treatment (Measure 2.8.4), exceeding the target of 70%. CDC and state and local TB programs are working to improve progress on this indicator by increasing use of short-course preventive treatment regimens. For example, CDC is funding a pilot to look at the feasibility and effectiveness of health departments partnering with local federally qualified health centers to implement targeted testing and treatment for LTBI for high-risk populations. The pilot program health department increased the number of people tested for LTBI and is now working to increase the number of people who tested positive to complete LTBI therapy. CDC is also working with other federal agencies, professional associations, and community health centers to implement the U.S. Preventive Services Task Force recommendation specifying LTBI testing for at-risk individuals 18 years of age and older.

¹⁸⁴ <http://www.cdc.gov/drugresistance/solutions-initiative/>

¹⁸⁵ <http://www.cdc.gov/amd/project-summaries/tuberculosis-surveillance.html>

EMERGING AND ZONOTIC INFECTIOUS DISEASES

Emerging Infectious Diseases

Performance measure for Long Term Objective: Build and Strengthen health information systems capacity in state and local health departments

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.5.2 Increase the percentage of laboratory reports on reportable conditions that are received through electronic means nationally (Outcome)	FY 2018: 86% Target: 82% (Target Met)	90%	90%	Maintain

Performance measures for Long Term Objective: Protect Americans from death and serious harm caused by medical errors and preventable complications of healthcare

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.3.3 Reduce the central line-associated bloodstream infection (CLABSI) standardized infection ratio (SIR) ¹ (Outcome)	FY 2016: 0.89 Target: 0.90 (Target Exceeded) ²	0.60	0.50	-0.10
3.3.2b Reduce invasive healthcare-associated Methicillin-resistant Staphylococcus aureus (MRSA) infections ³ (Outcome)	FY 2016:49,000 Target: 36,900 (Target Not Met but Improved)	37,600	35,200	-2,400

¹The Standardized Infection Ratio (SIR) is calculated by dividing the actual (observed) infections by the expected infections using data gathered through the CDC National Healthcare Safety Network (NHSN).

²Baseline for this measure was updated in 2015. Data from FY 2016 onward cannot be compared to previous data reported.

³All invasive MRSA infections captured are bloodstream infections. The 2020 targets align with Combating AR Bacteria Action Plan (CARB) targets and HHS HAI Action Plan targets.

Performance Trends: Advancing national implementation of Electronic Laboratory Reporting (ELR) is a priority in CDC’s efforts to protect the public’s health. ELR replaces paper-based reporting, which accelerates reporting to public health labs; reduces the reporting burden on clinicians, hospitals, and commercial laboratories; and decreases errors and duplicate reporting. As of FY 2018, electronic laboratory reports accounted for 86% of laboratory reports for reportable conditions received. This is a six percentage point increase over FY 2017 results, exceeding the FY 2018 target and continuing the upward trend since FY 2012 (Measure 3.5.2). As of the end of 2019, the national average for ELR is expected to be very close to 90%. There are diminishing returns trying to push the ELR volume number higher than 90%; therefore, the program considers moving from 62% in 2013 to 90% as a success and will be putting efforts into new measures such as electronic case reporting. In FY 2021, a new measure will be proposed to replace Measure 3.5.2. The new measure will be related to electronic case reporting (ECR) or electronic test ordering and reporting (ETOR) in public health laboratories.

CDC provides national leadership in healthcare-associated infection (HAI) prevention and provides the scientific foundation to preserving quality care, improving patient safety, and advancing U.S. healthcare practices. Adherence to CDC guidelines is the standard of care for HAI prevention of infections such as central line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), surgical site infection (SSI), clostridioides difficile infections (CDI), and invasive methicillin-resistant Staphylococcus aureus (MRSA) infections. In addition, many HAIs including CLABSI can be caused by antibiotic resistant (AR) pathogens.

Reducing HAIs across all healthcare settings supports HHS' mission to prevent infections, improve patient safety, combat AR and its complications, as well as reduce excess U.S. healthcare costs. These efforts also align with the

National Action Plan to Prevent Healthcare Associated Infections: Roadmap to Elimination (National HAI Action Plan)¹⁸⁶, National Action Plan for Combating Antibiotic Resistance Bacteria (CARB)¹⁸⁷, and Healthy People 2020 Goals.¹⁸⁸ CDC exceeded its FY 2016 target, for reducing the CLABSI SIR, with a result of 0.89; representing an 11% decrease compared to the new 2015 baseline (Measure 3.3.3). In FY 2016 there were 49,000 healthcare-associated invasive MRSA infections – an improvement and nearly 8% decrease over the FY 2015 baseline, but falling short of the FY 2016 target. CDC will continue to work with public health and healthcare partners to reduce MRSA and CLABSI infections across healthcare settings.

Vector-borne Diseases

Performance measure for Long Term Objective: Protect Americans from Infectious Diseases—Vector-borne

Measure	Most Recent and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.G Cumulative number of tests performed worldwide to diagnose bacterial, viral, and rickettsial infections transmitted by mosquitoes, ticks, and fleas using CDC-produced reagents (Outcome)	FY 2018: 1,121,426 Target: 3,158,075 (Target Not Met but Improved) ¹	3,658,075	4,158,075	+500,000

¹ FY 2017 results were adjusted to reflect updated data.

Performance Trends: CDC serves as a national and international leader in the prevention of vector-borne viral, bacterial, and rickettsial diseases. Part of CDC’s prevention strategy in this area is to annually produce reagents for diagnosing a variety of vector-borne pathogens. State and international laboratories use these important reagents to perform rapid, accurate testing necessary for the early detection and suppression of epidemics. This function has become increasingly important, as the domestic emergence of vector-borne diseases has accelerated in the last decade (West Nile virus: 1999; chikungunya virus: 2014; dengue virus re-emergence: 2015; Zika virus: 2016), with a tripling of reported vector-borne disease cases in the last 13 years.

In 2018, CDC facilitated 1,121,426 tests worldwide to diagnose bacterial, viral, and rickettsial infections (Measure 3.G), which fell short of its target to facilitate 3,158,075 tests worldwide. Multiple factors contributed to CDC facilitating fewer tests this year than in previous years, including: 1) decreased demand for reagents as the Zika outbreak in the United States and territories waned, 2) reagent distribution improvements that improved the safety and ease of shipping but reduced the number of assays that may be run with each shipment, and 3) discontinuing reagent distribution for reagents once commercial tests are available. In FY 2021, CDC will propose a replacement measure reflecting tick-based surveillance capacity in states.

Antibiotic Resistance

Performance measure for Long Term Objective: Reduce the spread of antimicrobial resistance

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.2.3a Maintain the proportion of all E. coli or Klebsiella spp. that are carbapenem- resistant, causing CLABSI or CAUTI in adult intensive care units (ICUs) at ≤7% (Outcome)	FY 2016: 3.0% Target: 7.0% (Target Exceeded)	7.0%	7.0%	Maintain

¹⁸⁶ <https://health.gov/hcq/prevent-hai-action-plan.asp>

¹⁸⁷ https://obamawhitehouse.archives.gov/sites/default/files/docs/national_action_plan_for_combating_antibiotic-resistant_bacteria.pdf

¹⁸⁸ <https://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections>

3.2.4b Reduction in hospital-onset Clostridioides difficile infections standardized infection ratio (SIR) (Outcome)	FY 2016: 0.92 Target: 0.84 (Target Not Met But Improved)	0.70 ¹	0.70	Maintain
3.2.5 Increase the percentage of hospitals reporting implementation of antibiotic stewardship programs fully compliant with CDC Core Elements for Hospital Antibiotic Stewardship Programs ² (Outcome)	FY 2017: 76.4% Target: 61.3% (Target Exceeded)	84.4%	100%	+15.6

¹ FY 2019 target for measure 3.2.4b reflects changes to program resources for antibiotic resistance.

² CDC is using a new criteria to calculate data as part of the 2016 version of the NHSN survey. The 2014 baseline was adjusted to reflect this criteria. Targets are aligned with the National Action Plan for CARB.

Performance Trends: CDC is a leader in the fight to combat antibiotic resistance. CDC is committed to protecting America's health, safety, and interests through science, surveillance, and services. Antibiotic resistance (AR) is a growing crisis internationally, and some AR infections are already untreatable. In 2017, about 76.4% of U.S. acute care hospitals reported having an antibiotic stewardship program that incorporates all of the CDC Core Elements for Hospital Antibiotic Stewardship Programs (Measure 3.2.5). Thus, CDC exceeded its 2017 and 2018 targets and is on track to meet its 2019 target, as well. CDC will continue to work with public and private partners to encourage hospitals to continue implementing antibiotic stewardship programs that are fully compliant with CDC Core Elements for Hospital Antibiotic Stewardship Programs to improve healthcare, decrease health consequences (e.g., C. difficile infections), and ultimately prevent antibiotic resistance.

Carbapenem-resistant Enterobacteriaceae (CRE), “the nightmare bacteria,” are a group of bacteria resistant to almost all drugs. Because of limited treatment options, CRE bloodstream infections can be fatal in nearly half of all cases. The goal of CDC’s new AR performance measure, Measure 3.2.3a, is to keep the proportion of carbapenem-resistant Klebsiella spp or E.coli CLABSI and CAUTI reported to the National Healthcare Safety Network (NHSN) contained at seven percent or less. This measure better reflects the prevalence of the two most common carbapenem-resistant bacterial pathogens that cause CLABSI and CAUTI in adult intensive care units (ICUs) across the U.S. versus the proportion of hospitals who have reported the infection. This measure also aligns with CDC's prevention efforts with state and local health departments to work with their acute-care hospitals to detect, prevent, stop transmission of these specific resistant bacteria in adult ICUs. In FY 2016, the proportion of all E. coli or Klebsiella spp. that are carbapenem-resistant causing CLABSI or CAUTI in adult patients was 3.0%. This was a slight decline from the FY 2015 baseline of 3.1%. These results may have been due to CDC's ongoing prevention efforts to prevent infections and stop the spread of resistant pathogens quickly. With CDC’s AR Solutions Initiative, CDC has also made recent investments to better detect, track, and respond to CRE infections at the state and local levels.

Clostridioides difficile infection (CDI)¹⁸⁹ is a preventable, life-threatening bacterial infection that can occur in both inpatient and outpatient healthcare settings. CDC provides data-driven strategies and tools for targeted intervention to the healthcare community to help prevent CDI, as well as resources to help the public safeguard their own health. CDI prevention is a national priority, with a 2020 target to reduce CDI overall by 50% in the National Action Plan for CARB and reduce hospital-onset CDI by 30% in the current National HAI Action Plan¹⁹⁰.

CDC retired measure 3.2.4a in FY 2018 because there is not enough data captured from community-onset healthcare facilities to calculate a reliable SIR. CDC is committed to using data for action to develop meaningful measures to target prevention efforts, track progress, and meet national goals. CDC will work to identify performance measures that better reflect progress made on combating AR as additional data become available. In FY 2016, the SIR for hospital-onset CDI was 0.92 (Measure 3.2.4b). Although the target of 0.84 was not met,

¹⁸⁹ <http://www.nejm.org/doi/full/10.1056/NEJMoa1408913>

¹⁹⁰ <https://health.gov/hcq/prevent-hai-action-plan.asp>

progress was made in reducing CDIs in these healthcare settings. The FY 2020 target will stay level with FY 2019, which is consistent with the current HAI Action Plan CDI goal.

Food Safety

Performance measures for Long Term Objective: Protect Americans from infectious diseases – foodborne illnesses¹

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.1.1b Reduce the incidence of infection with three key foodborne pathogens: Escherichia coli O157:H7 (Outcome)	FY 2017: 0.89 Target: 0.75 (Target Not Met)	0.65	0.60	-0.05
3.1.1c Reduce the incidence of infection with three key foodborne pathogens: Listeria monocytogenes (Outcome)	FY 2017: 0.26 Target: 0.22 (Target Not Met)	0.21	0.20	-0.01
3.1.1d Reduce the incidence of infection with three key foodborne pathogens: Salmonella species (Outcome)	FY 2017: 16.11 Target: 12.35 (Target Not Met but Improved)	11.72	11.40	-0.32
3.F Cumulative number of states providing reports of confirmed norovirus outbreaks to CaliciNet (Output)	FY 2018: 30 Target2: 28 (Target Exceeded)	30	30	Maintain

¹CDC aligns its Food Safety targets with national targets for Healthy People 2020 objectives. The unit of measure for 3.1.1b, 3.1.1c, and 3.1.1d is the number of cases per 100,000 people.

²Laboratories in 28 states and DC participate in CaliciNet. Beginning in 2013, 22 additional states have been supported through five CaliciNet Regional Outbreak Support Centers to provide coverage in all 50 states.

Performance Trends: Significant progress in reducing the incidence of major foodborne infections over the last 25 years is a result of concerted prevention efforts by CDC, federal partners, and private industry. Between the 1996-1998 baseline and FY 2017 results, the incidence of Escherichia coli (E. coli) O157:H7 and Listeria decreased. While the FY 2017 E. coli O157:H7 rate of 0.89 cases per 100,000 people falls below the target for the Measure 3.1.1b, this result represents a decrease from the previous year’s result. A wide variety of foods may be responsible for ongoing infection of E. coli O157:H7. Intensive and long-term efforts from CDC, FDA, the U.S. Department of Agriculture Food Safety Inspection Service (USDA FSIS), and food industries will be required to reduce the incidence of E. coli O157:H7 moving forward. CDC is increasing its engagement with these stakeholders to encourage improvements in food safety practices.

The rate of Listeria infections for 2017 was 0.26 cases per 100,000 people, which is consistent with the previous year’s result (Measure 3.1.1c). While CDC did not meet its 2017 target of 0.22 cases per 100,000 people for the reduction of Listeria infections, this new result reflects an overall decrease in infections since 2011 of 0.05 cases per 100,000 people. Since the introduction of the Listeria Initiative¹⁹¹, the size of Listeria outbreaks has decreased, reflecting faster and more efficient investigations. CDC’s Advanced Molecular Detection (AMD) Initiative, in partnership with the National Institutes of Health (NIH), FDA, USDA FSIS, and state partners added a new component to the Listeria Initiative: sequencing and analyzing of clinical, food, and environmental Listeria monocytogenes isolates sent to PulseNet, using Whole Genome Sequencing methods in near real-time. This collaboration helps CDC identify outbreaks of Listeria infections more rapidly, supports related investigation efforts to detect additional cases, and identifies the source(s) of infection. Since September 2013, CDC has

¹⁹¹http://www.cdc.gov/listeria/pdf/listeriainitiativeoverview_508.pdf

sequenced nearly 5,000 Listeria samples, and analyzed over 10,000 genomes from CDC and FDA as part of Listeria outbreak detection and investigation activities. CDC is working with FDA, USDA, FSIS, and the food industry to translate findings into safer food to prevent more illnesses. By the end of calendar year 2020, CDC funded PulseNet laboratories in states will sequence all bacterial isolates that come into the PulseNet system, including all isolates of Listeria, Salmonella, E. coli, and Campylobacter.

While CDC did not meet its FY 2017 target of 12.35 cases per 100,000 people for Salmonella infections (Measure 3.1.1d), this year’s results represents an overall decrease in Salmonella infection when compared to the previous year. CDC will continue coordinating public health surveillance and foodborne outbreak investigations to inform important actions needed to reduce Salmonella incidence, including:

- FDA’s proposed Food Safety Modernization Act (FSMA) required rules to reduce illnesses caused by Salmonella and other pathogens in produce and in processed foods;
- USDA’s efforts to improve the safety of poultry products, including its proposed Salmonella reduction rule;
- Food industry’s new strategies to reduce Salmonella contamination in food, particularly in chicken, which is an important source of Salmonella-related illnesses; and
- Consumers’ increased knowledge and awareness of their role in food safety.

In the future, CDC will retire measures 3.1.1b, 3.1.1c, and 3.1.1d and replace them with measures that better reflect CDC’s investments in new technologies and enhanced investigation tools to improve outbreak detection and response.

CDC uses the CaliciNet¹⁹² national surveillance system to detect and characterize norovirus outbreaks by supporting state and territorial public health laboratories. In FY 2018, CDC exceeded its target of 28 states providing confirmed norovirus outbreak data to CaliciNet. Additionally, data from the combined testing efforts of an additional 20 state public health labs by and the CaliciNet Regional Support Centers assure national coverage by CaliciNet for all 50 states (Measure 3.F).

National Healthcare Safety Network

Performance measure for National Healthcare Safety Network

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.3.4 Increase the number of hospitals and other selected health care settings that report into the National Healthcare Safety Network (NHSN) (Output)	FY 2017: 21,950 Target: 20,000 (Target Exceeded)	23,000	23,000	Maintain

Performance Trends: CDC’s National Healthcare Safety Network (NHSN) is the nation’s most comprehensive and widely used HAI surveillance and quality improvement system. NHSN data drive HAI prevention and improve quality of care at local, state, and national levels, supporting goals mentioned in the National Action Plan for CARB, and the HHS HAI Action Plan to protect American lives. NHSN data are also used by the following partners:

- Healthcare professionals to improve quality of patient care,
- State health departments to comply with state reporting requirements and to target HAI prevention efforts,

¹⁹²<http://www.cdc.gov/norovirus/reporting/calicinnet/>

- The Centers for Medicare and Medicaid Services (CMS) to implement and tailor interventions through CMS' improvement programs (e.g., Quality Improvement Networks and Hospital Improvement Innovation Networks) to prevent infections in all healthcare settings, and
- The Agency for Healthcare Research and Quality to evaluate HAI implementation strategies in healthcare.

CDC continues to enroll and provide support for healthcare facilities in NHSN to report HAIs including those caused by resistant bacteria. As of November 2018, over 21,500 facilities are reporting data in NHSN, which is on track to meet the FY 2018 target (Measure 3.3.4). Though CDC is positioned to meet FY 2018 and FY 2019 targets, additional changes to CMS quality reporting requirements and programs could lead to decreases in the number of facilities participating in NHSN beginning in FY 2020.

In addition, CDC tracks the whole scope of critical HAIs/AR infections (e.g., MRSA, CLABSI, CAUTI, SSI, and C. difficile) being captured in NHSN by healthcare facilities as well as the number of reporting modules (e.g., antibiotic use, and antibiotic resistance data) being used across multiple healthcare settings to prevent infections, enhance healthcare quality, and improve patient care.

Quarantine and Migration

Performance measures for Long Term Objective: Prevent the importation of infectious diseases to the U.S. in mobile human, animal and cargo populations

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
3.4.4 Increase of the percentage of immigrants and refugees with a "Class A or B medical notification for tuberculosis" who undergo medical follow-up after arrival in U.S. (Outcome)	FY 2017: 77% Target: 80% (Target Not Met)	80%	80%	Maintain
3.4.8 Increase the proportion of U.S.-bound refugees with at least one dose of age-appropriate routine vaccinations ¹ (Outcome)	FY 2018: 96% Target: 70% (Target exceeded)	73%	75%	+2
3.4.9 Increase the number of U.S. ports of entry that have demonstrated a validated capability to respond to a communicable disease event involving mobile populations (Output)	FY 2018: 26 Target: 25 (Target Exceeded)	31	37	+6

¹ Measure 3.4.8 only assesses the proportion of refugees that receive at least one round of required vaccinations; it does not track parasitic treatment.

Performance Trends: CDC enhances the public health security of U.S. communities and addresses infectious disease risks associated with international travel and globally mobile populations by executing regulatory responsibilities and implementing cost-effective public health programs, in collaboration with local, state, and federal partners, to prevent the importation and spread of disease into and within the United States.

Annually, CDC provides around 100,000 notifications to state and local health departments concerning public health follow-up exams for individuals coming to live and work in the United States. The percentage of immigrants and refugees with a TB notification receiving medical follow-up after arrival in the U.S. declined marginally to 77% in FY 2017 (Measure 3.4.4). CDC will increase its engagement with state partners to promote increased notification rates.

Improving refugee vaccination prior to resettlement is a key public health priority for CDC as it is cost-effective, prevents the importation of infectious diseases, and improves the public health security of U.S. communities. CDC greatly increased the proportion of U.S.-bound refugees who received at least one dose of age-appropriate

routine vaccination to 96% in FY 2018 (Measure 3.4.8). This increase reflects the successful expansion of activities from six countries in FY 2015 to nearly 60 countries in Asia, Africa, Europe, and the Middle East in FY 2018. Future targets reflect the objective to expand this vaccination program over time to include all countries with significant U.S.-bound refugee populations, and to provide additional vaccinations to refugees currently covered by the program, recognizing the cost effectiveness and public health value of increasing the proportion of all vaccination services being delivered prior to arrival in the United States.

There are over 320 Department of Homeland Security-designated air, sea, and land ports of entry into the United States. CDC Quarantine Stations are strategically located at 20 ports of entry and land-border crossings that cover approximately 80% of arriving international travelers. Prior to FY 2018, developing a validated capability to respond to a communicable disease event involving mobile populations was concentrated at the 20 U.S. ports of entry that have a CDC Quarantine Station with staff available to respond to a communicable disease event. However, not all communicable disease responses take place in airports where quarantine stations are located.

In FY 2018, CDC placed a multi-year strategic focus on developing a validated capability at sub ports across the nation, and further refined the measure to reflect the development of six additional validated capabilities each year. Each station's jurisdiction covers numerous sub-ports to ensure full public health coverage for all U.S. ports of entry for arriving international travelers. Quarantine station officials often need to direct the public health response remotely, usually via emergency medical service units and local public health authorities; working closely with other ports in their respective jurisdictions and state and local public health partners. Quarantine station officials are available 24/7 and rapidly respond to ensure appropriate public health action to prevent further spread of communicable disease. Performing this task is made more effective, efficient, and resilient over time if sub-ports are able to demonstrate a validated public health response capability. In FY 2018, 26 U.S. ports of entry demonstrated a validated capability to respond to a communicable disease event involving mobile populations (Measure 3.4.9).

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

Chronic diseases are the leading causes of death and disability in the United States, and account for 70% of all deaths annually (almost 1.7 million). These diseases also cause major limitations in daily living for approximately one out of every ten people. The contextual indicators below track long-term health outcomes influenced by CDC's Chronic Disease Prevention and Health Promotion program.

Contextual Indicator	Most Recent Result	FY 2020 Target
Coronary Heart Disease: Reduce the annual age-adjusted rate of coronary heart disease deaths (per 100,000 population)	FY 2016: 94.3	103.4
Stroke: Reduce the annual age-adjusted rate of stroke deaths (per 100,000 population)	FY 2016: 37.3	34.8
Diabetes: Reduce the annual age-adjusted rate of diabetes-related deaths (per 100,000 population)	FY 2016: 67.8	66.6

Over the past decade, CDC has worked to improve cardiovascular health and reduce coronary heart disease and stroke mortality through its support of cross-cutting public health strategies and leveraging resources to develop partnerships that promote healthy lifestyle behaviors, environments and communities. CDC has also established relationships between clinical practices and the community to improve healthcare quality.

From 2000 to 2016, the annual age-adjusted death rate for coronary heart disease steadily declined from 186.9 to 94.3 per 100,000. During the same time frame, the annual age-adjusted rate of stroke deaths declined from 60.8 37.3 per 100,000. From 2013-2014 to 2014-2016 there was a negligible increase, but the trend is still significantly down from baseline. From 2005 to 2016, the age-adjusted rate of diabetes-related deaths also declined from 77.0 to 67.8 per 100,000.

CDC attributes these successes to improvements in contributing factors including reductions in per capita cigarette smoking, improvements in the integration of clinical and other preventive services, expansion of clinical and community-based resources, support for self-management of chronic diseases and conditions, and advancement of environmental approaches to promote health and reinforce healthy behaviors. CDC's inter-related programs focus not only on specific diseases, but also on those risk factors that contribute to chronic diseases and conditions at all stages of life.

Tobacco Prevention and Control

Performance Measures for Long Term Objective: Reduce death and disability due to tobacco use

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.6.2a Reduce the annual adult per-capita combustible tobacco consumption in the United States (Intermediate Outcome)	FY 2017: 1,114 Target:1,128 (Target Exceeded)	903	838	-65
4.6.3 Reduce the proportion of adults (aged 18 and over) who are current cigarette smokers	FY 2017: 14% Target: 15% (Target Exceeded)	12.8%	12.0%	-0.8

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
(Intermediate Outcome)				
4.6.4 Increase proportion of the U.S. population that is covered by comprehensive state and/or local laws making workplaces, restaurants, and bars 100% smoke-free (no smoking allowed, no exceptions) (Intermediate Outcome)	FY 2017: 58.3% Target: 58.9% (Target Not Met but Improved)	61.1%	63.0%	+1.9
4.6.5a Reduce the proportion of adolescents grades 6 through 12 who are current users of any tobacco product (Outcome)	FY 2017: 13.6% Target: 15.7% (Target Exceeded)	13.6%	13.6%	Maintain
4.6.8 Increase the proportion of ever cigarette smokers aged ≥ 18 years who are former cigarette smokers (quit ratio) (Outcome)	FY 2017: 61.7% Target: 60.2% (Target Exceeded)	62.4%	63.8%	+1.4

Performance Trends: Although cigarette smoking remains the leading cause of preventable disease and death in the United States, the tobacco product use landscape continues to diversify to include multiple combustible tobacco products, including cigars, cigarillos and little cigars, pipe tobacco, roll-your-own tobacco, and hookah. This has resulted in a slowing of the decline in the consumption of all combustible tobacco, and indicates that the use of non-cigarette combustible products has become more common in recent years and that some smokers may be switching to other combustible tobacco products rather than quitting smoking cigarettes completely. Per capita combustible tobacco product consumption declined from 1,164 cigarette equivalents in FY 2016 to 1,114 cigarette equivalents in FY 2017, exceeding the FY 2017 target (Measure 4.6.2a). Additionally, the percentage of current adult smokers decreased from 20.6% in 2009 to 14.0% in FY 2017, exceeding the FY 2016 target (Measure 4.6.3).

Nearly all tobacco product use begins during youth and young adulthood. Youth use of tobacco products in any form is unsafe, irrespective of whether it is smoked, smokeless, or electronic. If cigarette smoking continues at the current rate among youth in this country, 5.6 million (7.5%) of today’s Americans younger than 18 will die early from a smoking-related illness. In 2017, an estimated 3.7 million (13.6%) U.S. middle and high school students currently used any tobacco product, with 1.7 million reporting current use of ≥2 tobacco products (Measure 4.6.5a). This exceeded the FY 2017 target and was a decrease over the FY 2016 baseline. E-cigarettes remain the most commonly used tobacco product among U.S. youth.

The adverse health effects of tobacco smoking are not limited to the user. Exposure to secondhand smoke from burning tobacco products causes significant disease and death; there is no risk-free level of secondhand smoke

exposure. On average, smoke-free policies in states and communities that prohibit tobacco smoking in public indoor areas have been found to contribute to a 17% reduction in heart attack hospitalizations. Between FY 2005 and FY 2017, the population covered by comprehensive smoke-free laws that prohibit smoking in all indoor areas of bars, restaurants, and private worksites more than tripled so that 58.3% of all U.S. residents are now covered (Measure 4.6.4), nearly meeting the FY 2017 target, and an increase over FY 2016. While progress has been made, 41.7% of the population is still not protected by state or local level comprehensive laws prohibiting smoking in all indoor areas of bars, restaurants, and private worksites, and only 27 states and the District of Columbia have such laws as of September 30, 2018. CDC will continue to supply credible evidence showing the dangers of secondhand smoke, as well as proven interventions to reduce exposure, which provide a strong foundation for state and community efforts to promote smoke-free environments. CDC research contributes to the evidence base that informs the activities of CDC’s National Tobacco Control Program (NTCP), a nationwide investment that supports all 50 states, the District of Columbia, eight U.S. territories, and 12 tribal organizations for comprehensive tobacco control efforts including reducing secondhand smoke exposure. For every \$1 spent on strong tobacco control programs, states achieve a \$55 return on investment, mostly in averted health care costs to treat smoking related illness.

CDC also provides direct assistance to help tobacco smokers quit through National Tobacco Quitlines. In March 2012, CDC launched the first-ever paid, national tobacco education campaign, Tips from Former Smokers® (Tips®). The Tips® campaign profiles real people who are living with serious long-term health effects due to smoking and secondhand smoke exposure.

However, despite the strong influence of Tips in directing smokers to quitlines while on air, there have been variances in total annual quitline call volume from 2010-2016, likely due to fluctuations in state-provided funding for quitline services and promotions during these years. Annual calls to quitlines peaked in 2012 and 2013 but have tapered off since; however, calls to quitlines were higher in 2015 and 2016 than in 2010 and 2011 (the two years prior to the Tips® campaign). In 2018, more than 450,000 total calls were received during the Tips® campaign which ran for 25 consecutive weeks from April 23rd through October 14th. In addition, state quitlines are increasingly offering a variety of channels for accessing cessation services, including web and mobile services, and some smokers are likely using these alternatives instead of calling quitlines. Recent findings indicate that the quit ratio, or the proportion of former smokers to ever smokers, has increased steadily in recent years. In FY 2017 there was a 61.7% quit ratio regarding the proportion of cigarette smokers ≥18 years who are former cigarette smokers (Measure 4.6.8). CDC will continue to provide resources to state quitlines as part of its National Tobacco Control Program, as well as state tobacco control programs, and CDC will continue the Tips from Former Smokers® campaign on national TV, radio, print, digital, and out-of-home media.

Nutrition, Physical Activity, and Obesity

Performance Measures for Long Term Objective: Promote evidence-based interventions to improve nutrition, increase physical activity, and reduce obesity

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.11.7 Increase the proportion of infants that are breastfed at 6 months (Intermediate Outcome)	FY 2015: 57.6% Target: 58.9% (Target Not Met but Improved)	65.4%	65.5%	+0.1
4.11.8a Increase the contribution of vegetables to the diets of the population aged 2-18 years (cup equivalents per 1,000 calories) ¹	FY 2016: 0.54 Target: 0.66 (Target Not Met)	N/A	0.9	N/A

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
(Intermediate Outcome)				
4.11.8b Increase the variety of vegetables to the diets of the population aged 19 years and older (cup equivalents per 1,000 calories) ¹ (Intermediate Outcome)	FY 2016: 0.82 Target: 0.87 (Target Not Met but Improved)	N/A	1	N/A
4.11.9 Increase the proportion of adults (age 18 and older) that engage in leisure-time physical activity (Intermediate Outcome)	FY 2017: 74.1% Target: 73.9% (Target Exceeded)	74.1%	74.4%	+0.3
4.11.10a Reduce the age-adjusted proportion of adults (age 20 years and older) who are obese ¹ (Intermediate Outcome)	FY 2016: 39.6 % Target: 33.2% (Target Not Met)	N/A	32.3%	N/A
4.11.10b Reduce the proportion of children and adolescents (ages 2 through 19) who are obese ¹ (Intermediate Outcome)	FY 2016: 18.5% Target: 15.7% (Target Not Met)	N/A	14.7%	N/A
4.12.1 Increase in the number of states with nutrition standards for foods and beverages provided in early care and education centers (Output)	FY 2017: 31 Target: 42 (Target Not Met but Improved)	42	42	Maintain
4.12.4 Increase the number of states with physical education standards that require children in early care and education centers to engage in vigorous- or moderate-intensity physical activity (Output)	FY 2017: 17 Target: 18 (Target Not Met but Improved)	18	19	+1

¹ Targets and results are set and reported biennially.

Performance Trends: Breastfeeding: Breastfeeding rates are improving. The proportion of infants that are breastfed at six months (Measure 4.11.7) increased from 44.4% in 2008 to 57.6% in 2015, missing the target, but demonstrating progress. To meet its targets, CDC will continue to support birthing hospitals, worksites, and

communities in implementing policies and practices that help women breastfeed. CDC funds all states and the District of Columbia to improve support for women who choose to breastfeed. These investments have contributed to improvements in initiation and duration of breastfeeding, as well as improvements in hospital support for breastfeeding, including that 1 million babies per year (26%) are now born in hospitals implementing practices supportive of breastfeeding. This percentage of births occurs at 467 hospitals across 50 states, Washington, D.C., and Puerto Rico, and is more than three times the Healthy People 2020 target (8.1%).

Early Care and Education (ECE): Annually, 41% of children (birth through five years) participate in either center-based or family home-based childcare and early education programs. There are national standards for physical activity and nutrition for the ECE setting. In FY 2014, only nine states had policies that required ECE programs statewide to meet at least one of three select national physical activity standards (Measure 4.12.4) and 27 states had policies that required ECE programs to meet at least two of eight select national nutrition standards (Measure 4.12.1). In FY 2017, although the targets were not met, 17 states had adopted physical activity standards policies and 31 states had adopted nutrition standards policies, an increase over the previous year. CDC will continue to work towards meeting its targets by investing in and providing assistance to states adopting physical activity and nutrition standards. As of February 2018, CDC expanded work on specific activities designed to have statewide impact through embedding nutrition and physical activity standards or implementation support for these standards into their state ECE system, bringing the total from six to 20 states. CDC also supports professional development opportunities for ECE providers through the development of on-demand online training modules in partnership with Penn State University's Better Kid Care (BKC) program. Between November 2017 and April 2018, seven new modules were added, bringing the total number of nutrition and physical activity-related modules that CDC supports on the BKC professional development system¹⁹³ to 14.

Healthy Eating: The total vegetable intake remains low for all populations. Data indicate in 2015-2016 children age 2-18 years consumed 0.54 cup equivalents of vegetables per 1,000 calories and adults consumed 0.82 cup equivalents per 1,000 calories (Measures 4.11.8a-b). Making progress in improving diet is challenging given the complex and multiple factors that influence the marketing of, access to, affordability of, and consumption of both healthy and less healthy food options. CDC will continue to work with state, local, tribal, and territorial health departments to help worksites, schools, childcare, and community settings to provide information about healthy food and beverage choices for people of all ages.

Active Living: The proportion of adults who engage in leisure-time physical activity increased from 63.8% in FY 2008 to 74.1% in FY 2017 (Measure 4.11.9). The proportion of adults that meet current aerobic physical activity guidelines increased from 43.5% in 2008 to 54.1% in 2017, reducing the risk for many chronic diseases. CDC will continue to promote the critical need for safe and easy places for physical activity to take place and help implement high impact strategies for walking and walkable communities like Complete Streets and Safe Routes to Schools. As of December 2017, more than 1,300 agencies at the local, regional, and state levels have adopted Complete Streets policies.

Obesity: CDC funds a number of interventions that target obesity as well as related chronic diseases. The percentage of all children and adolescents (ages two to 19 years) that have obesity increased from 16.8% in FY 2008 to 18.5% in FY 2016 (Measure 4.11.10b). In children ages two to five, the prevalence of obesity has fluctuated over time. Following a significant decrease from 13.9% in 2003-2004 to 8.9% in 2011-2014, the prevalence of obesity increased to 13.9% in 2015-2016. Research shows behaviors that influence excess weight gain include eating high-calorie, low-nutrient foods and beverages, not getting enough physical activity, sedentary activities such as watching television or other screen devices, medication use, and sleep routines. Public health practitioners can educate individuals about healthy lifestyle choices and ways to improve their diet and increase physical activity. However, it can be difficult for children and parents to make healthy food choices and get enough physical activity. Places such as childcare centers, schools, or communities can

¹⁹³ <http://extension.psu.edu/youth/betterkidcare/early-care>

affect diet and activity through the foods and drinks offered and the opportunities provided for physical activity. CDC will continue promoting good nutrition and physical activity in children and adolescents to help prevent childhood obesity.

In addition, through initiatives such as the Childhood Obesity Research Demonstration (CORD) project, CDC will continue to study and promote ways to prevent childhood obesity. For the first phase of the project, CORD 1.0, CDC examined whether a multi-level, multisector, coordinated strategy involving primary care and evidence-based public health interventions could help low-income children and their families increase healthier behaviors and prevent (primary prevention) and control (secondary prevention) obesity. CORD 2.0 tested a model of quality clinical childhood obesity management. For CORD 3.0, CDC plans to build on lessons learned from research and practice to increase screening, referral, implementation, and community availability of evidence-based healthy weight management programs. During this phase, CDC will provide technical expertise and support to researchers to package their family-centered programs for use among low-income families. This will include testing the packages in additional sites for comparable outcomes. Community sites may include federally qualified health centers (FQHCs), community health centers, and clinics.

In adults, 2015-2016 NHANES data show 39.6% had obesity, an increase from the proportion of obese adults in FY 2014 (37.7%) (Measure 4.11.10a). There are some community factors that affect diet and physical activity. They include the affordability and availability of healthy food options (e.g. fruits and vegetables), peer and social supports, marketing and promotion, and policies that determine whether a community is designed to support physical activity. CDC will continue to implement evidence-based strategies to help increase healthy eating and active living through its support for states and communities throughout the U.S.

School Health

Performance Measures for Long-Term Objective: Improve the health and well-being of youth and prepare them to be healthy adults

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.12.5 Increase the number of states that have developed and adopted a state-level multi-component physical education policy for schools ¹ (Output)	FY 2014: 10 Target: 8 (Target Exceeded)	N/A	19	N/A
4.12.6 Increase the percentage of schools that do not sell less healthy foods and beverages (soda pop or fruit drinks, baked goods, salty snacks, candy) ¹ (Outcome)	FY 2016: 67% Target: 70% (Target Not Met)	N/A	72%	N/A

¹ Targets and results are set and reported biennially.

Performance Trends: Obesity rates among school-aged children and adolescents have more than tripled since 1980. The prevalence of obesity is higher among youth aged 6-11 years (18.4%) and adolescents aged 12-19 years (20.6%) compared with children aged two to five years (13.9%). The 2017 Youth Risk Behavior Survey shows that approximately 30% of high school students are in the categories of overweight or obese, demonstrating the need for CDC’s Healthy Schools Program continued focus on childhood obesity prevention. Most of our nation's children attend school for six hours a day and consume as much as half of their daily

calories at school, making schools an essential setting to reverse the steady increase in childhood obesity and to promote health for all students. CDC promotes effective strategies including establishing a Comprehensive School Physical Activity Program with physical education as the foundation, supporting healthy eating in schools through a Comprehensive Framework and improving school health services to address obesity and other chronic conditions.

Physical Education: The Task Force on Community Preventive Services recommends enhanced, school-based physical education as an effective strategy for increasing physical activity among students. Physical education classes increase students’ daily moderate to vigorous physical activity and therefore help children and adolescents meet daily physical activity recommendations. Measure 4.12.5 tracks the establishment of policies that align with CDC’s School Health Guidelines to Promote Healthy Eating and Physical Activity and the recommendations of the American Heart Association and SHAPE America. In FY 2014, 10 states established the requisite number and composition of multi-component policies, exceeding CDC’s target of eight states, and a 100% increase over baseline.

Nutrition Environment: Students attending schools that sell high-calorie, low nutrient foods and beverages outside the school food service program have lower intake of fruits and vegetables and higher daily percentage of calories from total fat and saturated fat.¹⁹⁴ Most children and adolescents do not meet recommendations for healthy eating (fruits, vegetables and dairy) and 40% of high school students are not eating even one vegetable each day (CDC YRBS, 2017). Measure 4.12.6 is based on Institute of Medicine (IOM) standards that exceed the U.S. Department of Agriculture (USDA) Smart Snacks standards, and tracks the percentage of schools limiting student purchases from vending machines, school stores, canteens, or snack bars to healthier snack foods and beverages. In FY 2016, 67% of secondary schools sold only nutritious foods outside of the school food service program. This represents a 10% increase from FY 2014. It did not meet the target of 70%, but there was significant improvement over the previous result. During this time period, schools were focused on establishing and implementing the new USDA Smart Snack standards. Schools are now better poised to voluntarily exceed those standards as recommended by the IOM standards.

Heart Disease and Stroke

Performance Measures for Long Term Objective: Reduce risk factors associated with heart disease and stroke²

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.11.5 Increase the age-adjusted proportion of persons age 18+ in the U.S. population with high blood pressure who have it controlled ¹ (<140/90) (Intermediate Outcome)	FY 2016: 42.8% Target: 56% (Target Not Met)	N/A	59.9%	Maintain
4.11.6 Reduce consumption of sodium in the U.S. population aged 2 years and older ¹ (milligrams per day) (Intermediate Outcome)	FY 2016: 3,410 Target: 2,900 (Target Not Met)	N/A	2,900	Maintain

¹⁹⁴ https://www.cdc.gov/healthyyouth/data/profiles/pdf/2016/2016_Profiles_Report.pdf
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Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.N1 Increase the percentage of at risk WISEWOMAN participants who received at least one evidence-based healthy behavior support service (Output)	FY 2016: 70.0% Target: 60.0% (Target Exceeded)	60%	62%	+2
4.N2 Increase the number of evidence-based behavioral support services provided to WISEWOMAN participants (Output)	FY 2016: 54,241 Target: 30,060 (Target Exceeded)	31,000	32,550	+1,550
4.O Increase the total number of evidence-based tools disseminated to promote sodium and hypertension reduction and awareness (Output)	FY 2018: 277 Target: 167 (Target Exceeded)	315	345	+30

¹ Targets and results are set and reported biennially.

Performance Trends: Hypertension affects one in three adults and is a modifiable risk factor for heart disease, stroke, and other chronic diseases. Hypertension contributes to one out of every seven deaths in the U.S., including just over a quarter of all cardiovascular disease-related deaths. For 2015-2016, the rate of blood pressure control among all U.S. adults 18 and older with hypertension reached 42.8%, down from 49.2% control in 2013-2014 and below the target of 56% (Measure 4.11.5). The data suggest that younger men ages 18-39 had significantly lower rates of control compared to men over the age of 40. Potential reasons for this include continued increases in obesity and diabetes among persons who are obese and/or have diabetes and lack of access to the healthcare system. To address these low rates of blood pressure control, prevention efforts will need to be directed to younger adults, especially men, and those individuals with obesity and/or diabetes.

CDC provides all 50 states and the District of Columbia with funding, expertise, and technical assistance to implement programs to improve cardiovascular health and improve blood pressure control statewide through proven, evidence-based strategies. These approaches include encouraging multidisciplinary team-based approaches to care, increasing the use of electronic health records and health IT to improve diagnosis of high blood pressure and patient follow-up, and by promoting patient self-management of high blood pressure. Grantee states have seen success in these approaches. Participating health systems in CDC’s nationwide state program cover an estimated 31 million or more people. State grantees who reported on this measure showed that 63% of adults with known high blood pressure have achieved control, an increase of six percent in the last four years from baseline. For example, Utah was able to improve its blood pressure control rates from 61% to 71% in just three years, beating its five-year target of 67%.

CDC initiated new five-year cooperative agreements in FY 2018, supporting state and local health departments. Funding will support prevention and management of both cardiovascular disease and diabetes in high burden populations and communities. CDC will also be supporting the design, testing, and evaluation of innovative state and local strategies.

CDC is also pursuing promising interventions to build on these foundational efforts. In July 2017, Million Hearts® began the second year of a project with the Association of State and Territorial Health Officials, the National Association of Community Health Centers, and the YMCA of the USA to improve and sustain uptake of self-measured blood pressure monitoring (SMBP) with clinical support. CDC funding provides resources to nine health centers (24 health center sites), nine local health departments, seven local Ys, and their state counterparts in Kentucky, Missouri, and New York to support the collaborative use of SMBP models. Senior leaders from these and other Million Hearts® partners support these efforts by developing policies, identifying sustainable resources, building public awareness, and promoting the use of SMBP nationally. This project has seen immediate success. For example, participating federally qualified health centers successfully engaged 687 of their 1,234 patients with high blood pressure, for whom SMBP was recommended and many saw a rapid increase in their blood pressure control rate as a result. White House Clinics in Kentucky, a Federally Qualified Health Center with nine locations, saw a five percent increase in their blood pressure control in only six months. The three states involved in this project have committed to scaling these successes throughout their network, estimating a reach of over 1 million patients.

A 2016 report showed that 90% of persons aged two or older exceeded the 2015—2020 Dietary Guidelines for Americans recommendation for sodium intake. Excessive intake of dietary sodium can increase blood pressure and risk of heart disease and stroke. Reducing sodium intake is an important public health strategy for CDC. The agency is working in multiple areas to reduce sodium intake by (1) promoting local, state, and national nutrition strategies; (2) enhancing the monitoring of sodium intake and changes in the food supply; and (3) expanding the practice-based and scientific literature on sodium. In FY 2015-2016, average sodium consumption among people two years and older improved to 3,410 mg/day, a slight reduction from FY 2011-2012 (3,478 mg/day), but did not meet the FY 2016 target (Measure 4.11.6). Despite slight fluctuations overall and some declines in ethnic and age groups since 2003, the majority of the U.S. population continues to consume excess sodium.

CDC's Sodium Reduction in Communities Program currently funds eight recipients to develop practice-based evidence for effective sodium reduction strategies at the community level. Analyses from the conclusion of the 2013-2016 program shows that the ten Sodium Reduction in Communities Program recipients partnered with 455 organizations and reached over 2 million people. Among congregate meal sites, hospitals and worksite settings, the average sodium content of targeted foods or meals decreased by 35% (261 mg) from baseline.

In FY 2013, WISEWOMAN launched a five-year cooperative agreement, which placed more focus on providing women identified as being at high risk for cardiovascular disease (CVD) with appropriate healthy behavior support services (HBSS), such as health coaching, lifestyle programs, or tobacco cessation resources, to reduce or control their CVD risk factors. Results for FY 2016 indicate that grantees were able to provide 54,241 evidence-based healthy behavior support services to WISEWOMAN participants (Measure 4.N2). The data also show that 70% of at-risk women (program participants) received at least one support service in FY 2016 (Measure 4.N1). CDC exceeded targets for both measures. Programs have been working to implement more healthy behavior support services that are culturally tailored, given that approximately 41% of WISEWOMAN participants speak a language other than English as their primary language.

A new five-year cycle of competitive WISEWOMAN funding began in FY 2018, with 21 state health departments and three tribal organizations receiving funding. For the first time, CDC has included an innovation component that funds seven awardees to support the development and testing of innovative strategies to expand the reach and impact of the WISEWOMAN program. Awardees will implement and evaluate innovative strategies designed to reduce risks, complications, and barriers to the prevention and control of heart disease and stroke and contribute to the evidence base to address CVD in underserved communities.

In FY 2018, CDC disseminated 277 evidence-based tools to promote hypertension control, quality stroke care and sodium reduction, continuing a trend of disseminating more tools annually since 2009 (Measure 4.O). CDC tools are promoted through the Web, partner outreach via collaborative relationships, targeted emails and

newsletters, dissemination to cooperative agreement recipients, webinars and poster and oral presentation at national conferences and meetings. Examples include:

- Best Practices for Cardiovascular Disease Prevention Programs Guide for public health professionals, summarizing the best evidence and strategies for controlling and managing high blood pressure and high cholesterol.
- An evaluation summary of Paul Coverdell Acute Stroke Program from 2012-2015, looking at state by state progress on program implementation and outcomes related to stroke care.
- A toolkit for public health practitioners on partnering with food service to reduce sodium.
- A Cardiac Rehabilitation Change Package to help teams from hospitals and cardiac rehabilitation programs put systems and strategies in place that target improved care for more eligible patients.
- CDC’s Grand Round session featuring Million Hearts® 2022 and the actionable priorities taken by public health and health care professionals to get and keep people healthy.

Diabetes

Performance Measures for Long Term Objective: Improve prevention, detection, and management of diabetes

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.11.12 Reduce the age-adjusted incidence of diagnosed diabetes among U.S. adults aged 18 to 79 ¹⁹⁵ (Outcome)	FY 2015: 6.5 Target: 7.2 (Target Exceeded)	7.2	7.2	Maintain
4.11.13 Increase the number of CDC recognized organizations achieving a minimum average weight loss of 5% in their eligible participants (Outcome)	FY 2017: 490 (Baseline)	620	685	+65
4.S Increase the number of people with at least one encounter at an ADA recognized or AADE accredited diabetes self-management education and support (DSMES) program (Output)	FY 2017: 1,047,128 Target: 1,047,128 (Target Met)	1,107,128	1,137,128	+30,000
4.T Increase the total number of participants enrolled in CDC recognized organizations for the prevention of type 2 diabetes (Output)	FY 2017: 198,811 (Baseline)	338,811	408,811	+70,000

¹⁹⁵ Results for FY 2014 and 2015 were reported as ages 20 and above; however the results reported were actually for ages 18 to 79. The measure language has been updated to reflect the correct ages.

Performance Trends: CDC estimates show more than 84 million American adults aged 18 years or older, or one in three adults, have prediabetes, and nine out of 10 people with prediabetes do not know they have it. Without a structured intervention, many of these individuals will go on to develop type 2 diabetes. CDC established the National Diabetes Prevention Program (National DPP) to address the growing epidemic of type 2 diabetes. The National DPP lifestyle change program is led by trained coaches who facilitate participants' strategies for eating a healthy diet, increasing physical activity, and developing coping skills. The Diabetes Prevention Program clinical trial showed that participants who engage in these lifestyle changes through a structured program can lose five to seven percent of their body weight and reduce development of type 2 diabetes by as much as 58% (71% for those 60 years of age and older). CDC's Diabetes Prevention Recognition Program serves as the quality assurance component of the National DPP, awarding CDC recognition to program delivery organizations that are able to meet national quality standards and achieve outcomes proven to prevent or delay the onset of type 2 diabetes. The CDC recognition program provides the only national centralized collection of performance data for the National DPP. Through implementation of the National DPP, CDC aims to continue the reduction of the age-adjusted incidence of diagnosed type 2 diabetes among U.S. adults aged 18 to 79 (Measure 4.11.12). Although the national rate of diabetes incidence (6.4 cases per 1,000) has now moved below the target (7.2 cases per 1,000), we chose not to alter the target at present, in order to be consistent with Healthy People 2020 objectives. The continued growth of the diabetes burden in terms of absolute prevalence, lifetime risk, years spent with diabetes, and the incidence rate remaining considerably higher than it was in the 1990s, are all contributing factors indicating a need for continued largescale prevention efforts, for example the National DPP.

Since its inception in February 2012, more than 260,000 people at high risk for developing type 2 diabetes have participated in CDC-recognized organizations offering the National DPP lifestyle change programs across the U.S. Evaluated participants have lost an average of six percent of their body weight. As of December 2018, there are nearly 1,700 CDC-recognized organizations. CDC aims to increase the total number of participants enrolled in recognized organizations by 70,000 participants per year (Measure 4.T), as well as increase the number of CDC-recognized organizations achieving a minimum average weight loss of five percent in their eligible participants by 65 organizations per year (Measure 4.11.13). In FY 2017 there were 490 CDC recognized organizations achieving a minimum average weight loss of five percent in their eligible participants and 198,811 total participants enrolled in CDC recognized organizations for the prevention of type 2 diabetes.

CDC supports state health departments and other stakeholder organizations in expanding access to the National DPP for populations at greatest risk for type 2 diabetes. Achieving insurance coverage is a critical step for increasing access to this highly effective program. Partners, in collaboration with CDC, have secured health insurance coverage for the National DPP for over 3.4 million public employees and dependents in 19 states. In addition, more than 240,000 Medicaid beneficiaries have access to the National DPP lifestyle change program in three states—Minnesota, Montana, and Vermont—and California and New Jersey will enact Medicaid coverage for the program in 2018, adding more than 14,800,000 beneficiaries. About 100 commercial insurance companies currently provide some form of coverage for the National DPP for their plan members or employees with prediabetes.

CDC's National DPP is the first preventive service model from the CMS Innovation Center to become eligible for expansion—a landmark for public health. Approximately 23 million American adults with prediabetes are 65 years or older, and could directly benefit from the Medicare Diabetes Prevention Program services, which became available in April 2018.

To increase awareness of prediabetes and diabetes, CDC partnered with CBS Television Stations to create Your Health with Joan Lunden and CDC, a two-season series which targeted the more than 114 million people who have diabetes or prediabetes. The series aired on CBS and its affiliates, the Health Media Network, in 11 heavily trafficked airports nationwide (including Atlanta, New York, Washington, DC, and Chicago), and were disseminated via CDC, CBS and Joan Lunden's digital and social channels. CDC also partnered with the American Medical Association (AMA), the American Diabetes Association (ADA), and the Ad Council to develop the

National Prediabetes Awareness Campaign in 2016 as a means to increase awareness and understanding of prediabetes, provide information about how to prevent progression to type 2 diabetes, and promote the National DPP. There have been 2.1 million unique visits to the campaign website (www.DoIHavePrediabetes.org) since launching in 2016.

CDC also strives to prevent diabetes complications through diabetes self-management education and support (DSMES). DSMES improves A1C levels and reduces healthcare costs by decreasing hospitalizations, hospital re-admissions, and emergency room visits among people with diabetes. CDC supports state health departments through a nationwide cooperative agreement to improve access to DSMES among people with diabetes, with an emphasis on DSMES programs that meet national quality standards. In 2016, approximately 4,155 DSMES programs were offered across the U.S., and more than 1 million people with diabetes participated in recognized or accredited programs that meet national quality standards. CDC aims to increase the number of people with at least one encounter at a recognized or accredited DSMES program by 30,000 people per year (Measure 4.S). Additionally, more than 3 million Medicaid beneficiaries have DSMES as a covered benefit. The number of people with at least one encounter at a recognized or accredited DSMES program in FY 2017 was 1,047,128, meeting the target.

CDC’s major diabetes surveillance programs, the National Diabetes Surveillance System and the SEARCH for Diabetes in Youth study, have documented large 20 year improvements in diabetes-related complications while identifying new areas of concern. These include recent increases in amputation rates and hyperglycemic deaths; continued increases in diabetes incidence in youth; and continued disparities. CDC implemented two new programs aimed at prioritizing solutions to stagnant trends and persistent disparities – the Natural Experiments for Translation in Diabetes 2.0 (NEXTD-2) and Location, Environmental Attributes, and Disparities (LEAD) networks. The NEXTD-2 network is a consortium of eight major natural experimental studies examining the impact of major population-wide policies, ranging from Medicaid expansion to different health insurance benefit designs on the impact of diabetes care and outcomes. The LEAD network is a multi-center study that examines the health-system based, environmental, and community factors that account for the large geographic differences in diabetes risk across the U.S.

Cancer Prevention and Control

Performance Measures for Long Term Objective: Improve health outcomes related to cancer

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.9.1 Decrease the incidence rate of late-stage breast cancer diagnosis in women ages 50 to 74 (per 100,000) (Intermediate Outcome)	FY 2015: 99.0 Target: 99.5 (Target Exceeded)	98.5	98.0	-0.5
4.9.2 Increase the percent of adults age 50 to 75 receiving colorectal cancer screenings ¹ (Intermediate Outcome)	FY 2016: 67.3% Target: 70% (Target Not Met but Improved)	N/A	69.5%	N/A
4.9.4 Increase the percentage of CDC-funded state cancer registries that electronically receive	FY 2018: 75% Target: 75% (Target Met)	85%	90%	+5

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
physician cancer reports from Electronic Health Record (EHR)/Electronic Medical Record (EMR) systems (Output)				
4.9.5 Increase the median colorectal screening rate among Colorectal Cancer Control Program (CRCCP) health system clinics (Outcome)	FY 2017: 52% Target: 45.2% (Target Exceeded)	56%	58%	+2
4.Q Number of breast or cervical cancers and pre-malignant lesions detected among women served (Short-term Outcome)	FY 2017: 9,537 Target: 9,600 (Target Not Met) ²	9,900	9,900	Maintain
4.R Number of women served through the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) (Short-term Outcome)	FY 2017: 330,626 Target: 330,000 (Target Exceeded)	330,000	330,000	Maintain

¹Targets and results are set and reported biennially.

²To be consistent with clinical guidelines and definitions of precancerous lesions, number of CIN1 pap results included in measure. Targets have been adjusted to reflect larger numbers.

Performance Trends: Cancer is the second leading cause of death in the United States, resulting in over 595,000 deaths annually – over 1,630 deaths each day. Cancer is responsible for more potential years of life lost than all other causes of death combined. The total number of new cancer cases is estimated to increase to 1.9 million in 2020 and because cancer patients overall are living longer, the number of cancer survivors is expected to increase to 18 million and cancer costs are estimated to reach \$160 billion by 2020.

The number of new cancers can be reduced and many cancer deaths can be prevented. Scientific research shows that policy and environmental changes can reduce the risk for cancer and improve survival after a cancer diagnosis. Effective screening methods can find breast, cervical, and colorectal cancer early so that treatment can be more successful. Despite the evidence, screening rates for all three types of cancer remain below Healthy People 2020 screening targets. CDC is actively focused on increasing screening rates for Americans by emphasizing implementation of evidence-based interventions in health system clinics, expanding patient navigation, and partnering with community organizations.

Breast and Cervical Cancer: Women ages 50 and older are at highest risk for breast cancer and benefit the most from screening. Recent modeling studies show that compared to those not screened, biennial mammography screening reduces breast cancer deaths by 25% among women ages 50-74. From FY 2012 to FY 2014, the incidence rate of late-stage diagnosis among women ages 50–74 (Measure 4.9.1) had not changed substantially. However, from FY 2014 to FY 2015, the rate decreased almost two percent from 100.7 per 100,000 to 99.0 per 100,000, exceeding the target. Increases in the number of women eligible for insurance coverage and increased

access to care likely contributed to some improvements in screening rates, thus earlier diagnosis of cancer. However, increased coverage alone will not increase screening rates to target levels within all populations.

CDC's current five-year cooperative agreement for the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) funds 50 states, the District of Columbia, six U.S. territories, and 13 American Indian/Alaska Native tribes or tribal groups to increase breast and cervical cancer screening rates in underserved populations. The cooperative agreement requires grantees to increase cancer screening rates by implementing evidence-based strategies and population-level activities within health systems and providing direct screening services.

To reflect the impact and reach of the current cooperative agreement, two measures for the NBCCEDP are reported 1) number of cancers and pre-malignant lesions detected and 2) total number of women served by the program. In FY 2016, the NBCCEDP reported 9,558 cancers and pre-malignant lesions detected (Measure 4.Q), substantially exceeding the target (9,558 vs 9,200). The number remained almost constant in FY 2017 (9,537), only slightly missing the target (9,537 vs 9,600). CDC anticipates the program will meet future targets by continuing to provide direct screening services and implementing population-level activities within health systems as required in the new cooperative agreement.

The total number of women served by the NBCCEDP (Measure 4.R) in FY 2016 was approximately 40,000 fewer than the target (331,998 vs 370,920). The measure is intended to capture a broader spectrum of the program's activities including work to support cervical cancer screening, diagnostic screenings and navigating women into the cancer continuum. In addition to the lag time in implementing the new program model, CDC determined that the discrepancy in the actual versus target results was due to the program not yet having the ability to collect data on the number of women receiving patient navigation services. In FY 2017, the number of women served by the NBCCEDP remained about the same at 330,626, exceeding the target of 330,000. FY 2020 targets have been adjusted to remove the number of women receiving patient navigation. CDC will revise future targets to include the patient navigation component once the data are available.

Colorectal Cancer: Colorectal cancer (CRC) is the second most commonly diagnosed cancer and the second leading cause of cancer deaths among cancers affecting both men and women in the U.S. CRC screening can detect cancer early, when treatment is more effective, and a colonoscopy can prevent cancer by removing precancerous polyps before they turn into cancer. In FY 2016, only 67.3% of adults aged 50-75 were up to date on CRC screening for CRC (Measure 4.9.2), about a one percent improvement since 2014, but below the FY 2016 target.

CDC funds 30 grantees to increase colorectal screening among underserved populations aged 50-75. Grantees partner with health system clinics to increase the number of people screened by implementing evidence-based strategies (e.g., patient and provider reminders, provider assessment and feedback) recommended by the Task Force on Community Preventive Services. Through March 2018, the Colorectal Cancer Control Program (CRCCP) grantees have partnered with 643 health system clinics that serve 1,114,136 patients age-eligible for CRC screening. CDC is reporting a new measure for the CRCCP - the increase in the median colorectal screening rate among participating clinics (Measure 4.9.5). Among clinics recruited in the first program year of CRCCP, screening rates increased 9.1 percentage points, from a median rate of 42.9% in FY 2016 to 52.0% in FY 2017. In contrast, national screening rates for the U.S. only increased approximately two percent over two years from 2014 (66.3%) to 2016 (67.3%).

Cancer Registries: Cancer reporting from providers to State Cancer Registries is included in CMS Stage 2 meaningful use criteria. Implementation of meaningful use criteria is significantly increasing the number of reports received for each case by the central registry. In FY 2018, 36 registries (75% of all registries) electronically received physician cancer reports from electronic health records (EHRs), up from 32 registries (70%) in FY 2017, meeting the FY 2018 target and exceeding the target over the past four years (Measure 4.9.4).

Oral Health

Performance Measures for Long Term Objective: Prevent oral health diseases and promote effective interventions that support optimal oral health

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.7.1 Increase the proportion of the people served by community water systems who receive optimally fluoridated water ¹ (Intermediate Outcome)	FY 2014: 74.4% Target: 76.5% (Target Not Met)	N/A	76.5%	N/A

¹Targets and results are set and reported biennially.

Performance Trends: For more than 70 years, community water fluoridation has been a safe and healthy way to effectively prevent tooth decay, and has been recognized by CDC as one of 10 great public health achievements of the 20th century. CDC works with national partners, states, communities, and water operators to support the U.S. population having access to optimally fluoridated water to prevent tooth decay. CDC is working toward the Healthy People 2020 objective of 79.6% of the population on public water systems who receive optimally fluoridated water. Fluoridation of public water systems increased from 62.1% in 1992 to 74.6% in FY 2012, slightly dropping to 74.4% in 2014 (Measure 4.7.1). The methodology for the community water fluoridation measure is currently under evaluation for potential updates. CDC will update FY 2016 results once the new methodology is available in 2019.

The decision to implement or continue community water fluoridation is made at the state or local level. CDC supports the decision-making process by sharing evidence-based research about the safety, effectiveness, and cost-effectiveness of community water fluoridation. Beginning in FY 2016, CDC made funding available to water systems through a partner organization for replacement of aging water fluoridation equipment, or to install new water fluoridation systems. Under the program's 2018 cycle, 17 water systems were awarded funds. In late 2018, CDC will release a modular online training course on community water fluoridation that will be available to water system engineers, public health professionals, state oral health programs, and educational institutions.

In May 2018, CDC collaborated with a national partner to develop a new Communications Toolkit for health departments and other local organizations to educate and inform their communities about the benefits of water fluoridation. Resources are available on the partner organization's website and include a compilation of existing resources, fluoridation fact sheets and reasons to fluoridate, common myth busters, and web-ready social media messages.

Safe Motherhood and Infant Health

Performance Measures for Long Term Objective: To improve the health of women and infants through public health surveillance, research, capacity building and science based practices

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.8.5 Reduce birth rates among adolescent females aged 15 to 19 years (per 1,000 births) (Outcome)	FY 2016: 20.3 Target: 22.7 (Target Exceeded)	17.5	17.5	Maintain
4.8.7 Decrease the infant mortality rate	FY 2016: 5.87 Target: 5.84	5.66	5.66	Maintain

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
(infant deaths per 1,000 live births occurred within the first year of life) (Outcome)	(Target Not Met)			

Performance Trends: CDC strengthens the evidence base for effective interventions that improve both maternal and infant health.

Birth Rate Among Adolescent Females: The birth rate for teenagers aged 15-19 has decreased over 50% in the past decade. This rate dropped from 22.3 per 1,000 in 2015 to 20.3 per 1,000 in 2016, reaching yet another record low for the U.S. and exceeding the FY 2016 target (Measure 4.8.5).

Infant Mortality Rate: The infant mortality rate is the number of deaths per 1,000 live births that occur before the infant’s first birthday. In 2016, the infant mortality rate in the U.S. was 5.87 deaths for every 1,000 births (Measure 4.8.7). It did not meet the FY 2016 target. CDC works to prevent these deaths through a range of activities. CDC supports state-based Perinatal Quality Collaboratives (PQCs), which are networks of teams working to improve health outcomes for mothers and babies. PQC members identify health care processes that need to be improved and use the best available methods to make changes as quickly as possible. For example, the North Carolina PQC led a collaboration that was able to decrease central line-associated bloodstream infection rates by almost 60% in the 100 participating NICUs representing nine states. This project prevented an estimated 131 infections that translated to an estimated 14 to 41 deaths prevented, and over \$2.2 million in excess costs avoided. CDC also funds the Sudden Unexpected Infant Death (SUID) Case Registry in 16 states and two jurisdictions, covering 30% of all SUID cases in the United States. SUID is the death of an infant less than one year of age that occurs suddenly and unexpectedly and whose cause of death is not immediately obvious before investigation. SUIDs include deaths from SIDS, accidental suffocation and strangulation in bed, and deaths with unknown cause. Participating states and jurisdictions use data about SUID trends and circumstances to develop strategies to improve death investigations and reduce future deaths.

Arthritis

Performance Measures for Long Term Objective: Reduce pain and disability and improve quality of life among people affected by arthritis

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.11.1 Reduce the age-adjusted percentage of adults (age 18+) diagnosed with arthritis that are physically inactive in states funded by the CDC Arthritis Program (Outcome)	FY 2017: 31.6% ¹ Target: 27.8% (Target Not Met)	29.4%	N/A	N/A

¹ The support that the arthritis program provides is too small to show a significant effect on a national data point gathered through BRFSS alone.

Performance Trends: Moderate physical activity is a proven and safe self-management strategy for people with arthritis, however, adults with arthritis have significantly higher rates of physical inactivity than adults without arthritis. CY 2017 data for physical activity levels show about 31.6% of adults diagnosed with arthritis in states funded by CDC were physically inactive (Measure 4.11.1), an increase from FY 2016 (28.8%). Physical activity levels among adults with arthritis can change with programmatic interventions, but have proven challenging to

change at a rapid pace within the confines of CDC's state Arthritis Program activities. It is difficult to show a statewide impact among the entire adult population with arthritis.

CDC will retire measure 4.11.1 because the cooperative agreement associated with this measure has ended and data for the measure is no longer being collected. A new cooperative agreement began in FY 2018. This will provide the program with an opportunity to begin work with 13 newly funded states on new activities. CDC will develop a new measure that is directly related to outcomes expected from the new state arthritis cooperative agreement program initiated in July 2018. The new measure will look at the increase in the age-adjusted percentage of adults (age 18+) diagnosed with arthritis who were counseled by a doctor or other health professional to be physically active or exercise to help arthritis or joint symptoms, in states funded by the CDC Arthritis Program. This is also a Healthy People 2020 objective and a proposed HP2030 objective. This measure more directly aligns with the Arthritis Program future activities and capacity. Data for this measure will be available in late summer/early fall 2020 with the release of the Behavioral Risk Factor Surveillance System (2019 data set).

Behavioral Risk Factor Surveillance System (BRFSS)

Performance Measures for Long Term Objective: Improve validity, coverage, and dissemination of BRFSS

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
4.P Increase the average percentage of completed cell phone interviews to maintain population coverage in the Behavioral Risk Factor Surveillance System (BRFSS) (Output)	FY 2017: 56% Target: 43% (Target Exceeded)	56%	58%	+2

Performance Trends: CDC established the Behavioral Risk Factor Surveillance System (BRFSS) as a landline telephone-based health survey system conducted by states and territories to monitor population risk factors for chronic disease and other leading causes of death and disability. CDC moved to a dual, but separate, landline and cellular telephone sampling frame in 2011 and has demonstrated measurable improvements in reaching cell phone respondents by increasing the average percentage of BRFSS cell phone interviews from 4.5% in FY 2009 to 56% in FY 2017, exceeding the target and achieving an eight percentage point increase over FY 2016 (Measure 4.P).

BIRTH DEFECTS AND DEVELOPMENTAL DISABILITIES

Child Health and Development

CDC Contextual Indicators for Long Term Objective: Prevent birth defects and developmental disabilities

Contextual Indicators	Most Recent Result	FY 2020 Target
5.1.5a Increase the proportion of children with autism spectrum disorders (ASDs) having a first evaluation by 36 months of age (Outcome)	FY 2014: 41.8% ¹	47.0% ¹
5.1.5b Increase the proportion of children with low SES with autism spectrum disorders (ASDs) who receive a first evaluation by 36 months of age (Outcome)	FY 2014: 37.8%	41.0%
5.1.5c Increase the proportion of children of minority race/ethnicity (non-white) with autism spectrum disorders (ASDs) having a first evaluation by 36 months of age (Outcome)	FY 2014: 41.5%	43.1%
5.1.5d Increase the proportion of children of low SES and minority race/ethnicity with autism spectrum disorders (ASDs) who receive a first evaluation by 36 months of age (Outcome)	FY 2014: 40.8%	43.1%

¹ Fiscal year (FY) represents the year the study began, typically referred to as the data surveillance year (SY).

Performance Measures for Long-Term Objective: Prevent birth defects and developmental disabilities

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
5.1.8a Increase the percentage of primary care providers who screen women of reproductive age for risky alcohol use (Outcome)	FY 2018: 33.6% Target: 45.2% (Target Not Met)	46.6%	47.9%	+1.3
5.1.8b Increase the percentage of primary care providers who provide appropriate, evidence-based interventions to reduce alcohol-exposed pregnancy for those at risk (Outcome)	FY 2018: 30.8% Target: 40% (Target Not Met)	41.3%	42.5%	+1.2
5.1.10 Increase the proportion of Hispanic women of reproductive age who have an optimal blood folate concentration for neural tube defect prevention ¹ (Outcome)	FY 2011: 75.5% (Baseline)	76.75%	N/A	N/A

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
5.1.11a Reduce use of opioid-containing medications among pregnant women (Outcome)	FY 2015: 8.9% Target: 9% (Target Exceeded)	7.4%	7.0%	-0.4
5.1.11b Reduce use of opioid-containing medications among women of reproductive age (Outcome)	FY 2015: 23.7% Target: 21.5% (Target Not Met)	17.5%	16.6%	-0.9
5.E Increase the proportion of population-based birth defects surveillance programs that meet essential national data quality standards ² (Output)	FY 2018: 53.7% Target: 63% (Target Not Met)	63%	67%	+4

¹ Targets and results are set and reported biennially.

² In FY 2018, the methodology was modified to ensure consistent calculation across the years. Specifically, the denominator value was changed to include all U.S. states, the District of Columbia, Puerto Rico, the Metropolitan Atlanta Congenital Defects Program, and the U.S. Department of Defense.

Performance Trends: Birth defects affect three percent of infants and account for more than 20% of infant deaths in the U.S. A primary way CDC prevents birth defects is by identifying and reducing risk factors (such as exposure to alcohol or opioids in pregnancy) and by identifying and increasing protective factors (such as sufficient levels of folate in the blood). CDC works to increase the percentage of primary care providers who (a) screen women of reproductive age for risky alcohol use and (b) provide appropriate, evidence-based interventions to reduce alcohol-exposed pregnancy for those at risk (Measures 5.1.8a-b). Since FY 2012, alcohol screening and brief intervention percentages appeared to increase and then level off. In FY 2018, there was indication of a decrease and the targets were not met. The decrease may be a result of random variations in the survey since the percentages declined for all provider groups. Ongoing monitoring will be important to determine if this is a real decrease. In addition, since these data are not population-based estimates, the decline may reflect a different population from previous years. If these are true declines, they may be due to competing issues related to increased awareness around other substances such as opioid and legalized marijuana use. However, there were also variations across provider types. For example, since FY 2012, obstetricians and gynecologists (OB/GYNs) reported the greatest increases in brief intervention when compared with other providers. Alcohol screening and brief intervention percentages, as well as variations in these percentages by provider type, will continue to be closely monitored in the coming years. Efforts to improve provider practices of alcohol screening and brief intervention continue to be a key program focus area. Educational products targeting specific clinician groups have been developed and training is now available.

To prevent neural tube defects (NTDs), CDC works to help women of reproductive age attain optimal concentrations of folate, a B vitamin, in their blood. Hispanic mothers have higher rates of NTD-affected births. CDC monitors red blood cell folate concentrations among women of reproductive age, including Hispanic women, to inform interventions in these populations. In FY 2011, 75.5% of Hispanic women of reproductive age (12-49 years) were found to have an optimal blood folate concentration for neural tube defects prevention (Measure 5.1.10). National Health and Nutrition Examination Survey (NHANES) usually reports data in two-year cycles; however due to laboratory issues, the data for NHANES 2011-2014 required recalculation and the release of data for NHANES 2015-2016 was delayed. NHANES has been working to resolve these issues and the release of new and corrected data is anticipated in spring 2019. In April 2016, FDA approved folic acid fortification of corn masa flour, a major food staple for many Hispanic women. Corn masa flour products with folic acid reached

the first store shelves at the end of the summer 2016, and CDC should be able to see the effects of this fortification in data that will be reported in 2020.

CDC is tracking trends in prescription opioid use among pregnant and reproductive aged women, with the goal of primary prevention of neonatal abstinence syndrome (NAS) and other adverse outcomes associated with prenatal opioid exposure through reduced opioid use among these women. The most recent estimates show a decrease in the percent of women using an opioid-containing medication during pregnancy from 11.1% at baseline to 8.9% in 2015 (Measure 5.1.11a). Data from 2015 also show a slight increase in the percent of women of reproductive age using an opioid-containing medication from 23.6% at baseline to 23.7% (Measure 5.1.11b). CDC will continue working to expand and accelerate research to improve our understanding about the risks associated with opioid use during pregnancy, including NAS. CDC continues to work with states and clinical organizations to gain a more precise understanding of how opioids and other substances used during pregnancy impact children's health and to identify best practices to reduce unnecessary maternal opioid use.

CDC works to increase the proportion of population-based birth defects surveillance programs that meet essential national data quality standards. CDC provides technical assistance to each program in their efforts to improve data quality. In FY 2018, new methods to assess the standards were used. The percentage of birth defects surveillance programs that met these new national data quality standards was 53.7% in FY 2018 (Measure 5.E). The project methodology for Measure 5.E was modified to ensure consistent calculation across the years in FY 2018. Specifically, the denominator value was changed to include all U.S. states, the District of Columbia, Puerto Rico, the Metropolitan Atlanta Congenital Defects Program, and the U.S. Department of Defense. Due to the increased denominator value, the overall result percentage is lower than previous years. Due to the described changes in methodology, Measure 5.E will be reviewed for associated updates to the target for future reporting.

CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network monitors the prevalence of autism spectrum disorder (ASD) and other developmental disabilities in 11 communities across the United States. The most recent ADDM data estimated that one in 59 children living in ADDM Network communities have ASD. In addition to providing a prevalence estimate, ADDM data are used to track the age at which children with ASD receive developmental evaluations and ASD diagnoses. The proportion of children with ASD who receive a first evaluation by 36 months of age (Contextual Indicator (CI) 5.1.5a) decreased from 42.8% in FY 2012 to 41.8% in FY 2014. However, results for certain subgroups of children increased. The proportion of children of minority race/ethnicity (CI 5.1.5c) with ASD who receive a first evaluation by 36 months of age increased from 39.8% in FY 2012 to 41.5% in FY 2014. The proportion of children of low socioeconomic status and minority race/ethnicity (CI 5.1.5d) with ASDs who receive a first evaluation by 36 months of age also increased from 40.0% in FY 2012 to 40.8% in FY 2018. There was a slight increase in the proportion of children with low socioeconomic status (CI 5.1.5b) and with ASDs who receive a first evaluation by 36 months of age (37.8%). Compared to earlier study years, results from FY 2014 showed a reduction in disparities across multiple outcomes. In an effort to increase the proportion of children with ASD who receive a first evaluation by 36 months of age, CDC has expanded the reach of its Learn the Signs. Act Early¹⁹⁶ Program, which encourages parents and providers to monitor developmental milestones and act early if there are signs of developmental delays.

¹⁹⁶ <https://www.cdc.gov/ncbddd/actearly/index.html>

Health and Development for People with Disabilities

Performance Measures for Long-Term Objective: Improve the health and quality of life of Americans with disabilities

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
5.2.5 Increase the percentage of jurisdictions that collect, report, and use individually identifiable data in order to reduce the number of infants not passing hearing screening that are lost to follow-up (Outcome)	FY 2016: 69% Target: 70% (Target Not Met But Improved)	80%	80%	Maintain
5.2.6 Decrease the incidence of skin breakdown in patients with spina bifida (SB) who attend SB clinics ¹ (Outcome)	FY 2017: 10.2% Target: 7.5% (Target Not Met)	6.8%	6.8%	Maintain
5.2.7 Increase the percentage of US children 2-5 years of age with a diagnosis of ADHD who receive behavioral therapy (psychological services) for treatment (Outcome)	FY 2017: 60% (Baseline) ²	60%	66%	+6
5.F Increase percentage of funded Disability and Health state programs that use state Medicaid administrative data to inform the development of public health programs for people living with intellectual /developmental disabilities (I/DD) (Output)	FY 2018: 53% Target: 37% (Target Exceeded)	53%	58%	+5

¹ Refined definition for skin breakdown to improve consistency in data. Targets adjusted to reflect revised baseline.

² CDC established a new data source in FY 2017. Results cannot be compared to previous years.

Performance Trends: CDC is helping children live to the fullest through cost-effective early identification and intervention programs that improve outcomes for newborns with hearing loss. CDC’s support for state and territory-based Early Hearing Detection and Intervention (EHDI) Information Systems has made significant progress in identifying newborns with hearing loss early and enrolling them in intervention programs. While the result for FY 2016 slightly missed the target, results nonetheless improved by five percentage points (69% vs. 64%) compared to FY 2015 (Measure 5.2.5). Larger advancements were made earlier in the goal-setting process in FY 2014-2015 and have since slowed which may have contributed to the lower than expected result for FY

2016. Some of the slowing progress may also be due to competing demands in jurisdictional health departments and challenges, such as limited access to and availability of these data and technical issues. The new EHDI program funding cycle, which emphasizes the use of individual level data to ensure Deaf and Hard of Hearing (D/HH) infants are identified early and not lost to follow-up, was awarded in 2017 and may contribute to the development of an improved measure in the future to better reflect progress in this area.

CDC is also improving the health of people living with disabilities. Skin breakdown, including pressure ulcers, is a major complication of spina bifida (SB) and up to eight percent of people with SB die of pressure ulcer complications. Until October 2016, there was not a coordinated, intentional, and measured delivery of skin breakdown prevention information; previous estimates of the incidence of skin breakdown in patients who attend SB clinics were around 16%. CDC recently addressed one of the material inadequacies previously reported in the data: the lack of clear definition of the skin breakdown variable, which caused inconsistency in measurement across sites. CDC began implementing the Skin Breakdown Prevention Bundle in summer 2016 in collaboration with 10 SB clinics that participate in the National Spina Bifida Patient Registry and currently there are 11 participating SB clinics. These clinics receive quarterly reports that include the proportion of patients seen at the clinics who receive the bundle, as well as the incidences of skin breakdown. CDC's most recent data show an incidence of skin breakdown in patients with SB who attend SB clinics with ongoing participation in the Skin Breakdown Prevention Bundle of 10.2% in 2017, which did not meet the target of 7.5% (Measure 5.2.6). CDC believes there is a positive correlation between skin assessment implementation and incidence of skin breakdown in the intermediate term, not because skin injuries are occurring more frequently but because skin assessments enable better detection of skin breakdowns. As more time passes since the Skin Breakdown Prevention Bundle was implemented, CDC anticipates that rates are likely to improve.

ADHD is the most common neurobehavioral disorder of childhood, diagnosed in 11% of children aged four to 17 years. New data indicate that children as young as two to three years are being diagnosed with ADHD and receiving medication for treatment. The American Academy of Pediatrics recommends behavioral therapy as the first-line treatment for children aged four to five years with an ADHD diagnosis, but data suggested that fewer than half of these children were receiving psychological services (a classification that includes behavioral therapy) in FY 2014. CDC has been working to raise awareness of behavior therapy among parents and health professionals, develop evidence and tools to increase available behavior therapy options, and inform state and local decision-makers about best practices. In FY 2017, CDC began using annual estimates from the redesigned National Survey of Children's Health to track the percentage of U.S. children two to five years of age with a diagnosis of ADHD who receive behavioral therapy. In FY 2017 60% of U.S. children aged two to five years with ADHD had received behavioral therapy (Measure 5.2.7).

CDC also improves the health of people living with intellectual/developmental disabilities (I/DD) by working to increase the application of Medicaid administrative data to help public health interventions better serve people in this population. Among other outcomes, these data can help CDC and states determine the leading causes of hospitalization and emergency department use among people with I/DD. This information represents an opportunity to improve care quality and reduce Medicaid expenditures, as well as improve health for people with disabilities. In FY 2018, 53% of CDC-funded Disability and Health State Programs used Medicaid administrative data to inform the development of public health programs for people living with I/DD, which represents nearly a nine-fold increase over the FY 2015 baseline (Measure 5.F). In FY 2018, CDC hosted a state meeting to review Medicaid data across the CDC-funded Disability and Health State Programs that use Medicaid administrative data to identify an intervention that all funded states could develop and employ. In FY 2019, a set of evidence-based videos on diabetes self-management education and support for adults with IDD, their caregivers, and health care professionals will be completed and disseminated through the CDC-funded Disability and Health States Programs. We anticipate there may be a slight increase in the number of states.

Public Health Approach to Blood Disorders

Performance Measures for Long-Term Objective: Improve the health and quality of life for Americans with blood disorders

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
5.3.2 Decrease the prevalence of hemophilia treatment inhibitors among Public Health Surveillance Project for Bleeding Disorders patients (Outcome)	FY 2017: 7.0% (Baseline) ¹	5.6%	5.5%	-0.1

¹ CDC established a new data source in FY 2017. Results cannot be compared to previous years.

Performance Trends: CDC protects people and prevents complications of blood disorders by reducing prevalence of inhibitors among hemophilia patients. People with hemophilia use treatment products called clotting factor concentrates (“factor”). These treatment products improve blood clotting, and they are used to stop or prevent a bleeding episode. When a person develops an inhibitor, the body stops accepting the factor treatment product as a normal part of blood. The body thinks the factor is a foreign substance and tries to destroy it with an inhibitor. The inhibitor keeps the treatment from working which makes it more difficult to stop a bleeding episode. A person who develops an inhibitor will require special treatment until his or her body stops making inhibitors.

Approximately 15-20% of people with hemophilia develop an inhibitor. Inhibitors can cause a patient’s treatment costs to exceed \$1,000,000 a year, increase hospitalizations, and compromise physical functioning. Discovering an inhibitor as soon as possible helps improve outcomes and reduce costs. Although hemophilia care providers widely accept that development of an inhibitor is a serious complication of treatment, routine screening for inhibitors is not current practice because of the high cost (often not covered by insurance) and the inability of most local laboratories to perform the screening test if the patient has recently been treated.

CDC collects data on health issues and medical complications for people living with blood disorders, incorporates screening for inhibitors and facilitates best practices that help prevent or eradicate them, and works to identify inhibitor risk factors. Previous performance results (2014-2016) were a product of data collected from lab tests only. Recently, CDC was able to compile comprehensive data collection from test results and data rich patient forms to produce more accurate and reliable metrics. CDC established a new data source to measure the prevalence of hemophilia treatment inhibitors, showing the prevalence, in FY 2017, to be seven percent (Measure 5.3.2).

ENVIRONMENTAL HEALTH

Childhood Lead Poisoning Prevention

Contextual Indicator for Program: Childhood Lead Poisoning Prevention

Contextual Indicator	Most Recent Result	FY 2019-2022 Target
6.2.5a Reduce health disparities associated with blood lead levels in children aged 1-5 in the U.S. such that: a. The gap in blood lead levels between black children and children of other races is reduced (Contextual Indicator) ¹	FY 2011-2014: Result: 0.33 Target: 0.45 (Target Exceeded)	0.45
6.2.5b Reduce health disparities associated with blood lead levels in children aged 1-5 in the U.S. such that: b. The gap in blood lead levels between children living above the federal poverty level and those living below the poverty level is reduced (Contextual Indicator) ¹	FY 2011-2014: Result: 0.29 Target: 0.47 (Target Exceeded)	0.47

¹ Targets are set and reported every four years.

Performance Measure for Program: Childhood Lead Poisoning Prevention

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target2	FY 2020 +/-FY 2019
6.2.3 Percent of children (with blood lead levels at or above 5 micrograms per deciliter) who are referred for case management ¹ (Outcome)	FY 2015: 20% (Baseline)	30%	30%	Maintain

¹ CDC anticipates having the data collected and analyzed in 2019.

Performance Trends: CDC measures the reduction in health disparities associated with blood lead levels in children, which are valuable indicators of the success of lead interventions nationwide (Measures 6.2.5a-b). Lead exposure can affect nearly every system in the body and is associated with numerous behavioral and learning problems (e.g., reduced IQ, attention deficit hyperactivity disorder, juvenile delinquency, and criminal behavior). Even low levels of lead in a child’s blood can affect IQ, the ability to pay attention, and academic achievement.

While overall child lead levels in the U.S. have fallen significantly in the last decade, reducing disparities is critical to decreasing the average blood lead levels among all young children. An estimated 12.3 million children ages one to five years have blood lead levels (BLLs) over the national average of 1 microgram per deciliter. Over half a million children under the age of five years have BLLs at or above the current reference level (5 micrograms per deciliter), which triggers state and local intervention, such as exposure mitigation and health monitoring. Based on 2011—2014 National Health and Nutrition Examination Survey (NHANES)¹⁹⁷ data, CDC exceeded the performance target for reducing the gap in blood lead levels between black children and children of other races. CDC continues its efforts to reduce the gap in blood lead levels between children living above the federal poverty level and those living below the poverty level.

CDC provides national expertise on lead poisoning prevention and a national surveillance system to monitor blood lead levels and housing-related health hazards. The effects of elevated blood lead levels in children can be mitigated through timely provision of educational, medical, and behavioral interventions and social services. CDC’s strategy to address childhood lead poisoning prevention is to use data for targeted interventions,

¹⁹⁷ <https://www.cdc.gov/nchs/nhanes/index.htm>

including referral of children with elevated BLLs for case management services. In FY 2015, the baseline percentage of children with elevated BLLs who were referred for case management was 20% (Measure 6.2.3). FY 2016 results will be reported in the FY 2021 budget as CDC began collecting this data in CY 2018.

Environmental and Health Outcome Tracking Network

Performance Measures for Program: Environmental Public Health Tracking

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
6.C Number of public health actions undertaken (using Environmental Health Tracking data) that prevent or control potential adverse health effects from environmental exposures (Output)	FY 2018: 97 Target: 35 (Target Exceeded)	40	40	Maintain

Performance Trends: The Environmental and Health Outcome Tracking Network covers over 180 million people, which made up about 56% of the population in the U.S. in 2018. The Tracking Network also serves as a source of information on environmental hazards and exposures, population data, and health outcomes. Since FY 2013, CDC has consistently exceeded expectations for the number of data-driven actions to improve public health using the Tracking Network (Measure 6.C). From FY 2005 to FY 2018, state and local public health officials have used the Tracking Network to implement over 500 data-driven public health actions to save lives and prevent adverse health effects that are due to environmental exposures.

For example, in New Jersey, black babies are three times more likely to die before their first birthday than white babies. To help increase awareness of this long-standing problem, the New Jersey Tracking Program worked with other state health department partners to create a set of easy-to-access custom indicators and online dataset queries for all New Jersey births, deaths, inpatient hospitalizations, and emergency department visits. Growing awareness and concern of the infant mortality disparity in New Jersey led to the award of \$4.7 million in grant funding through the Healthy Women, Healthy Families Initiative to six state maternal and child health agencies to decrease black infant and maternal mortality. The Tracking Network also serves as a source of information for health professionals, elected officials, researchers, parents, and the general public on environmental hazards and exposures, population data, and health outcomes. Because of CDC’s concerted efforts to encourage Tracking awardees to report public health actions, CDC continues to meet this important measure of program success.

Environmental Health Laboratory

Performance Measures for Program: Environmental Health Laboratory

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
6.1.1 Number of environmental chemicals and nutritional indicators that are measured in surveys and studies of the U.S. population (Output)	FY 2018: 391 Target: 350 (Target Exceeded)	378	380	+2

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
6.1.3 Number of laboratories participating in DLS Quality Assurance and Standardization Programs to improve the quality of their laboratory measurements (Output)	FY 2018: 2,055 Target: 2,250 (Target Not Met)	2,275	2,290	+15
6.1.4 Number of chronic disease biomarkers included in standardization programs that improve the quality of laboratory measurements (Output)	FY 2018: 16 Target: 15 (Target Exceeded)	17	19	+2
6.A Number of environmental chemicals for which methods were developed or improved (Output)	FY 2018: 82 Target: 60 (Target Exceeded)	30	30	Maintain
6.B Number of laboratory studies conducted to measure levels of environmental chemicals in exposed populations (Output)	FY 2018: 90 Target: 82 (Target Exceeded)	85	85	Maintain
6.F Number of states assisted with screening newborns for preventable diseases (Output)	FY 2018: 50 Target: 50 (Target Met)	50	50	Maintain

Performance Trends: CDC’s biomonitoring measurements track the level of environmental chemicals and nutrition indicators among the U.S. population and provide national reference information for scientists, physicians, and health officials. Since FY 2014, CDC has exceeded its target for the number of environmental chemicals and nutritional indicators measured in surveys and studies of the U.S. population (Measure 6.1.1). In FY 2018, CDC measured 391 chemicals and indicators, adding new measurements for fatty acids and certain flame retardants to National Health and Nutrition Examination Survey and other studies. From FY 2019 through FY 2020, CDC intends to add measurements for up to five new insecticides, while also cycling out some measurements for chemicals detected infrequently in the U.S. population.

In FY 2012 through FY 2015, CDC exerted exceptional effort to develop or improve laboratory methods that measure multiple environmental chemicals in a single test, greatly exceeding its targets (Measure 6.A). CDC also exceeded its target in FY 2018 by improving a test for many metals and for important chemicals of interest, including neonicotinoid insecticides and several per- and polyfluoroalkyl substances. CDC expects to develop or

improve fewer methods in FY 2019 through FY 2020 because it completed method development plans for numerous chemicals in previous years.

In FY 2011 through FY 2016, CDC exceeded its target for collaborating in studies of environmental chemicals each year (Measure 6.B). These studies help identify populations with harmful or higher than normal exposures. For example, CDC’s measurements show that exposures among military personnel wearing permethrin-treated uniforms increased with greater physical activity and decreased with laundering and wear time, but overall were below the WHO’s exposure guidance. In FY 2018, CDC participated in 90 studies, also exceeding its target. CDC expects to collaborate on slightly fewer studies in FYs 2019 and 2020 based on anticipated collaborative opportunities.

CDC also provides voluntary quality assurance and standardization programs that help ensure the quality and comparability of important laboratory measurements for chronic diseases, newborn screening disorders, nutrition status, and environmental exposures. In FY 2018, the number of laboratories using these programs decreased slightly because of normal fluctuations in participation, but CDC expects an upward trend to continue through FY 2020 (Measure 6.1.3).

In addition, CDC exceeded its target for including chronic disease biomarkers in its standardization programs by adding one biomarker in FY 2018. CDC anticipates adding three additional biomarkers to its programs by FY 2020 (Measure 6.1.4). CDC also ensures the quality of newborn screening for preventable diseases (e.g., severe combined immunodeficiency, amino acid disorders, endocrinopathies), and since FY 2013, has consistently met the target to provide quality assurance materials and technical expertise to all 50 states (Measure 6.F).

Asthma

Contextual Indicator for Program: Asthma

Contextual Indicator	Most Recent Result	FY 2020 Target
6.B.2.4: Reduce visits to emergency departments (EDs) for asthma among U.S. children (aged 0-17 years) (Contextual Indicator) ¹	FY 2015: 123.1	69.6

¹ ED visit rate per 10,000 population

Performance Measure for Program: Asthma

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
6.2.4 Increase the proportion of those with current asthma who report they have received self-management training for asthma in populations served by CDC funded state asthma control programs (Output)	FY 2018: 46% Target: 50% (Target Not Met but Improved)	50%	50%	Maintain

Performance Trends: CDC measures the proportion of individuals with current asthma who report receiving asthma self-management training from a doctor or other health care provider (Measure 6.2.4). The FY 2018 measure result from the BRFSS Asthma Call-Back Survey was obtained using 2015 data in July 2018. The estimate for the measure is stable since FY 2014 and it is usually around 45%. CDC is including the contextual indicator (emergency department [ED] visits per 10,000 children ages 0-17) to better reflect the program’s focus on children in the new FY 2019 NOFO.

In the U.S., nearly 26.5 million people have asthma, including more than six million children. While there is no cure for asthma, self-management training can teach people to manage their disease with medical care and to prevent asthma attacks by avoiding triggers. Uncontrolled asthma results in significant costs to families and society when individuals go to the emergency department or are hospitalized for an asthma exacerbation. Children aged 0-17 years have a higher ED visit rate compared with adults aged 18 and over. In 2009, the average annual ED visit rate with asthma as the first-listed diagnosis was 115.5 per 10,000 children compared with 54.8 per 10,000 adults. In FY 2015 the rate of ED visits for asthma among U.S. children had increased to 123.1 per 10,000 children (CI 6.B.2.4).

CDC’s National Asthma Control Program seeks to decrease the number of emergency department visits and hospitalizations by improving asthma control. Comprehensive asthma control strategies (based on the National Institutes of Health’s Guidelines for the Diagnosis and Management of Asthma) are vital to helping people to stay out of the hospital, avoid the emergency department, and manage their asthma.

Environmental Health Activities

Performance Measures for Program: Environmental Health Activities

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
6.1.2 Number of completed studies to determine the harmful health effects from environmental hazards (Output)	FY 2018: 37 Target: 30 (Target Exceeded)	30	30	Maintain
6.1.5 Number of states using National Environmental Assessment Reporting System (NEARS) to prevent foodborne illness outbreaks (Output)	FY 2017: 18 Target: 11 (Target Exceeded)	19	20	+1

Performance Trends: Since 2010, CDC has met or exceeded its target for completing studies to examine the human health effects of exposure to contaminated water and air pollutants, radiation, and hazards related to natural and other disasters (Measure 6.1.2). These studies help CDC develop, implement, and evaluate actions and strategies for preventing or reducing harmful exposures and their health consequences. As a result of an increasing number of environmental health emergencies, and requests received from members of Congress and state health departments, CDC has prioritized studies related to health effects, natural disasters (such as hurricanes and wildfires), chemical exposures, and exposures to toxins from harmful algal blooms. In FY 2018, CDC examined circumstances of death that occurred in the U.S. following Hurricane Irma and identified two unique subcategories of heat-related and oxygen-dependent deaths in which power outage contributed to exacerbation of an existing medical condition. These results emphasized the importance of conducting detailed assessments of circumstances of death following natural disasters to help public health practitioners develop more effective public health interventions to prevent deaths in future disasters.

CDC’s National Environmental Assessment Reporting System (NEARS) provides a standardized reporting tool used by state, tribal, local, and territorial food safety programs to identify environmental factors that they can routinely monitor to prevent or mitigate foodborne illness outbreaks associated with food service establishments (e.g., worker health policies and food handling practices). With three additional states participating, CDC exceeded its expectations in FY 2017 for the number of states using NEARS (Measure 6.1.5). In FY 2018, CDC continued to

encourage use of its free, interactive Environmental Assessment Training Series (EATS) for state and local food safety staff to increase the use of environmental assessments and environmental assessment reporting related to foodborne illness outbreaks. Between FYs 2014 and 2018, CDC registered over 7,000 users from 50 states (plus the District of Columbia) and 92 countries for the food safety environmental assessment training course.

INJURY PREVENTION AND CONTROL

Intentional Injury Prevention

Long Term Objective: Achieve reductions in the burden of injuries, disability, or death from intentional injuries for people at all life stages

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
7.1.5 Increase the percent of Rape Prevention and Education (RPE) funded states that assess outcomes and impact of sexual violence prevention activities (Outcome)	FY 2018: 24% Target: 24% (Target Met)	35%	46%	+11
7.2.5 Increase the percent of Core SVIPP funded states that assess outcomes and impact of injury and violence prevention strategies using surveillance data ¹ (Outcome)	FY 2017: 100% Target: 85% (Target Exceeded)	100%	100%	Maintain

¹ The Core SVIPP program is cross-cutting and is supported by both the Intentional and Unintentional Injury Prevention budget lines.

Performance Trends: CDC is leading efforts to prevent violence before it begins and reaching out to audiences with new prevention strategies. CDC is assessing the impact of these strategies and approaches through its performance measure which tracks the percentage of Rape Prevention Education¹⁹⁸ (RPE) funded states that assess the outcomes and impact of sexual violence prevention activities.

CDC met its 2018 target of 24% of states assessing outcomes and impact of sexual violence prevention activities (Measure 7.1.5), a 12 percentage point increase over the 2017 result. CDC will continue to work with recipients to assess outcomes and impacts of the program activities, including increasing support and funding to states to support these efforts. CDC developed and implemented a tracking and monitoring system for RPE grantees allowing CDC to measure and track indicators of success such as increases in evaluation capacity (e.g. increased data availability to track program outcomes) and improved implementation of sexual violence prevention strategies based on the best available evidence.

CDC also supports both intentional and unintentional injury prevention activities through the Core State Violence and Injury Prevention Program¹⁹⁹ (Core SVIPP) (Measure 7.2.5). The program is discussed in further detail in the Unintentional Injury Prevention section.

¹⁹⁸ <https://www.cdc.gov/violenceprevention/rpe/index.html>

¹⁹⁹ <https://www.cdc.gov/injury/stateprograms/about.html>

Unintentional Injury Prevention

Long Term Objective: Achieve reductions in the burden of injuries, disability, or death from unintentional injuries for people at all life stages

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
7.2.4 Reduce motor vehicle deaths per 100 million vehicle miles traveled (Outcome)	FY 2017: 1.16 Target: 0.97 (Target Not Met)	0.97	0.97	Maintain
7.2.5 Increase the percent of Core SVIPP funded states that assess outcomes and impact of injury and violence prevention strategies using surveillance data ¹ (Intermediate Outcome)	FY 2017: 100% Target: 85% (Target Exceeded)	100%	100%	Maintain
7.2.6 Reduce the age-adjusted annual rate of overdose deaths involving opioids per 100,000 population among states funded through Prescription Drug Overdose Prevention for States Program ² (Outcome)	FY 2017: 16.8 per 100,000 residents Target: 11.8 per 100,000 residents (Target Not Met)	10.8	10.8	Maintain

¹The Core SVIPP program is cross-cutting and is supported by both the Intentional and Unintentional Injury Prevention budget lines.

²A new baseline was calculated in 2016 using a broader drug overdose death category to better reflect the opioids recently associated with drug overdose mortality.

Performance Trends: Unintentional injuries are the leading cause of death for individuals ages one to 44 in the United States. Additionally, over half of the total medical and work loss costs of injury deaths are attributable to unintentional injuries (\$129.7 billion).²⁰⁰ CDC works in multiple areas across unintentional injury, and supports states through programs like Core State Violence and Injury Prevention Program (Core SVIPP) and the Prevention for States (PfS) Program.

Motor vehicle injury: Estimates show that 37,133 people died in motor vehicle crashes in 2017, a two percent increase from the 37,806 motor vehicle crash deaths in 2016.²⁰¹ The fatality rate per 100 million vehicle miles traveled (VMT) decreased to 1.16 in 2017, down from 1.18 in 2016 (Measure 7.2.4). Recent job growth and low fuel prices may be contributing to increased driving (VMT increased by 1.2 percent from 2016 to 2017).

To further decrease the motor vehicle death rate, CDC will continue to promote proven prevention strategies that increase seat belt and child safety seat usage, reduce impaired driving, and protect vulnerable drivers.

²⁰⁰<http://www.cdc.gov/media/dpk/2015/dpk-injury-costs.html>

²⁰¹<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603>

- CDC is updating State Specific Fact Sheets on Cost of Motor Vehicle Crash Deaths²⁰², Restraint Use²⁰³, and Drunk Driving,²⁰⁴ which provide a useful tool to highlight current data and proven strategies for reducing injury and saving lives. Between January 2018 and December 2018, these documents were downloaded more than 61,000 times from CDC's website.
- CDC continues to work closely with its state and local partners, law enforcement agencies, and the more than 350 members of the Road to Zero Coalition to help address the human choices that are linked to 94% of serious crashes.
- In 2018, CDC released an update to the Motor Vehicle Prioritizing Interventions and Cost Calculator for States (MV PICCS), a tool that helps state decision makers prioritize and select from a suite of 14 effective motor vehicle injury prevention interventions. The update included a full redesign of the user interface and updated data.
- CDC focused on improving the safe mobility of older adults by finalizing the MyMobility Plan to help older adults prepare for maintaining their mobility and independence as they age.
- CDC will amplify data linkage for non-fatal motor vehicle crash injury surveillance in partnership with public health entities at the state level.²⁰⁵

Opioid overdose prevention: CDC has been tracking the rise of opioid overdose deaths and using the data to pivot to prevention activities to curb this alarming epidemic. Over 399,000 people have died from overdoses involving opioids – prescription or illicit in the United States from 1999 through 2017.

CDC is measuring progress in reducing overdose deaths involving all opioids among the 29 states funded specifically for Prescription Drug Overdose Prevention for States (PfS) program for the award made in FY 2016. In FY 2017, the age-adjusted annual rate of opioid overdoses was 16.8 per 100,000 residents among states funded for the PfS program (Measure 7.2.6). From 2016 to 2017, overdose deaths involving all opioids and synthetic opioids increased, but deaths involving prescription opioids and heroin remained stable. The opioid overdose epidemic continues to worsen and evolve because of the continuing increase in deaths involving synthetic opioids.

Drug overdoses resulted in 70,237 deaths during 2017; among these, 47,600 (67.8%) involved opioids (14.9 per 100,000 population), representing a 12.0% rate increase from 2016. Synthetic opioids were involved in 59.8% of all opioid-involved overdose deaths; the rate increased by 45.2% from 2016 to 2017.²⁰⁶ Looking to the future, CDC will continue to strengthen surveillance activities, identify interventions, and implement prevention programs that address the evolving nature of the epidemic.

In FY 2019, CDC released a new funding announcement, named Overdose Data to Action (D2A) program, for which all states, territories, and select cities will be eligible to compete. Program implementation is anticipated to span three years. Recipients will use this funding to build on previously funded efforts to get high quality, more comprehensive, and timelier data on opioid prescribing, morbidity, and mortality, and subsequently use those data to inform response and prevention efforts at the state and local level.

In an example of the success of CDC's current opioid programs, the New Mexico PfS piloted a program that flagged providers with 20 or more patients with prescriptions for controlled substances and provided them with unsolicited feedback on their prescribing patterns. The first set of reports went out to 300 prescribers and the next round to nearly 3,000 providers. New Mexico's PfS team will continue to increase the number of prescribers receiving reports through its work.

²⁰² <https://www.cdc.gov/motorvehiclesafety/statecosts/index.html>

²⁰³ <https://www.cdc.gov/motorvehiclesafety/seatbelts/states.html>

²⁰⁴ https://www.cdc.gov/motorvehiclesafety/impaired_driving/states.html

²⁰⁵ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603>

²⁰⁶ https://www.cdc.gov/mmwr/volumes/67/wr/mm675152e1.htm?s_cid=mm675152e1

CDC's Core SVIPP program provides support to state health departments to disseminate, implement, and evaluate best practices and science-based strategies for injury and violence prevention programs. The Core SVIPP grantees use surveillance data to inform injury and violence prevention activities. A new Core SVIPP NOFO was awarded to 23 states in 2016. In FY 2017, 85% of the state awardees achieved 100% compliance in using data to assess state outcomes (Measure 7.2.5). For instance, the Minnesota CORE SVIPP is partnering with the Minnesota Toward Zero Deaths Initiative to use surveillance data to evaluate the effectiveness of the state's Graduated Driver Licensing law. Minnesota CORE SVIPP will use the data to share information about the law's effectiveness with state motor vehicle stakeholders and partners.

PUBLIC HEALTH SCIENTIFIC SERVICES

Health Statistics

Performance Measures for Long Term Objective: Monitor trends in the nation’s health through high-quality data systems and deliver timely data to the nation’s health decision-makers

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
8.A.E.2 Reduce the number of months after data year for release of the final mortality and natality files (Outcome; Efficiency)	FY 2017: 9.4 Target: 9 (Target Not Met but Improved)	11	11	Maintain
8.A.1.1a Achieve and sustain the percentage of NCHS website users that are satisfied with data quality and relevance (Outcome)	FY 2018: 79% Target: 77.5% (Target Exceeded)	77.5%	77.5%	Maintain
8.A.1.1b Sustain the percentage of Federal Power Users (key federal officials involved in health and health care policy or programs) that indicate that data quality is good or excellent (Outcome)	FY 2018: 100% Good or Excellent Target: 100% Good or Excellent (Target Met)	100% Good or Excellent	100% Good or Excellent	Maintain
8.A.1.3 Increase the number of web visits as a proxy for use of NCHS data (Output)	FY 2018: 11.9 Million Target: 13 Million (Target Not Met but Improved)	13 Million	13 Million	Maintain
8.F Number of communities visited by mobile examination centers from the National Health and Nutrition Examination Survey (Output)	FY 2018: 15 Target: 15 (Target Met)	15	15	Maintain
8.G Number of households interviewed in the National Health Interview Survey (Output)	FY 2017: 32,617 Target: 35,000 (Target Not Met)	35,000	32,000	-3,000
8.H.1 Number of physicians surveyed in the National Ambulatory Medical Care Survey (Output)	FY 2017: 3,366 Target: 3,300 (Target Exceeded)	3,000	3,000	Maintain
8.H.2 Number of unweighted patient visits surveyed in the National Ambulatory Medical Care Survey ¹ (Output)	FY 2017: 19,436 Target: 30,500 (Target Not Met)	20,000	20,000	Maintain

¹NAMCS data collection from electronic health records (EHRs) is still being processed, and is not completely accounted for in this count.

Performance Trends: CDC uses several indicators to measure its ability to provide timely, useful, and high quality data. In FY 2017, CDC did not meet its target of releasing the 2017 mortality and natality data at 9 months, instead releasing the data at 9.4 months (Measure 8.A.E.2). With the ongoing epidemic of drug overdose deaths, improving the timeliness of these data provides the tools for evidence-based policy decisions and planning when these decisions are most relevant. Faster access to these data also facilitates timely evaluation and research efforts related to births and all causes of death, providing critical information on public health issues affecting the nation.

To drive program improvements, CDC assesses user satisfaction and perceptions of data utility. The percentage of NCHS' website users who are satisfied with data quality and relevance in FY 2018 was 79%, which exceeds the target of 77.5% (Measure 8.A.1.1a). Similarly, CDC interviews Federal Power Users (key federal officials involved in health and health care policy or programs) to assess their satisfaction with CDC's Health Statistics products and services including data quality, ease of data accessibility and use, professionalism of staff, relevance of data to major health issues, and relevance of data to user needs. CDC met its 2018 target with 100% of federal power users rating CDC as Good or Excellent (Measure 8.A.1.1b).

CDC tracks the number of web visits as a proxy for the frequency with which NCHS data are used. CDC did not meet its target for web visits in FY 2018, with a slight improvement from FY 2017 levels of 11.9 million web visits to NCHS webpages (Measure 8.A.1.3). This continues CDC's trend, since FY 2013, of nearly 12 million NCHS web visits annually. The Vital Statistics Rapid Release program provides access to the timeliest vital statistics for public health surveillance, through quarterly releases of provisional estimates of births, deaths, and infant deaths. For the 15 leading causes of death and drug overdose deaths, quarterly estimates are compared with estimates for the corresponding quarters from the previous year, providing more timely information on important public health indicators. This program helps to increase public interest in the data and enables potential users to easily find the most recent data. A new initiative was launched in 2017 to provide the earliest information on a recognized public health crisis: drug overdose deaths. To better inform policy and decision makers, counts of provisional drug overdose deaths are published monthly at the national and state level along with the percent change in these days over the previous 12 months. This data is used by the department to track overdose deaths.

CDC monitors the implementation of its national surveys to ensure the collection and provision of accurate, high quality data. The National Health and Nutrition Examination Survey mobile examination centers met the target by visiting the planned 15 communities in FY 2018 (Measure 8.F) to achieve the geographic diversity needed for nationally representative estimates. The National Health Interview Survey (NHIS) interviewed 32,617 households in 2017, a significant decline to the number of households interviewed in 2016. This was below the targeted 35,000 households, due to lower survey response, level funding, and rising costs (Measure 8.G). NHIS will be implementing a redesigned questionnaire in 2019, which is reduced in length and will not include the family-level interview. The target for 2020 was adjusted to 32,000 as NCHS anticipates fewer households will need to be interviewed to achieve the same number of completed adult interviews. The number of physicians surveyed by the National Ambulatory Medical Care Survey (NAMCS) has declined slightly from 2016 from 3,859 to 3,366, but did exceed the target of 3,300 (Measure 8.H.1). The number of patient records surveyed by NAMCS did not meet the targeted 30,500, due in part to a decline in the response from physicians that provide patient records. The survey program is engaged with providers to reduce burden and facilitate greater participation by encouraging the submission of electronic health records (EHRs) rather than having field representatives complete the traditional patient record form. CDC anticipates the submission of EHRs will increase the number of patient records received from providers (Measure 8.H.2). The data from these surveys are critical for monitoring insurance coverage, access and utilization, and other key indicators at the state and national level to inform the public and decision makers. CDC's NHIS and NAMCS samples size targets reflect annual sample sizes that can be achieved with FY 2020 resources (Measures 8.G, 8.H.1., 8.H.2).

Surveillance, Epidemiology, and Laboratory Services (CSELS)

Performance Measures for Long Term Objective: Lower barriers to data exchange across jurisdictions as part of an integrated strategy for public health surveillance and response

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
8.B.1.3a Increase the percentage of public health agencies that can receive production Electronic Laboratory Reporting (ELR) Meaningful Use compliant messages from certified Electronic Health Record (EHR) technology used by eligible hospitals ^{1,2} (Output)	FY 2017 92% Target: 80% (Target Exceeded)	95%	95%	Maintain
8.B.1.3c Increase the percentage of public health agencies that can receive production Syndromic Surveillance (SS) Meaningful Use compliant messages from certified Electronic Health Record (EHR) technology ^{1,2} (Output)	FY 2018: 92% Target: 90% (Target Exceeded)	90%	90%	Maintain
8.B.1.4 Increase the percentage of notifiable disease messages transmitted in HL7 format to improve the quality and streamline the transmission of established surveillance data (Output)	FY 2018: 7% Target: 40% (Target Not Met But Improved)	40%	40%	Maintain

¹ELR: The work of state public health agencies reflected in this measure is funded by the National Center for Emerging and Zoonotic Diseases through the Epidemiology and Laboratory Capacity Cooperative Agreement.

²CDC does not currently track the percentage of agencies that can send EHR Meaningful Use compliant messages, but this may be possible, pending the inclusion of this requirement in the final Meaningful Use Stage 3 criteria issued by the Office of the National Coordinator for Health Information Technology.

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2019 +/-FY 2020
8.B.2.1a Increase the electronic media reach of the Morbidity and Mortality Weekly Report (MMWR) through use of mechanisms such as the MMWR website and social media outlets, as measured by page views, social media followers, and email subscribers (Output)	FY 2018: 20,555,138 Target: 25,365,609 (Target Not Met but Improved)	25,365,609	22,610,652	-2,754,957
8.B.2.2 Increase the electronic media reach of CDC Vital Signs through use of mechanisms such as the CDC website and social media outlets, as measured by page views social media followers and email subscribers ¹ (Output)	FY 2018: 5,965,247 Target: 5,526,756 (Target Exceeded)	5,024,324	5,275,540	+ 251,216

¹An artificial inflation in Vital Signs electronic reach metrics occurred between April 2014 and November 2015. Results for FY 2014-FY 16 and the FY 20 17 target were revised to correct for inflated numbers. FY 2019 target was adjusted to account for the correction.

Performance Measures for Long Term Objective: Improve the efficiency and accuracy of public health and clinical laboratory testing

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
8.B.3.2a Increase the percentage of public health and clinical laboratory professional who improve laboratory policies and practices as a result of participating in CDC laboratory training (Outcome)	FY 2018: 49% Target: 70% (Target Not Met)	73%	73%	Maintain

Public Health Informatics Performance Trends: CDC tracks the contribution of the informatics program and CDC program partners through the Electronic Health Records – Meaningful Use (EHR-MU) initiative. CDC works to assess and ensure readiness of two key systems in each state: Electronic Laboratory Reporting (ELR) and Syndromic Surveillance (SS). Public health agencies will assess their capability to receive data in a Meaningful Use-compliant format (i.e., Health Level 7 (HL7) 2.5.1 standard) from eligible hospitals and providers, meaning those with certified electronic health records (EHRs) participating in CMS’ Meaningful Use program. In FY 2017, 92% (54 of 59) of public health agencies received at least one HL7 2.5.1 production feed from a hospital (Measure 8.B.1.3a), exceeding the FY 2017 target. CDC exceeded the FY 2018 target of 90% for SS (Measure 8.B.1.3c) and following the current review of meaningful use and the relationship to syndromic surveillance, CDC will retire measures 8.B.1.3 a and 8.B.1.3c and replace with measures that meet new standards.

Surveillance Performance Trends: The National Notifiable Diseases Surveillance System (NNDSS)²⁰⁷ is a CDC collaboration with state and local public health agencies to collect and report data on approximately 120 diseases and conditions under continuous nationwide surveillance. In line with the CDC Surveillance Strategy, NNDSS' infrastructure was modernized to more efficiently provide comprehensive, timely, and high quality data for public health decision making. A modernized surveillance infrastructure allows CDC programs to better monitor the impact of public health interventions. These new modifications were tested in key states and for a

¹ <http://wwwn.cdc.gov/nndss/>

limited set of diseases, and are currently being applied to additional diseases and implemented in states for use in transmitting data to CDC.

During FY 2018, CDC advanced the modernization of infectious disease surveillance by producing technology upgrades to the Message Validation, Processing and Provisioning System²⁰⁸, which receives surveillance data sent from the states using the new HL7-based messages; this reduced system development time to implement a new condition from months to weeks and ensures that CDC programs can access their data within an hour of receipt at CDC. When new HL7 messages have been implemented for all diseases, the new strategy will allow the retirement of older, less efficient legacy systems, and will increase the number of HL7 messages received at CDC. For example, CDC is modernizing infectious disease surveillance by doing the following:

- Developing a new authoring tool that accelerates and standardizes the development of the disease-specific messaging instructions. During the pilot, the tool reduced specification development time from greater than eight months to less than four months. Surveillance data from special studies can now be integrated into the notifiable disease data stream, allowing states to send data for multiple surveillance activities in the same record and through the same route.
- Providing technical assistance to health jurisdictions to help them implement the new messages. Thirty-one of the 57 reporting jurisdictions have implemented at least one of the new messages, and 11 of the 31 have implemented more than one.
- Transitioning the weekly and annual surveillance data publication to a new web-based format, which supports faster and more flexible publication. The new strategy reduced publication time for the annual data by 10 months. Beginning in 2019, detailed information will be published for low frequency as well as high frequency diseases.

CDC's improvement over FY 2017 results represents continued progress in achieving a nationwide standard for message format (Measure 8.B.1.4). Competition for limited resources at both the federal and state levels, remains the single most significant impact on movement toward achieving the yearly objectives. Although CDC did not meet its FY 2018 target, data transmissions continue to improve and remain much more stable indicating that CDC has achieved a more routine and reliable mode. With more states onboarding and the potential for states to begin transmitting health data related to Sexually Transmitted Disease by the end of 2019, the cumulative percentages should increase tremendously. The 2019 and 2020 focus will be on completion of the modernization process and transitioning to efficient long term operations with continuous improvement and enhancement.

Epidemiology Performance Trends:

CDC provided critical epidemiological data and recommendations for solving public health problems to over 326,000 clinicians and public health professionals through an extensive network of electronic communication channels for the Morbidity and Mortality Weekly Report (MMWR), an eight percent increase from FY 2017. During FY 2018, MMWR published 277 reports, similar to FY 2017. MMWR's content is shared widely, with traditional and social media coverage averaging in the top three percent compared with other journals. MMWR also is highly respected. For the third year, MMWR was ranked second among 170 public, environmental, and occupational health journals. While the above measures are robust, during FY 2017 CDC reported a 40% decline in CDC-wide webpage views. Webpage views for MMWR experienced a similar decrease, which caused a substantive decline in MMWR's electronic reach. However, during FY 2018 MMWR's webpage views increased, resulting in a 4.6% increase from the FY 2017 electronic reach (Measure 8.B.2.1a). Since CDC anticipates CDC-wide webpage views to continue around FY 2017 levels, MMWR is adjusting the FY 2020 electronic reach target to 22,610,652, a seven percent increase over the FY 2018 result. This FY 2020 target reflects the "new normal" for web traffic for CDC, barring the occurrence of an unpredictable emergency response.

²⁰⁸ <https://www.cdc.gov/nmi/mvps.html>

During FY 2018, MMWR launched visual abstracts which aim to increase traditional and social media users' understanding and engagement with key content. CDC assessed the effectiveness of the use of visual abstracts by comparing tweets from articles with and without visual abstracts. Tweets with visual abstracts yielded 2,000,000 more views of MMWR content.

CDC Vital Signs is a monthly science and communication program that targets the public, state and local health departments, healthcare professionals, and policymakers through an MMWR report, fact sheet, and print, broadcast, social, and electronic media. Vital Signs exceeded its 2018 electronic reach target goal by eight percent (Measure 8.B.2.2). The June 2018 Suicide issue generated the second highest volume of website traffic in Vital Signs' eight-year history with over 345,000 page views. Vital Signs continues to increase its reach year-over-year. Electronic reach increased by 26% between FY 2017 and FY 2018 and has grown more than four-fold since inception eight years ago. Media interest remains high; over 164,000 media stories featured Vital Signs content in FY 2018.

Laboratory Standards and Services Performance Trends:

In 2018, CDC delivered 32 trainings including topics such as infectious diseases, laboratory preparedness, and biosafety. The trainings included 15 online (elearning) courses, 3 multi-day lecture with hands-on laboratory workshops, and 14 live and/or recorded one-hour update webinars. Training outcomes for all modalities were assessed via a follow-up online questionnaire which was sent to participants who successfully completed each course. The intent of the questionnaire was to ascertain whether or not changes were made to laboratory procedures, policies, practices, algorithms or methods based on applying information from the course. Overall, 49% indicated a change outcome. However, the rates differed by training modality and purpose of the training. Changes were reported by 94% of hands-on laboratory workshops respondents and by 52% of elearning course respondents. A much lower percentage of webinar respondents (36%) indicated that changes were made.

The established target of 70% was not met due to the inability to exclude from analysis the courses that were not relevant to the performance measure. Trainings that lent themselves to improving laboratory policies and practices, such as hands-on courses, exceeded the established target (94%) while courses meant to refresh knowledge (e.g., webinars) and not to change policies or practices significantly missed the target (36%). The inclusion of all trainings in the performance measure analysis regardless of course intent does not fully reflect the reach and positive impact on learners. CDC will work to revise the measure to account for appropriate inclusion criteria based on the intent of the course.

Public Health Workforce and Career Development

Performance Measures for Long Term Objective: Develop and implement training to provide for competent, sustainable, and empowered public health workforce able to meet emerging and future health challenges

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
8.B.4.2 Increase the number of CDC trainees in state, tribal, local, and territorial public health agencies ¹ (Output)	FY 2018: 402 Target: 335 (Target Exceeded)	294	294	Maintain

8.B.4.4 Increase the number of CDC’s free credits earned by learners to earn Continuing Education (CE), demonstrating successful achievement of educational content (Output)	FY 2018: 354,175 Target: 377,000 (Target Not Met)	380,000	390,000	+10,000
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Performance Trends: CDC’s fellowship programs promote experiential service and mentored learning, at the agency and in the field. All of our programs offer unique experiences in one of many public health critical disciplines, including applied epidemiology, public health management, and informatics. This focus on service while learning allows our fellows and trainees to fill critical workforce needs at CDC and in state, tribal, local, and territorial (STLT) public health agencies, while training for careers in public health.

CDC increased the number of fellows and trainees in STLT public health agencies from 119 trainees in FY 2009 to 402 in FY 2018 by targeting funding to fellowship programs that place fellows in STLT public health agencies rather than at CDC headquarters (Measure 8.B.4.2).

Focusing funding on field placement programs offers our fellows and trainees an invaluable opportunity to work alongside other professionals across a variety of public health settings. Throughout these training programs, CDC provides hands-on experience that will serve as a foundation for our fellows’ public health careers. After completing CDC programs, graduates are qualified to apply for jobs with public health agencies and organizations and data shows that the majority of our fellowship graduates stay in federal, state, or local public health.

In the next five to ten years, a substantial number of long-time public health workers plan to leave their jobs or retire, taking with them critical knowledge and experience²⁰⁹. The next generation of public health professionals needs to be trained and prepared to fill these vacancies. Additionally, the current workforce must stay up-to-date on the latest science, guidelines, and recommendations from CDC to inform both public health and healthcare practice. CDC designs, develops, and accredits quality learning opportunities and ensures these opportunities are available to the public health and health care workforce. CDC provides continuing education (CE) credits for seven different professional disciplines, which are required to keep skills and licensures current, and are delivered at little to no cost to the learner. Access to training and education is essential for the public health workforce to maintain and improve knowledge and skills for the greatest impact on health outcomes.

The courses CDC provides give learning opportunities to the public health workforce to help ensure workers are able to maintain licensure and certification requirements, improve knowledge and skills, and ultimately enhance their overall competency. In FY 2018, over 346,450 free CE credits, contact hours, and units were awarded to over 140,000 unique health professionals who earned CE 354,175 times, resulting in an estimated \$3.4 million in savings to the workforce as free continuing education (Measure 8.B.4.4).

²⁰⁹ Association of State and Territorial Health Officials and the du Beaumont Foundation. Public Health Workforce Interests and Needs Survey (PH WINS). Journal of Public Health Management & Practice. November/December 2015. Volume 21, Supplement 6.

OCCUPATIONAL SAFETY AND HEALTH

National Occupational Research Agenda (NORA)

Performance Measures for Long Term Objective: Conduct research to reduce work-related illnesses and injuries

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
9.1.1a Achieve and sustain the percentage of occupational safety and health programs demonstrating effectiveness by scoring 7 out of 10 or greater in external review ¹ (Outcome)	FY 2017:100% Target: 100% (Target Met) ²	100%	100%	Maintain

¹ The overall score out of 10 points results from combined individual scores on relevance (1-5) and impact (1-5). For this measure, health programs must demonstrate effectiveness by scoring at least 4 on relevance and 3 on impact.

² CDC conducted two new program reviews annually from FY 2017- FY2018. However, due to constrained resources, only one program will be reviewed per year for FYs 2019-2021, for a total of 7 reviews.

Performance Trends: CDC remains committed to evaluating its relevance, impact, and contributions to occupational safety and health through peer review. In FY 2017, CDC began a new set of external peer reviews that focus on the current priorities and activities of its National Institute for Occupational Safety and Health (NIOSH) (Measure 9.1.1a). The two programs reviewed in FY 2018, Construction and Emergency Preparedness & Response, received scores of 9.5 and 10 out 10, respectively. All four programs reviewed to date have exceeded the goal of scoring 7 out of 10 or greater. Due to constrained resources, only the Mining program will be reviewed in FY 2019, and one program in FYs 2020 and 2021. The evaluations provide useful feedback to programs on areas of success and challenges to address going forward. These data help determine the direction and future investment of occupational safety and health research at CDC to maximize public health impact.

Other Occupational Safety and Health Research

Performance Measures for Long Term Objective: Reduce workplace illness, injury, and mortality in targeted sectors

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
9.2.2c Increase percentage of active coal mines in the U.S. that possess NIOSH-approved plans to perform surveillance for respiratory disease: a) underground mines (Outcome)	FY 2018: 100% Target: 93% (Target Exceeded)	93%	93%	Maintain
9.2.2d Increase percentage of active coal mines in the U.S. that possess NIOSH-approved plans to perform surveillance for respiratory disease:	FY 2018: 98% Target: 90% (Target Exceeded)	90%	93%	+3

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
b) surface mines (Outcome)				
9.2.3c Increase the number of product and manufacturing site audits completed to ensure the quality of NIOSH certified respirators (Outcome)	FY 2018: 259 Target: 250 (Target Exceeded)	250	250	Maintain
9.2.3d Reduce the percentage of respirable coal mine dust overexposures for the tailgate shearer operator (Outcome)	FY 2018: 9.0% Target: 12.4% (Target Exceeded)	9.0%	9.0%	Maintain
9.2.4 Achieve and sustain the percentage of respondents indicating that NIOSH HHEs helped improve workplace conditions (Outcome) ¹	FY 2017: 89% Target: 90% (Target Not Met)	90%	90%	Maintain
9.B Number of certification decisions issued for personal protective equipment (Output)	FY 2018: 465 Target: 400 (Target Exceeded)	400	400	Maintain
9.E Number of research articles published in peer-review publications (Output)	FY 2018: 300 Target: 300 (Target Met)	250	275	+25
9.K Annual NIOSH website visits (Output)	FY 2018: 7,516,490 Target:7,500,000 (Target Exceeded)	7,000,000	7,000,000	Maintain
9.L Number of NIOSH Science Blog Subscribers (Output)	FY 2018: 59,139 Target: 48,900 (Target Exceeded)	42,000	58,000	+16,000

¹ This measure is reported as a five-year average because the number of HHEs requested varies and therefore year-to-year fluctuations are normal and expected.

Performance Trends:

Reducing Hazardous Exposures

Exposure to coal mine dust causes various pulmonary diseases, including coal workers’ pneumoconiosis and Chronic Obstructive Pulmonary Disease (COPD)²¹⁰. CDC works with coal mines in the U.S. to develop plans to perform surveillance for pneumoconiosis and COPD. In FY 2018, 100% of underground mines and 98% of surface mines had approved surveillance plans (Measures 9.2.2c and 9.2.2d). This was achieved through extensive outreach efforts in partnership with the Mine Safety and Health Administration (MSHA). The targets remain at

²¹⁰ <https://www.cdc.gov/copd/index.html>

93% percent as CDC works with mines to incorporate spirometry into their plans, an upcoming requirement added by MSHA.

Tailgate shearer operators traditionally have shown the greatest percentage of samples that exceed allowable limits for dust exposure because they are positioned in close proximity to the longwall cutting machine (shearer), where there are high levels of dust (Measure 9.2.3d). The percentage of respirable coal mine dust overexposures for tailgate shearer operators dropped from 13.1% in FY 2017 to 9.0% in FY 2018, which can be attributed to use of the continuous personal dust monitor (CPDM) and the lower permissible level of coal dust exposure (2.0 to 1.5 milligrams per cubic meter). The near real-time feedback from the CPDM allows miners to make adjustments to their work practices or operating parameters to lower dust levels if they are approaching the limit.

An estimated 20 million workers use Personal Protective Equipment to protect themselves from death, disability, and illnesses. CDC's Personal Protective Technology program provides expertise from many scientific disciplines to advance federal research on respirators and other personal protective technologies for workers. In FY 2018, CDC completed 259 product and manufacturing site audits, about the same number as FY 2016 and FY 2017 (Measure 9.2.3c). CDC has concentrated its efforts on helping manufacturers finalize their respirator design and development by assessing whether products meet the certification test criteria. These collaborations are valuable but do not qualify as audits. Future targets will be met by auditing a minimum of one product per year for each product approved, and increasing the post market evaluation of fielded respirators in fire services, healthcare, and mining.

Additionally, FY 2018 data demonstrate improvements in the inventory and quality of respiratory protection for workers in all industry sectors through 465 certified respirator decisions, continuing CDC's trend of exceeding the target for this measure (Measure 9.B). Although demand for respirator decisions remains high, CDC's targets reflect limited personnel resources available to respond to requests, the impact of consensus standards, and advances in technology.

CDC responds to employer, employee, and union requests for workplace Health Hazard Evaluations²¹¹ (HHEs). CDC assesses the workplace and employees' health by reviewing records and/or conducting on-site testing. Based on the findings, CDC recommends ways to reduce hazards and prevent work-related illness. CDC conducts a follow-up survey of HHE participants to evaluate the program, including whether workplace conditions improved as a result of CDC's recommendations (Measure 9.2.4). The five-year average percentage of respondents who felt NIOSH helped improve workplace conditions was 89% in 2018, approximately as high as recent years.

²¹¹ http://www.cdc.gov/niosh/hhe/pdfs/HHE_2014_Annual_Report.pdf

Expanding Occupational Safety and Health Influence

CDC communicates current research and recommendations on occupational safety and health (OSH) with its partners and stakeholders through several avenues. These include its website and social media presence, research publications and related promotions, and federal cross-agency and cross sector committee membership.

- **Website:** The number of visits to CDC's NIOSH website in FY 2018 stayed roughly level with the FY 2015-2017 results. There were 7.5 million visits in FY 2018 (Measure 9.K). The number of web visits is expected to decline in the future as some traffic moves from the web to mobile applications and videos.
- **Social Media:** NIOSH's Science Blog²¹² provides a plain language summary of CDC's OSH research findings or new guidance, and provides links to more detailed information and other resources elsewhere on the NIOSH website. The number of texting and email subscribers to the NIOSH Science Blog rose approximately 5,000 in FY 2018 to 59,139. The Science Blog also had 75 posts. One of the most popular posts, "To Beard or Not to Beard? That's a Good Question!"²¹³, featured an infographic that helped the reader quickly see which of 36 different facial hairstyles allow for a tight-fitting seal while wearing a respirator (Measure 9.L). In FY 2019 and 2020, due to budgetary constraints, CDC anticipates fewer research projects and therefore fewer blog posts. Without regular, engaging content the number of subscribers may decrease.
- **Publications:** CDC published 300 research articles in peer-reviewed publications in FY 2018, improving upon the 2017 result but down from previous fiscal years (Measure 9.E). Significantly fewer publications are expected in 2019 and 2020, as CDC conducts fewer occupational safety and health studies due to budget constraints and the retirement of prolific senior scientists.
- **Outreach:** CDC also produced 255 information products to expand the reach of many of these publications in FY 2018 with other audiences, such as employers, workers, unions, public health departments, and the general public. For example, CDC published three Nanotechnology Workplace Design Solutions²¹⁴, which provide employers with strategic steps toward making sure employees stay safe while handling nanomaterials in plain language. These documents were shared by industry media, including the National Safety Council.
- **Consensus standards:** In FY 2018, CDC participated in more than 75 voluntary consensus standards committees that often made use of CDC research findings related to occupational safety and health. Voluntary consensus standards committees are groups of industry and government representatives that work together to decide on rules of standardization to maximize compatibility, interoperability, safety, and quality. For example, CDC contributed to two revised standards published in FY 2018 that included revised safety labels for extension ladders. The labels reflect CDC research demonstrating the "fireman's" method of ladder use ("hold-the-rail") is safer than the current standard method ("hold-the-rung").

²¹² <http://blogs.cdc.gov/niosh-science-blog/>

²¹³ <https://blogs.cdc.gov/niosh-science-blog/2017/11/02/noshave/>

²¹⁴ <https://www.cdc.gov/niosh/topics/nanotech/pubs.html>

GLOBAL HEALTH

Global HIV/AIDS

Performance measures for Long Term Objective: Partner with ministries of health, international and local partners and other United States Government (USG) agencies to achieve the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) goals of reducing the worldwide rate of new HIV infections and saving lives by focusing on three highly effective, evidence-based HIV interventions: (1) antiretroviral treatment for prevention and health benefits, (2) voluntary medical male circumcision, (3) laboratory and point of care testing site quality improvement programs

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.A.1.5 Increase the number of adults and children with HIV infection receiving antiretroviral therapy (ART) (Output) ¹	FY 2018: 8,214,659 Target: 6,930,759 (Target Exceeded)	9,114,659	9,114,659	Maintain
10.A.1.7 Increase the number of males age 15 and over circumcised as part of the minimum package of male circumcision for HIV prevention services ² (Output)	FY 2018: 1,912,552 Target: 950,000 (Target Exceeded)	700,000	700,000	Maintain
10.A.1.8 Increase the total number of laboratories and Point of Care Testing sites enrolled in a continuous quality improvement program (Output)	FY 2018: 11,454 Target: 6,675 (Target Exceeded)	11,454	11,454	Maintain

¹ Targets and results reflect all people on ART, not just those with advanced HIV infection.

² Targets and results reflect the revised PEPFAR definitions of support that were implemented in January 2014. The numbers include individuals who receive PEPFAR/CDC support at direct service delivery sites and technical assistance for service delivery improvement sites.

Performance Trends: Global HIV funding supports CDC’s essential role in implementing the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) in more than 45 countries and regions. Reaching epidemic control in the fight against HIV is a priority for the U.S. Government. Preventing new HIV infections is achievable and critical to stem the global HIV epidemic, even in the absence of a HIV vaccine.

Through its work with PEPFAR and in-country partners, CDC has helped reduce AIDS-related deaths by focusing on accountability, quality, and the use of data to improve decision-making and to enhance program focus.

In partnership with local governments and Ministries of Health in 35 countries and four WHO regions, CDC-supported programs helped provide ART to 8,214,659 men, women, and children living with HIV, of the 14.6 million supported by PEPFAR (Measure 10.A.1.5). CDC met and exceeded its treatment target for FY 2018, achieving landmark levels. CDC headquarters staff will continue to work with in-country CDC staff to find those who are HIV positive and support their treatment. CDC will do this through:

- (1) Continued collaboration with Ministries on planning and implementing Test and Start;²¹⁵
- (2) Implementing strategies that increase retention and adherence to antiretroviral therapy;

²¹⁵ <https://www.cdc.gov/globalhivtb/who-we-are/resources/keyareafactsheets/scaling-up-hiv-care-and-treatment.pdf>

(3) Ensuring accessibility and quality of viral load testing for monitoring;

(4) Pilot and expand opportunities for antiretroviral optimization, providing for easier and less resistant treatment options.

In FY 2018, CDC-supported partners in 12 high priority PEPFAR countries performed 1,912,552 voluntary medical male circumcisions (VMMCs) of males aged 15 and older by a qualified clinician, exceeding the 2018 target and representing the highest single year performance since baseline reporting began in FY 2011 (Measure 10.A.1.7). CDC collaborates with country programs to scale-up VMMC by expanding task shifting, increasing the number of dedicated VMMC teams, and supporting mobile services. CDC continues to focus on safety and has developed an adverse events management and reporting guide for use in both VMMC service programs and community health facilities which may see clients in follow up. In addition, CDC continues to help programs address rare cases of tetanus among VMMC clients and is adapting service delivery programs to reach men at higher risk of HIV. CDC will continue to focus on outreach services to hard-to-reach populations in the highest burden regions and evaluating sustainable program delivery models for programs reaching their established goals of circumcising at least 80% of men in their communities.

Laboratory testing is the only way to diagnose and confirm existence of disease, gauge if medications are working, and measure overarching vital indicators. Point of Care Testing (POCT) sites allow traditional laboratory testing to be completed near the point of care or near the patient. CDC supports a Continuous Quality Improvement (CQI) process for laboratories and Point of Care Testing (POCT) sites to support accuracy of results. The CQI process works with sites to improve quality by continuously evaluating how they work and identifying ways to improve their processes. This reduces waste, increases efficiency, and increases staff (internal) and patient (external) satisfaction. The more laboratory and POCT sites that participate in CQI processes and receive accreditation or become certified, the more trust is built into the system. Trust in the accuracy of tests allows those who are found to be HIV positive to be immediately placed on medications which reduces the virus in the blood, lowers opportunity for continued HIV transmission, and moves CDC closer to its goal of controlling the HIV epidemic. By the end of 2018, CDC supported an enrollment of 11,454 laboratories or POCT sites in a CQI program from more than 45 countries and regions, nearly double the FY 2018 target and the FY 2017 baseline (Measure 10.A.1.8).

CDC provides scientific expertise to support all CDC Global HIV countries working directly with Ministries of Health to achieve and sustain HIV epidemic control and address the needs of the current 8.12 million people receiving antiretroviral treatment. In FY 2020, CDC anticipates a decline in resources (i.e., personnel with the appropriate subject matter expertise), which will affect its ability to support the global HIV/AIDS activities described earlier. FY 2020 targets for measures 10.A.1.5, 10.A.1.6, 10.A.1.7, and 10.A.1.8 remain level with or lower than the previous year’s targets to reflect this impact.

Global TB

Performance measures for Long Term Objective: Partner with ministries of health, international and local partners and other United States Government (USG) agencies to speed up progress in the fight against TB worldwide, by focusing on highly effective, evidence-based TB interventions, to include reaching the high-risk HIV population

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.G.1: Increase the number of adults and children with TB and HIV infection receiving antiretroviral therapy (ART) (Output)	FY 2018: 128,230 Target: 120,000 (Target Exceeded)	130,000	130,000	Maintain

¹ CDC adjusted the process for setting the in-country FY 2016 target.

Performance Trends: A fourth of the world’s population – 1.7 billion people – are infected with Tuberculosis (TB) bacteria, with nearly 10.4 million becoming ill with the disease each year. Making TB the leading cause of death by an infectious disease worldwide and the leading cause of death for those living with HIV (PLHIV). In 2017, 1.6 million people perished from TB, including 0.3 million PLHIV. Effectively addressing TB in the United States requires global TB intervention. CDC plays an important role in this effort and is an integral part of the U.S. Government’s efforts to address global TB through PEPFAR, the Global Health Security Agenda²¹⁶ (GHSa), the National Strategy for Combating Antibiotic-Resistance Bacteria, and the National Action Plan to Combat Multidrug-Resistant TB.²¹⁷

To speed up progress against TB, CDC is developing best practices in laboratory science to diagnose TB, supporting cutting-edge research to create better TB screening tests, helping to create the global roadmap to stop TB in children, and establishing effective strategies to end TB transmission in health facilities. Access to and initiation of ART for those found to be living with HIV and TB is imperative to reducing the burden of disease, and in an effort to support this strategy, CDC’s global TB program initiated ART with 128,230 people living with HIV (PLHIV) and TB in 2018 (Measure 10.G.1). The global TB program exceeded FY 2018 target. To increase the number of people on ART, CDC supports the provision of ART within TB medical clinics as an integrative approach, providing frequent TB testing of HIV positive clients, and providing TB treatment at HIV treatment centers. In a continued effort to end TB, CDC will increase its focus on TB preventive treatment for PLHIV, TB contacts, and young children. However, with decreased resources (i.e., personnel to locate PLHIV who are also HIV positive) in FY 2020, CDC will not scale up as fast but will maintain the same level of push.

Global Immunization

Contextual Indicator for Long Term Objective: Help domestic and international partners achieve World Health Organization's goal of global polio eradication

Contextual Indicator	Most Recent Result	FY 2020 Target
10.B.1.3: Reduce the number of countries in the world with endemic wild polio virus (Outcome)	FY 2017: 3	0

Performance measure for Long Term Objective: Help domestic and international partners achieve World Health Organization's goal of global polio eradication

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.B.1.2a: Increase the number of children vaccinated with Polio Vaccine as a result of non-vaccine operational support funding to implement national or subnational supplemental immunization campaigns in Asia, Africa, and Europe (Output)	FY 2017: 10,832,430 Target: 19,000,000 (Target Not Met but Improved)	5,000,000	5,000,000	Maintain

²¹⁶ <https://www.cdc.gov/globalhealth/security/ghsagenda.htm>

²¹⁷ <https://aspe.hhs.gov/system/files/pdf/258516/ProgressYears1and2CARBNationalActionPlan.pdf>

Contextual Indicator for Long Term Objective: Work with global partners to reduce the cumulative global measles-related mortality by 95% compared with CY 2000 estimates (baseline 777,000 deaths) and to maintain elimination of endemic measles transmission in all 47 countries of the Americas

Contextual Indicator	Most Recent Result	FY 2020 Target
10.B.2.1: Reduce the number of global measles-related deaths ¹ (Outcome)	FY 2017: 109,638	30,000

¹ The Measles and Rubella Initiative formulated an improved method for calculating global measles mortality in late 2010 following measles outbreaks in Africa in 2009 and 2010. The actual results from 2009 onward reflect the improved measurement.

Performance measures for Long Term Objective: Work with global partners to reduce the cumulative global measles-related mortality by 95% compared with CY 2000 estimates (baseline 777,000 deaths) and to maintain elimination of endemic measles transmission in all 47 countries of the Americas

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.B.2.2: Maintain number of non-import measles cases in all 47 countries of the Americas as a measure of maintaining elimination of endemic measles transmission (Outcome)	FY 2017: 0 Target: 0 (Target Met)	0	0	Maintain
10.B.2.3: Increase the number of countries that achieve at least 90% immunization coverage in children under 1 year of age for DTP3 (three shot series of vaccines covering diphtheria, tetanus, and pertussis) (Outcome)	FY 2017: 123 Target: 143 (Target Not Met)	143	143	Maintain

Efficiency Measure for Global Immunization

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.B.E.1: Increase the percentage of the annual budget that directly supports the program purpose in the field (Efficiency)	FY 2017: 78% Target: 90% (Target Not Met)	88%	88%	Maintain

Performance Trends: Global immunization funding advances polio eradication and measles mortality reduction and elimination efforts. CDC is the lead technical monitoring agency for the Independent Monitoring Board of the Global Polio Eradication Initiative (GPEI).²¹⁸ The number of countries reporting endemic wild poliovirus (WPV) remained at three countries in FY 2017 (Measure 10.B.1.3). Although two years have passed since cases were reported in Nigeria, much of Borno state remains inaccessible. This prevents Nigeria's removal from the endemic country list.

Countries at highest risk for polio importation and circulating vaccine-derived poliovirus outbreaks have low routine immunization coverage levels (less than 80%), sub-optimal outbreak response, and weak health systems. CDC's expanded measure of polio vaccination (Measure 10.B.1.2a) improves accuracy by measuring children vaccinated by all types of polio vaccine. It reflects changes to the composition of the global supply of polio vaccine and CDC's enhanced financial support for operational costs of supplemental vaccination rounds, including social mobilization. In FY 2017, CDC vaccinated 10,832,430 children with polio vaccine in Asia, Africa,

²¹⁸ <http://www.polioeradication.org/>

and Europe. Though CDC did not meet its FY 2017 target, results did improve from FY 2016 due to increased vaccination campaigns in high-risk countries as well as those that experienced any vaccine-derived poliovirus cases. The downward trend of special vaccination campaigns represents growing geographic isolation of wild poliovirus and a decrease in the number of vaccination campaigns that are run at a higher quality. CDC will continue to work with partners to reach its vaccination targets, focusing efforts on those areas that have been historically difficult to reach due to security issues and/or political instability.

Reducing cumulative global measles-related mortality by 95% compared with CY 2000 estimates presents unique challenges. Since CY 2008, CDC’s collaboration with the Pan American Health Organization has helped ensure cases are contained, hampering a resurgence of measles in the U.S. (Measure 10.B.2.2). The Measles and Rubella Initiative updated the formula for calculating global measles mortality in 2018 with the following parameters: new measles vaccination coverage and annual country measles surveillance data. The updated formula uses and is responsive to annual trends in surveillance data, allowing the model to reflect measles outbreaks better. The actual results from 2017 onward reflect the improved measurement. Measles mortality rose to 109,638 in 2017, representing an 83% decrease since CY 2000 (Measure 10.B.2.1). The increase reflects ongoing outbreaks in Venezuela and several European countries in 2017. CDC is working closely with its partners to implement improvements to the quality of the supplemental immunization activities and target efforts to areas with high measles-related mortality.

The number of countries that achieve at least 90% immunization coverage in children under one year of age for DTP3 (third dose diphtheria, tetanus, pertussis vaccine) is the globally accepted performance indicator for national immunization programs. The number of countries meeting this coverage threshold for DTP3 decreased from 131 in FY 2016 to 123 in FY 2017 (Measure 10.B.2.3). The increase comes from countries that were able to regain losses from recent years to cross back over the 90% coverage level. Eleven countries report coverage of 87-89%, which indicates how close many nations are to reaching the target. To assist both countries who struggle to maintain gains and those that struggle to reach the 90% target, CDC is conducting evaluations to study supply and demand factors that can impact and increase coverage. DTP3 immunization activities are closely linked to polio immunization activities.

In FY 2017, 78% of program funding directly supported field-related activities (Measure 10.B.E.1), a downward trend from FY 2016 support of 80%. The reversal of what had been an improving trend is the result of a greater number of field positions unfilled in FY 2017, as people previously assigned overseas were required to return to CDC headquarters, along with increased administrative costs of managing increasingly complex cooperative agreements. While CDC headquarters-based staff conduct work that directly bears on the overseas mission, unless they are on temporary duty in the field, their staff costs are not included in calculating the efficiency measure. CDC continues to review cost reduction options on a monthly basis to minimize administrative overhead while maximizing direct spending for field-related activities. Continued plans to achieve the 88% threshold in FY 2020, include temporarily assigning a higher percentage of staff to the field and increasing the number of days spent in the field. Once active circulation of poliovirus ceases, CDC will return to normal emergency operations center activation staffing levels and begin normal polio eradication activities until global certification is achieved.

Global Health Protection

Performance measure for Long Term Objective: Build outbreak detection and response public health capacity in support of the International Health Regulations (2005)

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.E.2 Percentage of outbreak investigations that received laboratory support (Output)	FY 2017: 70% Target: 70% (Target Met)	70 %	70%	Maintain

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.E.3 Percentage of outbreaks that received a response within 24 hours (Output)	FY 2018: 50% (Baseline)	52%	54%	+2
10.E.4 Number of public health events of international importance monitored and reported (Output)	FY 2018: 125 (Baseline)	130	135	+5

Performance Trends: CDC’s Global Health Protection work, both in headquarters and the field, limits national, regional, and international global health security threats. Following the launch of the Global Health Security Agenda (GHTA) in FY 2014, CDC continues to work closely with U.S. Government and international partners to improve disease prevention, detection, and response.

CDC works to improve laboratory capacity to rapidly identify and respond to pathogens of public health significance in host countries and within the region. A confirmed diagnosis allows countries to conduct appropriate intervention or response activities, which is crucial for immediate outbreak containment and prevention of future outbreaks. In FY 2017, 70% of outbreak investigations conducted received laboratory support (Measure 10.E.2). Requests for outbreak response support do not always include requests for laboratory support, as such FY 2019 and FY 2020 targets remain level with the current result. However, CDC will continue to provide technical assistance to host country partners as they develop their National Laboratory and Response Plans in order to encourage requests for laboratory support. CDC uses this information to encourage host country Ministries of Health to perform comprehensive outbreak investigations including collecting samples for laboratory confirmation testing when required.

As part of CDC’s global health protection activities, CDC teams are strategically positioned in other countries and a Global Disease Detection Operations Center (GDDOC) is based at CDC headquarters. The GDDOC uses nontraditional event-based surveillance methods, including internet scanning for key words in over 40 languages, to detect, monitor, and report on public health events of international importance. This surveillance provides an early warning alert, allowing CDC to rapidly respond. CDC is introducing a new measure that estimates 125 public health events of international importance were monitored and reported in FY 2018 (Measure 10.E.4). This is expected to increase by five annually. Additionally, measure 10.E.1 is being replaced with measure 10.E.3, the percentage of outbreaks that received a response within 24 hours. The new measure, which has an initial estimated baseline of 50%, better captures response data from across CDC’s global health protection programs and countries.

The established targets for these new measures are ambitious due to CDC’s changing global footprint. However, with concerted effort, they are achievable by continuing the public health capacity work CDC is completing worldwide. CDC will continue to work to develop a skilled public health workforce who can respond to outbreaks, build laboratory capacities to identify disease, strengthen surveillance systems to assist in early detection, and establish emergency management systems to organize response. These activities all contribute to the early detection and response to a disease outbreak and minimize the outbreak impact.

Performance measures for Long Term Objective: To increase the number of public health staff skilled in epidemiology and surveillance in low and middle-income countries

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.F.1a Increase field epidemiology and response capacity within countries through the Field Epidemiology Training Program (FETP) New Participants. (Outcome) ¹	FY 2017: 403 Target: 430 (Target Not Met)	400	403	+3

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.F.1b Increase field epidemiology and response capacity within countries through the Field Epidemiology Training Program (FETP) Total Graduates. (Outcome) ¹	FY 2017: 4,816 Target: 3,700 (Target Exceeded)	4,900	5,900	+1,000

¹The FETP/FELTP measures were updated in FY 2018 to clarify program activities.

Performance Trends: International Field Epidemiology Training Programs (FETP) are recognized worldwide²¹⁹ as an effective means to strengthen countries’ capacity in surveillance, epidemiology, and outbreak response. As of FY 2017, there were 403 new residents of the FETP program, not meeting the FY 2017 target of 430 (Measure 10.F.1a). This decline is due to CDC’s reduction in the number of FETP and Field Epidemiology and Laboratory Training Program (FELTP) fellows trained to accommodate a more targeted approach for priority countries. As such, the targets moving forward are smaller. The FELTP trained 4,816 epidemiologists in the advanced program across more than 70 countries as of FY 2017, exceeding its target of 3,700 and surpassing FY 2016 results by 403 graduates (Measure 10.F.1b). These graduates strengthen public health capacity so individual countries are able to transition from U.S.-led global health investments to more long-term host country ownership. On average, 80% of FETP graduates work within their Ministry of Health after graduation and many assume key leadership positions.

Parasitic Diseases and Malaria

CDC Contextual Indicators for Long Term Objective: Decrease the rate of deaths from all causes in children under five in the President’s Malaria Initiative (PMI) target countries ²²⁰

Contextual Indicators	Most Recent Result	FY 2020 Target
10.C.1 Increase the percentage of children under five years old who slept under an insecticide-treated bed net the previous night in PMI target countries (Outcome)	FY 2017: 56% (median)	85% ¹

¹ PMI was implemented in each of the 19 focus countries by 2012. Therefore starting in FY 2014, data from all 19 countries were included to calculate the median, using the most recent estimate available from each country.

Budget Output Measure for Long Term Objective: Decrease the rate of deaths from all causes in children under five in the President’s Malaria Initiative (PMI) target countries

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.C.A The number of CDC authored publications that inform the global evidence for malaria control and prevention programs (Output)	FY 2017: 77 Target: 75 (Target Exceeded)	155	155	Maintain

²¹⁹ Traicoff D et al. 2015. Strong and flexible: Developing a three-tiered curriculum for the Regional Central America Field Epidemiology Training Program. *Pedagogy in Health Promotion* 1(2): 74–82. <http://php.sagepub.com/content/1/2/74.full.pdf+html>

²²⁰<http://www.pmi.gov/>

CDC Performance Measure for Long Term Objective: To deliver timely and accurate reference diagnostic laboratory services for the detection of parasites in specimens submitted by domestic and international public health partners to CDC

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
10.C.4 The percentage of laboratory test results reported within the expected turn-around time upon receipt by CDC labs (Outcome)	FY 2017: 96% Target: 90% (Target Exceeded)	90%	90%	Maintain

Performance Trends: Malaria prevention and treatment tools are among the most cost-effective interventions available to improve global maternal and child health and survival. CDC’s research informs the development of new tools to manage and mitigate threats from drug and insecticide resistance, guides future program and policy decisions, and builds the capacity of host country governments through strategic partnerships.

The President’s Malaria Initiative²²¹ (PMI), which is led by USAID and co-implemented together with CDC, has been scaling up the use of malaria prevention and treatment tools in select countries since 2005, and expanded to 19 countries and the Greater Mekong Sub-region as of 2012. In 2017 PMI announced expansion to an additional five countries.

The percentage of children under five years old who slept under an insecticide-treated bed net the night before increased from 52% in 2016 to 56% in 2017 (Measure 10.C.1). National surveys are routinely conducted every two to three years and limits direct comparison from one year to the next. While no PMI countries have achieved the 85% goal, several countries are closing the gap with almost half of the countries reporting having over 65% of children under five years sleeping under an insecticide-treated bed net the night before. PMI anticipates this trend will continue the longer countries are part of PMI and pursue full scale-up of interventions.

CDC continues to develop global policy documents, guidelines and peer-reviewed scientific publications. In addition to the 11th Annual PMI Report to Congress, CDC co-authored key technical reports such as the Malaria Rapid Diagnostic Test Performance²²² (Round 8)²²³ in 2018. These reports summarize critical surveillance as well as monitoring and evaluation data that will inform global policy and programming. CDC also co-authored an article in the American Journal of Tropical Medicine and Hygiene supporting the case that universal malaria diagnostic testing of all fever cases is the first step in correct malaria case management. Evaluation of the data found that at least 50% of non-malaria consultations in sub-Saharan Africa are for febrile illness and a substantial proportion of patients with fever are not tested for malaria in health facilities when considering routing data. Authors concluded that tracking the proportion of patients tested for malaria after exclusion of the confirmed malaria cases could allow programs to make inferences about malaria testing practices using routine data.

The number of peer-reviewed papers published decreased from 149 in FY 2016 to 77 in FY 2017, which still exceeded its FY 2017 target and contributes to growing the evidence base to support policy and program needs (Measure 10.C.A). CDC anticipates some variation in the number of publications from year to year based on the publication process and the timelines for study initiation, completion and data analysis. For example, CDC completed a large vaccine trial in 2014, multiple publications from that trial were produced following in 2015 and 2016 which account for some of the decrease in publication numbers in 2017.

²²¹ <http://www.pmi.gov/>

²²² <http://www.who.int/malaria/publications/atoz/9789241514965/en/>

²²³ <https://apps.who.int/iris/bitstream/handle/10665/276190/9789241514965-eng.pdf?ua=1>

As a significant health concern in the U.S., malaria, and other parasitic diseases have a tremendous impact on global morbidity and mortality, due to increased international travel, importations, and domestically acquired infections. CDC's parasitic disease labs serve as global and national resources for ensuring efficient and high-quality analyses, which are essential to timely and accurate diagnosis and treatment. In FY 2017, CDC analyzed and reported results for 96% of submitted specimens in a timely manner (within the expected turnaround times posted in the CDC test directory for each test) exceeding its target and maintaining the FY 2016 performance result (Measure 10.C.4). However, the program is challenged in its ability to address key gaps in new and improved disease detection and laboratory diagnostic tools needed to achieve malaria and neglected tropical disease elimination goals.

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

Buildings and Facilities

Performance Measures for Long Term Objective: Improve efficiency and sustainability of CDC Facilities

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
12.E.2 Increase the percent of CDC facilities (5,000 square feet and above) that meet the Guiding Principles for High Performance and Sustainable Federal Buildings (Efficiency)	FY 2018: 29.2% Target: 15% (Target Exceeded)	15%	15%	Maintain
12.E.1a Improve energy (E) consumption per square foot (Efficiency) ¹	FY 2018: 26.1% Target: 30% (Target Not Met)	30%	30%	Maintain
12.E.1b Improve water (W) consumption per square foot (Efficiency)	FY 2018: 37.8% Target: 20% (Target Exceeded)	22%	24%	+2

¹ Target and baseline are reverted back to pre-2016 metrics. Per Executive Order 13834, the current targets and baseline revert back to being based on the Energy Policy Act of 2005.

Performance Measures for Long Term Objective: Improve CDC's Buildings and Facilities Office's processes and performance¹

Measure	Most Recent Result and Target	FY 2019 Target ²	FY 2020 Target ²	FY 2020 +/- FY 2019
12.2.1c Improve Condition Index (CI), as measured by the ratio of the functional replacement value (FRV) of an asset with its backlog of maintenance and repair (BMAR) needs (Output)	FY 2018: 79.85 Target: 90 (Target Not Met)	90.0	90.0	Maintain
12.2.1d Reduce non-mission dependency, as measured by the percentage of real property assets that are not deemed directly necessary to support the Agency's mission (Output)	FY 2018: 1.26% Target: 2% (Target Exceeded)	2%	2%	Maintain
12.2.1e Improve building utilization ³ (Output)	FY 2017: 12.77% (U) Target: 5% (Target Not Met)	5.00% (U)	5.00% (U)	Maintain

Measure	Most Recent Result and Target	FY 2019 Target ²	FY 2020 Target ²	FY 2020 +/- FY 2019
12.2.1f Improve buildings and facilities operating costs (Output)	FY 2018: \$13.27/sq. ft. Target: \$10.29/sq. ft. (Target Not Met but Improved)	\$10.29 /sq. ft.	\$10.29/sq.ft.	Maintain

¹ Targets are set by HHS and align to Executive Order 13327; the Federal Real Property Council (FRPC) defines the metrics.

² Projected only, targets do not exist from FRPC for beyond FY 2016.

³ Under-utilized (U); The Federal Real Property Council removed the metric Over-utilization (O) for FY 2013 and forward.

Performance Trends: The Office of Safety, Security and Asset Management (Building and Facilities) equips CDC to carry out its mission in safe, sustainable, and efficient operating facilities. CDC continues to maintain the percentage of sustainable facilities (Measure 12.E.2), achieving almost double the 2018 target. In FY 2018, CDC also exceeded its water intensity target (12.E.1b). Owing to higher than typical heating demand, and deficiencies in CDC’s Pittsburgh Campus fire water system, water reduction slipped from the 2017 result. The Pittsburgh issue has been identified and is targeted to be corrected within next year or two. In spite of this, recently completed condensate recovery and well water system improvements at CDC’s Lawrenceville campus helped reduce water usage.

In 2018, the energy targets and baseline were reverted back to pre-2016 metrics (Measure 12.E.1a). Per Executive Order (EO) 13834, signed by the President on May 17, 2018, the current targets and baseline revert back to being based on the Energy Policy Act of 2005. EO 13834 revokes EO 13693, which had re-set the energy targets and created new baselines for 2016 and 2017. Moving forward CDC will continue to use this target and baseline. CDC’s energy intensity decreased slightly in 2018. This is attributed to increased natural gas and fuel demand. An increased number of winter heating days, over 5 months of constant generator use at CDC’s San Juan, Puerto Rico, campus resulting from Hurricane Irma and Maria outages, and a decrease in CDC facility square footage contributed to the target not being met. CDC continues to pursue energy savings projects that will increase the use of renewable energy and decrease costs. Some examples include the following:

- Energy Savings Building Setback program in place in three CDC buildings.
- CDC’s lab building B in Lawrenceville, GA, is the first net zero energy use, non-warehouse building at HHS. The building is Guiding Principles²²⁴ compliant and LEED Certification is pending.
- CDC’s Pittsburgh NIOSH campus’s Energy Conservation Measures (per ESPC contract) are online with 60% reduced energy usage noted and included new vehicle charging stations and photo-voltaic arrays.
- Three Atlanta CDC campuses have 440 KW photo-voltaic arrays online and producing more than engineering calculations predicted.
- Energy Efficient LED lighting has been installed at CDC’s Pittsburgh, and Atlanta campuses with more planned in coming years. LED lighting typically uses 30-40% less energy than traditional fixtures.

CDC received funding in FY 2018 for major capital construction at its Roybal Campus, including funding for a high containment lab facility and a new parking deck to mitigate high parking demand at the Roybal Campus which currently exceeds capacity. The deck’s top level will be populated with a significant photo-voltaic array and should operate as a zero-net-energy structure when completed. Construction is scheduled to begin in FY 2019.

²²⁴ <https://www.energy.gov/eere/femp/guiding-principles-sustainable-federal-buildings>

For both projects, energy and water saving measures will be explored in the design process to maximize all feasible opportunities.

CDC did not meet the condition index (CI) target for FY 2018 (Measure 12.2.1c). The drop in un-weighted CI from FY 2017 (81.26 CI) to FY 2018 (79.85 CI) reflects an increase in CDC's Backlog of Maintenance and Repair (BMAR) from \$135M in 2017 to over \$161M in 2018 (for active, owned buildings). The largest, mission-critical, and mission dependent assets continue to be maintained at a high level, with a weighted average of 95.60 for FY 2018.

CDC exceeded its Mission Dependency target (Measure 12.2.1d) for FY 2018 with a result of 1.26%. The Mission Dependency score increased from 1.19% in 2017 to 1.26% in FY 2018, but still exceeded the target of two percent.

In FY 2018, CDC disposed of four buildings and structures. CDC identified an additional 12 assets for demolition/disposal in FY 2018. As those assets became under-utilized, they were also marked for demolition. This increased the FY 2018 under-utilization result from 5.56% in FY2017 to 12.77% for FY 2018 (Measure 12.2.1.e). As CDC continues to dispose of under-utilized assets, this value should drop.

CDC's operating costs decreased from \$13.39/sq.ft. in FY 2017 to \$13.27/sq.ft. for FY 2018 (Measure 12.2.1f). Overall utility costs increased in 2018, but savings in operations and maintenance costs resulted in a net decrease. As for still not meeting the target, the operating cost targets did not take high-operating-cost laboratory assets into account when the metric was created. CDC's laboratories have disproportionately higher operating costs compared to other assets. Laboratory buildings comprise approximately 44% of the total asset inventory's square footage. CDC's metric has changed by less than \$1/square foot since FY 2005. CDC has previously performed benchmarking studies that indicate its asset portfolio is in the medium range of operating costs for similarly equipped, institutional and private portfolios.

PUBLIC HEALTH LEADERSHIP AND SUPPORT

State, Tribal, Local and Territorial Support

Performance Measures for Long Term Objective: Improve the capacity and performance of state, tribal, local and territorial public health agencies to more efficiently and effectively manage and deliver high quality programs and services to protect the public’s health

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
11.B.4.1a (State) Increase the percentage of nationally PHAB ¹ accredited state public health agencies (Intermediate Outcome)	FY 2018: 64.7% Target: 60% (Target Exceeded)	65%	70%	+5
11.B.4.1b (Local) Increase the percentage of nationally PHAB ¹ accredited local public health agencies (Intermediate Outcome)	FY 2018: 11.95% Target: 11.5% (Target Exceeded)	13%	14%	+1

¹Public Health Accreditation Board

Performance Trends: CDC supports strong health departments, the Nation's front line of public health defense. Thousands of health departments serve Americans where they live, work, and play; every American receives and benefits from their services. CDC provides support and resources to state, tribal, local, and territorial public health departments to improve the effectiveness, efficiency, and quality of their public health programs and services. As part of this effort, CDC assists health departments in meeting the nationally recognized, practice-focused and evidence-based standards of the Public Health Accreditation Board (PHAB).²²⁵ Meeting these standards provides health departments with tools to advance the quality and performance of public health programs and services and establish the foundation to respond rapidly to emerging threats and challenges. CDC funds and supports the continuous improvement of the national accreditation program.

Accredited health departments now serve 73% of the U.S. population as of December 2018. PHAB has accredited 311 health departments—33 states, two tribes, and 276 local health departments (including 209 individually accredited local health departments and 67 county health departments through a centralized state application). An additional 190 health departments have formally entered the accreditation process. Progress to date has exceeded FY 2018 projections for state and local public health agencies with 64.7% and 11.95%, respectively, of state and local agencies accredited as of July 2018 (Measures 11.B.4.1a-b).

More than 90% of accredited health departments report experiencing benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and improved management processes. CDC and PHAB collaborated to publish a Morbidity and Mortality Weekly Report (MMWR)²²⁶ to describe the impact of accreditation. Additionally, comparative studies, published in peer review journals, used longitudinal data to identify substantial differences between accredited and non-accredited health departments. Surveys conducted prior to any sites receiving accreditation indicated little variation in a vast majority of activities. By 2016, the PHAB-accredited sites tended to offer a higher percentage of public health activities, contribute more effort to almost all of those activities, and report higher levels of contribution from most other public health

²²⁵ <http://www.phaboard.org/about-phab/>

²²⁶ Evaluating the Impact of National Public Health Department Accreditation—United States, 2016 (MMWR, August 12, 2015/65(31);803-806)

system partners.²²⁷ Another study found substantial increases in quality improvement engagement among accredited health departments compared to ones not engaged in accreditation.²²⁸

From FY 2011-2018, CDC’s Accreditation Support Initiative (ASI) provided funding and support to 268 local, tribal, and territorial health departments and state associations. As of December 2018, 73% of the earliest two cohorts (funded in FY 2011 and FY 2012) of local health departments achieved accreditation and 62% of all local ASI awardees (funded between FY 2011-FY 2017) formally entered the accreditation process.

ASI demonstrates that even small amounts of funding can help health departments make major strides toward meeting standards and achieving accreditation. For example, Cerro Gordo County Health Department (IA), which received ASI funding in FY 2016, reported that the pursuit of accreditation resulted in improved collaboration among community partners, increased accountability, and contributed to increased funding to stakeholders. Cerro Gordo County achieved accreditation in February 2018.

In FY 2019 a similar program, "Strong Systems, Stronger Communities (SSSC)" will replace ASI. SSSC will similarly promote performance improvement activities related to achieving national standards and seeking PHAB accreditation at state, local, tribal and territorial health department levels. Funding has been decreased for this activity in FY 2019; therefore there will be a decrease in the number of awards to help state, tribal, local and territorial health departments meet the national standards and increase their readiness for public health accreditation.

Targets established through 2020 are still viewed as achievable, given the long lead time required for accreditation preparation and application and the fact that the field is still benefitting from previous investments. A decrease in investments for accreditation readiness, however, will contribute to less ambitious targets after 2020.

CDC also plans to continue funding improvements and updates to the PHAB national accreditation program and the advancement of reaccreditation. Just as the public expects organizations such as schools and hospitals to be accredited, the national accreditation program for health departments is establishing growing expectations for health departments to meet national standards and become accredited.

Communications

Performance Measure for Long Term Objective: Improve access to and reach of CDC's scientific health information among key audiences to maximize health impact

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/-FY 2019
11.B.1.1c: Increase health behavior impact of CDC.gov (Outcome)	FY 2017: 90.5% ¹ Target: 90% (Target Met)	90%	90%	Maintain

¹ Does not include individuals who responded "N/A"

Performance Trends: It is important that CDC’s health information meets the needs of consumers or changes behavior. CDC uses American Customer Satisfaction Index (ACSI) scores to improve its web site and ensure that

²²⁷ Ingram RC, Mayes GP, Kussainov N. Changes in local public health system performance before and after attainment of national accreditation standards. Supplement, Impact of Public Health Accreditation. Journal of Public Health Management and Practice. 2018 (24:suppl 3), S25-S34.

²²⁸ Beitsch LM, Kronstadt J, Robin N, Leep C. Has voluntary public health accreditation impacted health department perceptions and activities in quality improvement and performance management? Supplement, Impact of Public Health Accreditation. Journal of Public Health Management and Practice. 2018 (24:suppl 3), S10-S18.

its audiences are satisfied with the usability of the site, credibility of the information, and functionality of the web tools (such as content syndication). In addition to tracking its overall performance, CDC surveys web users to understand how likely they are to change behavior based on information found on CDC.gov. In FY 2018, 90.5% of visitors indicated positive health impact and behavior change after visiting CDC.gov, which was similar to the FY 2017 result of 91%. CDC targets remain level at 90%, as CDC does not anticipate significant increases in performance. This measure helps CDC's web and health communication specialists understand the impact of materials placed on CDC.gov and assess how audiences use the content provided.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

State and Local Preparedness and Response Capability

Performance Measures for Long Term Objective: Enhance and sustain preparedness and response capability across state, local, and territorial health departments

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
13.5.2 Increase the percentage of state public health laboratories that directly receive CDC Public Health Emergency Preparedness funding that can correctly subtype E. coli O157:H7 and submit the results into a national reporting system within four working days for 90% of the samples received ¹ (Output)	FY 2016: 85% Target: 87% (Target Not Met but Improved)	87%	87%	Maintain
13.5.3 Increase the percentage of public health agencies that directly receive CDC Public Health Emergency Preparedness funding that can convene, within 60 minutes of notification, a team of trained staff that can make decisions about appropriate response and interaction with partners (Outcome)	FY 2017: 93% Target: 96% (Target Not Met)	96%	96%	Maintain

¹ CDC results are based on jurisdictions that allocated PHEP funding for pulsed-field gel electrophoresis (PFGE) E.coli activities.

Performance Trends:

CDC uses Public Health Emergency Preparedness (PHEP) recipient-reported data to aid jurisdictions in identifying preparedness gaps and developing targeted strategies to improve performance across operations. Measure 13.5.2 reflects the ability of states and select localities to detect and determine the extent and scope of potential outbreaks to minimize their impact. Rapid diagnostic testing and timely lab reporting allows for the swift removal of harmful products; decreasing cases of illness and consumers’ exposure duration. E. coli remains a serious public health concern in the United States and testing performance is used as an indicator for other threats and a measure of recipient capability. In FY 2016, 85% of PHEP-funded public health laboratories correctly subtyped E. coli and submitted results to PulseNet within four working days (Measure 13.5.2), an improvement over FY 2015 though slightly missing the FY 2016 target. PulseNet is in the process of transitioning from pulsed-field gel electrophoresis to whole genome sequencing (WGS). All required labs are scheduled to be transitioned to WGS in early 2019. The FY 2020 target will remain level with the previous year’s target as the program prepares for this transition.

The ability to assemble key staff for timely decision-making and the establishment of effective incident management structures are essential components of a public health emergency response. In FY 2017, 93% of PHEP-funded public health agencies convened trained staff within 60 minutes of notification to make decisions regarding partner engagement and incident response (Measure 13.5.3). This is below the target of 96%. Some jurisdictions did not meet the target because they did not or could not submit adequate documentation to accompany staff assembly results. CDC will continue to work with awardees to improve results and achieve future targets.

Performance Measures for Long Term Objective: Integrate and enhance existing surveillance systems at the local, state, national, and international levels to detect, monitor, report, and evaluate public health threats

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
13.1.3 Increase the number of Laboratory Response Network (LRN) member laboratories able to use their current Laboratory Information Management System (LIMS) for LRN-specific electronic data exchange (Output)	FY 2018: 47 Target: 52 (Target Not Met but Improved) ¹	53	58	+5
13.1.1b Increase the percentage of national Emergency Department visits captured in the syndromic surveillance platform to improve the coverage of syndromic surveillance data (Output) ²	FY 2018: 64% Target: 60% (Target Exceeded)	65%	70%	Maintain

¹ CDC established a new data source in FY 2017. Results for FY 2018 and beyond cannot be compared to previous years. Measure language changed slightly (coverage vs. representativeness) to better align with programs communications around this activity.

² In 2017, CDC refined both the definition of an active facility (continuously and consistently transmitting ED visit data) and the method used to account for these in order to gain a more accurate measure of emergency department facilities providing data to the BioSense Platform. FY 2018 and 2019 targets were adjusted using the new definition.

Performance Trends: CDC continues to focus on steadily increasing the electronic data exchange capacity of the Laboratory Response Network (LRN) member labs. New streamlined HL7 requirements for the LRN-Biological and LRN-Chemical programs were finalized in July 2018. One LRN-Biological laboratory implemented the new HL7 requirements in 2018. In addition, three laboratories are engaged in an HL7 messaging pilot for LRN-Chemical data messaging, and are expected to go live in 2019. These will be the first LRN-Chemical laboratories to utilize HL7 messaging for LRN data. In 2018, 47 out of 89 (53%) public health labs were capable of sending HL7 messages from their Laboratory Information Management Systems (LIMS) (Measure 13.1.3). In FY 2017 and into 2018 the LRN paused HL7 implementations to develop smaller, more streamlined data requirements that will significantly reduce the amount of data labs are required to report. These new requirements will also considerably reduce the implementation burden of effort for laboratories wanting to pursue HL7 for sharing LRN data with CDC.

CDC's National Syndromic Surveillance Program (NSSP)^{229,230} is a partnership between local, state, and national public health programs supporting timely exchange of syndromic data and information at the jurisdiction level. Through a National Syndromic Surveillance Community of Practice²³¹ and the cloud-based BioSense Platform²³² that provides a suite of shared analytic tools and services, public health programs are now able to collectively investigate and coordinate responses to disease threats that cross jurisdictions. During the extensive 2017 hurricane season, NSSP quickly modified system capability to support data receipt, data quality assurance, and data input into the ESSENCE²³³ interface in direct support of HHS' Disaster Medical Assistance Teams (DMAT). Building on this initial achievement, CDC and DMAT were able to continue seamless operations in support of Hurricane Florence during the 2018 hurricane season. State health officials used syndromic surveillance to monitor potential environmental health concerns due to the impact of widespread flooding and the potential for contamination from agricultural chemical and livestock facilities.

²²⁹ <http://www.cdc.gov/nssp/index.html>

²³⁰ As of FY 2015, the BioSense program is now referenced as the National Syndromic Surveillance Program

²³¹ <http://www.phconnect.org>

²³² <https://www.cdc.gov/nssp/biosense/index.html>

²³³ ESSENCE is a syndromic surveillance system designed by Johns Hopkins University Applied Physics Lab and stands for the Electronic Surveillance System for the Early Notification of Community-based Epidemics.

Sources of information like DMAT data continue to be valuable assets as they provide situational awareness of public health emergencies and disease management during an event in near real time. In addition to providing health officials a means of monitoring natural and environmental disasters, CDC's efforts continue to strengthen the use of syndromic surveillance data to support a better understanding and analysis of public health issues such as suicidal ideation, and developing targeted responses to a public health crisis like the national opioid epidemic.

Measure 13.1.1b reflects activities aimed at increasing the utility and value of the NSSP and its platform by increasing the coverage of the data captured within the platform. Coverage measures the nationwide percentage of emergency department (ED) visits that are received on the BioSense Platform, and does not include the volume of inpatient, urgent care, and other outpatient visits that some facilities transmit along with the ED visits. As of November 2018, CDC received approximately 64% (exceeding the 60% target) of the nation's emergency department visits live on the BioSense Platform. In 2017, CDC refined both the definition of an active facility (continuously and consistently transmitting ED visit data) and the method used to account for these in order to gain a more accurate measure of emergency department facilities providing data to the BioSense Platform. The increase in coverage, in conjunction with these new criteria developed, ensures more high quality data being received to better inform national public health situational awareness and local public health response management.

Performance Measures for Long Term Objective: Enhance and sustain nationwide and international laboratory capacity to gather, ship, and screen and test samples for public health threats and to conduct research and development that lead to interventions for such threats

Measure	Most Recent Result and Target	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
13.3.1: Sustain the percentage of Laboratory Response Network (LRN) laboratories that have demonstrated ability to rapidly detect select biological threat agents (Output)	FY 2018: 97% Target: 92% (Target Exceeded)	92%	92%	Maintain

Performance Trends: Laboratory Response Network proficiency testing ensures laboratories within the network have the ability to rapidly identify biological threat agents. This includes performing LRN assays using agent-specific testing algorithms and available electronic resources to submit results. In FY 2018, CDC exceeded the expected target passing rate by more than five percent for LRN laboratories participating in proficiency testing (Measure 13.3.1). Future targets will remain fixed at 92% due to the increased complexity of proficiency testing protocols and the release of new assays, both of which are expected to challenge future pass rates.

Strategic National Stockpile

The Strategic National Stockpile (SNS) manages and delivers life-saving medical countermeasures (MCMs) during a public health emergency. It is the largest federally owned repository of pharmaceuticals, critical medical supplies, Federal medical Stations (FMS), and medical equipment available for rapid delivery to support federal, state, and local response to health security threats. In FY 2019, the SNS was transferred from CDC to the Office of the Assistant Secretary for Preparedness and Response (ASPR). Please see the Public Health and Social Services Emergency Fund Congressional Justification for additional information.

WORKING CAPITAL FUND

Performance Measures for Working Capital Fund

Measure	Most Recent Result	FY 2019 Target	FY 2020 Target	FY 2020 +/- FY 2019
15.2.2 Maintain the percent of invoices paid on time (Efficiency)	FY 2018: 99.8% Target: 98% (Target Exceeded)	98%	98%	Maintain
15.5.1 Maintain the variance between annual revenues and annual costs (Efficiency)	FY 2018: 0.5% Target: 1% (Target Exceeded)	3%	3%	Maintain
15.5.2 Maintain the variance between estimated and actual cost (Efficiency)	FY 2018: 0.1% Target: 2% (Target Exceeded)	1%	1%	Maintain
15.5.3 Decrease the percent of bills that require correction (Efficiency)	FY 2018: 0% Target: 10% (Target Exceeded)	9% ¹	9%	Maintain

¹ Due to the nature of monthly WCF bills, a 5% target requires 100% accuracy. CDC proposes a target of 9%, which allows for minimal corrections.

Performance Trends: CDC’s Office of the Chief Operating Officer actively supports CDC’s goals and customers through fiscal stewardship and financial strategy by providing financial services, budgetary and legislative guidance, and quality assurance. CDC has secured an unqualified audit opinion on the agency’s financial statements each year since FY 1999.

The Office of Management and Budget's Prompt Payment rule requires federal agencies to pay vendors in a timely manner and assesses late interest penalties against agencies that pay vendors after a payment due date. CDC has maintained a 99% prompt payment level since FY 2013 (Measure 15.2.2). CDC will continue to exceed the 98% requirement of on time payments by ensuring program offices, the acquisition office, and the payment office communicate with each other and the agency's vendors.

CDC’s Working Capital Fund (WCF) aims to achieve greater efficiency and transparency through the provision of Agency-wide business services. Currently, CDC estimates costs for business services 18 months prior to final fiscal year obligations being made. CDC initially established targets for Measure 15.5.1 to align with its baseline of one percent from the first year of operating the WCF. However, data over the next few years of operations have shown that the 2014 result was an outlier and not an appropriate target. The FY 2018 target for Measure 15.5.1 was adjusted to better reflect what is currently achievable. Although the target was exceeded in FY 2018, CDC will maintain this target in FY 2020 due to the nature of the work and expected variances over time.

In measuring performance from a Center, Institute, Office (CIO) perspective in FY 2018, the original cost estimate varied 0.1% from the actual costs charged (Measure 15.5.2). In FY 2016 and FY 2017, CDC exceeded the target for this performance measure and consequently lowered the FY 2019 target to one percent. CDC will maintain this target in FY 2020, as it remains at a level of the highest efficiency. Due to continued process improvements, CDC also exceeded its target of 10% for Measure 15.5.3 for monthly bills requiring correction. As a result, CDC reduced the FY 2019 target to 9% and will maintain that performance in FY 2020. This reduction in the target is due to the nature of monthly billing. If a set of bills is incorrect in one month, the results are greater than five percent, requiring 100% accuracy and therefore not realistically achievable.

FY 2020 DISCONTINUED MEASURES TABLE

Measure ID 1.6.1: Increase the number of public health laboratories monitoring influenza virus resistance to antiviral drugs (Output)

FY	Target	Result
2020	Discontinued	N/A
2018	21	Jan 31, 2019
2017	21	21 (Target Met)
2016	21	21 (Target Met)
2015	21	24 (Target Exceeded)
2014	18	24 (Target Exceeded)

CDC is no longer collecting this data and will retire measure 1.6.1.

Measure ID 2.1.8: Reduce the proportion of persons with an HIV diagnosis at later stages of disease within three months of diagnosis (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	21.6 %	Nov 30, 2021
2018	21.6 %	Nov 30, 2020
2017	21.6 %	Nov 30, 2019
2016	22.3 %	21.3% (Target Exceeded)
2015	22.9 %	21.6% (Target Exceeded)
2014	23.5 %	22.6 % (Target Exceeded)

CDC will retire Measure 2.1.8 because of limitations with the data reported. Data for this measure comes from the National HIV Surveillance System (NHSS) which is a dynamic surveillance system in which data are continually reported. Because of this, data for the last 2-3 years changes as it will reflect new diagnoses being reported for recent and previous years and additional laboratory data for recent and previous diagnoses. This may give the appearance that late stage diagnoses has declined over time when they may not have.

Measure ID 2.7.2a: Reduce the percentage of high-risk women aged 16–20 infected with chlamydia (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	11.75 %	Feb 1, 2020
2018	11.75 %	Feb 1, 2020
2017	11.75 %	Feb 1, 2019
2016	11.75 %	12.3 % (Target Not Met but Improved)
2015	11.93 %	13.4 % (Target Not Met but Improved)

FY	Target	Result
2014	12.11 %	13.9 % (Target Not Met)

CDC will retire Measure 2.7.2a and replace it with a national level indicator that better reflects CDC’s contribution to the prevention of Chlamydia infections. CDC activities have a greater impact on Chlamydia screenings as opposed to Chlamydia infection rates. Additionally, this measure is not aligned with other strategies to prevent Chlamydia infections.

Measure ID 2.7.2b: Reduce the percentage of high-risk women aged 21–24 infected with chlamydia (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	8.32 %	Feb 1, 2021
2018	8.32 %	Feb 1, 2020
2017	8.32 %	Feb 1, 2019
2016	8.32 %	7.4 % (Target Exceeded)
2015	8.46 %	8.5 % (Target Not Met)
2014	7.6 %	7.2 % (Target Exceeded)

CDC will retire Measure 2.7.2a because it does not accurately reflect the scope of CDC's activities to prevent Chlamydia infections. CDC activities have a greater impact on Chlamydia screenings as opposed to Chlamydia infection rates. Additionally, this measure is not aligned with other strategies to prevent Chlamydia infections.

Measure ID 2.7.4a: Reduce the rate of gonorrhea per 100,000 population in women aged 16–20 (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	523.9	Nov 30, 2020
2018	523.9	Nov 30, 2019
2017	523.9	680.8 (Target Not Met)
2016	524.6	586 (Target Not Met)
2015	572.9	537 (Target Exceeded)
2014	587.6	523.9 (Target Exceeded)

Measure 2.74a will be retired because it is not a direct measure of gonorrhea incidence. Additionally, CDC’s activities to prevent gonorrhea more directly impact gonorrhea screening.

Measure ID 2.7.4b: Reduce the rate of gonorrhea per 100,000 population in women aged 21–24 (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	511.8	Nov 30, 2020
2018	511.8	Nov 30, 2019

FY	Target	Result
2017	511.8	654.8 (Target Not Met)
2016	507.7	573 (Target Not Met)
2015	519.61	523.9 (Target Not Met)
2014	524.2	508.1 (Target Exceeded)

Measure 2.74a will be retired because it is not a direct measure of gonorrhea incidence. Additionally, CDC’s activities to prevent gonorrhea more directly impact gonorrhea screening.

Measure ID 2.7.4c: Reduce the racial disparity of gonorrhea in women aged 16–24 (is black: white) (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	9.5 :1 ratio	Nov 30, 2020
2018	9.5 :1 ratio	Nov 30, 2019
2017	10.1 :1 ratio	8.1:1 ratio (Target Exceeded)
2016	10.1 :1 ratio	8.4 :1 ratio (Target Exceeded)
2015	10.6 :1 ratio	9.5 :1 ratio (Target Exceeded)
2014	12.7 :1 ratio	10.3 :1 ratio (Target Exceeded)

The black/white ratio, used in Measure 2.7.4c, is a problematic way to measure disparities (higher disease rates can reduce the ratio in some instances). Because of this, CDC will retire this measure.

Measure ID 2.7.6a: Increase the proportion of sexually active women aged 16–20 enrolled in Medicaid health plans who are screened for Chlamydia infections (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	62.5 %	Oct 31, 2020
2018	62.5 %	Oct 31, 2019
2017	62.5 %	57.2% (Target Not Met but Improved)
2016	62.5 %	56.4 % (Target Not Met but Improved)
2015	61.1 %	51.2 % (Target Not Met)
2014	63.6 %	52.3 % (Target Not Met)

CDC will retire Measure 2.7.6a and replace it with a national level indicator that better reflects CDC’s contribution to the prevention of Chlamydia infections. CDC does not have a direct impact on this measure.

Measure ID 2.7.6b: Increase the proportion of sexually active women aged 16–20 enrolled in commercial health plans who are screened for Chlamydia infections (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	66 %	Oct 31, 2020
2018	66 %	Oct 31, 2019
2017	43.5 %	45.8% (Target Exceeded)
2016	43.5 %	44.3 % (Target Exceeded)
2015	48.8 %	42.4 % (Target Not Met)
2014	53.8 %	42.7 % (Target Not Met but Improved)

CDC will retire Measure 2.7.6a and replace it with a national level indicator that better reflects CDC’s contribution to the prevention of Chlamydia infections. CDC does not have a direct impact on this measure.

Measure ID 2.7.6c: Increase the proportion of sexually active women aged 21–24 enrolled in Medicaid health plans who are screened for Chlamydia infections (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	66 %	Oct 31, 2020
2018	66 %	Oct 31, 2019
2017	66 %	65.5% (Target Not Met but Improved)
2016	66 %	64.9 % (Target Not Met but Improved)
2015	73.2 %	60.1 % (Target Not Met)
2014	74.7 %	62 % (Target Not Met)

CDC will retire Measure 2.7.6a and replace it with a national level indicator that better reflects CDC’s contribution to the prevention of Chlamydia infections. CDC does not have a direct impact on this measure.

Measure ID 2.7.6d: Increase the proportion of sexually active women aged 21–24 enrolled in commercial health plans who are screened for Chlamydia infections (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	52.7 %	Oct 31, 2020
2018	52.7 %	Oct 31, 2019
2017	52.7 %	56.4% (Target Exceeded)
2016	52.7 %	54.8 % (Target Exceeded)
2015	59.2 %	52.4 % (Target Not Met but Improved)

FY	Target	Result
2014	60.7 %	52.1 % (Target Not Met but Improved)

CDC will retire Measure 2.7.6a and replace it with a national level indicator that better reflects CDC’s contribution to the prevention of Chlamydia infections. CDC does not have a direct impact on this measure.

Measure ID 3.2.3: Decrease the proportion of hospitals with carbapenem-resistant *Klebsiella spp.* or *Escherichia coli (E.coli)* healthcare-associated infections (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	8.5 %	Nov 30, 2020
2018	9 %	Nov 30, 2019
2017	5.3 %	N/A
2016	5.7 %	9.5 % (Target Not Met but Improved)
2015	6.5 %	10.2 % (Target Not Met)
2014	6.7 %	8.3 % (Target Not Met)

Measure 3.2.3 will be retired and replaced with a measure that better reflects the current prevalence of the two most common carbapenem- resistant bacteria that cause CLABSI or CAUTI in adult intensive care units (ICUs) across the U.S. It will also align with CDC's prevention efforts.

Measure ID 3.2.4a: Reduction in community-onset *Clostridioides difficile* infections standardized infection ratio (SIR) (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	0.700	N/A
2018	0.750	N/A
2017	0.760	N/A
2016	0.840	N/A
2015	Set Baseline	1.000 (Baseline)
2014	Set Baseline	1.000 (Baseline)

There is not enough data captured from community-onset healthcare facilities to calculate a reliable SIR. CDC will retire measure 3.2.4a.

Measure ID 4.11.1: Reduce the age-adjusted percentage of adults (age 18+) diagnosed with arthritis that are physically inactive in states funded by the CDC Arthritis Program. (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	29.4 %	Aug 31, 2020
2018	29.5 %	Aug 31, 2019
2017	27.3 %	Aug 31, 2018

FY	Target	Result
2016	27.8 %	28.8 % (Target Not Met but Improved)
2015	27.8 %	31.9 % (Target Not Met)
2014	N/A	29.4 % (Historical Actual)

Measure 4.11.1 uses data from a Notice of Funding Opportunity (NOFO) that ended in FY 2018. The subsequent Arthritis Program NOFO will include a new set of funded states and Measure 4.11.1 is not best aligned with these activities.

Measure ID 10.E.1: Increase the percentage of outbreak and possible Public Health Emergencies of International Concern assistance requests that are handled in a timely manner (Outcome)

FY	Target	Result
2020	Discontinued	N/A
2019	83 %	Jan 31, 2020
2018	83 %	Jan 31, 2019
2017	83 %	99% (Target Met)
2016	83 %	62 % (Target Not Met)
2015	83 %	63 % (Target Not Met but Improved)
2014	80 %	59 % (Target Not Met)

Measure 10.E.1 will be retired and replaced with a measure that is indicative of a country’s and CDC’s ability to quickly respond to a disease outbreak and ideally lessen its impact.

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SUPPLEMENTAL TABLE

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OBJECT CLASS TABLE – DIRECT¹

(dollars in thousands)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Personnel Compensation:				
Full-Time Permanent (11.1)	\$738,892	\$726,949	\$726,949	\$0
Other than Full-Time Permanent (11.3)	\$106,949	\$105,221	\$105,221	\$0
Other Personnel Comp. (11.5)	\$36,436	\$35,847	\$35,847	\$0
Military Personnel (11.7)	\$75,057	\$73,844	\$75,764	\$1,920
Special Personal Service Comp. (11.8)	\$7,415	\$7,295	\$7,295	\$0
Total Personnel Compensation	\$964,749	\$949,155	\$951,075	\$1,920
Civilian personnel Benefits (12.1)	\$293,486	\$288,742	\$288,742	\$0
Military Personnel Benefits (12.2)	\$45,205	\$44,475	\$45,631	\$1,156
Benefits to Former Personnel (13.0)	\$383	\$377	\$377	\$0
Subtotal Pay Costs	\$1,303,824	\$1,282,749	\$1,285,826	\$3,076
Travel (21.0)	\$42,385	\$41,700	\$23,528	-\$18,172
Transportation of Things (22.0)	\$10,963	\$10,786	\$6,085	-\$4,700
Rental Payments to GSA (23.1)	\$4,662	\$4,587	\$2,632	-\$1,954
Rental Payments to Others (23.2)	\$624	\$614	\$347	-\$268
Communications, Utilities, and Misc. Charges (23.3)	\$7,574	\$7,452	\$4,205	-\$3,247
NTWK Use Data TRANSM SVC (23.8)	\$19	\$18	\$10	-\$8
Printing and Reproduction (24.0)	\$2,122	\$2,088	\$1,178	-\$910
Other Contractual Services (25)	<u>\$1,800,262</u>	<u>\$1,771,163</u>	<u>\$1,089,512</u>	<u>\$681,651</u>
<i>Advisory and Assistance Services (25.1)</i>	\$679,290	\$668,311	\$411,104	-\$257,206
<i>Other Services (25.2)</i>	\$172,505	\$169,717	\$104,399	-\$65,317
<i>Purchases from Government Accounts (25.3)</i>	\$820,913	\$807,644	\$496,814	-\$310,830
<i>Operation and Maintenance of Facilities (25.4)</i>	\$21,896	\$21,543	\$13,252	-\$8,291
<i>Research and Development Contracts (25.5)</i>	\$37,187	\$36,586	\$22,506	-\$14,081
<i>Medical Services (25.6)</i>	\$26,235	\$25,811	\$15,877	-\$9,934
<i>Operation and Maintenance of Equipment (25.7)</i>	\$39,351	\$38,715	\$23,815	-\$14,900
<i>Subsistence and Support of Persons (25.8)</i>	\$0	\$0	\$0	\$0
<i>Consultants, other and misc (25.9)</i>	\$2,883	\$2,837	\$1,745	-\$1,092
Supplies and Materials (26.0)	\$213,084	\$209,639	\$189,957	-\$19,683
Equipment (31.0)	\$68,723	\$67,612	\$61,263	-\$6,349
Land and Structures (32.0)	\$10,663	\$10,491	\$9,397	-\$1,094
Investments and Loans (33.0)	\$0	\$0	\$0	\$0
Grants, Subsidies, and Contrib	\$3,118,956	\$3,068,543	\$2,540,547	-\$527,996
Insurance Claims and Indemnities (42.0)	\$449	\$441	\$395	-\$46
Interest and Dividends (43.0)	\$0	\$0	\$0	\$0
Refunds (44.0)	\$0	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$5,280,484	\$5,195,134	\$3,929,056	-\$1,266,077
Total Budget Authority	\$6,584,308	\$6,477,883	\$5,214,882	-\$1,263,001
Average Cost per FTE				
Civilian FTEs	10,184	10,074	10,103	29
Civilian Average Salary and Benefits	\$115	\$113	\$112	-\$0.3
Percent change	N/A	-2%	0%	2%
Military FTEs	837	806	806	0
Military Average Salary and Benefits	\$141	\$139	\$143	\$4
Percent change	N/A	-2%	3%	4%
Total FTE^{1,2}	11,021	10,880	10,909	29
Average Salary and Benefits	\$117	\$115	\$115	\$2
Percent change	N/A	-2%	0%	2%

¹ The FY 2018 FTE levels include the Strategic National Stockpile (SNS). FY 2019 and FY 2020 FTE levels reflect the transfer of SNS to the Office of the Assistant Secretary for Preparedness and Response (ASPR). The FY 2019 and FY 2020 FTE levels may not align with levels in MAX.

² Total FTEs represents Direct and Working Capital Fund (WCF) FTE. ATSDR and Reimbursable employees are not included.

OBJECT CLASS TABLE – REIMBURSABLE

Object Class	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Personnel Compensation:			
Full-Time Permanent (11.1)	\$13,169	\$20,267	\$22,294
Other than Full-Time Permanent (11.3)	\$5,366	\$8,257	\$9,083
Other Personnel Comp. (11.5)	\$1,641	\$2,526	\$2,779
Military Personnel (11.7)	\$2,927	\$4,505	\$4,956
Special Personal Service Comp. (11.8)	\$189	\$291	\$320
Total Personnel Compensation	\$23,293	\$35,846	\$39,431
Civilian Personnel Benefits (12.1)	\$6,413	\$9,870	\$10,857
Military Personnel Benefits (12.2)	\$1,925	\$2,962	\$3,258
Benefits to Former Personnel (13.0)	\$16	\$25	\$27
Subtotal Pay Costs	\$31,647	\$48,703	\$53,574
Travel (21.0)	\$4,424	\$6,808	\$7,489
Transportation of Things (22.0)	\$1,234	\$1,899	\$2,089
Rental Payments to GSA (23.1)	\$404	\$622	\$684
Rental Payments to Others (23.2)	\$102	\$157	\$173
Communications, Utilities, and Misc. Charges (23.3)	\$424	\$651	\$716
Printing and Reproduction (24.0)	\$44	\$68	\$75
Other Contractual Services (25):			
Advisory and Assistance Services (25.1)	\$40,477	\$62,293	\$68,522
Other Services (25.2)	\$4,257	\$6,552	\$7,207
Purchases from Government Accounts (25.3)	\$17,400	\$26,778	\$29,456
Operation and Maintenance of Facilities (25.4)	\$26	\$40	\$44
Research and Development Contracts (25.5)	\$382	\$588	\$647
Medical Services (25.6)	\$2,115	\$3,254	\$3,580
Operation and Maintenance of Equipment (25.7)	\$2,332	\$3,589	\$3,948
Subsistence and Support of Persons (25.8)	\$0	\$0	\$0
Consultants, other and misc (25.9)	\$68	\$104	\$115
Subtotal Other Contractual Services	\$67,058	\$103,199	\$113,519
Supplies and Materials (26.0)	\$71,125	\$109,459	\$120,404
Equipment (31.0)	\$2,007	\$3,089	\$3,397
Land and Structures (32.0)	\$0	\$0	\$0
Investments and Loans (33.0)	\$0	\$0	\$0
Grants, Subsidies, and Contributions (41.0)	\$5,978	\$9,200	\$10,121
Insurance Claims and Indemnities (42.0)	\$8,454	\$13,010	\$14,311
Interest and Dividends (43.0)	\$0	\$0	\$0
Refunds (44.0)	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$161,253	\$248,162	\$272,977
Total Budget Authority	\$192,900	\$296,865	\$326,551
Reimbursable FTEs	271	271	271
Military FTEs	44	44	44
Total FTEs	315	315	315

OBJECT CLASS TABLE – PREVENTION AND PUBLIC HEALTH FUND^{1,2}

(dollars in thousands)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 PB +/- FY 2019
Personnel Compensation:				
Full-Time Permanent(11.1)	\$19,009	\$19,095	\$21,151	\$2,056
Other than Full-Time Permanent (11.3)	\$1,678	\$1,685	\$1,866	\$181
Other Personnel Comp. (11.5)	\$1,076	\$1,081	\$1,197	\$116
Military Personnel (11.7)	\$1,067	\$1,072	\$1,188	\$115
Special Personal Service Comp. (11.8)	\$0	\$0	\$0	\$0
Total Personnel Compensation	\$22,830	\$22,933	\$25,402	\$2,469
Civilian personnel Benefits (12.1)	\$7,071	\$7,103	\$7,867	\$765
Military Personnel Benefits (12.2)	\$545	\$548	\$607	\$59
Benefits to Former Personnel (13.0)	\$0	\$0	\$0	\$0
Subtotal Pay Costs	\$30,446	\$30,583	\$33,876	\$3,292
Travel (21.0)	\$825	\$829	\$918	\$89
Transportation of Things (22.0)	\$112	\$112	\$124	\$12
Rental Payments to GSA (23.1)	\$0	\$0	\$0	\$0
Rental Payments to Others (23.2)	\$3	\$3	\$3	\$0
Communications, Utilities, and Misc. Charges (23.3)	\$115	\$115	\$127	\$12
NTWK Use Data TRANSM SVC (23.8)	\$0	\$0	\$0	\$0
Printing and Reproduction (24.0)	\$118	\$118	\$131	\$13
Other Contractual Services (25):	<u>\$110,886</u>	<u>\$111,384</u>	<u>\$123,375</u>	<u>\$13,416</u>
Advisory and Assistance Services (25.1)	\$78,999	\$79,354	\$88,912	\$9,558
Other Services (25.2)	\$1,929	\$1,937	\$2,171	\$233
Purchases from Government Accounts (25.3)	\$28,519	\$28,647	\$32,097	\$3,450
Operation and Maintenance of Facilities (25.4)	\$498	\$500	\$560	\$60
Research and Development Contracts (25.5)	\$306	\$307	\$344	\$37
Medical Services (25.6)	\$0	\$0	\$0	\$0
Operation and Maintenance of Equipment (25.7)	\$618	\$621	\$695	\$75
Subsistence and Support of Persons (25.8)	\$0	\$0	\$0	\$0
Consultants, other and misc (25.9)	\$18	\$18	\$21	\$2
Supplies and Materials (26.0)	\$45,168	\$45,371	\$50,255	\$4,884
Equipment (31.0)	\$476	\$430	\$481	\$51
Land and Structures (32.0)	\$984	\$988	\$1,095	\$106
Investments and Loans (33.0)	\$0	\$0	\$0	\$0
Grants, Subsidies, and Contributions (41.0)	\$612,160	\$614,912	\$682,528	\$67,616
Insurance Claims and Indemnities (42.0)	\$84	\$84	\$93	\$9
Interest and Dividends (43.0)	\$0	\$0	\$0	\$0
Refunds (44.0)	\$0	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$770,454	\$773,917	\$860,074	\$86,158
Total Budget Authority²	\$800,900	\$804,500	\$893,950	\$89,450
Average Cost per FTE				
Civilian FTEs	230	230	230	0
Civilian Average Salary and Benefits	\$125	\$126	\$139	\$14
Percent change	N/A	0.5%	11%	10%
Military FTEs	20	20	20	0
Military Average Salary and Benefits	\$81	\$81	\$90	\$9
Percent change	N/A	0.5%	11%	10%
Total FTEs	250	250	250	0
Average Salary and Benefits	\$122	\$122	\$136	\$13
Percent change	N/A	0.5%	11%	10%

¹ PPHF FTEs based on direct hire estimates

² PPHF Civilian Avg. Salary only includes partial compensation

SALARIES AND EXPENSES¹

(dollars in thousands)	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget	FY 2020 +/- FY 2019
Personnel Compensation:				
Full-Time Permanent(11.1)	\$738,892	\$726,949	\$726,949	\$0
Other than Full-Time Permanent (11.3)	\$106,949	\$105,221	\$105,221	\$0
Other Personnel Comp. (11.5)	\$36,436	\$35,847	\$35,847	\$0
Military Personnel (11.7)	\$75,057	\$73,844	\$75,764	\$1,920
Special Personal Service Comp. (11.8)	\$7,415	\$7,295	\$7,295	\$0
Total Personnel Compensation	\$964,749	\$949,155	\$951,075	\$1,920
Civilian personnel Benefits (12.1)	\$293,486	\$288,742	\$288,742	\$0
Military Personnel Benefits (12.2)	\$45,205	\$44,475	\$45,631	\$1,156
Benefits to Former Personnel (13.0)	\$383	\$377	\$377	\$0
Subtotal Pay Costs	\$1,303,824	\$1,282,749	\$1,285,826	\$3,076
Travel (21.0)	\$42,385	\$41,700	\$23,528	-\$18,172
Transportation of Things (22.0)	\$10,963	\$10,786	\$6,085	-\$4,700
Rental Payments to Others (23.2)	\$624	\$614	\$347	-\$268
Communications, Utilities, and Misc. Charges (23.3)	\$7,574	\$7,452	\$4,205	-\$3,247
Printing and Reproduction (24.0)	\$2,122	\$2,088	\$1,178	-\$910
Other Contractual Services (25):	<u>\$1,797,378</u>	<u>\$1,768,327</u>	<u>\$1,087,768</u>	<u>-\$680,559</u>
Advisory and Assistance Services (25.1)	\$679,290	\$668,311	\$411,104	-\$257,206
Other Services (25.2)	\$172,505	\$169,717	\$104,399	-\$65,317
Purchases from Government Accounts (25.3)	\$820,913	\$807,644	\$496,814	-\$310,830
Operation and Maintenance of Facilities (25.4)	\$21,896	\$21,543	\$13,252	-\$8,291
Research and Development Contracts (25.5)	\$37,187	\$36,586	\$22,506	-\$14,081
Medical Services (25.6)	\$26,235	\$25,811	\$15,877	-\$9,934
Operation and Maintenance of Equipment (25.7)	\$39,351	\$38,715	\$23,815	-\$14,900
Subsistence and Support of Persons (25.8)	\$0	\$0	\$0	\$0
Supplies and Materials (26.0)	\$213,084	\$209,639	\$189,957	-\$19,683
Subtotal Non-Pay Costs	\$2,074,130	\$2,040,605	\$1,313,067	-\$727,538
Rental Payments to GSA (23.1)	\$4,662	\$4,587	\$2,632	-\$1,954
Total, Salaries & Expenses and Rent	\$3,382,616	\$3,327,941	\$2,601,524	(\$726,417)
Direct FTE^{1,2}	11,021	10,880	10,909	29

¹The FY 2018 FTE level includes the Strategic National Stockpile (SNS). FY 2019 and FY 2020 FTE levels reflect the transfer of SNS to the Office of the Assistant Secretary for Preparedness and Response (ASPR). The FY 2019 and FY 2020 FTE levels may not align with levels in MAX.

²Total FTEs represents Direct and Working Capital Fund (WCF) FTE. ATSDR and Reimbursable employees are not included.

CDC DETAIL OF FULL-TIME EQUIVALENT EMPLOYMENT (FTE)^{1,2}

	FY 2018			FY 2019			FY 2020		
	Civilian	CC	Total	Civilian	CC	Total	Civilian	CC	Total
Immunization and Respiratory Diseases	605	61	666	605	61	666	605	61	666
Direct	603	60	663	603	60	663	603	60	663
Reimbursable	2	1	3	2	1	3	2	1	3
HIV/AIDS, Viral Hepatitis, STI and TB Prev.	1,008	80	1,088	1,008	80	1,088	1,008	80	1,088
Direct	1,007	80	1,087	1,007	80	1,087	1,007	80	1,087
Reimbursable	1	-	1	1	-	1	1	-	1
Emerging and Zoonotic Infectious Diseases	1,141	136	1,277	1,141	136	1,277	1,141	136	1,277
Direct	1,109	132	1,241	1,109	132	1,241	1,109	132	1,241
Reimbursable	32	4	36	32	4	36	32	4	36
Chronic Disease Prevention and Health Promotion	830	14	844	830	14	844	830	14	844
Direct	767	13	780	767	13	780	767	13	780
Reimbursable	63	1	64	63	1	64	63	1	64
Birth Defects, Developmental Disabilities, Disability and Health	195	8	203	195	8	203	195	8	203
Direct	194	8	202	194	8	202	194	8	202
Reimbursable	1	-	1	1	-	1	1	-	1
Environmental Health	412	52	464	412	52	464	412	52	464
Direct	374	39	413	374	39	413	374	39	413
Reimbursable	38	13	51	38	13	51	38	13	51
Injury Prevention and Control	303	27	330	361	27	388	390	27	417
Direct	296	26	322	354	26	380	383	26	409
Reimbursable	7	1	8	7	1	8	7	1	8
Public Health Scientific Services	1330	83	1413	1330	83	1413	1330	83	1413
Direct	1,270	82	1,352	1,270	82	1,352	1,270	82	1,352
Reimbursable	60	1	61	60	1	61	60	1	61
Occupational Safety and Health	988	92	1,080	988	92	1,080	988	92	1,080
Direct	982	92	1,074	982	92	1,074	982	92	1,074
Reimbursable	6	-	6	6	-	6	6	-	6
Global Health	1,096	184	1,280	1,096	184	1,280	1,096	184	1,280
Direct	1,039	162	1,201	1,039	162	1,201	1,039	162	1,201
Reimbursable	57	22	79	57	22	79	57	22	79
Public Health Preparedness and Response	551	91	642	383	60	443	383	60	443
Direct	547	90	637	379	59	438	379	59	438
Reimbursable	4	1	5	4	1	5	4	1	5
Cross-Cutting Activities and Program Support	1,996	53	2,049	1,996	53	2,049	1,996	53	2,049
Direct/BA	49	24	520	49	24	520	49	24	520
Direct/WCF	1,500	29	1,529	1,500	29	1,529	1,500	29	1,529
CDC Total	10,455	881	11,336	10,345	850	11,195	10,374	850	11,224
CDC Direct Total	10,184	837	11,021	10,074	806	10,880	10,103	806	10,909
CDC Reimbursable Total	271	44	315	271	44	315	271	44	315

¹ CDC FTE only. Excludes ATSDR.

² The FY 2018 FTE level includes the Strategic National Stockpile (SNS). FY 2019 and FY 2020 FTE levels reflect the transfer of SNS to the Office of the Assistant Secretary for Preparedness and Response (ASPR). The FY 2019 and FY 2020 FTE levels may not align with levels in MAX.

DETAIL OF POSITIONS^{1,2,3,4}

	FY 2018 Final	FY 2019 Enacted	FY 2020 President's Budget
Executive Level⁴			
Executive level I			
Executive level II			
Executive level III			
Executive level IV			
Executive level V			
Subtotal			
Total-Executive Level Salary			
ES 6			
ES-5			
ES-4			
ES-3			
ES-2			
ES-1	33		
Total - SES		28	27
Total - SES Salary	\$5,136,027	\$4,874,172	\$5,085,579
GS-15	767	730	717
GS-14	2,107	2,009	1,970
GS-13	3,192	3,018	2,973
GS-12	1,620	1,471	1,475
GS-11	795	775	769
GS-10	38	35	34
GS-9	532	542	499
GS-8	55	47	48
GS-7	423	279	267
GS-6	44	38	38
GS-5	140	131	127
GS-4	27	10	9
GS-3	3	2	2
GS-2	0	0	0
GS-1	0	0	0
Subtotal	9,743	9,087	8,928
Total - GS Salary	\$951,658,766	\$949,263,202	\$980,071,417
Average ES level			
Average ES salary			
Average GS grade	12.0	12.0	12.0
Average GS salary	\$97,676	\$104,464	\$109,775
Average Special Pay Categories			
Average Comm. Corps Salary	\$92,112	\$97,136	\$101,391
Average Wage Grade Salary	\$60,012	\$61,859	\$67,297

¹ Includes special pays and allowances

² Totals do not include reimbursable FTEs

³ This table reflects "positions" not full-time equivalent(s) (FTEs)

⁴ Executive level data not available

PROGRAMS PROPOSED FOR ELIMINATION

The following table lists the programs proposed for elimination in the FY 2020 President's Budget request. Following the table is a brief summary of each program and the rationale for its elimination.

Program	FY 2019 Enacted (in millions)
Tobacco	\$210.0
Preventive Health and Health Services Block Grant	\$160.0
Diabetes	\$148.1
Heart Disease and Stroke	\$140.1
Nutrition, Physical Activity, and Obesity	\$56.9
Racial and Ethnic Approaches to Community Health (REACH)	\$56.0
Prevention Research Centers	\$25.5
Arthritis	\$11.0
Amyotrophic Lateral Sclerosis Registry	\$10.0
Climate Change	\$10.0
Injury Control Research Centers	\$9.0
Epilepsy	\$8.5
Academic Centers for Public Health Preparedness	\$8.2
Hospitals Promoting Breastfeeding	\$8.0
National Lupus Patient Registry	\$7.5
Prion Disease	\$6.0
Chronic Fatigue Syndrome	\$5.4
National Early Child Care Collaboratives	\$4.0
Million Hearts	\$4.0
Glaucoma	\$4.0
Excessive Alcohol Use	\$4.0
Chronic Kidney Disease	\$2.5
Elderly Falls	\$2.1
Harmful Algal Blooms	\$1.0
Trevor's Law	\$1.0
Visual Screening Education	\$1.0
Inflammatory Bowel Disease	\$1.0
Interstitial Cystitis	\$1.0
Total Reduction Amount	\$905.8

Tobacco (-\$210.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding for the Tobacco program. Tobacco activities will be funded from the proposed America's Health Block Grant.

Preventive Health and Health Services Block Grant (-\$160.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for the Preventive Health and Health Services Block Grant (PHHSBG). When the PHHSBG was first authorized in 1981, there were minimal resources within CDC's budget allocated for categorical programs such as heart disease, diabetes, immunizations, and obesity, and many states did not receive funding from CDC to support prevention of chronic disease. The Budget continues the proposal of the new five-year block grant program, *America's Health*, which will provide flexibility to grantees and focus on the leading public health challenges faced by states, tribes, localities, and territories.

Diabetes (-\$148.1 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding for the Diabetes program. Diabetes activities will be funded from the proposed America's Health Block Grant.

Heart Disease and Stroke (-\$140.1 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding for the Heart Disease and Stroke program. Heart Disease and Stroke activities will be funded from the proposed America's Health Block Grant.

Nutrition, Physical Activity, and Obesity (-\$56.9 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding for the Nutrition, Physical Activity, and Obesity program. Nutrition, Physical Activity, and Obesity activities will be funded from the proposed America's Health Block Grant.

Racial and Ethnic Approaches to Community Health (-\$56.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for the Racial and Ethnic Approaches to Community Health (REACH) program. Existing disease-based activities will be integrated into a new Block Grant to increase flexibility to States and Tribes to more efficiently and effectively address the leading causes of death and disability specific to each State. State, local, or tribal recipients of the *America's Health* Block Grant will continue work on the leading causes of death and disability in these communities.

Prevention Research Centers (-\$25.5 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for the Prevention Research Centers (PRCs), which works with academic institutions to conduct research and disseminate prevention interventions across the United States. In FY 2017, CDC funded PRCs at 26 universities in 24 states to study how individuals and communities can avoid or counter the risks for chronic illnesses. The National Institutes of Health (NIH) also supports research on chronic diseases, including prevention research. CDC's chronic disease prevention portfolio will continue to focus on implementation of the most effective existing interventions.

Arthritis (-\$11.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding for the Arthritis program. Arthritis activities will be funded from the proposed America's Health Block Grant.

Amyotrophic Lateral Sclerosis Registry (-\$10.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate the Amyotrophic Lateral Sclerosis (ALS) registry and the related research program. NIH-funded research on ALS will continue. External researchers may still use biospecimens previously obtained from the ALS biorepository. The Budget would eliminate funding for extramural researcher-initiated studies to explore the causes of ALS and potential risk factors and the registry.

Climate and Health (-\$10.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate direct funding to states regarding the health effects of climate change through the Climate and Health program. States will continue to have access to other funds that would allow them to prepare and respond to public health

emergencies, including natural disasters and adverse weather events. The Budget would eliminate funding for 18 state and local health departments and six tribal and territorial organizations.

Injury Control Research Centers (-\$9.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for the Injury Control Research Centers (ICRCs). CDC supported 10 ICRCs to conduct research and evaluation activities related to the health and economic impact of injury and violence as well as the improvement of injury prevention practices. Elimination of this program prioritizes funding for CDC's broader injury prevention and control portfolio.

Academic Centers for Public Health Preparedness (-\$8.2 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for the Academic Centers for Public Health Preparedness. CDC will work with awardees to prioritize preparedness activities, while also maintaining support for research and training for public health preparedness through the public health preparedness and response research agenda. CDC will also continue to support evaluation of awardee activities and assessments such as the Operational Readiness Review and will use these analyses to inform training and guidance to the public health preparedness field.

Hospitals Promoting Breastfeeding (-\$8.0 million)

The FY 2019 Budget carries forward the FY 2019 President's Budget proposal to eliminate dedicated funding for the Hospitals Promoting Breastfeeding program. This program was created in FY 2012, funded by the Prevention and Public Health Fund. This program promotes and supports evidence-based strategies in states, communities, and hospitals to help women who choose to breastfeed to start and continue breastfeeding. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote breastfeeding as a way to prevent obesity and type 2 diabetes.

Prion Disease (-\$6.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for Prion Disease activities. Prion diseases are a group of rare brain diseases affecting humans and animals that are uniformly fatal. Prion activities have been proposed for elimination to focus surveillance and monitoring activities on a broader range of high consequence pathogens and emerging diseases. Public health preventive measures recently instituted by the USDA will further reduce the risk of exposure to the U.S. population from Prion diseases. NIH also supports research of Prion diseases.

Chronic Fatigue Syndrome (-\$5.4 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate funding for Chronic Fatigue Syndrome (CFS) activities. CFS affects between one and four million people in the United States. CDC's CFS program works with states and experienced clinicians to develop tools to gather and analyze surveillance data and to educate clinicians and the public on the results of evidence-based studies. NIH has been funded to conduct biomedical research on CFS. CDC will prioritize funding to programs that support a broad range of diseases to maximize effectiveness in this limited-resource environment.

National Early Child Care Collaboratives (-\$4.0 million)

The FY 2020 Budget eliminates dedicated funding for the National Early Child Care Collaboratives program, which has previously been funded by the Prevention and Public Health Fund. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote similar prevention activities in the Early Child Care and Education (ECE) setting as a way to prevent obesity. This program implements obesity prevention initiatives

targeting ECE settings to help establish and improve the healthy nutrition and physical activity habits of young children. To carry out this work, CDC supports ECE learning collaboratives in nine states to facilitate best practices in nutrition, breastfeeding support, physical activity, and screen time.

Million Hearts (-\$4.0 million)

The FY 2019 Budget carries forward the FY 2019 President's Budget proposal to eliminate dedicated funding for the Million Hearts® program, which has previously been funded by the Prevention and Public Health Fund. This program is a collaboration between CDC and the Centers for Medicare and Medicaid Services (CMS) to enhance cardiovascular disease prevention activities across the public and private sector.

Glaucoma (-\$4.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate dedicated funding for glaucoma.

Excessive Alcohol Use (-\$4.0 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate dedicated funding for excessive alcohol use.

Chronic Kidney Disease (-\$2.5 million)

The FY 2020 Budget carries forward the FY 2019 President's Budget proposal to eliminate dedicated funding for Chronic Kidney Disease.

Elderly Falls (-\$2.1 million)

The FY 2020 Budget eliminates funding for the Elderly Falls program. Other agencies across the U.S. government and other key stakeholders invest in research and prevention programs to address Elderly Falls, and the materials that CDC has developed to support clinicians who treat older patients at risk for falls will remain available.

Harmful Algal Blooms (-\$1.0 million)

The FY 2020 Budget eliminates dedicated funding for Harmful Algal Bloom activities.

Trevor's Law (-\$1.0 million)

The FY 2020 Budget eliminates dedicated funding for Trevor's Law activities.

Visual Screening Education (-\$1.0 million)

The FY 2020 Budget eliminates dedicated funding for Visual Screening Education activities.

Inflammatory Bowel Disease (-\$1.0 million)

The FY 2020 Budget eliminates dedicated funding for Inflammatory Bowel Disease activities.

Interstitial Cystis (-\$1.0 million)

The FY 2020 Budget eliminates dedicated funding for Interstitial Cystis activities.

CDC FULL TIME EQUIVALENTS FUNDED BY THE AFFORDABLE CARE ACT, P.L. 111-148

(dollars in millions)	ACA Sec.	2010 Total	2010 FTEs	2011 Total	2011 FTEs	2012 Total	2012 FTEs	2013 Total	2013 FTEs	2014 Total	2014 FTEs	2015 Total	2015 FTEs	2016 Total	2016 FTEs	2017 Total	2017 FTEs	2018 Total	2018 FTEs	2019 Total	2019 FTEs	2020 FTEs	2020 Total
PPHF Program ^{1,2}																							
Healthcare-associated Infections (HAI)	400 2	N/A	N/A	\$11.8	1.2	\$11.8	5.0	\$11.8	0.0	\$12.0	6.4	\$12.0	6.4	\$12.0	6.4	\$12.0	6.4	\$12.0	6.4	\$12.0	6.4	\$12.0	6.4
Million Hearts	400 2	N/A	N/A	\$0.0	0.0	\$0.0	2.2	\$4.6	0.3	\$4.0	2.1	\$4.0	2.1	\$4.0	2.1	\$4.0	2.1	\$4.0	2.1	\$4.0	2.1	\$4.0	2.1
National Early Care Collaboratives	400 2	N/A	N/A	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$4.0	1.0	\$4.0	1.0	\$4.0	1.0	\$4.0	1.0	\$4.0	1.0	\$4.0	1.0	\$4.0	1.0
Public Health Workforce	400 2	N/A	N/A	\$25.0	51.8	\$25.0	176.3	\$15.6	91.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0
America's Health Block Grant	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antibiotic Resistance Initiative	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		N/A	N/A	\$36.8	53.0	\$36.8	183.5	\$32.0	91.3	\$20.0	9.5	\$20.0	9.5	\$20.0	9.5	\$20	9.5	\$20	9.5	\$20	9.5	\$20	9.5

¹ Excludes employees or contractors who: Are supported through appropriations enacted in laws other than PPACA and work on programs that existed prior to the passage of PPACA; Spend less than 50% of their time on activities funded by or newly authorized in ACA; or who work on contracts for which FTE reporting is not a requirement of their contract, such as fixed price contracts.

² CDC tracks total contract costs for ACA activities in the Affordable Care Act Object Class Table but does not track individual contract staff.

(dollars in millions)	ACA Sec.	2010 Total	2010 FTEs	2011 Total	2011 FTEs	2012 Total	2012 FTEs	2013 Total	2013 FTEs	2014 Total	2014 FTEs	2015 Total	2015 FTEs	2016 Total	2016 FTEs	2017 Total	2017 FTEs	2018 Total	2018 FTEs	2019 Total	2019 FTEs	2020 Total	2020 FTEs
ACA Program ^{1,2}																							
Childhood Obesity PL 114-10	4306	N/A	N/A	\$0.0	1.8	\$0.0	2.0	\$0.0	1.1	\$0.0	1.1	\$0.0	0.0	\$10.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0	\$0.0	0.0
Medical Monitoring in Libby, MT	1032 3	N/A	N/A	N/A	N/A	N/A	N/A	\$4.0	1.1	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9
Total		N/A	N/A	\$0	1.8	\$0	2.0	\$4.0	2.2	\$4.0	2.0	\$4.0	0.9	\$14.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9	\$4.0	0.9

¹Excludes employees or contractors who: Are supported through appropriations enacted in laws other than PPACA and work on programs that existed prior to the passage of PPACA; Spend less than 50% of their time on activities funded by or newly authorized in ACA; or who work on contracts for which FTE reporting is not a requirement of their contract, such as fixed price contracts.²CDC tracks total contract costs for ACA activities in the Affordable Care Act Object Class Table but does not track individual contract staff.

PHYSICIANS' COMPARABILITY ALLOWANCE (PCA) WORKSHEET

1) Department and component:

Centers For Disease Control and Prevention

2) Explain the recruitment and retention problem(s) justifying the need for the PCA pay authority.

(Please include any staffing data to support your explanation, such as number and duration of unfilled positions and number of accessions and separations per fiscal year.)

CDC has found that SES salaries do not meet the threshold to attract top level senior officials for critical science-focused positions who are appointed under SES. The use of PCA is critical, as it allows CDC to recruit and retain top level senior officials who possess requisite scientific expertise, and whose national/international stature command salaries which exceed the SES salary level.

3-4) Please complete the table below with details of the PCA agreement for the following years:

	PY 2018 (Actual)	CY 2019 (Estimates)	BY* 2020 (Estimates)
3a) Number of Physicians Receiving PCAs	1	1	1
3b) Number of Physicians with One-Year PCA Agreements	0	0	0
3c) Number of Physicians with Multi-Year PCA Agreements	1	1	1
4a) Average Annual PCA Physician Pay (without PCA payment)	179700	179700	179700
4b) Average Annual PCA Payment	30000	30000	30000

*BY data will be approved during the BY Budget cycle. Please ensure each column is completed.

5) Explain the degree to which recruitment and retention problems were alleviated in your agency through the use of PCAs in the prior fiscal year.

(Please include any staffing data to support your explanation, such as number and duration of unfilled positions and number of accessions and separations per fiscal year.)

The use of PCA has enabled successful recruitment of physicians to key positions at CDC. It is anticipated that the failure to offer PCA to CDC physicians could would have a negative impact on CDC's global mission.

6) Provide any additional information that may be useful in planning PCA staffing levels and amounts in your agency.

The need will remain to pay PCA to any new physicians appointed under SES. Market pay will be utilized for all new accessions for physicians appointed under Title 5.

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CDC SPECIFIC ITEMS

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CDC DRUG CONTROL PROGRAM AGENCY

RESOURCE SUMMARY

	(in Millions)		
	FY 2018 Final CA	FY 2019 Enacted	FY 2020 President's Budget
Drug Resources by Function			
Prevention	\$475.579	\$475.579	\$475.579
Total Drug Resources by Function	\$475.579	\$475.579	\$475.579
Drug Resources by Decision Unit			
Opioid Abuse and Overdose Prevention	\$475.579	\$475.579	\$475.579
Total Drug Resources by Decision Unit	\$475.579	\$475.579	\$475.579
Drug Resources Personnel Summary			
Total FTEs (Direct Only) ¹	51	109	138
Drug Resources as a Percent of Budget			
Total Agency Budget ^{2,3}	\$7,625.208	\$7,282.383	\$6,531.832
Drug Resources Percentage	6.24%	6.53%	7.28%

¹ Includes vacancies.

² Excludes ATSDR and mandatory programs.

³ Includes funding from the Prevention and Public Health Fund, PHS Evaluation and NEF Direct Transfers.

Program Summary

Mission

The Centers for Disease Control and Prevention (CDC) serves as the nation’s public health agency and exercises its expertise in developing and applying disease prevention and control, environmental health, and health promotion and health education activities designed to improve the health of the people of the United States. CDC plays a critical role in opioid overdose prevention by strengthening surveillance, helping providers improve prescribing practices, and working to identify and scale up effective interventions. CDC’s funding initiatives equip state health departments with resources to combat the epidemic. CDC uses data to drive action to prevent and address opioid overdoses as well as other negative health effects of this epidemic.

CDC has tailored its response as the epidemic continues to evolve. For example, in response to the rise in deaths attributable to illicit opioids, CDC is strengthening surveillance and response to inform and engage public safety and substance use treatment efforts addressing illicit opioids and polysubstance use and abuse. CDC also has initiated efforts at the community and local levels to empower consumers to make safe choices and as well as efforts to reach vulnerable populations (e.g., Tribes and rural communities).

CDC helps support the National Drug Control Strategy through its surveillance activities and by advancing data-driven prevention strategies to address opioid use, misuse, and overdose.

CDC works to prevent opioid-related harms and overdose deaths by:

1. Conducting surveillance and research
2. Building state, local, and tribal capacity
3. Supporting providers, health systems, and payers
4. Partnering with public safety
5. Empowering consumers to make safe choices

These pillars align with and crosscut the Department of Health and Human Services strategies to combat the opioid crisis and work to accomplish the same goals through a public health approach.

Methodology

The CDC methodology for determining the drug control budget was established using the amount appropriated for the Opioid Abuse and Overdose Prevention Program (previously the Prescription Drug Overdose and Illicit Opioid Use Risk Factors Programs) under the Department of Defense and Labor, Health and Human Services and Education Appropriations Act, 2019, and Continuing Appropriations Act, 2019, P.L. 115-245.

CDC is committed to an approach that protects the public’s health and prevents opioid overdose deaths. CDC’s activities supported through appropriations focus on fighting the opioid overdose epidemic by improving data quality and surveillance to monitor and respond to the epidemic, strengthening state efforts by scaling up effective public health interventions, and supplying healthcare providers with the data, tools, and guidance needed to improve the safety of their patients. In addition to educating providers, CDC raises awareness about the risks of prescription opioids among patients and the general public. CDC also is leveraging and strengthening collaboration with partners in other sectors, including but not limited to, public safety and those engaged with substance use disorder treatment.

Budget Summary

The FY 2020 drug control request for the Centers for Disease Control and Prevention of **\$475,579,000** is level with the FY 2019 Enacted.

Opioid Abuse and Overdose Prevention

FY 2020 Request: \$475.579 million

Over 399,000 people have died from overdoses involving prescription or illicit opioids in the United States from 1999 through 2017. More than 70,000 Americans died from drug overdoses in 2017 alone -- averaging 192 Americans dying every day. Deaths are only part of the problem: for each death involving prescription opioids, hundreds more are abusing or misusing those drugs.

CDC’s funding initiatives equip state health departments with resources to combat the epidemic. CDC uses data to drive action to prevent and address opioid overdoses as well as other negative health effects of this epidemic. To that end, this request outlines activities in four broad categories, which capitalize on CDC’s scientific expertise:

1. State, Territorial, Tribal, and Partner Support
2. Communication, Education, and Training
3. Health Systems, Health Information Technology, and Surveillance Improvements
4. Building the Evidence Base Through Science

State, Territorial, and Tribal, and Partner Support

CDC works to strengthen surveillance and prevention activities in all 50 states, territories, tribes and within communities. In FY 2020, CDC will support recipients along the trajectory of moving from data to action. Funded program components focus on two interrelated components: surveillance and prevention. CDC will move science to action by partnering with states, localities, territories, and tribes to implement innovative strategies. Investments will allow funded jurisdictions to build upon promising work already underway. In addition, enhancements will be made to increase surveillance capabilities for polysubstance use and abuse, which will continue to strengthen prevention efforts within high-risk communities and populations.

Funded jurisdictions will also improve their ability to identify and track timely data on key risk factors and substances contributing to drug overdose death trends by:

- Abstracting, analyzing and disseminating data gleaned from a variety of sources (detailed information on toxicology, enhanced surveillance efforts with medical examiner/coroner reporting, death scene investigations, and other circumstances surrounding death)
- Promoting the use of prescription drug monitoring program (PDMP) data to inform action (e.g., provider use of PDMP data at patient level encounters)
- Amplifying messaging within states to educate about the risks associated with opioids
- Strengthening prevention activities at the community level for a more customized response
- Conducting a rigorous evaluation of interventions being implemented in CDC's state programs to help us adjust and scale programs throughout the United States.

Intervention strategies will address both prescription and illicit opioids, and may address drugs to the extent that they are associated with and/or exacerbate the opioid overdose epidemic (e.g., cocaine mixed with fentanyl). Efforts will support integration of state and local prevention and response efforts, provide support for providers and health systems prevention (including use of PDMPs as a clinical decision support tool), enhance partnerships with public safety and first responders, establish and improve linkages to Medication-Assisted Treatment (MAT) and other supportive services, and empower individuals to make informed choices.

CDC will also expand community-based projects, which enhance partnerships with public safety including collaborating with the Office of National Drug Control Policy (ONDCP). CDC has partnered with ONDCP to provide funding for 13 community-based projects as part of the Heroin Response Strategy's Combatting Opioid Overdose through Community-level Intervention (COOCLI). This effort will support implementation of innovative strategies within a targeted geographic area with the aim of building the evidence base for response activities that other communities can employ. Projects include efforts on post-overdose strategies to link people to care using patient navigators and recovery coaches; justice-involved populations and access to MAT; buprenorphine induction in the emergency department; neo-natal abstinence syndrome; and Adverse Childhood Experiences (ACE).

Finally, CDC will support upstream prevention programs, capitalizing on the interdependent relationship between ACEs and substance abuse disorders. This includes expanding ACEs data collection and working with local public health departments in communities experiencing high rates of drug overdoses or suicide to implement and test a comprehensive community approach for the primary and secondary prevention of ACEs in order to reduce opioid overdoses or suicides.

Communication, Education, and Training

One of CDC's priorities is raising awareness about the risks of prescription opioid misuse. The aim is to implement primary prevention strategies, such that individuals reduce their risk of opioid misuse, abuse, or opioid use disorder. To provide individuals with the resources and information they need to make informed choices, CDC's Rx Awareness campaign features testimonials from people recovering from opioid use disorder and people who have lost loved ones to opioid overdose. The goal of the campaign is to educate the public about the risks of prescription opioids and the importance of discussing safer and more effective pain management with their healthcare providers. CDC is also promoting awareness of risks associated with non-medical use of opioids, factors that increase risks (such as fentanyl in the local drug supply), and approaches to reduce risks.

CDC will work to enhance the Rx Awareness campaign in three main areas: (1) expanding campaign product development (including messages for special populations and risk groups) and additional focus on polysubstance and illicit use and abuse, (2) increasing dissemination efforts (including through state programs), and (3) evaluation. This will complement the existing communications efforts in which states are currently engaged.

Health Systems, Health Information Technology, and Surveillance Improvements

CDC will continue to encourage uptake and use of CDC's opioid prescribing guideline for chronic pain within and across clinical settings. Examples of proposed activities could include expanding quality improvement and coordinated care implementation strategies beyond primary care setting, incorporating the guideline into electronic health records (EHR) through clinical decision support tools, and continued efforts around PDMP and EHR integration. Efforts also include conducting data analysis to advance the science around effective health system strategies. This also will be used to build on previous investments to expand guidance around acute pain and indication specific guidance.

Building the Evidence Base Through Science

CDC will continue to support efforts to develop and/or rigorously evaluate primary or secondary preventive interventions that address prescription and illicit overdose, including polysubstances. Funded research projects may include those that address interventions that integrate public health and public safety approaches, enhance linkage of those with opioid use disorder to treatment, improve opioid prescribing behavior, risk and protective factors related to co-use of prescription opioids and heroin, engagement of employers as means for intervention delivery, or social determinants and community barriers to effective prevention or recovery. Additionally, CDC may support research that further examines the link between substance abuse and ACEs and suicide.

Performance

In Fiscal Year 2019, CDC released a new funding announcement, Data to Action Opioid Overdose Prevention in States, for which all states, territories, and select cities are eligible to compete. Program implementation is anticipated to span three years. Recipients will use this funding to build on previously funded efforts to get high quality, more comprehensive, and timelier data on opioid prescribing, morbidity, and mortality, and to then use those data to inform response and prevention efforts at the state and local level. There are two overall required components of this award – a surveillance component and a prevention component. The FY 2020 budget request will strengthen prevention and surveillance activities across all 50 states, Washington, D.C, localities, territories, and in tribal communities.

All grantees will be required to monitor and evaluate metrics related to the opioid epidemic.

SIGNIFICANT ITEMS

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SIGNIFICANT ITEMS IN FY 2019 APPROPRIATIONS REPORT - CONFERENCE

Significant items for inclusion in the FY 2020 Centers for Disease Control and Prevention Congressional Justification from Conference Rept. 115-952.

Infectious Diseases and the Opioid Epidemic

The conferees include \$5,000,000 for a new initiative targeting infectious disease consequences of the opioid epidemic. The conferees direct CDC to focus efforts on improving surveillance, treatment, and education efforts around hepatitis B, hepatitis C, and HIV infections as it relates to the opioid epidemic. CDC is directed to prioritize funding for those areas most at risk for outbreaks of HIV and hepatitis due to injection drug use. (Page 525, C. Rept. 115-952)

Action taken or to be taken

CDC shares the Congress's concerns about the serious consequences of the opioid crisis and is working across its Centers and Offices to coordinate its response.

Fueled by the crisis, a substantial increase in injection drug use is causing a dramatic rise in hepatitis C infections and threatening our progress in reducing HIV. CDC is investing in states to increase testing for viral hepatitis and HIV in high-impact settings, and, where needed, to refer people for substance use disorder treatment. CDC is also ensuring quality implementation of comprehensive community-based programs that prevent and treat infections and overdose deaths, provide prevention education and support, and ensure people are linked to care.

Specific activities include:

- Targeting resources to local communities and supporting state health departments to address identified risks for increasing viral hepatitis and HIV infections, especially in communities with limited services and high burden of infections and overdose; and
- Providing technical assistance nationwide on the implementation of comprehensive preventive services with a particular focus on reducing infectious disease transmission among people who inject drugs.

The prioritized outcomes of these investments are to:

- Reduce new infections of viral hepatitis and HIV.
- Reduce overdose.
- Reduce morbidity and mortality of viral hepatitis and HIV.

Opioid Prescription Drug Overdose (PDO) Prevention Activity

The conferees include \$475,579,000 for the CDC's PDO activities, the same as the fiscal year 2018 funding level. CDC shall continue to use the provided funds to advance the understanding of the opioid overdose epidemic and scale up prevention activities across all 50 states, Washington, D.C., territories, and Tribes, as well as extend eligibility to local health departments. In addition, CDC shall use \$10,000,000 of the funds provided to conduct a nationwide opioid awareness and education campaign. The conferees direct CDC to adhere to guidance included in House report 115-862 and Senate report 115-289 relating to the CDC's PDO activities. (Page 527, C. Rept. 115-952)

Action taken or to be taken

CDC appreciates the Committee's continued support in advancing the understanding of the opioid overdose epidemic and scaling up prevention activities. CDC is committed to ending the opioid crisis by improving data

quality and tracking trends while providing states with the best data and prevention methods to protect patients and communities.

In addition to providing resources to all 50 states, CDC is scaling-up efforts to ensure both prevention and surveillance activities are in all 50 states, Washington, D.C., territories, and select localities. For example, CDC published the Overdose Data to Action Notice of Funding Opportunity in FY 2019 to support recipients in getting timely, high-quality, and comprehensive data on opioid prescribing, morbidity, and mortality, and to then use those data to inform response and prevention efforts at the state and local level. CDC is committed to strengthening our partnerships with local city and county health departments in fighting the epidemic. The new funding will continue to provide resources to states, territories, and tribes, while also expanding to select high burden localities to ensure that surveillance and prevention are inextricably linked, and data is directly and immediately informing prevention efforts.

With regard to the nationwide opioid awareness and education campaign, CDC plans to: maintain and expand the online resource exchange hub so states can continue to tailor the latest messaging; expand product development of new messages for targeted audiences; update the campaign as needed to ensure it stays current and effective; and increase media events, television and radio spots, and digital promotion of ads.

Coal Workers' Health Surveillance

CDC shall provide a report on the Coal Workers' Surveillance Program as outlined in section 238 of division B of H.R. 6157 as passed by the Senate on August 23, 2018. (Page 528, C. Rept. 115-952)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Mesothelioma

The conferees provide \$100,000 to initiate a feasibility study for a patient registry, which would include developing case finding methodology to determine incidence and prevalence, demographics, and risk factors. The conferees expect CDC to submit a report to the Committees on Appropriations of the House of Representatives and the Senate after conclusion of the feasibility study. (Page 528, C. Rept. 115-952)

Action taken or to be taken

CDC plans to provide the Committee with the requested information.

SIGNIFICANT ITEMS IN FY 2019 APPROPRIATIONS REPORT - HOUSE

Significant items for inclusion in the FY 2020 Centers for Disease Control and Prevention Congressional Justification from House Rept. 115-862.

Latent TB Infection

CDC estimates that there are up to 13 million individuals in the US with latent TB infection. The identification and preventive treatment of individuals with TB infection would prevent future active TB cases, reducing future healthcare costs. The Committee again urges the Director to support State and local TB programs to effectively identify and treat latent TB infection cases. (Page 36, H. Rept. 115-862)

Action taken or to be taken

CDC appreciates the Committee's interest in our tuberculosis (TB) work. Up to 13 million people in the U.S. have latent TB infection, which does not have symptoms and cannot be transmitted. Five to ten percent of these people will develop TB disease. In fact, most—more than 80%—of U.S. TB cases result from reactivated latent TB infection (LTBI), often many years after initial exposure. The elimination of TB in the United States can be achieved through domestic activities to address LTBI in conjunction with a focus on controlling TB. In FY 2018, CDC provided approximately \$75 million to state, local, and territorial health department TB programs.

To meet the goal of TB elimination, CDC is implementing several projects that will inform new efforts in targeted testing and treatment for latent TB infection (LTBI), improving CDC's ability to adequately support state and local TB programs. These include:

- CDC's 10 TB Epidemiologic Studies Consortium sites are working with providers who serve high-risk communities to increase testing and treatment for latent TB infection.
- CDC funded a two-year pilot to look at the feasibility and effectiveness of health departments partnering with local federally qualified health centers to implement targeted testing and treatment for LTBI for high-risk populations. The pilot program health department increased the number of people tested for LTBI and is now working to increase the proportion of infected persons who complete LTBI therapy. This pilot will inform LTBI testing and treatment efforts in 2020.
- CDC works with other federal agencies, professional associations, and community health centers to implement the U.S. Preventive Services Task Force recommendation specifying LTBI testing for at-risk individuals.
- To measure progress in the expansion of latent TB infection testing and treatment, CDC is working with external experts and state TB programs to guide data collection on testing and treatment for latent TB infection from 9 sentinel sites in 2020 and will report results in 2021.

Viral Hepatitis

The Committee is concerned that as a result of the opioid epidemic, infections of viral hepatitis have spiked in many parts of the nation, including a 233 percent increase in infections nationwide since 2010. Even though the HBV vaccine is more than 90 percent effective, there were over 41,000 new HBV infections in 2016. The Committee notes that the link between viral hepatitis infection and primary liver cancer is well-established, with up to 60 percent of global liver cancer cases caused by HBV. The Committee notes that in 2017 the National Academies of Sciences, Engineering, and Medicine (NASEM) report entitled "A National Strategy for the Elimination of Hepatitis B and C" made a series of recommendations for vaccination, higher rates of diagnosis, care, and treatment. The Committee urges CDC, in cooperation with the leading national viral hepatitis organizations, to develop a plan to implement the NASEM recommendations to achieve the goal of the elimination of hepatitis B and C. The Committee also requests a report on CDC's plan for implementation of the NASEM recommendations within 90 days of enactment of this Act. (Page 37, H. Rept. 115-862)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Antibiotic Resistance Solutions Initiative

The Committee recognizes the importance of addressing antibiotic-resistant bacteria through a “One Health” approach, simultaneously combating antibiotic resistance in human, animal, and environmental settings. The Committee encourages CDC to competitively award research activities that address aspects of antibiotic resistance related to “OneHealth” among entities, including public academic medical centers, veterinary schools with agricultural extension services, and State public health departments whose proposals are in line with CDC’s strategy for addressing antibiotic resistant bacteria. The Committee requests that CDC provide an updated spend plan to the Committee within 30 days of enactment of this Act and include an update on these efforts in the fiscal year 2020 Congressional Justification. The Committee encourages CDC to prevent spread by enhancing State, local, and regional public health capacity to prevent, detect, and respond to new and existing antibiotic resistance faster and to develop a national capacity to identify and catalog microbial genome sequences, paying attention to antibiotic resistant microbes. Finally, the Committee encourages CDC to continue to pursue research opportunities in the area of antimicrobial stewardship in diverse healthcare settings and encourage regional collaborations to study the most effective strategies to improve antibiotic prescribing and stewardship. (Page 38, H. Rept. 115-862)

Action taken or to be taken

CDC plans to submit an updated spend plan to the Committee as requested.

CDC recognizes that antibiotic resistance (AR) is a One Health problem in that antimicrobial resistant infections (AMR) in humans are connected to the AMR in animals and the environment. In FY 2019, CDC awarded more than \$15 million to 41 private and academic investigators to develop and evaluate innovative solutions to protect people from AR. The awards are among the most diverse the agency has ever awarded and span the One Health continuum, covering topics that relate to humans, animals, and the environment.

Through these projects, CDC and investigators will:

- Analyze antibiotic-resistant germs and genes in water systems and the environment, and their contribution to human infections.
- Assess and promote the use of new diagnostic, sequencing, and metagenomics tools for AR detection and improved antibiotic use.
- Better understand domestic and international AR transmission and colonization in order to prevent the spread of antibiotic-resistant germs.
- Investigate the human microbiome and how it relates to AR.
- Improve antibiotic stewardship.

These projects will help better detect AR, inform treatment and prevention recommendations, and prevent the spread of antibiotic-resistant infections.

CDC also continues to support comprehensive infrastructure to combat AR in every state. Increased capacity in state and local health departments is vital to more rapidly detect and respond to outbreaks and emerging resistance related to healthcare-associated infections, foodborne bacteria, and gonorrhea.

In addition, CDC’s AR Laboratory Network supports nationwide lab capacity to rapidly detect AR and to inform local responses. The AR Lab Network includes seven regional labs, the National Tuberculosis Molecular Surveillance Center, and labs in 50 states, five cities, and Puerto Rico. This network generates, receives, and analyzes actionable data, including whole genome sequencing, on multiple AR threats, including carbapenem-

resistant Enterobacteriaceae (CRE), *Candida auris*, tuberculosis, and *Neisseria gonorrhoeae*. Through a 50-state investment in PulseNet, the AR Lab Network also performs whole-genome sequencing on *Salmonella*, *Campylobacter*, and *E. coli* isolates and monitors these isolates for resistance genes.

CDC continues to partner with NIH and FDA to expand the NIH National Database of Resistant Pathogens. The web-based, open-access database contains genomic data for more than 205,000 pathogen isolates collected from publicly available information. In addition, CDC and NIH continue to sequence high priority reference strains, as identified by CDC and FDA, to inform the development of new diagnostic tests and drugs.

CDC is constantly looking for novel ways to improve antibiotic prescribing and use. CDC's Core Elements of Antibiotic Stewardship provides a framework for antibiotic stewardship programs and practices in outpatient settings, nursing homes, hospitals, including small hospitals in rural areas, and in healthcare settings in low- and middle-income countries.

CDC supports researchers throughout the United States to identify strategies to improve antibiotic use across the spectrum of healthcare, including in hospitals, urgent care, nursing homes, adult primary care, and adult and pediatric outpatient clinics. For example, The University of Utah and Intermountain Healthcare are working to address the unique challenges and opportunities of improving antibiotic use in adult and pediatric urgent care. Improving the way healthcare providers prescribe antibiotics—and the way patients use antibiotics— helps keep patients healthy now, helps fight AR, and ensures that these life-saving drugs will work when they are needed most.

Understanding that an interconnected world allows for resistant germs to quickly cross borders, CDC has also initiated smaller scale work globally in order to identify and implement strategies to stop the spread of resistant infections in countries around the world. Such work is critical to prevent the introduction of emerging resistant pathogens into the United States.

Eye Health and Safety

The Committee is aware of CDC's long history in research related to keratitis outbreaks and contact lens-related infections and applauds the development of the healthy contact lens program. The Committee is also aware of concerns raised in the medical community regarding rules regulating the sale of contact lenses, which are Food and Drug Administration (FDA) Class II and III medical devices. Given these developments, the Committee directs CDC to update both its 2010 report, *Estimated Burden of Keratitis*, to include the most recent data available and its 2016 survey and reporting related to risk behaviors for contact lens-related eye infections. In addition, the Committee encourages CDC to work with relevant professional societies to leverage data from qualified clinical data registries on contact lens adverse events, including those that do not result in permanent loss of vision, to better inform the understanding of the risks associated with contact lens wear. (Page 38, H. Rept. 115-862)

Action taken or to be taken

CDC works diligently to provide contact lens wearers with information on risk behaviors that can lead to eye infections. CDC provides web-based resources for healthcare professionals and lens wearers, including posters, fact sheets, infographics, digital and social media, and shareable videos (e.g., patient video testimonials) available at <https://www.cdc.gov/contactlenses/index.html>. In August of 2018, CDC issued a report on *Corneal Infections Associated with Sleeping in Contact Lenses* (https://www.cdc.gov/mmwr/volumes/67/wr/mm6732a2.htm?s_cid=mm6732a2_w).

CDC currently receives support for the Healthy Contact Lens Program through an annual contribution from the Contact Lens Institute. As part of a strategic planning process for FY 2019, CDC is considering how best to align resources to continue to provide updated information about contact lens-related infections, such as keratitis. CDC is exploring opportunities to assess the current burden of keratitis in the U.S. through collaboration with professional groups in order to harness the available data, including utilizing data which is available to other

researchers. Through this effort we will work towards updating the Estimated Burden of Keratitis report as well as our survey and reporting related to risk behaviors for contact lens-related eye infections.

Racial and Ethnic Approaches to Community Health

The Committee includes \$32,000,000 within Racial and Ethnic Approaches to Community Health to significantly expand the Good Health and Wellness in Indian Country program. The Good Health initiative supports efforts by American Indian and Alaska Native communities to implement holistic and culturally-adapted approaches to reduce tobacco use, improve physical activity and nutrition, and increase health literacy. The Committee requests an update on CDC’s plans for this expansion within 60 days of enactment of this Act. (Page 42-43, H. Rept. 115-862)

Action taken or to be taken

CDC plans to provide the committee with an update as requested.

Sepsis

The Committee encourages CDC to increase its public awareness, outreach, and education efforts on sepsis, including health provider outreach and other related activities to prevent sepsis and improve early recognition and management of sepsis. The Committee requests CDC provide a report on its activities to improve public awareness of sepsis in the fiscal year 2020 Congressional Justification. (Page 43, H. Rept. 115-862)

Action taken or to be taken

Sepsis, the body’s extreme response to an infection, is a life-threatening medical emergency. Each year, at least 1.7 million adults in America develop sepsis and nearly 270,000 Americans die as a result of sepsis. While preventing infections is critical to reduce the risk of sepsis, early recognition and timely treatment can be the difference between life and death. CDC works year round to raise awareness of sepsis, as well as to provide the scientific expertise, data, and epidemiology to inform programs, practices, and policies to prevent infections that can lead to sepsis and promote early recognition of sepsis. CDC works closely with partners on sepsis efforts, including leaders in the clinical field, and organizations and families representing patients with sepsis.

In September 2017, and in conjunction with Sepsis Awareness Month, CDC launched Get Ahead of Sepsis, a national educational effort to protect Americans from the devastating effects of sepsis. This initiative emphasizes the importance of early recognition and timely treatment of sepsis, as well as the importance of preventing infections that can lead to sepsis.

Through the end of 2018, Get Ahead of Sepsis garnered more than 56 million media impressions by way of 7 public service announcements in both English and Spanish. Campaign successes also included:

- Over 116 million consumers and health care professionals reached via media channels.
- 5.4 million consumers reached via Blog Tour.
- Over 800,000 visits to CDC’s sepsis website, a 120% increase in CDC sepsis website views.
- More than 150,000 Get Ahead of Sepsis materials downloaded from CDC’s sepsis website.
- 3,100 visits to CDC’s Get Ahead of Sepsis Partner Toolkit.

According to a survey CDC conducted to measure the effectiveness of Get Ahead of Sepsis, 71% of respondents who saw CDC’s messaging said they searched for more information about sepsis and more than 50% of the respondents who saw CDC’s messaging said they asked a healthcare professional for more sepsis information.

In 2018, in addition to efforts to raise sepsis awareness, CDC also:

- Deployed Get Ahead of Sepsis messaging through CDC's Be Antibiotics Aware educational effort. This effort aims to help improve antibiotic prescribing and use, and ensures antibiotics remain effective in the treatment of common infections and sepsis.
- Released the "Hospital Toolkit for Adult Sepsis Surveillance," which provides healthcare facilities with tools to assess adult sepsis incidence and monitor progress in their facilities.
- Supported research and published several peer-reviewed manuscripts addressing sepsis burden, sepsis epidemiology, sepsis and antimicrobial stewardship, sepsis outcomes, sepsis surveillance, and describing the critical role that public health agencies have in the fight against sepsis.
- Began to develop a surveillance definition for pediatric sepsis and identify opportunities to improve early recognition of sepsis in pediatric patients.

In recognition of CDC's contributions to the field, the Global Sepsis Alliance honored CDC with its 2018 Global Sepsis Award for exemplary efforts to increase U.S. awareness for sepsis and support of the World Health Assembly/World Health Organization sepsis resolution.

In FY 2019 and FY 2020, CDC will continue efforts to describe national sepsis epidemiology in adults and children; continue to promote sepsis early recognition and timely treatment; and integrate sepsis efforts with antimicrobial stewardship programs to promote timely and appropriate use of antibiotics in treating infections, like those that can lead to sepsis. CDC will also continue to study the risk factors for sepsis and encourage infection prevention through infection control, vaccination programs, chronic disease management, and appropriate antibiotic use. CDC will leverage existing CDC-funded networks of academic centers for research and evaluation of interventions for early recognition of sepsis and improving sepsis-related outcomes.

Surveillance for Emerging Threats to Mothers and Babies

The Committee includes \$10,000,000 for Surveillance for Emerging Threats to Mothers and Babies, as proposed in the fiscal year 2019 budget request. This new initiative will build upon surveillance through the Zika pregnancy and infant registry to monitor the long-term impact of Zika and can be leveraged for other emerging infectious diseases and emerging threats. The Committee requests an update on this new initiative within 60 days of enactment of this Act. (Page 44-45, H. Rept. 115-862)

Action taken or to be taken

CDC will provide the committee with the requested update.

Child Sexual Abuse Prevention

It is estimated that 15 to 25 percent of girls and 5 to 10 percent of boys will experience child sexual abuse. While the Federal Government has invested in treatment for victims and punishment for offenders, the Committee recognizes the value of also investing in prevention. The Committee requests that the Center for Injury Prevention and Control report on its current activities related to the development and evaluation of primary public health interventions targeting child sexual abuse. Additionally, the Committee asks that the Center identify gaps in research that can be filled to promote child sexual abuse primary prevention, as well as what resources would be needed to conduct such research. The Center shall provide a report to the Committee within 180 days of enactment of this act. (Page 48, H. Rept. 115-862)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Biomonitoring

The Committee directs CDC to examine how to utilize Biomonitoring Equivalents, or similar methods, to interpret and communicate human biomonitoring results from the National Biomonitoring Program in a health risk assessment context, including an estimate of the resources needed, and report their findings to the Committee within 90 days of enactment of this Act. (Page 52, H. Rept. 115-862)

Action taken or to be taken

CDC plans to provide the Committee with the requested information.

Foundation for the CDC

The Committee directs the Foundation for the Centers for Disease Control and Prevention (“Foundation”) to abide by section 399G(h)(7) of the Public Health Service Act by including in the Foundation’s annual report the source and amount of all monetary gifts to the Foundation, as well as the source and description of all gifts of real or personal property. Each annual report shall disclose a specification of any restrictions on the purposes for which gifts to the Foundation may be used. The annual report shall not list “anonymous” as a source for any gift that includes a specification of any restrictions on the purpose for which the gift may be used. (Page 52, H Rept. 115-862)

Action taken or to be taken

The CDC Foundation intends to prepare a report on gifts to the Foundation, including monetary gifts and gifts of real or personal property. CDC will assist with the report as needed.

Public Health Information

The Committee notes limited information is available which compares controlled substances transactions reported to the Drug Enforcement Administration (DEA) with available public health information collected by the CDC. The Committee encourages CDC to incorporate on its website addressing opioid overdose, DEA data from the Automated Reports and Consolidated Ordering System Retail Drug Summary Report. The Committee further encourages CDC to include an interactive map to view current data provided by the DEA displaying the amount of grams of fentanyl, hydrocodone, oxycodone and other controlled substances that have been shipped to each State. The website should also include accessible and frequently updated CDC data on overdose death rates and the incidence rates of HIV, Hepatitis A, B, and C for each State in an interactive manner that allows users to compare on the same page, the amounts of drugs distributed with public health morbidities. The Committee requests an update on this effort in the fiscal year 2020 Congressional Justification. (Page 52, H. Rept. 115-862)

Action taken or to be taken

CDC appreciates the Committee’s interest and concern about the provision of information related to opioid overdoses and prevention. In 2017, 70,237 drug overdose deaths occurred in the United States. Almost 400,000 Americans have lost their lives to opioid overdoses since 1999. CDC partners with public safety officials, including law enforcement, to address the growing illicit opioid problem and is committed to providing public health and law enforcement professionals and communities with the data they need. For example, to better connect public safety with public health, CDC funds states to pursue innovative public-safety partnerships that leverage data, such as ODMaps, which links first responders to a mapping tool to track overdoses and therefore help provide real-time responses across jurisdictions; and RxStat, a model that helps partners have a shared understanding of patterns and characteristics of drug use—including prescription opioid misuse—in a local jurisdiction.

More linkages to DEA data in an interactive format could provide additional detail, but would also be quite resource intensive to develop and maintain. Based on Congressional direction and given the need in communities for primary prevention of opioid overdose and abuse, CDC is prioritizing grants to states and localities.

CDC is committed to providing communities with data to aid in decision making. CDC regularly publishes data on its website that includes opioid overdose deaths and non-fatal opioid overdoses treated in emergency departments, as well as data on infectious disease outbreaks linked to opioid use and abuse. CDC also publishes data in scientific journals to help ensure this information is disseminated in a timely manner.

Global Health Research Strategy

The Committee requests an update in the fiscal year 2020 Congressional Justification on how CDC, FDA, BARDA, and NIH—including the Fogarty International Center—jointly coordinate global health research activities. The update should include specific metrics used to track progress and collaboration toward agreed upon health goals. (Page 117, H. Rept. 115-862)

Action taken or to be taken

CDC coordinates global health research with NIH's Institutes, FDA and BARDA in areas of mutual interest with broad implications for public health. CDC also actively participates on the Fogarty International Center's Advisory Board, which provides coordination for the entire NIH global health research portfolio. These collaborative activities address the HHS Global Health Objectives to enhance surveillance, prevent health threats, prepare for emergencies, strengthen international standards, catalyze research, strengthen health systems, and address changing disease patterns.

CDC is engaged in the development of innovative laboratory diagnostic tools, ranging from point-of-care diagnostics to advanced molecular tests, for Ebola and other viral hemorrhagic fever viruses. With regulatory oversight by the FDA, CDC works with its partners, NIH, BARDA, and DoD, for the approval for use process. These activities help detect infectious disease threats at an early stage and also prevent them from reaching the United States. Additionally, the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) provides global interagency coordination between CDC, FDA, BARDA and NIH to enhance chemical, biological, radiological and nuclear threats and emerging infectious disease preparedness.

CDC is engaged with many partners, including NIH, DoD and the State Department, in the design and development of sustainable forward-deployed laboratories to more rapidly detect and characterize potential infectious disease threats of significant concern to the United States as part of our efforts to organize effective response measures in the event of a public health emergency. CDC coordinates global health security activities with other USG agencies in accordance with Executive Order 13747 as well as at the country level through interagency teams convened by the Ambassador.

CDC participates in a broad inter-agency partnership with NIH and FDA, coordinated by BARDA, for the advanced development of influenza vaccines leading to the eventual development of a "universal vaccine" that would offer better, broader and longer-lasting protection against both seasonal and novel influenza viruses. CDC also leads efforts to reduce the burden of influenza through vaccination in the nearer term by increasing the use of current vaccines (vaccine coverage) and the use of more effective vaccines produced using already available production platforms. These types of advances are applicable to vaccines for other infectious diseases too, such as Ebola, Zika, Dengue, and Chikungunya.

SIGNIFICANT ITEMS IN FY 2019 APPROPRIATIONS REPORT - SENATE

Significant items for inclusion in the FY 2020 Centers for Disease Control and Prevention Congressional Justification from Senate Rept. 115-289.

Open Access to Federal Research

The Committee has received reports from the Office of Science and Technology Policy [OSTP] on the progress of all Federal agencies in developing and implementing policies to increase public access to federally funded scientific research. The Committee commends the agencies funded in this bill who have issued plans in response to OSTP's policy directive issued in 2013. The Committee urges the continued efforts towards full implementation of the plan, and directs agencies to provide an update on progress made in the fiscal year 2020 CJ. This will ensure that the Committee remains apprised of the remaining progress needed to make federally funded research accessible to the public as expeditiously as possible. (Page 16, S. Rept. 115-289)

Action taken or to be taken

The CDC Plan for Increasing Access to Scientific Publications and Digital Scientific Data Generated with CDC Funding is available online https://www.cdc.gov/od/science/docs/final-cdc-public-access-plan-jan-2015_508-compliant.pdf. CDC continues to work toward full implementation of the plan.

Cost Estimates

The Committee looks forward to reviewing the fiscal year 2019 report on estimated funding needs of the Section 317 Immunization Program and requests that the report be updated and submitted no later than February 1, 2019, to reflect fiscal year 2020 cost estimates. The updated report should also include an estimate of optimum State and local operations funding, as well as a discussion of the evolving role of the 317 program as expanded coverage for vaccination becomes available from private and public sources over the next several years. (Page 62, S. Rept. 115-289)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Infectious Diseases and the Opioid Epidemic

The Committee provides \$5,000,000 to CDC to support a new initiative targeting infectious disease consequences of the opioid epidemic. The Committee directs CDC to focus efforts on improving surveillance, treatment, and education efforts around hepatitis B, hepatitis C, and HIV infections as it relates to the opioid epidemic. CDC is directed to prioritize funding for those areas most at risk for outbreaks of HIV and hepatitis due to injection drug use, including the 220 counties CDC has previously identified. Further, CDC is encouraged to integrate interventions across its centers aimed at preventing, tracking, and treating infectious diseases with broader efforts to address the opioid epidemic. (Page 63, S. Rept. 115-289)

Action taken or to be taken

CDC shares the Congress's concerns about the serious consequences of the opioid crisis and is working across its Centers and Offices to coordinate its response.

Fueled by the crisis, a substantial increase in injection drug use is causing a dramatic rise in hepatitis C infections and threatening our progress in reducing HIV. CDC is investing in states to increase testing for viral hepatitis and HIV in high-impact settings, and, where needed, to refer people for substance use disorder treatment. CDC is also ensuring quality implementation of comprehensive community-based programs that prevent and treat infections and overdose deaths, provide prevention education and support, and ensure people are linked to care.

Specific activities include:

- Targeting resources to local communities and supporting state health departments to address identified risks for increasing viral hepatitis and HIV infections, especially in communities with limited services and high burden of infections and overdose; and
- Providing technical assistance nationwide on the implementation of comprehensive preventive services with a particular focus on reducing infectious disease transmission among people who inject drugs.

The prioritized outcomes of these investments are to:

- Reduce new infections of viral hepatitis and HIV.
- Reduce overdose.
- Reduce morbidity and mortality of viral hepatitis and HIV.

High Obesity Rate Counties

The Committee remains concerned about the growing body of evidence suggesting that obesity is one of the most significant challenges facing the public health system. The Committee continues to include \$15,000,000 to support the rural extension and outreach services grants for rural counties with an obesity prevalence of over 40 percent. The Committee expects CDC to work with State and local public health departments to support measurable outcomes through evidenced-based obesity research, intervention, and prevention programs. Grants should combine basic, clinical, and population research to better understand and treat the metabolic, medical, surgical, environmental, and societal implications of obesity in cooperation with partners that have existing outreach capacity to develop and implement educational and intervention programs. Preference should be given to States where at least 10 percent of counties meet the requirements of this program. In addition, CDC shall focus its efforts in areas of the country with the highest burden of obesity and with the comorbidities of hypertension, cardiac disease, and diabetes from county level data in the Behavioral Risk Factor Surveillance System. The Committee encourages CDC to support only activities that are supported by scientific evidence. (Page 70, S. Rept. 115-289)

Action taken or to be taken

CDC's High Obesity Program funds Land Grant Colleges and Universities, who are well suited to support rural extension and outreach services in counties with an obesity prevalence of over 40 percent to implement evidence-based interventions that improve physical activity and nutrition, reduce obesity, and prevent and control diabetes, heart disease, and stroke. CDC encourages collaboration and coordination between award recipients and CDC-funded state and local health departments working on similar interventions to maximize the impact of funding and improve health outcomes in areas with the highest burden of obesity. In September 2018, CDC announced 15 award recipients for a new five-year funding cycle of the High Obesity Program. Eligibility was limited to states with counties with an obesity prevalence of more than 40%, as measured using 2015 BRFSS data. The High Obesity Program supports only non-research domestic activities.

Maternal Mortality

The Committee recognizes the rising maternal mortality rate in the U.S. as a pressing public health issue. Each year, almost 700 women die during or within a year of the end of their pregnancy in the U.S. as a result of pregnancy or delivery complications. These statistics are all the more concerning given that accurate and complete data regarding the cause of pregnancy-related deaths is lacking. For this reason, the Committee has included \$12,000,000 in the Safe Motherhood and Infant Health Program for CDC to continue and expand its technical assistance to State Maternal Mortality Review Committees [MMRCs] to build stronger data systems, improve data collection at the State level and create consistency in data collection across State MMRC's. The Committee believes this investment will lead to better information necessary to provide accurate national

statistics for U.S. maternal mortality rates and will inform data-driven actions for preventing these deaths. CDC is directed to provide a report, within 180 days of enactment, regarding how States currently account for maternal mortality and the additional steps required to achieve comprehensive surveillance and data collection in all States regarding maternal mortality for all pregnancy-associated and pregnancy-related deaths, regardless of the outcome of the pregnancy. (Page 70-71, S. Rept. 115-289)

Action taken or to be taken

CDC will provide the committee with the requested information.

Mississippi Delta Health Collaborative

Within the funds provided for Chronic Disease Prevention and Health Promotion, the Committee encourages CDC to build on its longstanding investment in MDHC by working to replicate the work in additional sites while maintaining the current strategy. CDC shall provide an update on these activities in the fiscal year 2020 CJ. (Page 71, S. Rept. 115-289)

Action taken or to be taken

Since 2008, CDC has funded the Mississippi Delta Health Collaborative (MDHC) to prevent and control heart disease and stroke in the Mississippi Delta Region. MDHC’s financial support and technical assistance to MS Delta community stakeholders (e.g., local pharmacy schools, congregational nurses) has resulted in:

- Implementation of initiatives in 16 health care clinics, 34 churches, and 29 barbershops;
- Implementation of 56 smoke-free ordinances; acceptance of Electronic Benefits Transfer Program, or the Supplemental Nutrition Assistance Program benefits, in 8 farmers’ markets; and
- Implementation of 33 formal and 14 informal municipal-level joint use agreements with public facilities.

These represent an increase in the number of active sites and an increase in adopted policies during the MDHC’s most recent reporting period.

As they align with program goals, CDC considers using lifestyle intervention models like the National Diabetes Prevention Program, utilizing local pharmacy schools with existing community-based research programs, and working with communities to establish health networks to better coordinate and manage community-based health initiatives. CDC also leverages best practices learned from other states or programs in the areas of electronic medical records, telehealth, and delivery of education tools. With CDC support, the Mississippi state health department has launched a quality improvement initiative to help clinics improve cardiovascular disease control using tools that include electronic health records. In FY 2019, CDC will begin a new funding cycle that seeks to build on the success of the current cycle including expanding the reach of program components and the addition of new sites.

Cerebral Palsy [CP]

The Committee encourages NCBDDD to use existing resources in infant health to improve CP surveillance, including but not limited to using existing data registries, the Autism and Developmental Disabilities Monitoring network, and other data sets available to estimate national prevalence. From this information, the Committee requests information in the fiscal year 2020 CJ on the cause, earlier diagnosis, and treatment of CP across the lifespan. (Page 73, S. Rept. 115-289)

Action taken or to be taken

CDC appreciates the Committee’s support of Cerebral Palsy (CP) surveillance, earlier diagnosis, and treatment across the lifespan. CDC is currently supporting CP efforts using existing resources, including data collected on

CP surveillance of 8-year-old children at three Autism and Developmental Disabilities Monitoring sites. CDC is also working on an analysis of CP overall prevalence, prevalence by demographic characteristics, and trends.

Congenital Heart Disease [CHD]

CHD is the most common and deadliest category of birth defects in the United States. The Committee notes that children and adults with CHD require ongoing, specialized cardiac care, and there remain gaps in data as children and adolescents transition to adult care. The Committee commends NCBDDD for its leadership in addressing CHD and adult CHD surveillance efforts and requests a report in the fiscal year 2020 CJ on CDC surveillance and research efforts regarding CHD across the lifespan, age-specific prevalence, and factors associated with those patients who may have dropped out of appropriate specialty care. The report should address current gaps in surveillance of adults with CHDs and include action items. (Page 73-74, S. Rept. 115-289)

Action taken or to be taken

CDC appreciates the Committee's support to improve the lives of people with Congenital Heart Disease (CHD). General information on CDC's CHD work, including details on surveillance and research efforts, is below.

CDC uses a number of different programs and data sources to address CHD. CDC's two major programs focused on CHD are Surveillance Across the Lifespan and CH STRONG.

In FY 2019, CDC will publish results from a three-site pilot project. This publication will feature findings on estimated prevalence, other health conditions, and healthcare use among adolescents, adults, and pregnant woman with CHD. Also in FY 2019, CDC will begin analyzing data from the subsequent Across the Lifespan surveillance project. This project expanded on lessons from the pilot to include five sites, additional data sources, and a survey of parents of adolescents with CHD to assess barriers and challenges to transitioning from pediatric to adult care.

Additionally, CDC and its partners will finalize and analyze data in FY 2019 from the Congenital Heart Survey To Recognize Outcomes, Needs, and well-being (CH STRONG). CH STRONG assesses health, social and educational status, and quality of life among young adults with CHD who were identified with a CHD in their first year of life through birth defects surveillance systems. Recruitment ended in December 2018. To date, CDC has received more than 1,650 survey responses. Several papers will be published using CH STRONG data examining healthcare utilization, barriers to care, reproductive health, quality of life, and social and educational outcomes. CDC will examine differences in outcomes by site, race/ethnicity, and receipt of cardiology care.

CDC will focus on a number of gaps in knowledge of causes of CHDs and needs of individuals living with CHDs through its 5-year CHD Science Agenda. The Agenda was developed in 2017 following the convening of an internal workgroup including subject matter experts, epidemiologists, and health scientists. The CHD Science Agenda includes five focus areas (prevalence, outcomes, risk factors, screening and awareness) to address the questions:

- How many people have CHDs?
- What are their outcomes?
- What are modifiable risk factors to prevent CHD occurrence?

The project also addresses priorities of critical congenital heart defects screening and increasing public health awareness of CHDs as a lifelong condition.

Duchenne Muscular Dystrophy

The Committee is pleased by the publication of care standards updates for Duchenne Muscular Dystrophy and encourages the agency to continue supporting the widespread dissemination of these standards. The

Committee is also aware of CDC's efforts to develop an ICD 10 code for Duchenne and requests that CDC develop a plan to leverage the recently established ICD 10 code to shift the Muscular Dystrophy Surveillance, Tracking and Research Network [MD STARnet] toward a more passive surveillance effort enabling an expansion of MD STARnet to additional sites and States. Further, the Committee encourages CDC to continue its work to disseminate the revised Duchenne/Becker Muscular Dystrophy care standards, to expand surveillance of Duchenne/Becker via the MD STARnet, and support Duchenne newborn screening efforts. In addition, the Committee has provided sufficient funds to support a coordinated Duchenne newborn screening initiative through the National Center for Environmental Health Newborn Screening Quality Assurance Program. (Page 74, S. Rept. 115-289)

Action taken or to be taken

CDC is committed to improving the standard of care for people living with muscular dystrophy. CDC has developed and disseminated comprehensive care considerations for health care providers to use with their patients living with Duchenne muscular dystrophy (DMD) and four other types of muscular dystrophy. The 2010 DMD care considerations provided a standard level of care for individuals with DMD and has been well-received and widely disseminated, including internationally, by advocacy groups and the Duchenne muscular dystrophy community.

Updated care considerations for Duchenne muscular dystrophy were published in 3 installments in *Lancet Neurology* March-May, 2018.^{1,2,3} CDC also supported a DMD Care Pediatrics Supplement that included 13 articles that expand on the clinical care for each subspecialty outlined in the *Lancet Neurology* articles. The supplement provides new resources, including a toolkit to help individuals with DMD transition into adult medical care. To educate healthcare providers on the latest in DMD care, CDC is supporting the American Academy of Pediatrics to develop a series of webinars targeted to general and specialty care providers. These webinars will be promoted to pediatric and adult health providers with the goal of standardizing and improving care for children and adults with DMD.

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In 2017, CDC supported partner-led efforts towards refinement of an International Classification of Disease (ICD 10) codes for Duchenne and Becker muscular dystrophies (DBMD) and facioscapulohumeral muscular dystrophy (FSHD). New codes for DBMD and FSHD were approved in 2017 and went into effect in October of 2018. These new ICD-10 codes should enable better identification of patients with DBMD and FSHD in administrative data sources, and to subsequently study the use of health services and treatments of people with these conditions. However, before systems like MD STARnet can move toward more passive approaches to conducting surveillance, how well these new codes identify people with DBMD and FSHD must be assessed. As the codes just went into effect, it could take a few years for the codes to be widely used and the data to be available for

analysis. During this period, MD STARnet will monitor the implementation of the codes to measure how accurately and effectively the codes are being applied to known cases of DBMD and FSHD.

CDC supports efforts for newborn screening for Duchenne Muscular Dystrophy. Parent Project Muscular Dystrophy (PPMD) is leading a large Duchenne Muscular Dystrophy Newborn Screening pilot in New York State. CDC is contributing expertise as a member of the steering committee and two workgroups. Additionally, CDC supports two pediatrician American Academy of Pediatrics representatives on the steering committee and workgroups.

Current funding for DMD is fully utilized by existing programs on care standards and surveillance by CDC's National Center for Birth Defects and Developmental Disabilities. The Agency's Newborn Screening Quality Assurance Program (NSQAP) is supported through the National Center for Environmental Health (NCEH). As a part of its routine planning to support additions to the HHS Recommended Uniform Screening Panel, NSQAP is using NCEH funding to evaluate tests that improve the identification of newborns with DMD. This preliminary work prepares CDC to assist states with laboratory testing and provide quality assurance materials in the event that DMD is recommended for addition to the RUSP.

¹ Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 1: diagnosis, and neuromuscular, rehabilitation, endocrine, and gastrointestinal and nutritional management. *Lancet Neurol.* 2018 Mar;17(3):251-267

² Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 2: respiratory, cardiac, bone health, and orthopaedic management. *Lancet Neurol.* 2018 Apr;17(4):347-361

³ Birnkrant et al. Diagnosis and management of Duchenne muscular dystrophy, part 3: primary care, emergency management, psychosocial care, and transitions of care across the lifespan. *Lancet Neurol.* 2018 May;17(5):445-455.

Sickle Cell Disease [SCD]

The Committee recognizes the importance of surveillance to better understand and address the long term health outcomes, complications, and healthcare access needs of people living with SCD. CDC shall report to the Committees on Appropriations of the House of Representatives and the Senate within 1 year after enactment of the act, regarding how it would expand its current sickle cell disease surveillance efforts in California and Georgia to additional States with the goal of covering the majority of the U.S. SCD population over the next 5 years. (Page 75, S. Rept. 115-289)

Action taken or to be taken

CDC will provide the committee with the requested information.

Amyotrophic Lateral Sclerosis [ALS] Registry

The Committee continues to support the National ALS Registry and seeks to understand how to build upon current efforts to improve data collection. The Committee looks forward to seeing the report requested in fiscal year 2018 to determine compliance with Public Law 110– 373. (Page 77, S. Rept. 115-289)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Newborn Screening

The Committee requests CDC to provide an update in the fiscal year 2020 CJ on how CDC will use the additional funding provided in fiscal year 2018 to expand CDC's quality assurance materials, as well as critical infrastructure and development of tests for rare conditions. Further, the update should note what steps can be taken to encourage States to adopt and implement new Recommended Uniform Screening Panel conditions within 1 year

of their addition. Further, the Committee is aware of the successful pilot project in Ohio around Duchenne Muscular Dystrophy screening and CDC's support of existing plans to conduct an additional state pilot. CDC is encouraged to develop a plan to foster development and use of disease-specific validation test panels and protocols that meet all required standards. The plan should also include capacity-building support for State laboratory staff to be able to interpret results and minimize false positives as well as a system to monitor performance of labs in this work. The Committee recommends that CDC develop working groups involving all stakeholders, including the newborn screening community, to address these and future concerns. (Page 77, S. Rept. 115-289)

Action taken or to be taken

With additional FY 2018 and FY 2019 funding, CDC is improving newborn screening test performance and results interpretation for better detection of newborn disorders. CDC is expanding in-house and state capacity to better evaluate and interpret laboratory test data by:

- Modernizing quality assurance systems.
- Implementing advanced technology for data analytics.
- Supporting expert workforce in state newborn screening programs.
- Partnering with newborn screening stakeholders to identify and disseminate best practices.

CDC is also helping more states expand screening to include high priority, new conditions. In FY 2018, CDC began a two-year cooperative agreement with seven states to provide necessary laboratory equipment, staffing, and supplies for population-based testing of new disorders.

Adopting and implementing new Recommended Uniform Screening Panel (RUSP) conditions within one year is challenging for states. Conditions are frequently added to the RUSP, and for every condition added to their screening panels, states must secure essential laboratory infrastructure, staff expertise, and quality systems to ensure robust and accurate laboratory testing. CDC's efforts with new funding will help expedite nationwide adoption of screening for new tests and provide important resources for state programs to accurately interpret increasingly complex newborn screening data.

Child Sexual Abuse Prevention

It is estimated that 15 to 25 percent of girls and five to 10 percent of boys will experience child sexual abuse. While the Federal government has invested in treatment for victims and punishment for offenders, the Committee believes that more emphasis should be placed on prevention. The Committee requests that the Center report on its current activities related to the development and evaluation of primary public health interventions targeting child sexual abuse. Additionally, the Committee requests that the Center identify gaps in research that can be filled to promote child sexual abuse primary prevention. The Committee requests this report within 180 days of enactment of this Act. (Page 78, S. Rept. 115-289)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Opioid Abuse in Native Communities

The Committee understands that American Indians and Alaska Natives overdose on opioids at the highest rate in the United States and recognizes the importance of addressing the disproportionate impact of the opioid crisis in Native communities. The Committee directs CDC to work with the Indian Health Service to ensure federally-operated and tribally-operated healthcare facilities benefit from the Center's PDMP efforts. (Page 79, S. Rept. 115-289)

Action taken or to be taken

CDC is taking immediate steps to address the opioid epidemic in Indian Country. CDC works with the Indian Health Service (IHS) on a variety of activities to address the epidemic, including conducting interviews with stakeholders who work with or in the Tribal Health Centers and IHS to help improve the effectiveness of opioid overdose prevention initiatives for individuals served by the Tribal Health Centers and IHS. CDC continues to work with IHS on alignment between the Indian Health Manual and CDC's Guideline for Prescribing Opioids for Chronic Pain. CDC also has an interagency agreement in place with the IHS Tribal Epidemiology Centers to improve the quantity and quality of injury reports available to AI/AN programs.

In addition, CDC supports data and infrastructure development in Native communities, including Prescription Drug Monitoring Program (PDMP) enhancement and use, through mechanisms in addition to collaborations with IHS. For example, CDC's Tribal Public Health Capacity Building and Quality Improvement Umbrella Cooperative Agreement funds 8 tribes and 7 tribal organizations to improve surveillance and public health data timeliness and quality, in addition to other activities. In FY 2018, one tribe specifically proposed working to enhance the electronic health record to increase PDMP use.

Opioid Drug Overdose Prevention

The Committee includes \$475,579,000, and reflects continued strong support of CDC PDO activities. CDC shall continue to use funds to advance the understanding of the opioid overdose epidemic and scale up prevention activities across all 50 States and the District of Columbia. The Committee expects that this will include the expansion of case level syndromic surveillance data, improvements of interventions that monitor prescribing and dispensing practices, better timeliness, and quality of morbidity and mortality data, as well as the enhancement of efforts with medical examiners and coroner offices. CDC shall promote the use of Prescription Drug Monitoring Programs [PDMPs], including implementation of activities described in the National All Schedules Prescription Electronic Reporting Act of 2005 as amended by the Comprehensive Addiction and Recovery Act of 2016. This shall include continuing to expand efforts to enhance the utility of PDMPs in States and communities, making them more interconnected, real-time, and usable for public health surveillance and clinical decision making. The Committee encourages CDC to ensure State PDMP implementation and improvements are coordinated with respective State alcohol and drug agencies. CDC shall also promote alternative surveillance programs for States and communities that do not have a PDMP. CDC is encouraged to work with the Office of the National Coordinator for Health Information Technology to enhance the integration of PDMPs and electronic health records. Further, the Committee is encouraged to ensure that Federal funding allocated to respond to the opioid epidemic flows from the States into communities and local health departments as practicable and encourages CDC to support local prevention activities to determine the effectiveness of naltrexone in treating heroin and prescription drug abuse as well as reducing diversion of buprenorphine for illicit purposes. Finally, CDC shall use \$10,000,000 of the funds provided to conduct an opioid nationwide awareness and education campaign. (Page 79, S. Rept. 115-289)

Action taken or to be taken

CDC appreciates the Committee's continued support in advancing the understanding of the opioid overdose epidemic and scaling up prevention activities. CDC is committed to ending the opioid crisis by improving data quality and tracking trends while providing states with the best data and prevention methods to protect patients and communities.

In addition to providing resources to all 50 states, CDC is scaling-up efforts to ensure both prevention and surveillance activities are in all 50 states, Washington, D.C., territories, and select localities. For example, CDC published the Overdose Data to Action Notice of Funding Opportunity in FY 2019 to support recipients in getting timely, high-quality, and comprehensive data on opioid prescribing, morbidity, and mortality, and to then use those data to inform response and prevention efforts at the state and local level. CDC is committed to

strengthening our partnerships with local city and county health departments in fighting the epidemic. The new funding will continue to provide resources to states, territories, and tribes, while also expanding to select high burden localities to ensure that surveillance and prevention are inextricably linked, and data is directly and immediately informing prevention efforts.

Specifically, this funding opportunity will continue to focus on several key areas including increasing the comprehensiveness and timeliness of surveillance data; building state and local capacity for public health programs determined to be promising based on research evidence; making prescription drug monitoring programs (PDMPs) easier to use and access; and working with health systems, insurers, and communities to improve opioid prescribing. It also incorporates new activities focused on linkages to care and other innovative approaches supported by evidence-based practice. In addition, integration of electronic health records with PDMPs is an important mechanism to encourage universal use. States are using CDC funding to encourage use and sharing of PDMP data across state entities, including integrating electronic health records with PDMPs to provide a seamless workflow for providers and presenting PDMP data within the context of a patient’s full medical history.

With regard to the nationwide opioid awareness and education campaign, CDC plans to: maintain and expand the online resource exchange hub so states can continue to tailor the latest messaging; expand product development of new messages for targeted audiences; update the campaign as needed to ensure it stays current and effective; and increase media events, television and radio spots, and digital promotion of ads.

Rape Prevention

The Committee directs that at least 75 percent of the program’s funds go to States for State and local prevention activities. CDC activities should be coordinated with efforts at institutions to reduce the incidence of sexual assault on their own campus. (Page 80, S. Rept. 115-289)

Action taken or to be taken

CDC appreciates the Committee’s support of the Rape Prevention and Education (RPE) program. CDC continues to direct at least 75% of the program’s funds to states for state and local prevention activities. CDC’s RPE program funds all 50 states, the District of Columbia, and territories to support state and community efforts to prevent sexual violence using the best available evidence. Grantees use CDC funding to implement state- and territory-wide sexual violence prevention plans; implement and evaluate sexual violence prevention programs; and address local sexual violence prevention needs. Award recipients work collaboratively with diverse stakeholders, including state sexual violence coalitions, educational institutions, rape crisis centers, community organizations and other state agency partners, to guide implementation of their state sexual violence prevention efforts.

Emergency Preparedness

The Committee continues to request detailed information on how PHEP funding is distributed at the local level by States. CDC is encouraged to provide in the fiscal year 2020 CJ an update on how much of the Federal PHEP funding is being allocated to local health departments and what basis or formula each State is using to make such allocations. (Page 80, S. Rept. 115-289)

Action taken or to be taken

The Public Health Emergency Preparedness (PHEP) cooperative agreement is a critical source of funding for state, local, and territorial public health departments. Since 2002, the PHEP cooperative agreement has provided support to public health departments across the nation to build and strengthen their abilities to respond effectively to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events.

Preparedness activities funded by the PHEP cooperative agreement are targeted specifically for the development of emergency-ready public health departments that are flexible and adaptable. CDC established 15 capabilities that serve as national standards for PHEP recipients' public health preparedness and response planning, including public health laboratory testing. Recipients have flexibility in using PHEP funds to meet their self-identified needs within the capability standards framework, including determining with local jurisdictions how the funds are allocated to local health departments.

In addition to funding, CDC provides guidance to help state, territorial, and local health departments develop, test, operationalize, and improve their preparedness and response plans. CDC also provides resources such as standardized laboratory protocols and tools for evaluation of public health programs. CDC guidance and technical assistance is informed by in-house subject matter experts on chemical, biological, radiological, and nuclear threats. Using this public health expertise in a variety of threat-specific scenarios, CDC developed guidelines for prioritizing preparedness activities, conducting exercises, and meeting performance goals. CDC shares guidance and assistance with PHEP recipients through regular communications via phone calls, webinars, written materials, emails, exercises, and site visits.

Through this collaborative work, CDC has developed long-standing relationships with state and local public health entities, and together they have established and continue to build robust, organized, and capable public health emergency management and response programs.

In FY 2018, PHEP recipients allocated 39.5%, or \$245,121,014, of their funding to local health departments. This includes Cities Readiness Initiative (CRI) funding, which is designed to enhance preparedness and response capabilities in the nation's largest population centers, where over 60% of the U.S. population resides. States directly allocate to their planning jurisdictions the majority their CRI funds for medical countermeasure planning and operations.

States allocate funding to local health departments based on individual needs. States use a variety of criteria to determine how to allocate PHEP funds to local health departments, and some may consider multiple factors in deciding allocations. Most states (68%) use population as a key consideration. As with the national PHEP funding strategy, population equates to risk for public health incidents or emergencies in most state planning. Other considerations used by states to award funds include:

- Jurisdiction-specific projects
- Public health preparedness capabilities priorities
- Reimbursement needs
- Geography
- Historical threats

Funding allocated to local health departments is primarily used for personnel, training and exercises, equipment and supplies, and development of preparedness and response plans.

In 2018, 45 recipients (44 states + Los Angeles County) allocated PHEP funding to local health departments. The six states that did not allocate funds to local health departments have centralized health departments and manage all funds at the state level. Those states are Delaware, Hawaii, Mississippi, Maine, Rhode Island, and Vermont. Los Angeles County awarded funding to the cities of Pasadena and Long Beach.

NIOSH Facility

The Committee is aware that CDC plans to consolidate the NIOSH Cincinnati research facilities, which are more than 50 years old, into one modern laboratory to reduce operational costs and strengthen scientific collaboration. The Committee understands that CDC plans to support this facility replacement through the Department's Nonrecurring Expenses Fund. The Secretary and CDC are directed to prioritize obligations for this facility and obligate such funds as quickly as possible. (Page 84, S. Rept. 115-289)

Action taken or to be taken

CDC provides an update on the Cincinnati Consolidation project in the Buildings and Facilities narrative.

Antibiotic Resistance

The Department shall include in the fiscal year 2020 CJ a detailed update on the progress being made to implement the CARB national strategy. (Page 165, S. Rept. 115-289)

Action taken or to be taken

CDC provides the requested update in the Emerging and Zoonotic Infectious Diseases narrative.

Global Health Research Strategy

The Committee requests an update on how CDC, FDA, BARDA, and NIH jointly coordinate global health research activities with specific measurable metrics used to track progress toward agreed upon health goals. (Page 167, S. Rept. 115-289)

Action taken or to be taken

CDC plans to provide the committee with an update as requested.

Opioid Prescribing Limitations

The Committee applauds State efforts to address the overprescribing of opioids by implementing CDC's Guideline for Prescribing Opioids for Chronic Pain. Not later than 1 year after the enactment of this act, the Secretary, in conjunction with CDC, shall submit a report to the Committees on Appropriations in the House of Representatives and the Senate detailing: the impact of existing State regulations or laws to limit opioid prescriptions on opioid abuse and overdose rates; the impact of existing State regulations or laws to limit opioid prescriptions on legitimate access to opioids, including the impact on patient cost sharing (including copayments); and recommended Federal legislative or executive actions that could be taken to further reduce opioid abuse and overdose deaths. (Page 168, S. Rept. 115-289)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.