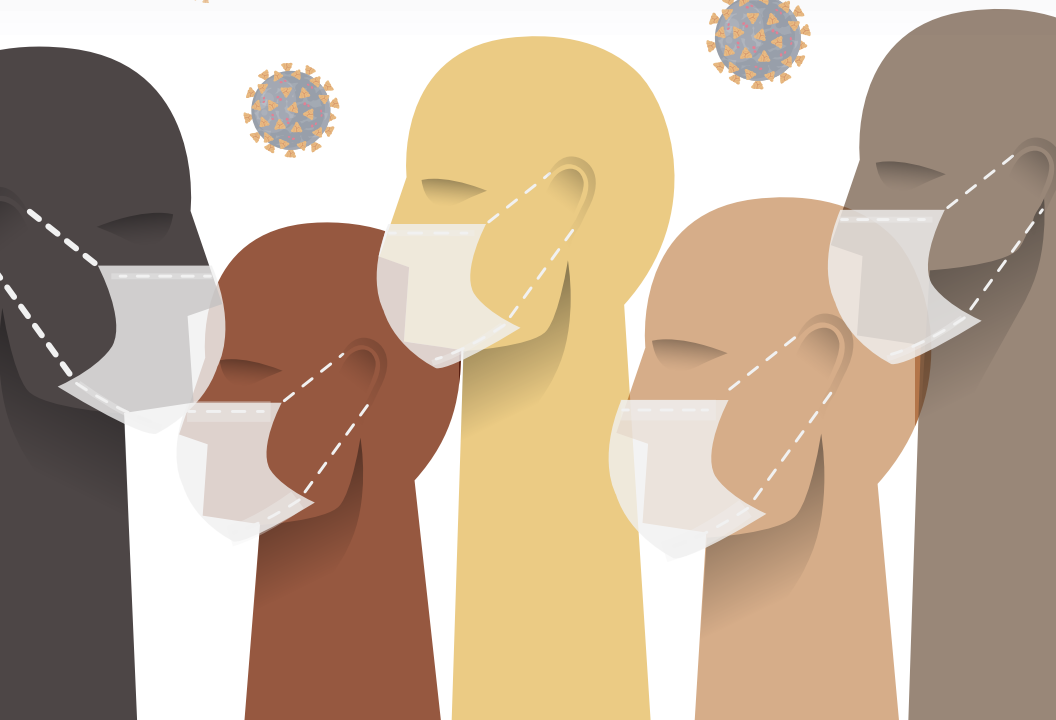


The background of the entire page is light gray and white, featuring numerous stylized virus particles. These particles are depicted as blue spheres with orange and red triangular protrusions, resembling coronaviruses. They are scattered across the page, with some appearing larger and more detailed than others.

CHARLES C. SHEPARD 2020 SCIENCE AWARDS

RACISM

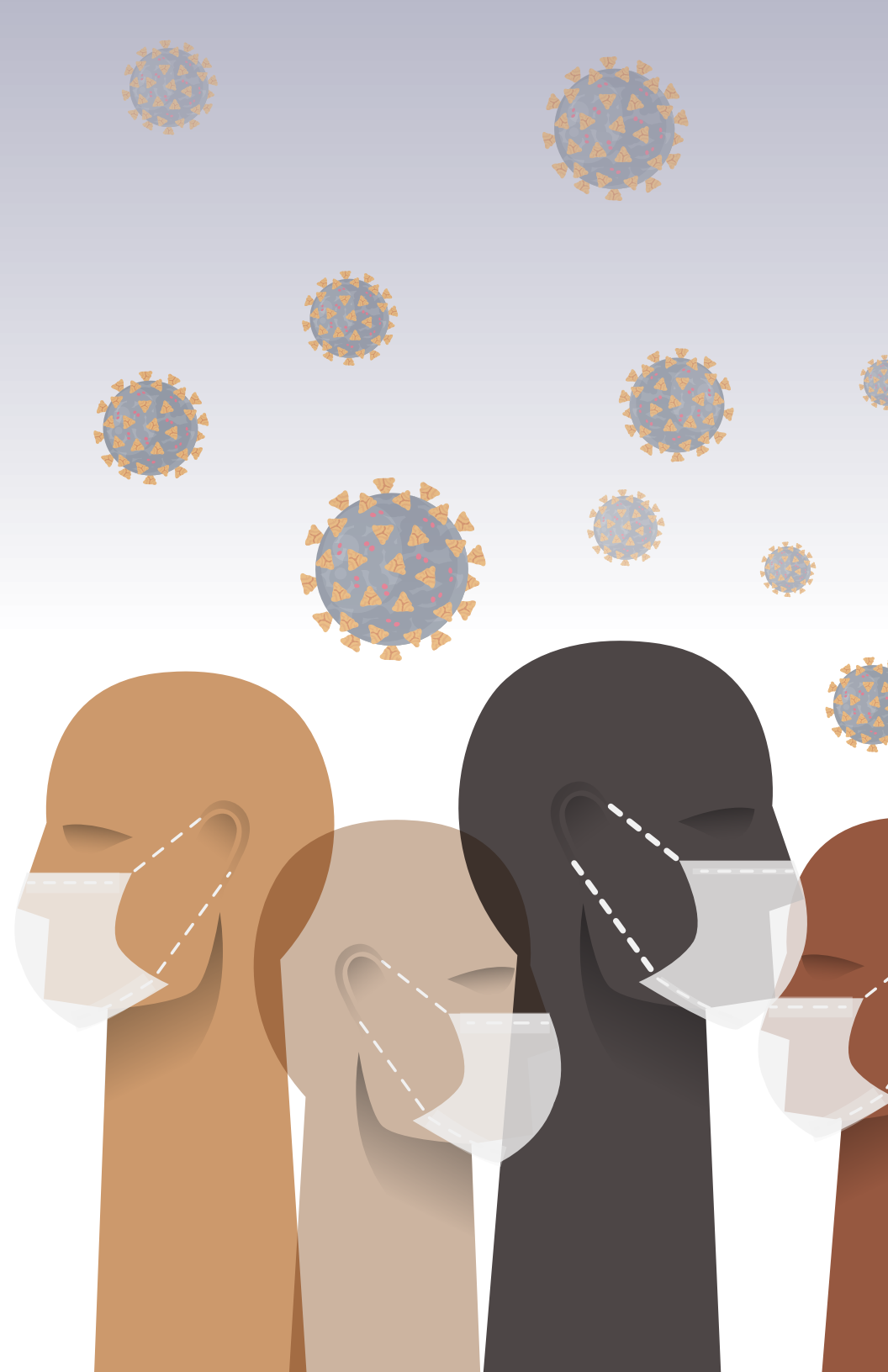
as a Public Health Crisis



Keynote Speaker: Michelle Ann Williams, SM, ScD
Dean, Harvard T. H. Chan School of Public Health

September 15, 2020 • 1:00 P.M. ET

Sponsored by the CDC Office of Science



Charles C. Shepard • Biography



The preeminent science awards of CDC/ATSDR, inaugurated in 1986, are named in honor of Charles C. Shepard, MD, the internationally recognized microbiologist who was chief of the Leprosy and Rickettsia Branch at CDC for more than 30 years, until his death on February 18, 1985.

Charles Carter Shepard was born in Ord, Nebraska, on December 18, 1914. He attended Stanford University (1932–1935) and then transferred to Northwestern University, where he received BS, MS, and MD degrees. In 1941, he joined the Commissioned Corps of the Public Health Service. From 1942 through 1948, he worked at the National Institutes of Health (NIH) in Bethesda, Maryland.

While on sabbatical during 1948 through 1949, he worked in the laboratory of Arne Tiselius in Uppsala, Sweden, and learned the new physical separation techniques that would revolutionize immunology and biochemistry. He returned to Bethesda for a year before moving to the Rocky Mountain Laboratory, National Institute of Allergy and Infectious Diseases, NIH, in Hamilton, Montana, to study various pathogenic bacteria and their phages at the biochemical and ultrastructural levels. In 1953 he came to CDC, where he continued his outstanding work with rickettsiae and began his distinguished and definitive experiments with mycobacteria, culminating in the cultivation of the leprosy bacillus, *Mycobacterium leprae*, in mice. His landmark article, "The Experimental Disease that Follows the Injection of Human Leprosy Bacilli into Foot-Pads of Mice" (*Journal of Experimental Medicine* 1960;112:445–454), is still considered a classic in microbiology. His achievement made possible the large-scale evaluation of antibiotic efficacy and reduced testing time from several years to only months. It also paved the way for leprosy vaccine studies.

Dr. Shepard made significant early contributions to the diagnosis, natural history, and epidemiology of Rocky Mountain spotted fever; Q fever; and scrub, murine, and epidemic typhus. He was also codiscoverer (with Joseph McDade) of the Legionnaires' disease bacterium (*Legionella pneumophila*) after the now famous outbreak of virulent pneumonia in Philadelphia in 1976.

Dr. Shepard received numerous awards including the Gorgas Medal (1962), the Kimble Methodology Award (1962), the Philip R. Edwards Award (1964), the World Leprosy Day Award (1970), and the first CDC Medal of Excellence (1977).

He also received the HEW Distinguished Service Medal (1978), the Raol Folleraux Award (1978), and the Richard and Hinda Rosenthal Award (1979). He was active in multiple professional organizations, including the Armed Forces Epidemiologic Board Commission on Rickettsial Diseases, the WHO Immunology of Leprosy Program, the WHO Advisory Panel on Leprosy, the Heiser Program for Research in Leprosy, and the Leprosy Research Council, which he chaired. He was also involved in many editorial activities, having served on the board of directors of the *International Journal of Leprosy* and as a frequent reviewer for numerous prestigious journals.

Although Dr. Shepard's contributions to science and public health were prodigious, perhaps his greatest legacy is the influence he has had on the CDC scientists who have followed in his footsteps and have continued to find inspiration in the scientific integrity and excellence he has come to represent.



CHARLES C. SHEPARD SCIENCE AWARDS

September 15, 2020 • 1:00 P.M. ET

[Charles-C-Shepard-Science-Awards Zoom-Ceremony](#)

Passcode: Fuaw#4xR

Webinar ID: 161 515 2997

Passcode: 46145404

International numbers available: <https://cdc.zoomgov.com/j/8hXCvuH>

Welcome

Rebecca Bunnell, PhD, MEd

CDC Director Welcome

Robert R. Redfield, MD

Introduction of Keynote Speaker

Rebecca Bunnell, PhD, MEd

Keynote Address: "Racism as a Public Health Crisis"

Michelle Williams, SM, ScD; Dean, Harvard T. H. Chan School of Public Health

Live Question-and-Answer Session with Speaker

Remarks from the CDC Office of Science Director

Rebecca Bunnell, PhD, MEd

Presentation of the 2020 Charles C. Shepard Science Awards

Brandi Limbago, PhD; Gerald Joy, MS

Assessment (presenter Preeta Kutty, MD, MPH)

Data Methods and Study Design (presenter Lorraine Yeung, MD, MPH)

Laboratory Science (presenter Stephanie Johnston, MS)

Prevention and Control (presenter Maria Mirabelli, PhD, MPH)

Lifetime Scientific Achievement (presenter Brandi Limbago, PhD)

Presentation of 2020 award with brief remarks from accepting CIO

Acceptance speech for 2019 winner, Rima Khabbaz, MD

Closing Remarks

Anne Schuchat, MD (RADM, USPHS Ret)

Michelle A. Williams, SM, ScD



Michelle A. Williams, SM '88, ScD '91, is dean of faculty at Harvard's T. H. Chan School of Public Health, and Angelopoulos Professor in Public Health and International Development, a joint faculty appointment at the Harvard Chan School and Harvard Kennedy School. She is an internationally renowned epidemiologist and public health scientist, an award-winning educator, and a widely recognized academic leader. Before becoming dean on July 1, 2016, she was professor and chair of the Department of Epidemiology at the Harvard T. H. Chan School of Public Health and program leader of the Population Health and Health Disparities Research programs at Harvard's Clinical and Translational Sciences Center (Harvard Catalyst).

Williams joined the Harvard Chan faculty after a distinguished career at the University of Washington (UW) School of Public Health where she became a full professor of epidemiology in 2000. While at UW, she was active in the Center for Perinatal Studies at the Swedish Medical Center in Seattle, becoming co-director from 2000 to 2011, with responsibility for a multidisciplinary research program involving clinical investigators, basic scientists, and epidemiologists. From 1992 to 2010, she was an affiliate investigator at the Fred Hutchinson Cancer Research Center in Seattle, and from 2008 to 2011 she held a joint appointment in global health at UW.

Williams's scientific work emphasizes the areas of reproductive, perinatal, pediatric, and molecular epidemiology. She has experience in carrying out large-scale, multidisciplinary research involving the collection and analysis of epidemiological data such as sleep characteristics, physical activity, dietary intake, and environmental exposures. Her experience also includes biological specimens such as blood-based biochemistry/biomarkers, flow cytometry, genetic variants, whole-genome expression of mRNA and miRNA), domestically and internationally.

Williams has published more than 450 peer-reviewed research papers ranging from studies of modifiable behavioral and environmental determinants of adverse health outcomes to genetic and genomic studies of common complications of pregnancy and chronic disorders among children and adults.

She has successfully administered large-scale, clinical epidemiology studies that seek to understand genetic and environmental causes of adverse pregnancy outcomes and other noncommunicable disorders along the life course. For more than seven years, Williams also developed and directed UW's Reproductive Pediatric and Perinatal Training Program.

In 1994, Williams developed the NIH-funded multidisciplinary international research training program that allows for the development and operations of undergraduate and graduate student training in global health, biostatistics, and epidemiology in more than 14 foreign research sites in South America, Southeast Asia, Africa, and Europe.

Williams has been recognized for her excellence in teaching as the recipient of the 2015 Harvard Chan School's Outstanding Mentor Award, UW's Brotman Award for excellence in teaching (2007), the American Public Health Association's Abraham Lilienfeld Award for education in epidemiology (2007), and the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (2012) from the National Science Foundation, awarded at the White House annually, for her work in developing the Multidisciplinary International Research Training Program, which is designed to encourage underrepresented students to pursue careers in biomedical and behavioral science research careers. At the time of the award, she had mentored 23 MD graduates, 28 PhD graduates, and 67 master's degree graduates, 20 of whom were faculty in institutions of higher learning in the United States and abroad.

She is a member of several professional and scholarly associations, including the National Academy of Medicine, the Society for Epidemiologic Research, and the American Epidemiological Society. She was elected to the National Academy of Medicine in 2016. In February 2017, Williams received the 2017 Trailblazer Award from the U.S. Attorney's Office for the Eastern District of New York.



Publication Award Nominees

Nominated by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry (CDC/ATSDR) for the 2020 Charles C. Shepard Science Awards. The nominated articles were judged on scientific merit and the significance of their effect on the CDC/ATSDR mission. The following is a complete citation and brief description of each article, listed by category and in alphabetical order by the first author's last name.

Assessment

Linda J. Andes, Yiling J. Cheng, Deborah B. Rolka, Edward W. Gregg, and Giuseppina Imperatore

Prevalence of Prediabetes Among Adolescents and Young Adults in the United States, 2005–2016

JAMA Pediatrics 2019; doi:10.1001/jamapediatrics.2019.4498

One in three U.S. adults has prediabetes, a condition associated with increased risk for type 2 diabetes, chronic kidney disease, and cardiovascular disease. In this survey study of 5,786 U.S. adolescents and young adults, the prevalence of prediabetes was lower among adolescents than young adults and significantly higher in males than females and in those with obesity. Adolescents and young adults with prediabetes are at increased risk of not only developing type 2 diabetes but also cardiovascular diseases.

Stephen R. Benoit, Israel Hora, Ann L. Albright, and Edward W. Gregg

New Directions in Incidence and Prevalence of Diagnosed Diabetes in the USA

BMJ Open Diabetes Research & Care 2019;7(1):e000657

Diabetes prevalence and incidence in the United States doubled during the 1990s and 2000s, prompting massive prevention efforts on a nationwide scale. In this paper, the researchers reported the longest sustained plateau in the prevalence of diagnosed diabetes since the 1980s and the longest period of declining incidence in U.S. history. Findings provide evidence of the potential impact and success of diabetes prevention programs.

Scott P. Breloff, Amrita Dutta, Fei Dai, Erik W. Sinsel, Christopher M. Warren, Xiaopeng Ning, and John Z. Wu

Assessing Work-related Risk Factors for Musculoskeletal Knee Disorders in Construction Roofing Tasks

Applied Ergonomics 2019;81:102901

Several ergonomic studies have identified kneeling as a risk factor for knee injuries. Roofers often suffer from musculoskeletal disorders to their knees due to their work on sloped rooftops. This study assessed data on the postures and movements of the human body associated with residential sloped roofing tasks that may lead to increased knee musculoskeletal disorder risk. Findings suggest roof slope and work posture can increase musculoskeletal disorder risks in residential roofers.

Alicia P. Budd, Lauren Beacham, Catherine B. Smith, Rebecca J. Garten, Carrie Reed, Krista Kniss, Desiree Mustaquim, Farida B. Ahmad, Charisse N. Cummings, Shikha Garg, Min Z. Levine, Alicia M. Fry, and Lynnette Brammer

Birth Cohort Effects in Influenza Surveillance Data: Evidence That First Influenza Infection Affects Later Influenza-Associated Illness

The Journal of Infectious Diseases 2019;220(5):820–829

The evolution of influenza A viruses results in birth cohorts with different initial influenza virus exposures. Since 2009, some birth cohorts seem to experience more severe illness in A/H1 predominant seasons. Differences in risk of influenza-associated disease by influenza A virus subtype can be seen in U.S. influenza surveillance data and differ before and after pandemics. Findings suggest that as the population ages, the amount of influenza-associated disease may be greater in H1 predominant seasons than H3 predominant seasons.

Victor M. Cáceres, Jessica Goodell, Julie Shaffner, Alezandria Turner, Jasmine Jacobs-Wingo, Samir Koirala, Monica Molina, Robynn Leidig, Martin Celaya, Kara McGinnis Pilote, Tiana Garrett-Cherry, Jhetari Carney, Kym Johnson, and W. Randolph Daley

Centers for Disease Control and Prevention's Temporary Epidemiology Field Assignee Program: Supporting State and Local Preparedness in the Wake of Ebola

SAGE Open Medicine 2019;7:1–8

This paper describes CDC's Temporary Epidemiology Field Assignee Program to help state and local jurisdictions manage the risk of Ebola virus importation during the 2014–2016 West African outbreak. The authors describe the program's launch in October 2015. They also describe their activities in the four outcome areas defined in the program grant: epidemiology and surveillance, health communications, health systems preparedness, and incident management systems and give details about outcomes and lessons learned.

Andrea Catalano, Nicole L. Davis, Emily E. Petersen, Christopher Harrison, Lyn Kieltyka, Mei You, Elizabeth J. Conrey, Alexander C. Ewing, William M. Callaghan, and David A. Goodman

Pregnant? Validity of the Pregnancy Checkbox on Death Certificates in Four States, and Characteristics Associated with Pregnancy Checkbox Errors

American Journal of Obstetrics & Gynecology 2019; doi: 10.1016/j.ajog.2019.10.005.

Maternal mortality rate (MMR) is a marker of health care quality. The United States has the highest MMR of developed nations. Using vital records data, the National Center for Health Statistics reports the official U.S. MMR. Due to under ascertainment of maternal deaths, a pregnancy checkbox was added to U.S. standard death certificates in 2003. The authors assess the role of this checkbox in maternal death surveillance. Their data informed a change in the national vital records coding for maternal deaths.

Linda S. Geiss, Yanfeng Li, Israel Hora, Ann Albright, Deborah Rolka, and Edward W. Gregg

Resurgence of Diabetes-related Nontraumatic Lower-extremity Amputation in the Young and Middle-aged Adult U.S. Population

Diabetes Care 2019;42(1):50–54

Rates of nontraumatic lower-extremity amputations (NLEAs) related to diabetes declined by half from 1990 to 2010, along with other diabetes-related complications. Most NLEAs occur among adults with diabetes, and rates of NLEA among adults with diabetes are an important measure of diabetes care. The authors document an increase in NLEA rates during 2000–2015 among U.S. adults. The increases suggest efforts to improve diabetes preventive care and self-management and reduce risk factors for diabetes complications are warranted.

Matthew Groenewold, Linda Brown, Emily Smith, Marie Haring Sweeney, Rene Pana-Cryan, and Theresa Schnorr

Burden of Occupational Morbidity from Selected Causes in the United States Overall and by NORA Industry Sector, 2012: A Conservative Estimate

American Journal of Industrial Medicine 2019;62(12):1117–1134

Estimates of the occurrence of occupational injury and illness are needed to monitor their effects, establish intervention priorities, and evaluate prevention efforts. The authors give updated estimates of death from occupational injuries and selected illnesses using general population incidence rates, the proportion of the public with a particular workplace exposure, and the risk of illness from that exposure. The variety of disparate data sources and methods highlight the need to improve occupational health surveillance in the United States.

Kathleen P. Hartnett, Aaron Kite-Powell, Megan T. Patel, Brittani L. Haag, Michael J. Sheppard, Taylor P. Dias, Brian A. King, Paul C. Melstrom, Matthew D. Ritchey, Zachary Stein, Nimi Idaikkadar, Alana M. Vivolo-Kantor, Dale A. Rose, Peter A. Briss, Jennifer E. Layden, Loren Rodgers, and Jennifer Adjemian

Syndromic Surveillance for E-Cigarette, or Vaping, Product Use-associated Lung Injury

The New England Journal of Medicine 2019; doi: 10.1056/NEJMs1915313

More than 2,600 people have been hospitalized for e-cigarette, or vaping, product use-associated lung injury (EVALI) in the United States, and dozens have died. To better understand EVALI, the authors used text mining methods not widely used at CDC or health departments for outbreak investigations. This analysis combined traditional investigation methods with Google search data and automated emergency department data. Findings suggest such methods can be applied to understand relationships among disparate data sources and better understand emerging conditions.

Jefferson M. Jones, Brian M. Gurbaxani, Alice Asher, Stephanie Sansom, Pallavi Annambhotla, Anne C. Moorman, Saleem Kamili, John T. Brooks, and Sridhar V. Basavaraju

Quantifying the Risk of Undetected HIV, Hepatitis B Virus, or Hepatitis C Virus Infection in Public Health Service Increased Risk Donors

American Journal of Transplantation 2019;19(9):2583–2593

CDC has always led the development of guidelines to reduce the risk of HIV and hepatitis transmission through organ transplantation. This paper shows, through nucleic acid testing combined with population data, the quantifiable risk associated with a shorter time frame for designating risk among organ donors for transmitting bloodborne pathogens. It also provides the rationale for a substantial reduction in the underuse of organs that are both safe and available for transplantation.

Kevin A. Matthews, Wei Xu, Anne H. Gaglioti, James B. Holt, Janet B. Croft, Dominic Mack, and Lisa C. McGuire

Racial and Ethnic Estimates of Alzheimer's Disease and Related Dementias in the United States (2015–2060) in Adults Aged \geq 65 years

Alzheimer's & Dementia 2019;15(1):17–24

Nearly everyone in the United States will experience some level of social, caregiving, and economic costs related to the expected growth of Alzheimer's disease and related dementias (ADRD) in the next few decades. The authors of this study created estimates of the number of older Americans diagnosed with ADRD by race and ethnicity from 2015 to 2060. These estimates can be used to guide planning and interventions related to caring for the ADRD population and supporting caregivers.

Ramal Moonesinghe, Quanhe Yang, Zefeng Zhang, and Muin J. Khoury

Prevalence and Cardiovascular Health Impact of Family History of Premature Heart Disease in the United States: Analysis of the National Health and Nutrition Examination Survey, 2007–2014

Journal of the American Heart Association 2019;8(14):e012364

Family history of premature heart disease (FHPHD) is a known risk factor for heart disease in succeeding generations. As such, it is important to characterize the prevalence of FHPHD, the burden of heart disease attributable to family history, and whether family history interacts with modifiable risk factors for heart disease. This paper explores the association between FHPHD and the burden of heart disease attributable to FHPHD using the data from the National Health and Nutrition Examination Survey.

Srinivas Acharya Nanduri, Susan Petit, Chad Smelser, Mirasol Apostol, Nisha B. Alden, Lee H. Harrison, Ruth Lynfield, Paula S. Vagnone, Kari Burzlaff, Nancy L. Spina, Elizabeth M. Dufort, William Schaffner, Ann R. Thomas, Monica M. Farley, Jennifer H. Jain, Tracy Pondo, Lesley McGee, Bernard W. Beall, and Stephanie J. Schrag

Epidemiology of Invasive Early-onset and Late-onset Group B Streptococcal Disease in the United States, 2006 to 2015: Multistate Laboratory and Population-based Surveillance

JAMA Pediatrics 2019;173(3):224–233

Group B *Streptococcus* is the leading infectious cause of sickness and death in early infancy around the world. Although antibiotic prophylaxis has helped reduce early-onset disease rates during the past 25 years, late-onset disease rates remain high. This paper describes incidence rates, case characteristics, antimicrobial resistance, and serotype distribution of early- and late-onset disease in active bacterial core surveillance sites from 2006 to 2015. Findings suggest that an effective vaccine covering the most common serotypes might further reduce disease rates.

Meaghan L. Peterson, Neel R. Gandhi, Julie Clennon, Kristin N. Nelson, Natasha Morris, Nazir Ismail, Salim Allana, Angie Campbell, James C. M. Brust, Sara C. Auld, Barun Mathema, Koleka Mlisana, Pravi Moodley, and N. Sarita Shah

Extensively Drug-resistant Tuberculosis ‘Hotspots’ and Sociodemographic Associations in Durban, South Africa

International Journal of Tuberculosis and Lung Disease 2019;23(6):720–727

Drug-resistant tuberculosis is a major global epidemic with 480,000 new cases each year, representing nearly 5% of all TB cases. Extensively drug-resistant (XDR) TB is of great concern because few effective treatment options remain against these strains, resulting in high mortality (~80% in people with HIV). This study characterized XDR TB hotspots while also assessing the factors driving transmission. Findings can help target interventions to highest burden neighborhoods so limited public health resources can be optimally used.

Clelia Pezzi, Deborah Lee, Lori Kennedy, Jenny Aguirre, Melissa Titus, Rebecca Ford, Jennifer Cochran, Laura Smock, Blaine Mamo, Kailey Urban, Jennifer Morillo, Stephen Hughes, Colleen Payton, Kevin Scott, Jessica Montour, Jasmine Matheson, Mary Jean Brown, and Tarissa Mitchell

Blood Lead Levels Among Resettled Refugee Children in Select U.S. States, 2010–2014

Pediatrics 2019;143(5):e20182591

Refugee children are at high risk for the harmful effects of lead exposure. A multisite analysis of blood lead levels among refugee children had never been done because national surveillance systems do not routinely collect refugee health data. In this study, researchers collected lead screening data during routine domestic medical examinations of refugee children at 12 sites across the United States. They also collected follow-up data 3–6 months later to assess changes in blood lead levels after arrival.

Gabriel Rainisch, Bishwa Adhikari, Martin I. Meltzer, and Gayle Langley

Estimating the Impact of Multiple Immunization Products on Medically-attended Respiratory Syncytial Virus (RSV) Infections in Infants

Vaccine 2019;10:023

Globally, in 2015, respiratory syncytial virus (RSV) caused an estimated 33.1 million acute lower respiratory tract infections. These RSV-related infections resulted in 3.2 million hospital admissions and 59,600 in-hospital deaths among children under 5 years of age. Assessing RSV immunization products in development, and comparing them to the one currently licensed product, allows public health officials to begin to plan how best to recommend deployment of new products as they become available.

Thomas B. Richards, V. Paul Doria-Rose, Ashwini Soman, Carrie N. Klabunde, Ralph S. Caraballo, Simone C. Gray, Keisha A. Houston, and Mary C. White

Lung Cancer Screening Inconsistent with U.S. Preventive Services Task Force Recommendations

American Journal of Preventive Medicine 2019;56(1):66–73

Lung cancer is the leading cause of cancer death in the United States. Annual screenings with low-dose chest computed tomography (CT) can identify lung cancer earlier, when treatment is more effective. This paper analyzed data from the 2010 and 2015 National Health Interview Surveys. Prevalence, populations, and number of CT and chest X-rays were estimated for people who did and did not meet U.S. Preventive Services Task Force criteria for lung cancer screening.

Lyna Z. Schieber, Gery P. Guy, Jr., Puja Seth, Randall Young, Christine L. Mattson, Christina A. Mikosz, and Richard A. Schieber

Trends and Patterns of Geographic Variation in Opioid Prescribing Practices by State, United States, 2006–2017

JAMA Network Open 2019;2(3):e190665

The United States is fighting an opioid overdose epidemic that the White House has declared a national public health emergency. This study used administrative data describing over 230 million opioid prescriptions annually during a 12-year period to examine 6 national and state trends in prescribing associated with increased risk of misuse, overdose, and death. Researchers quantified trends and geographic variation and identified conflicting patterns in prescribing behavior depending on the risk factor examined.

Andrea J. Sharma, O. Yaw Addo, Zuguo Mei, and Parminder S. Suchdev

Reexamination of Hemoglobin Adjustments to Define Anemia: Altitude and Smoking

Annals of the New York Academy of Sciences 2019;1450(1):190–203

Anemia affects a third of the world's population. Reducing anemia can increase productivity and gross domestic product in countries where prevalence is high. For these reasons, controlling anemia is part of the WHO Global Nutrition Targets and supports the United Nations Sustainable Development Goals. This study improves the interpretation of hemoglobin to better identify anemia and abnormal hemoglobin levels. Improved assessment of these conditions, particularly anemia, can improve characterization of micronutrient deficiencies and the need for interventions.

Ambarish Vaidyanathan, Shubhayu Saha, Ana M. Vicedo-Cabrera, Antonio Gasparrini, Nabill Abdurehman, Richard Jordan, Michelle Hawkins, Jeremy Hess, and Anne Elixhauser

Assessment of Extreme Heat and Hospitalizations to Inform Early Warning Systems

Proceedings of the National Academy of Sciences of the United States of America 2019;116(12):5420–5427

Heat early warning systems have been shown to reduce risks of heat exposure. Best practice recommends that action plans be built around local epidemiologic evidence and emergency management capacity. This assessment provides information for administrators about temperature ranges that most affect health. The results suggest opportunities to refine prevention messaging and improve coordination between meteorological and public health authorities before, during, and after periods of extreme heat.

Austin M. Williams, Kristen Kreisel, and Harrell W. Chesson

Impacts of Federal Prevention Funding on Reported Gonorrhea and Chlamydia Rates

American Journal of Preventive Medicine 2019;56(3):352–358

Evidence of impact and cost-effectiveness is critical to justify support for public health funding. In this study, the authors analyzed more than 35 years of data on federal allocations to states for sexually transmitted disease (STD) prevention and reported case rates of STDs. Findings suggest that the amount of resources dedicated to STD prevention is an important determinant of reported STD rates at the population level.

Data Methods and Study Design

David S. Campo, Vishal Nayak, Ganesh Srinivasamoorthy, and Yury Khudyakov

Entropy of Mitochondrial DNA Circulating in Blood is Associated with Hepatocellular Carcinoma

BMC Medical Genomics 2019;12(Suppl 4):74

Hepatocellular carcinoma is the most common form of liver cancer. Successful management depends on early tumor detection and assessment of treatment efficacy using tissue biopsy and imaging technologies. This paper describes a non-laboratory method to improve cancer detection using machine learning applied to genetic diversity found in mitochondrial DNA. This new approach holds promise for developing new cyber-molecular assays that are rapid, easy to perform, cost-effective, and efficient in detecting cancer.

James B. Holt, Kevin A. Matthews, Hua Lu, Yan Wang, Jennifer M. LeClercq, Kurt J. Greenlund, and Craig W. Thomas

Small Area Estimates of Populations with Chronic Conditions for Community Preparedness for Public Health Emergencies

American Journal of Public Health 2019;109(S4):S325–S331

Prior attempts to estimate the number of people with chronic conditions at the local or sub-state level for public health action, including emergencies, have been shown to be tedious, time consuming, and unresponsive to the uncertainty and quickly changing situation of an event. This study shows how combining several methods can produce near real-time estimates of the number of people with chronic conditions for emergency planning and resource allocation.

Michael A. Johansson, Karyn M. Apfeldorf, Scott Dobson, Jason Devita, Anna L. Buczak, Benjamin Baugher, Linda J. Moniz, Thomas Bagley, Steven M. Babin, Erhan Guven, Teresa K. Yamana, Jeffrey Shaman, Terry Moschou, Nick Lothian, Aaron Lane, Grant Osborne, Gao Jiang, Logan C. Brooks, David C. Farrow, Sangwon Hyun, Ryan J. Tibshirani, Roni Rosenfeld, Justin Lessler, Nicholas G. Reich, Derek A. T. Cummings, Stephen A. Lauer, Sean M. Moore, Hannah E. Clapham, Rachel Lowe, Trevor C. Bailey, Markel Garcia-Diez, Marilia Sá Carvalho, Xavier Rodó, Tridip Sardar, Richard Paul, Evan L. Ray, Krzysztof Sakrejda, Alexandria C. Brown, Xi Meng, Osonde Osoba, Raffaele Vardavas, David Manheim, Melinda Moore, Dhananjai M. Rao, Travis C. Porco, Sarah Ackley, Fengchen Liu, Lee Worden, Matteo Convertino, Yang Liu, Abraham Reddy, Eloy Ortiz, Jorge Rivero, Humberto Brito, Alicia Juarrero, Leah R. Johnson, Robert B. Gramacy, Jeremy M. Cohen, Erin A. Mordecai, Courtney C. Murdock, Jason R. Rohr, Sadie J. Ryan, Anna M. Stewart-Ibarra, Daniel P. Weikel, Antarpreet Jutla, Rakibul Khan, Marissa Poultney, Rita R. Colwell, Brenda Rivera-Garcia, Christopher M. Barker, Jesse E. Bell, Matthew Biggerstaff, David Swerdlow, Luis Mier-Y-Teran-Romero, Brett M. Forshey, Juli Trtanj, Jason Asher, Matt Clay, Harold S. Margolis, Andrew M. Hebbeler, Dylan George, and Jean-Paul Chretien

An Open Challenge to Advance Probabilistic Forecasting for Dengue Epidemics

Proceedings of the National Academy of Sciences of the United States of America 2019;116(48): 24268–24274

Researchers have long promised forecasts of epidemics, but decades of research have led to little use of predictive analytics in applied public health. For this study, a coalition of U.S. government agencies, led by CDC, developed a forecasting challenge, with several novel components. Researchers developed new ways to connect analytical research to public health needs. Findings likely hold promise for a major impact on advancing dengue forecasting research and a new paradigm for general epidemiological forecasting research.

Candice Y. Johnson, Carissa M. Rocheleau, Barbara Grajewski, and Penelope P. Howards

Structure and Control of Healthy Worker Effects in Studies of Pregnancy Outcomes

American Journal of Epidemiology 2019;188(3):562–569

CDC's Pledge to the American People includes the promise to "base all public health decisions on the highest quality scientific data." But generating high-quality scientific data is not always easy. Epidemiologic studies sometimes fall victim to sources of bias that are difficult to identify and control. In this paper, the authors show how to use directed acyclic graphs—a causal inference technique—to guide study design and data analysis for epidemiologic studies of occupational exposures during pregnancy.

Deliana Kostova, Cynthia H. Cassell, John T. Redd, Desmond E. Williams, Tushar Singh, Lise D. Martel, and Rebecca E. Bunnell

Long-distance Effects of Epidemics: Assessing the Link Between the 2014 West Africa Ebola Outbreak and U.S. Exports and Employment

Health Economics 2019;28(11):1248–1261

This study estimated the effects of the 2014 West Africa Ebola outbreak on U.S. exports and jobs supported by exports to sub-Saharan Africa (SSA). The authors make use of a natural experiment based on the presence of Ebola virus in some SSA countries but not others. Their analysis compares export trends to SSA countries with different Ebola virus transmission rates before and after the beginning of the epidemic. Findings quantify the role of health security disruptions on the U.S. economy.

Kevin A. Matthews, Anne H. Gaglioti, James B. Holt, Anne G. Wheaton, and Janet B. Croft

Using Spatially Adaptive Floating Catchments to Measure the Geographic Availability of a Health Care Service: Pulmonary Rehabilitation in the Southeastern United States

Health Place 2019;56:165–173

More than 15 million Americans have been diagnosed with chronic obstructive pulmonary disease (COPD). After participating in pulmonary rehabilitation programs, patients with COPD have better exercise outcomes, fewer chronic illnesses, and a higher quality of life. However, PR programs are lengthy and require several visits, making it less likely that patients will stick with the PR regimen. This study illustrates how Medicare claims data can be used to identify places where populations are underserved for specific healthcare procedures.

Craig J. McGowan, Matthew Biggerstaff, Michael Johansson, Karyn M. Apfeldorf, Michal Ben-Nun, Logan Brooks, Matteo Convertino, Madhav Erraguntla, David C. Farrow, John Freeze, Saurav Ghosh, Sangwon Hyun, Sasikiran Kandula, Joceline Lega, Yang Liu, Nicholas Michaud, Haruka Morita, Jarad Niemi, Naren Ramakrishnan, Evan L. Ray, Nicholas G. Reich, Pete Riley, Jeffrey Shaman, Ryan Tibshirani, Alessandro Vespignani, Qian Zhang, Carrie Reed, and The Influenza Forecasting Working Group

Collaborative Efforts to Forecast Seasonal Influenza in the United States, 2015–2016

Scientific Reports 2019;9(1):683

Flu season has typically peaks nationally between December and March. The magnitude and timing of influenza epidemics vary, making the annual impact difficult to predict. Surveillance systems track influenza activity nationwide in various ways. While these systems collect valuable data, they require processing time, limiting their use for real-time decision making. The authors described innovative methods to evaluate forecast accuracy and evaluated a way to combine individual forecasts into a single ensemble forecast that outperformed most individual forecast models.

Prabasaj Paul, Rachel B. Slayton, Alexander J. Kallen, Maroya S. Walters, and John A. Jernigan

Modeling Regional Transmission and Containment of a Healthcare-associated Multidrug-resistant Organism

Clinical Infectious Diseases 2019;70(3):388–394

In 2017, antibiotic resistant pathogens associated with healthcare caused more than 600,000 infections among hospitalized patients in the United States, and more than 29,000 deaths. This manuscript reports on a new way to simulate the spread of multidrug-resistant organisms in a region using a mathematical model, and then uses the model to predict the effectiveness of CDC's Interim Guidance for a Public Health Response to Contain Novel or Targeted MDROs in a specific U.S. state.

Stuart K. Shapira, Lin H. Tian, Arthur S. Aylsworth, Ellen R. Elias, Julie E. Hoover-Fong, Naomi J. L. Meeks, Margaret C. Souders, Anne C. H. Tsai, Elaine H. Zackai, Aimee A. Alexander, Marshalyne Yeargin-Allsopp, and Laura A. Schieve

A Novel Approach to Dysmorphology to Enhance the Phenotypic Classification of Autism Spectrum Disorder in the Study to Explore Early Development

Journal of Autism and Developmental Disorders 2019;49(5):2184–2202

Autism spectrum disorder affects about 1 in 40 U.S. children. Characterize such a condition by assessing the presence of dysmorphic features—physical features that have not followed the typical pattern of growth or development—is challenging, even in a clinical setting, but nearly impossible in a multisite study with a variety of clinical reviewers. This paper presents the use of a novel analytic approach to identify dysmorphic features in children with autism spectrum disorder participating in a multisite research study.

M. Abbas Virji, Christine R. Schuler, Jean Cox-Ganser, Marcia L. Stanton, Michael S. Kent, Kathleen Kreiss, and Aleksandr B. Stefaniak

Associations of Metrics of Peak Inhalation Exposure and Skin Exposure Indices with Beryllium Sensitization at a Beryllium Manufacturing Facility

Annals of Work Exposures and Health 2019;63(8):856–869

Chronic beryllium disease (CBD) is a chronic, debilitating, and potentially fatal respiratory disease that occurs in as many as 11% of workers exposed to the metal beryllium. The authors characterize occupational beryllium exposure using a set of uncommon metrics to capture aspects of exposure that may be relevant for the development of immune sensitization. They explore exposure–response relationships to identify causes of sensitization and chronic beryllium disease. Results can be used to target interventions to prevent sensitization and disease.

Brian W. Ward

kg_nchs: A Command for Korn-Graubard Confidence Intervals and National Center for Health Statistics' Data Presentation Standards for Proportions

The Stata Journal 2019;19(3):510–522

This paper presents a new way to determine the reliability of estimates generated from survey data. The approach presented and the accompanying software command developed can have a broad impact on public health, epidemiology, and other fields. The method can be applied to any survey data drawn from a complex sample while studying any health or health care topic. Its design gives analysts a way to perform intensive calculations while minimizing the potential for error.

Joel O. Wertheim, Alexandra M. Oster, William M. Switzer, Chenhua Zhang, Nivedha Panneer, Ellsworth Campbell, Neeraja Saduvala, Jeffrey A. Johnson, and Walid Heneine

Natural Selection Favoring More Transmissible HIV Detected in United States Molecular Transmission Network

Nature Communications 2019;10(1):5788

Is HIV becoming more transmissible and virulent in the United States? This paper provides robust evidence that HIV is indeed under selection favoring higher transmissibility and virulence. The study analyzes large, population data sets to identify viruses that have been frequently transmitted. Doing so allows the authors to show that clusters of genetically similar strains representing frequently transmitted HIV displayed higher virus loads, a marker of infectiousness, than less frequently transmitted strains.

Matthew W. Wheeler

Bayesian Additive Adaptive Basis Tensor Product Models for Modeling High Dimensional Surfaces: An Application to High-throughput Toxicity Testing

Biometrics 2019;75(1):193–201

Predicting the toxicity of chemicals based on chemical structure has long been a goal of risk assessors around the world. Methods have been developed to estimate toxicity based on chemical structure with moderate success in a limited set of chemicals, but existing models have failed to predict the dose-response relationship associated with toxicity. This paper develops a statistical approach for predicting dose-response curves based on chemical structural data.

Ying Zhou, Xia Meng, Jessica Hartmann Belle, Huanxin Zhang, Caitlin Kennedy, Mohammad Z. Al-Hamdan, Jun Wang, and Yang Liu

Compilation and Spatio-temporal Analysis of Publicly Available Total Solar and UV Irradiance Data in the Contiguous United States

Environmental Pollution 2019;253:130–140

Skin cancer is more often diagnosed in the United States than all other cancers combined. It is also the most preventable cancer. Most skin cancer is caused by damage from ultraviolet radiation (UV). The UV dataset compiled in this study depicts surface UV irradiances for all counties in the contiguous United States after 2005. This data can be used to predict areas of increased skin cancer risk, target prevention efforts, and reduce incidence, improving the wellbeing of millions of Americans.

Laboratory Science

Joel L. N. Barratt, Subin Park, Fernanda S. Nascimento, Jessica Hofstetter, Mateusz Plucinski, Shannon Casillas, Richard S. Bradbury, Michael J. Arrowood, Yvonne Qvarnstrom, and Eldin Talundzic

Genotyping Genetically Heterogeneous *Cyclospora cayetanensis* Infections to Complement Epidemiological Case Linkage

Parasitology 2019;146(10):1275–1283

In 2019, there were over 2,000 cases of cyclosporiasis. In the absence of robust genotyping tools for *Cyclospora*, most domestically acquired cases of cyclosporiasis cannot be linked to contaminated food. This manuscript describes the development of a laboratory procedure for genotyping the gastrointestinal pathogen *Cyclospora cayetanensis*. It also describes a complementary machine learning approach to facilitate analysis of the sequence data generated in the laboratory.

Benjamin C. Blount, Mateusz P. Karwowski, Peter G. Shields, Maria Morel-Espinosa, Liza Valentin-Blasini, Michael Gardner, Martha Braselton, Christina R. Brosius, Kevin T. Caron, David Chambers, Joseph Corstvet, Elizabeth Cowan, Victor R. De Jesús, Paul Espinosa, Carolina Fernandez, Cory Holder, Zsuzsanna Kuklennyik, Jennifer D. Kusovschi, Cody Newman, Gregory B. Reis, Jon Rees, Chris Reese, Lalith Silva, Tiffany Seyler, Min-Ae Song, Connie Sosnoff, C. R. Spitzer, Denise Tevis, Lanqing Wang, Cliff Watson, Mark D. Wewers, Baoyun Xia, Douglas T. Heitkemper, Isaac Ghinai, Jennifer Layden, Peter Briss, Brian A. King, Lisa J. Delaney, Christopher M. Jones, Grant T. Baldwin, Anita Patel, Dana Meaney-Delman, Dale Rose, Vikram Krishnasamy, John R. Barr, Jerry Thomas, and James L. Pirkle, for the Lung Injury Response Laboratory Working Group

Vitamin E Acetate in Bronchoalveolar-lavage Fluid Associated with EVALI

The New England Journal of Medicine 2019; doi: 10.1056/NEJMoa1916433

CDC was investigating an outbreak of lung injury that was sometimes lethal, but after the first 10 weeks of the investigation, the cause was still unknown. The nominated paper describes the laboratory response to the recent vaping-related lung injury outbreak. By quickly developing, validating, and applying targeted chemical analyses the lab found that vitamin E acetate in bronchoalveolar lavage fluid was closely associated with lung injury.

Mike Flint, Payel Chatterjee, David L. Lin, Laura K. McMullan, Punya Shrivastava-Ranjan, Eric Bergeron, Michael K. Lo, Stephen R. Welch, Stuart T. Nichol, Andrew W. Tai, and Christina F. Spiropoulou

A Genome-wide CRISPR Screen Identifies N-Acetylglucosamine-1-Phosphate Transferase as a Potential Antiviral Target for Ebola Virus

Nature Communications 2019;10(1):285

Since the West Africa Ebola virus epidemic of 2013–2016, much work has been devoted to the development of medical countermeasures for Ebola virus disease. Rapid progress has been made, with an Ebola vaccine now approved and a recent clinical trial indicating that two different antibody preparations may be clinically effective. The authors used the CRISPR system to identify human genes required for Ebola virus infection, finding that the human gene GNPTAB is required for Ebola virus to enter cells.

Andrea Gaedigk, Amy Turner, Robin E. Everts, Stuart A. Scott, Praful Aggarwal, Ulrich Broeckel, Gwendolyn A. McMillin, Roberta Melis, Erin C. Boone, Victoria M. Pratt, and Lisa V. Kalman

Characterization of Reference Materials for Genetic Testing of CYP2D6 Alleles: A GeT-RM Collaborative Project

Journal of Molecular Diagnostics 2019;21(6):1034–1052

This paper details CDC's Genetic Reference Materials Coordination Program, which has significant implications for precision medicine and public health. The authors produced 179 publicly available and renewable genomic DNA reference materials containing rare or structurally complex variants of the CYP2D6 gene. These samples will enable laboratories to develop tests for the CYP2D6 gene and ensure their accuracy. Test results can be used to help physicians select appropriate drugs and doses for each patient throughout their lifetime.

Mary M. Jenkins, Lynn M. Almli, Faith Pangilinan, Jessica X. Chong, Elizabeth E. Blue, Stuart K. Shapira, Janson White, Daniel McGoldrick, Joshua D. Smith, James C. Mullikin, Christopher J. Bean, Wendy N. Nembhard, Xiang-Yang Lou, Gary M. Shaw, Paul A. Romitti, Kim Keppler-Noreuil, Mahsa M. Yazdy, Denise M. Kay, Tonia C. Carter, Andrew F. Olshan, Kristin J. Moore, Nanette Nascone-Yoder, Richard H. Finnell, Philip J. Lupo, Marcia L. Feldkamp, Nisc Comparative Sequencing Program, The University of Washington Center for Mendelian Genomics, Deborah A. Nickerson, Michael J. Bamshad, Lawrence C. Brody, Jennita Reefhuis, The National Birth Defects Prevention Study Team

Exome Sequencing of Family Trios from The National Birth Defects Prevention Study: Tapping into a Rich Resource of Genetic and Environmental Data

Birth Defects Research 2019;111(20):1618–1632

Birth defects are common, but individual types are relatively rare, making them difficult to study. This paper describes laboratory methods to sequence exomes of children and their parents as part of the National Birth Defects Prevention Study, a population study of risk factors for structural birth defects. Along with the environmental data collected from each family, this resource can help advance understanding of fetal development and possible gene-environment interaction associated with birth defects.

Patricia A. Jorquera, Vasily P. Mishin, Anton Chesnokov, Ha T. Nguyen, Brian Mann, Rebecca Garten, John Barnes, Erin Hodges, Juan De La Cruz, Xiyang Xu, Jackie Katz, David E. Wentworth, and Larisa V. Gubareva

Insights into the Antigenic Advancement of Influenza A(H3N2) Viruses, 2011–2018

Scientific Reports 2019;9(1):2676

Influenza viruses evade human immunity primarily by altering the hemagglutinin glycoprotein antigen on the virus's surface. In recent years, influenza A(H3N2) viruses have evolved in such a way that traditional assays cannot be used to reliably assess their antigenic properties. At the same time, these viruses yielded the most severe flu seasons of the past decade. The authors developed a way to simplify this disease mechanism, producing data that revealed the emergence of hemagglutinin changes responsible for vaccine mismatches.

Yuan Li, Benjamin J. Metcalf, Sopio Chochua, Zhongya Li, Hollis Walker, Theresa Tran, Paulina A. Hawkins, Ryan Gierke, Tamara Pilishvili, Lesley McGee, and Bernard W. Beall

Genome-wide Association Analyses of Invasive Pneumococcal Isolates Identify a Missense Bacterial Mutation Associated with Meningitis

Nature Communications 2019;10(1):178

Streptococcus pneumoniae can cause severe illness and death. One of its manifestations is meningitis, of which there were more than 2.8 million cases and 318,000 deaths in 2016. The authors used genome-wide assessments to analyze bacterial isolates and find associations among strains' genetic variants, antibiotic tolerance, and likelihood of causing meningitis. This approach creates opportunities to understand how strains evade antibiotics and cause severe illness, thereby improving understanding of disease mechanisms and treatment responses for a range of pathogens.

Michael K. Lo, Friederike Feldmann, Joy M. Gary, Robert Jordan, Roy Bannister, Jacqueline Cronin, Nishi R. Patel, John D. Klena, Stuart T. Nichol, Tomas Cihlar, Sherif R. Zaki, Heinz Feldmann, Christina F. Spiropoulou, and Emmie de Wit

Remdesivir (GS-5734) Protects African Green Monkeys from Nipah Virus Challenge

Science Translational Medicine 2019; doi: 10.1126/scitranslmed.aau9242

The World Health Organization has listed Nipah virus as an emerging pathogen likely to cause major epidemics or even pandemics. Currently, there is no approved vaccine or therapy to prevent or treat Nipah virus infection. The authors show that the experimental antiviral prodrug remdesivir can protect African green monkeys from Nipah. Their finding represents the first small molecule capable of doing so, suggesting remdesivir may be an effective antiviral treatment for Nipah virus infection.

Lindsay T. Michalovicz, Kimberly A. Kelly, Saurabh Vashishtha, Rotem Ben-Hamo, Sol Efroni, Julie V. Miller, Alicia R. Locker, Kimberly Sullivan, Gordon Broderick, Diane B. Miller, and James P. O'Callaghan

Astrocyte-specific Transcriptome Analysis Using the ALDH1L1 bacTRAP Mouse Reveals Novel Biomarkers of Astrogliosis in Response to Neurotoxicity

Journal of Neurochemistry 2019;150(4):420–440

Detecting harmful chemical exposures on the central nervous system (CNS) is hampered by an inability to predict the sites of damage. A possible solution is to examine the activation of astrocytes, a subtype of glial cells, because their activation "marks" sites of neurotoxicity anywhere in the CNS. Unfortunately, few markers of astrocyte activation exist. This paper focuses on using aldehyde dehydrogenase 1 bacTRAP mice to identify genes expressed selectively in activated astrocytes to find novel biomarkers of neurotoxicity.

Mateusz M. Plucinski, Camelia Herman, Sophie Jones, Rafael Dimbu, Filomeno Fortes, Dragan Ljolje, Naomi Lucchi, Sean C. Murphy, Nahum T. Smith, Kurtis R. Cruz, Annette M. Seillie, Eric S. Halsey, Venkatachalam Udhayakumar, Michael Aidoo, and Eric Rogier

Screening for Pfh_{rp}2/3-Deleted *Plasmodium falciparum*, Non-falciparum, and low-density Malaria Infections by a Multiplex Antigen Assay

The Journal of Infectious Diseases 2019;219(3):437–447

Results from malaria surveys have long been known to lack sensitivity, thus underestimating the true malaria burden in a population. This paper reports on a novel laboratory assay that allows for simultaneous detection of three malaria antigens from biospecimens and can rapidly and inexpensively enable accurate estimation of malaria prevalence in a population and provide information that is critical for malaria control programs.

Jessica Radzio-Basu, Olivia Council, Mian-Er Cong, Susan Ruone, Alicia Newton, Xierong Wei, James Mitchell, Shanon Ellis, Christos J. Petropoulos, Wei Huang, William Spreen, Walid Heneine, and J. Gerardo García-Lerma

Drug Resistance Emergence in Macaques Administered Cabotegravir Long-acting for Pre-exposure Prophylaxis During Acute SHIV Infection

Nature Communications 2019;10(1):2005

The authors report on a preclinical investigation of the risks for developing resistance to cabotegravir, a next-generation HIV preexposure prophylaxis product now in clinical trials. The study integrates a macaque model of HIV infection that uses human-equivalent drug doses, detailed evaluation of drug-resistance compartmentalization in blood and mucosal fluids relevant for HIV transmission, and phenotypic characterization of drug-resistant mutants, using a novel recombinant HIV/simian immunodeficiency virus assay.

Jesse C. Thomas IV, Sandra Seby, A. Jeanine Abrams, Jack Cartee, Sean Lucking, Eshaw Vidyaprakash, Matthew Schmerer, Cau D. Pham, Jaeyoung Hong, Elizabeth Torrone, Sancta St Cyr, William M. Shafer, Kyle Bernstein, Ellen N. Kersh, Kim M. Gernert, and the Antimicrobial-resistant *Neisseria gonorrhoeae* Working Group

Evidence of Recent Genomic Evolution in Gonococcal Strains with Decreased Susceptibility to Cephalosporins or Azithromycin in the United States, 2014–2016

The Journal of Infectious Diseases 2019;220(2):294–305

Gonorrhea is the second most reported condition in the United States. It has a significant economic burden with serious health consequences. Beginning in the 1930s, *Neisseria gonorrhoeae* (NG) developed resistance to all previously recommended antimicrobial drugs used for gonorrhea treatment. This study used several genetic and genomic-based approaches to increase understanding of the acquisition and spread of antimicrobial-resistant NG. Findings could significantly improve ways of combating antimicrobial resistance.

V. Thiyagarajan Upaassana, Sthitodhi Ghosh, Atreyee Chakraborty, M. Eileen Birch, Pius Joseph, Jungyup Han, Bon Ki Ku, and Chong H. Ahn

Highly Sensitive Lab on a Chip (LOC) Immunoassay for Early Diagnosis of Respiratory Disease Caused by Respirable Crystalline Silica (RCS)

Analytic Chemistry 2019;91(10):6652–6660

About 2 million U.S. workers are routinely exposed to airborne respirable crystalline silica. Such exposures are especially common in mining, hydraulic fracturing, and construction. Deaths in the U.S. caused by inhalation of inorganic mineral dust exceeded 22,000 during 2001–2010. This paper describes the development of highly sensitive, field-portable devices for detecting biomarkers of pre-clinical toxic effects. This “lab-on-a-chip” approach can identify at-risk workers through early monitoring of response to toxic aerosol exposures.

Prevention and Control

Israel T. Agaku, Satomi Odani, Kolawole S. Okuyemi, and Brian Armour

Disparities in Current Cigarette Smoking Among U.S. Adults, 2002–2016

Tobacco Control 2019;0:1-8

Smoking is the leading cause of death in the United States and a risk factor for numerous diseases. Studies assessing disparities in smoking prevalence by characteristics, including race/ethnicity, have limited value in that race/ethnicity cannot be changed. This study measures the burden of smoking attributable to racial and ethnic disparities, showing that social determinants of health such as education help explain disparities and suggest that interventions targeting social determinants can reduce the health burden of smoking.

Negar Aliabadi, Sébastien Antoni, Jason M. Mwenda, Goitom Weldegebriel, Joseph N. M. Biey, Dah Cheikh, Kamal Fahmy, Nadia Teleb, Hossam Abdelrahman Ashmony, Hinda Ahmed, Danni S. Daniels, Dovile Videbaek, Annemarie Wasley, Simarjit Singh, Lucia Helena de Oliveira, Gloria Rey-Benito, N. Jennifer Sanwogou, Pushpa Ranjan Wijesinghe, Jayantha B. L. Liyanage, Batmunkh Nyambat, Varja Grabovac, James D. Heffelfinger, Kimberley Fox, Fem Julia Paladin, Tomoka Nakamura, Mary Agócs, Jillian Murray, Thomas Cherian, Catherine Yen, Umesh D. Parashar, Fatima Serhan, Jacqueline E. Tate, and Adam L. Cohen

Global Impact of Rotavirus Vaccine Introduction on Rotavirus Hospitalisations Among Children Under 5 Years of Age, 2008–16: Findings from the Global Rotavirus Surveillance Network

The Lancet Global Health 2019;7(7):e893–e903

Rotavirus, the most common cause of severe gastroenteritis in young children, kills 200,000 children annually. Vaccines have not been adopted everywhere in part due to lack of evidence of effectiveness in middle- and low-income countries. Generating high-quality data on vaccine effectiveness will encourage vaccine introduction. The authors showed a 39.6% reduction globally in hospital admissions for acute gastroenteritis due to rotavirus among young children after vaccines were introduced. Findings suggest including rotavirus vaccines where they have not been introduced.

Jennifer L. Bell, James W. Collins, and Sharon Chiou

Effectiveness of a No-cost-to-workers, Slip-resistant Footwear Program for Reducing Slipping-related Injuries in Food Service Workers: A Cluster Randomized Trial

Scandinavian Journal of Work, Environment & Health 2019;45(2):194–202

Slips, trips and falls are the third-leading cause of non-fatal work-related injuries involving days away from work across all industries. The authors evaluated the effectiveness of a slip-resistant footwear program in preventing worker compensation injury claims caused by slipping on wet or greasy floors in a population of about 17,000 food services workers. The main finding of this intervention evaluation research was a 67% reduction in slip injuries for intervention group workers but no decline in the control group.

Anna Bowen, Mubina Agboatwalla, Adam Pitz, Sadaf Salahuddin, Jose Brum, and Brian Plikaytis

Effect of Bismuth Subsalicylate vs Placebo on Use of Antibiotics Among Adult Outpatients with Diarrhea in Pakistan: A Randomized Clinical Trial

JAMA Network Open 2019;2(8):e199441

Studies of interventions to reduce inappropriate antimicrobial use have focused on changing knowledge, social norms, or policies. But these interventions are not typically used in lower-income countries. This study tested the effect of offering a default option, bismuth subsalicylate (also known as Pepto-Bismol or Pink Bismuth) as first-line treatment for adults with acute diarrhea in Karachi, Pakistan. This intervention is simple enough to be easily used at the level of individual healthcare providers, facilities, or patients in lower-resource settings globally.

Kathy K. Byrd, John G. Hou, Tim Bush, Ron Hazen, Heather Kirkham, Ambrose Delpino, Paul J. Weidle, Michael D. Shankle, Nasima M. Camp, Sumihiro Suzuki, Patrick G. Clay, for the Patient-centered HIV Care Model Team

Adherence and Viral Suppression Among Participants of the Patient-centered Human Immunodeficiency Virus (HIV) Care Model Project: A Collaboration Between Community-based Pharmacists and HIV Clinical Providers

Clinical Infectious Diseases 2019; doi: 10.1093/cid/ciz276

Although new HIV diagnoses have decreased substantially from their peak (from 130,000 during 1985 to 38,739 during 2017), progress has plateaued at about 40,000 new cases each year since 2013. Community-based pharmacists are in a unique position to give HIV treatment and prevention services. The authors describe the outcomes of an HIV care model that integrates community-based pharmacists with primary HIV medical providers to improve retention in HIV care, adherence to antiretroviral therapy, and HIV viral suppression.

Rebecca M. Casey, Jennifer B. Harris, Steve Ahuka-Mundeye, Meredith G. Dixon, Gabriel M. Kizito, Pierre M. Nsele, Grace Umutesi, Janeen Laven, Olga Kosoy, Gilson Paluku, Abdou S. Gueye, Terri B. Hyde, Raimi Ewetola, Guylain K. M. Sheria, Jean-Jacques Muyembe-Tamfum, and J. Erin Staples

Immunogenicity of Fractional-dose Vaccine During a Yellow Fever Outbreak—Final Report

The New England Journal of Medicine 2019;381;444–454

About 30,000–60,000 people die of yellow fever annually. A vaccine has been available for decades, but production is slow. A global stockpile of 6,000,000 doses is maintained for epidemics, but it can be insufficient such as in 2016 in Angola and the Democratic Republic of Congo, resulting in critical shortages. The authors evaluated immune response to fractional doses of vaccine in this setting. Findings showed fractional doses induced detectable antibody production comparable to normal doses.

Meng-Yu Chen, Charles E. Rose, Yan Ping Qi, Jennifer L. Williams, Lorraine F. Yeung, Robert J. Berry, Ling Hao, Michael J. Cannon, and Krista S. Crider

Defining the Plasma Folate Concentration Associated with the Red Blood Cell Folate Concentration Threshold for Optimal Neural Tube Defects Prevention: A Population-based, Randomized Trial of Folic Acid Supplementation

The American Journal of Clinical Nutrition 2019;109(5):1452–1461

More than 300,000 children with neural tube defects (NTDs) are born annually, and about 260,000 of these cases could have been prevented had the mothers maintained optimal red blood cell (RBC) folate concentrations (>906 nmol/L) before and during pregnancy. The authors determined that a plasma folate threshold of >25.5 nmol/L may be equivalent to the >906 nmol/L RBC folate threshold for the prevention of NTDs. This new threshold will help countries determine the risk of NTDs in their populations.

Jennifer R. Cope, Amy M. Kahler, Jake Causey, John G. Williams, Jennifer Kihlken, Caryn Benjamin, Amanda P. Ames, Johan Forsman, Yuanda Zhu, Jonathan S. Yoder, Chad J. Seidel, and Vincent R. Hill

Response and Remediation Actions Following the Detection of *Naegleria fowleri* in Two Treated Drinking Water Distribution Systems, Louisiana, 2013–2014

Journal of Water and Health 2019;17(5):777–787

Before this investigation and response, there were no published studies or guidance on how to respond to and remediate a U.S. treated drinking water system in which *Naegleria fowleri* had been detected. The authors describe the actions taken in response to the first documented association of a primary amebic meningoencephalitis case caused by *N. fowleri* from a treated public drinking water system in the United States to prevent additional cases.

Cynthia L. Curl, Jessica Porter, Ian Penwell, Rachel Phinney, Maria Ospina, and Antonia M. Calafat

Effect of a 24-week Randomized Trial of an Organic Produce Intervention on Pyrethroid and Organophosphate Pesticide Exposure Among Pregnant Women

Environment International 2019;132:104957

Organic food sales totaled a record \$45.2 billion in 2017, making it one of the fastest-growing segments of American agriculture. But so far, no studies have determined whether organic food consumption improves health. The authors conducted a long-term diet intervention study on the effects of organic produce on 20 pregnant women for six months during their second and third trimesters. Findings suggest that switching to organic produce during pregnancy can reduce women's pesticide exposure.

Alexa B. Erck Lambert, Sharyn E. Parks, Carri Cottengim, Meghan Faulkner, Fern R. Hauck, and Carrie K. Shapiro-Mendoza

Sleep-related Infant Suffocation Deaths Attributable to Soft Bedding, Overlay, and Wedging

Pediatrics 2019;143(5):e20183408

Unintentional suffocation is the leading cause of injury death among infants. Historically, surveillance of sudden unexpected infant deaths relied on death certificate data and underlying cause-of-death codes. However, death certificates do not systematically collect information about circumstances of death, and codes assigned cannot differentiate mechanisms of airway obstruction such as soft bedding, overlay, wedging. This study discusses the prevention of unintentional suffocation using a unique data source and classification system.

Arielle Lasry, Mireille B. Kalou, Paul R. Young, Jacqueline Rurangirwa, Bharat Parekh, and Stephanie Behel

Cost Implications of HIV Retesting for Verification in Africa

PLOS One 2019;14(7):e0218936

Globally, studies report HIV false positive diagnosis rates ranging from less than 1% to more than 10%. HIV misdiagnosis undermines the public's trust in HIV testing. The World Health Organization recommends retesting HIV-positive diagnoses for verification before beginning therapy. The authors report the number of misdiagnoses in the absence of retesting across all countries in Africa and calculate the net savings associated with the adoption of an HIV retesting policy.

Min Z. Levine, Crystal Holiday, Stacie Jefferson, F. Liaini Gross, Feng Liu, Sheng Li, Damien Friel, Philippe Boutet, Bruce L. Innis, Corey P. Mallett, Terrence M. Tumpey, James Stevens, and Jacqueline M. Katz

Heterologous Prime-boost with A(H5N1) Pandemic Influenza Vaccines Induces Broader Cross-clade Antibody Responses than Homologous Prime-boost

NPJ Vaccines 2019;22

National vaccine stockpiles are vital to influenza preparedness plans, but the likelihood of a mismatch between pandemic strains and stockpiled vaccine strains is high. The authors propose a strategy in which combinations of two vaccines based on antigenically different viruses can be used as "prime" and "booster" doses for vaccination. These "heterologous prime-boost" strategies using existing vaccines can offer significantly broader immune responses to provide protection against emerging influenza viruses with pandemic potential.

Robin J. MacGowan, Pollyanna R. Chavez, Craig B. Borkowf, S. Michele Owen, David W. Purcell, Jonathan H. Mermin, and Patrick S. Sullivan for the eSTAMP Study Group

Effect of Internet-distributed HIV Self-tests on HIV Diagnosis and Behavioral Outcomes in Men Who Have Sex with Men: A Randomized Clinical Trial

JAMA Internal Medicine 2019;180(1):117–125

HIV testing is the first step to getting treatment or prevention medications. This paper describes the results of a randomized trial that evaluated the effectiveness HIV self-tests. The study successfully used Internet advertisements to recruit men who have sex with men who reported being HIV-negative or who had never been tested. Participants in one arm of the study were mailed HIV self-tests, which increased testing among study participants and their acquaintances and identified a high number of new infections.

Phyllis Holditch Niolon, Alana M. Vivolo-Kantor, Allison J. Tracy, Natasha E. Latzman, Todd D. Little, Sarah DeGue, Kyle M. Lang, Lianne Fuino Estefan, Sharon R. Ghazarian, Wendy Li KamWa McIntosh, Bruce Taylor, Linda L. Johnson, Henrietta Kuoh, Tessa Burton, Beverly Fortson, Elizabeth A. Mumford, Shannon C. Nelson, Hannah Joseph, Linda Anne Valle, and Andra Teten Tharp

An RCT of Dating Matters: Effects on Teen Dating Violence and Relationship Behaviors

American Journal of Preventive Medicine 2019;57(1):13–23

Teen dating violence is highly prevalent and increases the risk for lifelong negative health outcomes. This study describes the outcomes of a longitudinal, cluster randomized controlled trial testing a model for preventing teen dating violence. The authors showed that Dating Matters®: Strategies to Promote Healthy Teen Relationships more effectively prevented teen dating violence and the use of unhealthy responses in dating relationships among middle school youth compared with students receiving another evidence-based program.

Ruth Perou, Lara R. Robinson, Melissa L. Danielson, Angelika H. Claussen, Susanna N. Visser, Keith G. Scott, Leila Beckwith, Lynne Katz, and D. Camille Smith

The Legacy for Children Randomized Control Trial: Effects on Cognition Through Third Grade for Young Children Experiencing Poverty

Journal of Developmental and Behavioral Pediatrics 2019;40(4):275–284

Children living in poverty are at increased risk for poor developmental outcomes. Improving and sustaining cognitive ability is a complex challenge that few early childhood interventions achieve. The authors evaluated The Legacy for Children™ prevention program via two longitudinal randomized controlled trials. Legacy proved effective in preventing or reducing cognitive delays among children living in poverty. For the more than 15 million U.S. children experiencing poverty early in life, shifting these cognitive developmental trajectories could improve their lives.

Mary R. Reichler, Awal Khan, Timothy R. Sterling, Hui Zhao, Bin Chen, Yan Yuan, Joyce Moran, James McAuley, and Bonita Mangura for the Tuberculosis Epidemiologic Studies Consortium Task Order 2 Team

Risk Factors for Tuberculosis and Effect of Preventive Therapy Among Close Contacts of Persons with Infectious Tuberculosis

Clinical Infectious Diseases 2019; doi: 10.1093/cid/ciz438

The authors describe the results of a large, comprehensive tuberculosis contact investigation. The study provided evidence that household contacts sharing the same bedroom with the index patient were likely at higher risk than other household contacts for becoming a TB case, as were contacts with exposure to more than one TB patient. Findings can change the focus, effectiveness, and efficiency of future TB contact investigations.

Tyler M. Sharp, Olga Lorenzi, Brenda Torres-Velásquez, Veronica Acevedo, Janice Pérez-Padilla, Aidsa Rivera, Jorge Muñoz-Jordan, Harold S. Margolis, Stephen H. Waterman, Brad J. Biggerstaff, Gabriela Paz-Bailey, and Roberto Barrera

Autocidal Gravid Ovitrap Traps Protect Humans from Chikungunya Virus Infection by Reducing *Aedes aegypti* Mosquito Populations

PLOS Neglected Tropical Diseases 2019;13(7):e0007538

Scientists have long sought to control *Aedes aegypti* mosquitoes, the vectors of dengue, Zika, and chikungunya. This paper reports the effectiveness of a novel intervention (autocidal gravid ovitrap, or AGO traps) to capture *Aedes aegypti* mosquitoes. Control of these mosquitoes prevented chikungunya virus infections as this virus is transmitted to humans through *Ae. aegypti* mosquito bites. AGO traps have proven effective for controlling *Ae. aegypti* mosquitoes and have already prevented tens of thousands of people from infection.

Margaret Sietsema, Lew Radonovich, Frank J. Hearl, Edward M. Fisher, Lisa M. Brosseau, Ronald E. Shaffer, and Lisa M. Koonin

A Control Banding Framework for Protecting the U.S. Workforce from Aerosol Transmissible Infectious Disease Outbreaks with High Public Health Consequences

Health Security 2019;17(2):124–132

Pandemic disease is one of the most dangerous health threats, capable of jeopardizing the livelihood of a large portion of the U.S. population. In the event of an infectious disease outbreak of this scale, robust control options are crucial to protect the nation's health. The authors suggest control banding to control the spread of infectious disease aerosols. Control banding, commonly used in industrial hygiene practice, identifies workers in the highest risk categories to prioritize control strategies to protect those workers.

Cynthia J. Snider, Khalequ Zaman, Concepcion F. Estivariz, Mohammad Yunus, William C. Weldon, Kathleen A. Wannemuehler, M. Steven Oberste, Mark A. Pallansch, Steven GfWassilak, Tajul Islam A. Bari, and Abhijeet Anand

Immunogenicity of Full and Fractional Dose of Inactivated Poliovirus Vaccine for Use in Routine Immunisation and Outbreak Response: An Open-label, Randomised Controlled Trial

The Lancet 2019;393:2624–2634

The results of this clinical trial showed that in a direct, head-to-head comparison two doses of fractional inactivate poliovirus vaccine (IPV) given intradermally at 6 and 14 weeks of age is more immunogenic than one full dose of IPV given intramuscularly at 14 weeks of age. This strategy would permit vaccination of 2.5 times the number of infants and children than one full dose of IPV without compromising individual protection.

Li Yan Wang, Deven T. Hamilton, Eli S. Rosenberg, Maria V. Aslam, Patrick S. Sullivan, David A. Katz, Richard L. Dunville, Lisa C. Barrios, and Steven M. Goodreau

Cost-effectiveness of Pre-exposure Prophylaxis Among Adolescent Sexual Minority Males

Journal of Adolescent Health 2020;66(1):100–106

The federal Ending the HIV Epidemic initiative has an ambitious goal of reducing new HIV infections by 90% within 10 years. This paper discusses the prevention of HIV infection among adolescent sexual minority males through use of pre-exposure prophylaxis. Although PrEP is effective in preventing HIV infections, its costs are considered high. This paper contributes vital information regarding the cost-effectiveness of pre-exposure prophylaxis use among adolescent males.



Lifetime Scientific Achievement

The following current or former CDC/ATSDR employees were nominated for the Lifetime Scientific Achievement Award, which recognizes individuals for a body of work contributing to public health. Nominees are judged on their work's scientific merit, its effect on public health and the CDC/ATSDR mission, and on their leadership and recognition by peers.

Bernard Beall, PhD

National Center for Immunization and Respiratory Diseases

Dr. Bernard Beall has spent nearly three decades at CDC devising innovative ways to understand and characterize several of the world's most deadly pathogens, ensuring the information is readily available to public health authorities around the world, and tirelessly mentoring lab staff and young laboratorians. For 15 years, he has been chief of the CDC Streptococcus Lab, successfully guiding the lab through the era of rapid progress in genomics and growing antibiotic resistance.

Dr. Beall joined CDC in 1993 as an accomplished molecular bacteriologist, keenly aware of the huge global streptococcal disease burden. Early on, he recognized the need for molecular methods to analyze surveillance data. He has developed and used novel technological methods to generate data on pathogenic streptococci for surveillance, vaccine development, and the fight against antimicrobial resistance. He began efforts to sequence the whole genome of thousands of streptococcal isolates collected through CDC's Active Bacterial Core surveillance program each year.

Dr. Beall is a globally recognized leader in streptococcal molecular biology and pathogenic strain surveillance. But in addition to his own research, he manages a group of about 20 staff, ranging from fellows and students to doctoral scientists. The lab processes and characterizes more than 10,000 samples annually, including specimens from outbreaks and special studies conducted around the globe. Each year the lab hosts about a dozen scientists from around the world who come to CDC to learn basic and advanced microbiological and molecular techniques. Dr. Beall also oversees a team of senior scientists who visit and train microbiologists in key locations around the world and perform quality assurance on their testing results. This training increases global capacity for diagnosing disease, evaluating new vaccines, and detecting antimicrobial-resistant strains.

Dr. Beall's contributions to the scientific literature, cited more than 20,000 times by peers, show his reputation and achievement. In 2014, he was elected to the American Academy of Microbiology based on his record of scientific achievement and original contributions advancing microbiology. In 2016 he was awarded the University of Missouri at Kansas City School of Biological Sciences Alumni Achievement Award. In 2010, Dr. Beall served as a subject-matter expert for CDC's Global Disease Detection and CDC Technical Support Corps for surveillance of streptococci and other invasive vaccine-preventable bacterial pathogens in developing countries.

Bill Callaghan, MD, MPH

National Center for Chronic Disease and Health Promotion

During his 17 years at CDC, Dr. Bill Callaghan has had a broad and lasting impact on the field of reproductive health. He has provided agencywide expertise in the field of obstetrics and gynecology for every major CDC response involving pregnant and postpartum women from anthrax through Zika. His expertise was critical to understanding the epidemiology associated with recent outbreaks, epidemics, and other health threats, including those involving opioids, Ebola, Hurricane Katrina, and pandemic influenza.

Dr. Callaghan's vision significantly changed the scientific approach to surveillance of infant and maternal health. His research led to the development of key indicators and algorithms that have far-reaching implications for vital statistics and led the National Center for Health Statistics (NCHS) to change its method for calculating official U.S. preterm birth rates. Other research led to development of a preterm birth mortality indicator that NCHS now routinely uses to show the contribution of preterm birth to infant mortality rates in its annual reports.

Dr. Callaghan's work on estimating rates of maternal deaths showed that the National Vital Statistics System (NVSS) was underreporting. In 2003, NCHS added a pregnancy checkbox to the U.S. death certificate to improve the ascertainment of pregnancy. Dr. Callaghan's work later highlighted problems with the pregnancy checkbox that have caused misclassification and skewed the NVSS maternal mortality rate. The data from this research continue to inform NCHS efforts to revise the algorithm used to classify maternal deaths in the United States with the first release of official maternal mortality estimates in over a decade in 2020.

Dr. Callaghan has authored more than 130 publications, five of which were nominated for the Charles C. Shepard Science Award. He was elected to the Mu Chapter of Delta Omega Honorary Society in Public Health and named the Annual Honorary Member for the Society for Maternal-Fetal Medicine. He has also successfully translated his work for lay audiences and policy makers, increasing his impact on his field. He has provided numerous congressional briefings, testimonies, and media interviews on rising maternal mortality rates and persistent racial and ethnic disparities. He has testified on C-SPAN and contributed to multiple articles on maternal mortality for media outlets such as ProPublica, The New York Times, and National Public Radio.

Chris C. Coffey, PhD, MS

National Institute for Occupational Safety and Health

Dr. Chris Coffey is a world-renowned researcher in respiratory protection with more than 40 years of experience at CDC providing national and world leadership in preventing workplace illnesses and injuries. His research to reduce exposures to inhalation hazards includes groundbreaking studies to understand respirator performance, with an emphasis on filtering facepiece respirators. Filtering facepiece respirators are used by more than 20 million U.S. workers where workers are exposed to hazardous aerosol exposures. These respirators are used routinely and stockpiled in the event of a pandemic or public health emergency.

Results of Dr. Coffey's research have contributed to U.S. and international policies, procedures, standards, and equipment. In 1995, his research led to the establishment of the new classification scheme for particulate air-purifying respirators established by NIOSH. Dr. Coffey assisted in the development of the NIOSH Criteria for a Recommended Standard: Occupational Exposure to Respirable Coal Mine Dust. His contributions resulted in recommendations to support the reduction of the chronic exposure to respirable coal mine dust, which can cause lung diseases including coal workers' pneumoconiosis, emphysema, silicosis, and chronic bronchitis, known collectively as "black lung." These diseases are debilitating and can result in disability and premature death. From 1995 through 2004, more than 10,000 miners died of black lung, and since 1970, the federal government has paid more than \$44 billion in federal black lung benefits to former miners, widows, and dependents.

Dr. Coffey's exceptional work has been acknowledged with the American Industrial Hygiene Association's John M. White Award three times as well as a NIOSH Bullard-Sherwood Research-to-Practice Award. The John M. White Award recognized that Dr. Coffey's work enhanced the respirator knowledge base and provided new insights that will lead to improved employee protection. Dr. Coffey has also been nominated for the CDC Charles C. Shepard Science Award three times, and he also has received a NIOSH Alice Hamilton Science Award.

Dr. Coffey served as an adjunct professor of industrial engineering and systems management for 20 years at the College of Engineering and Mineral Resources at West Virginia University. He has also been a member of the Occupational Health and Safety Advisory Committee at West Virginia University and has served as a reviewer for the Journal of Occupational and Environmental Health.

Robert Fontaine, MD, MS

Center for Global Health

Dr. Robert Fontaine's career in field epidemiology, beginning as Epidemic Intelligence Service (EIS) officer in 1973, has focused on using data from outbreak investigations, surveillance systems, and applied epidemiological research to identify and solve public health problems.

Much of Dr. Fontaine's work has been accomplished while living abroad or working with global partners from headquarters. It has involved resource limited environments, collaborating across cultures and languages, and living in countries with different values, priorities, and health challenges from those in the United States. He has persevered to help train hundreds, if not thousands, of epidemiologists, strengthen public health systems, and improve health for millions. China, Jordan and Saudi Arabia, where he spent a combined 20 years, benefitted most directly with 261 advanced field epidemiology training program graduates mentored. At least 10 other Central American, East Asian, and Central Asian countries and their neighbors have also benefited from his years of involvement with their programs from headquarters. Finally, the U.S. has benefited from the partnerships developed with these countries and because he helped improve their ability to contain health threats before they spread to disrupt global health and trade.

Dr. Fontaine has authored or co-authored more than 50 scientific publications, commentaries and book chapters on a variety of field epidemiology topics. These papers have been published in some of the most influential scientific publications, including *JAMA*, *The New England Journal of Medicine*, *Nature*, *The Lancet*, and *Annals of Internal Medicine*. According to Google Scholar, a quarter of them have been cited more than 50 times by other professionals, showing how his work has influenced science.

While CDC scientists serving overseas are routinely expected to leave the country in which they are serving after 6 years, the government of China lobbied CDC to extend Dr. Fontaine's tenure for an additional 2 years. The Chinese government awarded him its highest award for foreigners, the prestigious Friend of China Award, for contributions to developing their field epidemiology training program. After serving 9 years and training between 10 and 20 Chinese field epidemiology training program staff each year, Dr. Fontaine helped change China's approach to the practice of public health, which has ultimately improved public health for nearly one-fifth of the world's population.

Muin J. Khoury, MD, PhD

Office of Science

Dr. Muin Khoury is the world's leading public health geneticist. Few CDC leaders have had as great an impact on public health science and practice. With 587 peer-reviewed, scientific publications and 28,817 citations, he is the only CDC scientist listed among the most highly cited researchers and may be CDC's most cited scientist.

Since he began work at CDC as an Epidemic Intelligence Officer in 1980, Dr. Khoury has promoted new ways of conducting public health practice and even launched new fields within it. Early on, he became one of the first medical geneticists and genetic epidemiologists working at CDC. He has since been instrumental in practicing and promoting the benefits of his unique skills. He had the vision and entrepreneurial drive to propose and launch the Office of Public Health Genomics in 1997, serving as the office director ever since. As a result of his work, the field is now well established.

Dr. Khoury's birth defects work has provided important information for public health and clinical care in describing trends in survival of birth defects such as spina bifida, the contribution of birth defects to infant mortality among racial and ethnic groups, and the reproductive and child health outcomes among Vietnam veterans as part of the investigation of health status and Agent Orange. His work on family history as a public health tool has documented the importance of this risk factor for preventing adult conditions such as diabetes, heart disease, and selected cancers. He led the development of the first algorithm-based family history risk stratification tool, which led to the creation of the surgeon general's My Family Health Portrait tool, which is on the CDC website and received more than 1.4 million views in 2019 alone.

While his list of awards is too numerous to mention, Dr. Khoury also enjoys teaching and mentoring the next generation of epidemiologists, clinical geneticists, and public health professionals. In 2019, he led several CDC University courses and webinars about scientific topics and resources available to public health scientists and programs. He also has been an adjunct professor at the Emory University Rollins School of Public Health since 1992, where he has taught a course in genetic epidemiology for more than 25 years.

Beverly Metchock, DrPH, D(ABMM)

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

For more than 30 years, Beverly Metchock, DrPH, D(ABMM), has been at the forefront of improving understanding of antibiotic resistance and advancing testing practices in clinical and public health laboratories. As a diplomate of the American Board of Medical Microbiology, her laboratory expertise, work ethic, and ability to evaluate complex situations have improved our understanding of the genetic basis of drug resistance in *Mycobacterium tuberculosis*, the cause of TB. Her efforts have helped standardize phenotypic drug-susceptibility testing and established CDC as an internationally recognized resource for clinical and reference laboratory testing services for detecting mutations associated with resistance in this organism.

In 2009, Dr. Metchock established one of the first nationally available programs in the world for rapidly detecting mutations associated with drug resistance in TB. This program, the CDC Molecular Detection of Drug Resistance Service (MDDR), has been a model for other global programs in establishing a national service, including the importance of clear reporting language and the availability of expert consultation to aid interpretation.

When MDDR was established, Dr. Metchock took on tremendous personal responsibility because of the newness of the national service and the knowledge gaps regarding this type of testing. However, Dr. Metchock felt a responsibility to public health and the patients being served. She supported providing the most advanced testing methods available and has continued to drive MDDR advancements through research and clinical collaboration. New testing algorithms and reporting schemes are being devised, and Dr. Metchock will continue to lead incorporation of state-of-the-art technologies to best serve TB patients around the world.

During her 22-year career at CDC, Dr. Metchock and her team have been awarded numerous accolades. One that is particularly special to her is the Laboratorian of the Year Award from the National TB Controllers Association. She has been a part of numerous international and national workshops and consultations and is an internationally recognized expert in clinical laboratory testing of *M. tuberculosis* and the rapid detection of mutations associated with drug resistance. Dr. Metchock has authored or contributed to dozens of peer-reviewed publications and multiple book chapters. As a widely recognized expert, she is often an invited presenter for national and international venues because she is a willing and gifted teacher.

Jim Pirkle, MD, PhD

National Center for Environmental Health

During his nearly 40 years at CDC, Dr. Jim Pirkle has made substantial contributions to an array of public health problems that affect the health of every American. His human environmental exposure assessment of lead, tobacco smoke, and currently the vaping lung injury response, have led to national recommendations to safeguard public health. His efforts to improve human exposure assessment have helped establish biomonitoring as an integral part of public health practice and evidence-based decision making to reduce or eliminate harmful exposures to chemicals.

Dr. Pirkle has worked for more than 40 years to build reference laboratories that provide measurements applied as standards for other labs. By sharing analytical methods in the peer-reviewed literature, on the Internet, in on-site training sessions, and professional meetings, Dr. Pirkle and his team have amplified the application of Division of Laboratory Science (DLS) methods to thousands of federal, state, local, academic, commercial, and international laboratories.

His work has contributed to the use of DLS newborn screening methods for more than 30 treatable newborn diseases by all state newborn screening labs and 83 other countries, the technology transfer to more than 25 U.S. states of DLS methods to measure dozens of chemical threat agents, the National Biomonitoring Quality Assurance Program, which provides external quality assurance to state biomonitoring measurements of environmental chemicals, and analytical methods for biomonitoring measurements of more than 300 environmental chemicals to numerous requesting labs.

Dr. Pirkle's most important accomplishments have been his contributions to building DLS laboratories, whose quality and scientific achievements in public health are well-recognized nationally and internationally. He has authored or co-authored 133 published articles and has received more than 20 honors of recognition including the Arnall Patz Lifetime Achievement Award (awarded by Emory University School of Medicine alumni), the Assistant Secretary for Health's Award for Exceptional Achievement, the Commissioned Corps Distinguished Service Medal, and the Charles C. Shepard Award for Laboratory and Methods. He has made more than 100 presentations on public health laboratory science, including invited briefings for Congress, five HHS secretaries, the secretary of Homeland Security, NIH director, National Cancer Institute, Public Health Service committees, EPA, and several scientific health organizations. Dr. Pirkle's commitment to laboratory quality and results have been continually certified by the Clinical Laboratory Improvement Amendments.



Previous Winners

2019

ASSESSMENT

Samir K. Saha, Stephanie J. Schrag, Shams El Arifeen, Luke C. Mullany, Mohammad Shahidul Islam, Nong Shang, Shamim A. Qazi, Anita K. M. Zaidi, Zulfiqar A. Bhutta, Anuradha Bose, Pinaki Panigrahi, Sajid B. Soofi, Nicholas E. Connor, Dipak K. Mitra, Rita Isaac, Jonas M. Winchell, Melissa L. Arvay, Maksuda Islam, Yasir Shafiq, Imran Nisar, Benazir Baloch, Furqan Kabir, Murtaza Ali, Maureen H. Diaz, Radhanath Satpathy, Pritish Nanda, Bijaya K. Padhi, Sailajanandan Parida, Aneeta Hotwani, M. Hasanuzzaman, Sheraz Ahmed, Mohammad Belal Hossain, Shabina Ariff, Imran Ahmed, Syed Mamun Ibne Moin, Arif Mahmud, Jessica L. Waller, Iftekhar Rafiqullah, Mohammad A. Quaiyum, Nazma Begum, Veeraraghavan Balaji, Jasmin Halen, A. S. M. Nawshad Uddin Ahmed, Martin W. Weber, Davidson H. Hamer, Patricia L. Hibberd, Qazi Sadeq-Ur Rahman, Venkat Raghava Mogan, Tanvir Hossain, Lesley McGee, Shalini Anandan, Anran Liu, Kalpana Panigrahi, Asha Mary Abraham, and Abdullah H. Baqui

Causes and Incidence of Community-acquired Serious Infections Among Young Children in South Asia (ANISA): An Observational Cohort Study

The Lancet 2018;392(10142):145–159

DATA METHODS AND STUDY DESIGN

Diba Khana, Lauren M. Rossen, Holly Hedegaard, and Margaret Warner

A Bayesian Spatial and Temporal Modeling Approach to Mapping Geographic Variation in Mortality Rates for Subnational Areas with R-INLA

Journal of Data Science 2018;16(1):147–182

LABORATORY SCIENCE

Markus H. Kainulainen, Jessica R. Spengler, Stephen R. Welch, JoAnn D. Coleman-McCray, Jessica R. Harmon, John D. Klena, Stuart T. Nichol, César G. Albariño, and Christina F. Spiropoulou

Use of a Scalable Replicon-partide Vaccine to Protect Against Lethal Lassa Virus Infection in the Guinea Pig Model

The Journal of Infectious Diseases 2018;217(12):1957–1966

PREVENTION AND CONTROL

Khalequ Zaman Concepción F. Estívariz, Michelle Morales, Mohammad Yunus, Cynthia J. Snider, Howard E. Gary, Jr., William C. Weldon, M. Steven Oberste, Steven G. Wassilak, Mark A. Pallansch, and Abhijeet Anand

Immunogenicity of Type 2 Monovalent Oral and Inactivated Poliovirus Vaccines for Type 2 Poliovirus Outbreak Response: An Open-label, Randomised Controlled Trial

The Lancet Infectious Diseases 2018;18(6):657–665

LIFETIME SCIENTIFIC ACHIEVEMENT

Rima Khabbaz, MD

Dr. Khabbaz was recognized for her leadership at the forefront of public health efforts to prevent and control emerging infectious diseases.

2018

ASSESSMENT

A. Danielle Iuliano, Katherine M. Roguski, Howard H. Chang, David J. Muscatello, Rakhee Palekar, Stefano Tempia, Cheryl Cohen, Jon Michael Gran, Dena Schanzer, Benjamin J. Cowling, Peng Wu, Jan Kyncl, Li Wei Ang, Minah Park, Monika Redlberger-Fritz, Hongjie Yu, Laura Espenhain, Anand Krishnan, Gideon Emukule, Liselotte van Asten, Susana Pereira da Silva, Suchunya Aungkulanon, Udo Buchholz, Marc-Alain Widdowson, and Joseph S. Bresee, for the Global Seasonal Influenza-associated Mortality Collaborator Network

Estimates of Global Seasonal Influenza-associated Respiratory Mortality: A Modelling Study

The Lancet 2018;391:1285–1300

DATA METHODS AND STUDY DESIGN

Ellsworth M. Campbell, Hongwei Jia, Anupama Shankar, Debra Hanson, Wei Luo, Silvina Masciotra, S. Michele Owen, Alexandra M. Oster, Romeo R. Galang, Michael W. Spiller, Sara J. Blosser, Erika Chapman, Jeremy C. Roseberry, Jessica Gentry, Pamela Pontones, Joan Duwve, Paula Peyrani, Ron M. Kagan, Jeannette M. Whitcomb, Philip J. Peters, Walid Heneine, John T. Brooks, and William M. Switzer

Detailed Transmission Network Analysis of a Large Opiate-driven Outbreak of HIV Infection in the United States

The Journal of Infectious Diseases 2017;216(9):1053–1062

LABORATORY SCIENCE

Amrita Kumar, Jin Hyang Kim, Priya Ranjan, Maureen G. Metcalfe, Weiping Cao, Margarita Mishina, Shivaprakash Gangappa, Zhu Guo, Edward S. Boyden, Sherif Zaki, Ian York, Adolfo García-Sastre, Michael Shaw, and Suryaprakash Sambhara

Influenza Virus Exploits Tunneling Nanotubes for Cell-to-Cell Spread

Scientific Reports 2017; doi: 10.1038/srep40360

PREVENTION AND CONTROL

Rahi Abouk, Scott D. Grosse, Elizabeth C. Ailes, and Matthew E. Oster

Association of U.S. State Implementation of Newborn Screening Policies for Critical Congenital Heart Disease with Early Infant Cardiac Deaths

JAMA 2017;318(21):2111–2118

LIFETIME SCIENTIFIC ACHIEVEMENT

Steven L. Cochi, MD, MPH

Dr. Cochi was recognized for helping to shape national and international immunization policy and strategies to reduce the burden of vaccine-preventable diseases and helping to develop the Global Polio Eradication Initiative.

2017

ASSESSMENT

Katherine E. Fleming-Dutra, Adam L. Hersh, Daniel J. Shapiro, Monina Bartoces, Eva A. Enns, Thomas M. File, Jr., Jonathan A. Finkelstein, Jeffrey S. Gerber, David Y. Hyun, Jeffrey A. Linder, Ruth Lynfield, David J. Margolis, Larissa S. May, Daniel Merenstein, Joshua P. Metlay, Jason G. Newland, Jay F. Piccirillo, Rebecca M. Roberts, Guillermo V. Sanchez, Katie J. Suda, Ann Thomas, Teri Moser Woo, Rachel M. Zetts, and Lauri A. Hicks

Prevalence of Inappropriate Antibiotic Prescriptions Among U.S. Ambulatory Care Visits,
JAMA 2016;315(17):1864–1873

DATA METHODS AND STUDY DESIGN

Samuel S. Shepard, Sarah Meno, Justin Bahl, Malania M. Wilson, John Barnes, and Elizabeth Neuhaus

Viral Deep Sequencing Needs an Adaptive Approach: IRMA, the Iterative Refinement Meta-Assembler

BMC Genomics 2016;17:801

LABORATORY SCIENCE

Sabine M. G. van der Sanden, Weilin Wu, Naomi Dybdahl-Sissoko, William C. Weldon, Paula Brooks, Jason O'Donnell, Les P. Jones, Cedric Brown, S. Mark Tompkins, M. Steven Oberste, Jon Karpilow, and Ralph A. Tripp

Engineering Enhanced Vaccine Cell Lines to Eradicate Vaccine-Preventable Diseases: The Polio End Game

Journal of Virology 2016;90(4):1694–1704

PREVENTION AND CONTROL

Philip J. Peters, Pamela Pontones, Karen W. Hoover, Monita R. Patel, Romeo R. Galang, Jessica Shields, Sara J. Blosser, Michael W. Spiller, Brittany Combs, William M. Switzer, Caitlin Conrad, Jessica Gentry, Yury Khudyakov, Dorothy Waterhouse, S. Michele Owen, Erika Chapman, Jeremy C. Roseberry, Veronica McCants, Paul J. Weidle, Dita Broz, Taraz Samandari, Jonathan Mermin, Jennifer Walthall, John T. Brooks, and Joan M. Duwve, for the Indiana HIV Outbreak Investigation Team

HIV Infection Linked to Injection Use of Oxycodone in Indiana, 2014–2015

The New England Journal of Medicine 2016;375(3):229–2394

LIFETIME SCIENTIFIC ACHIEVEMENT

Patrick J. Lammie, PhD

Dr. Lammie was recognized for his wide-ranging research and work to control and eliminate neglected parasitic diseases, particularly lymphatic filariasis.

2016

ASSESSMENT

Alexandra M. Oster, Joel O. Wertheim, Angela L. Hernandez,
Marie Cheryl Bañez Ocfemia, Neeraja Saduvala, and H. Irene Hall

Using Molecular HIV Surveillance Data to Understand Transmission Between Subpopulations in the United States

Journal of Acquired Immune Deficiency Syndromes 2015;70:444–451

DATA METHODS AND STUDY DESIGN

Jacek Skarbinski, Eli Rosenberg, Gabriela Paz-Bailey, H. Irene Hall, Charles E. Rose,
Abigail H. Viall, Jennifer L. Fagan, Amy Lansky, Jonathan H. Mermin

Human Immunodeficiency Virus Transmission at Each Step of the Care Continuum in the United States

JAMA Internal Medicine 2015;175(4):588–596

LABORATORY SCIENCE

David S. Campo, Guo-Liang Xia, Zoya Dimitrova, Yulin Lin, Joseph C. Forbi,
Lilia Ganova-Raeva, Lili Punkova, Sumathi Ramachandran, Hong Thai, Pavel Skums,
Seth Sims, Inna Rytsareva, Gilberto Vaughan, Ha-Jung Roh, Michael A. Purdy,
Amanda Sue, and Yury Khudyakov s

Accurate Genetic Detection of Hepatitis C Virus Transmissions in Outbreak Settings

The Journal of Infectious Diseases 2015;213(6):957–965

PREVENTION AND CONTROL

Concepción F. Estivariz, Abhijeet Anand, Howard E. Gary Jr., Mahmudur Rahman,
Jannatul Islam, Tajul I. Bari, Steven G.F. Wassilak, Susan Y. Chu, William C. Weldon,
Mark A. Pallansch, James D. Heffelfinger, Stephen P. Luby, Khalequ Zaman

Immunogenicity of Three Doses of Bivalent, Trivalent, or Type 1 Monovalent Oral Poliovirus Vaccines with a 2-Week Interval Between Doses in Bangladesh: An Open-label, Non-inferiority, Randomised, Controlled Trial

The Lancet Infectious Diseases 2015;15:898–904

DATA METHODS AND STUDY DESIGN

Krista S. Crider, Owen Devine, Ling Hao, Nicole F. Dowling, Song Li, Anne M. Molloy, Zhu Li, Jianghui Zhu, and Robert J. Berry

Population Red Blood Cell Folate Concentrations for Prevention of Neural Tube Defects: Bayesian Model

The BMJ (clinical research edition) 2014;349:g4554

LABORATORY SCIENCE

Hua Yang, Jessie C. Chang, Zhu Guo, Paul J. Carney, David A. Shore, Ruben O. Donis, Nancy J. Cox, Julie M. Villanueva, Alexander I. Klimov, and James Stevens

Structural Stability of Influenza A(H1N1)pdm09 Virus Hemagglutinins

Journal of Virology 2014;88(9):4828–4838

PREVENTION AND CONTROL

The RTS,S Clinical Trials Partnership

Efficacy and Safety of the RTS,S/AS01 Malaria Vaccine During 18 Months After Vaccination: A Phase 3 Randomized, Controlled Trial in Children and Young Infants at 11 African Sites

PLoS Medicine 2014;11(7):e1001685

LIFETIME SCIENTIFIC ACHIEVEMENT

Patricia M. Griffin, MD

Dr. Griffin was recognized for her expertise in foodborne and enteric infections and her contributions to the science of food safety.

2014

ASSESSMENT

Nadira K. Sultana, Samir K. Saha, Hassan M. Al-Emran, Joyanta K. Modak, M. A. Yushuf Sharker, Shams El-Arifeen, Adam L. Cohen, Abdullah H. Baqui, and Stephen P. Luby

Impact of Introduction of the *Haemophilus Influenzae* Type b Conjugate Vaccine into Childhood Immunization on Meningitis in Bangladeshi Infants

JAMA 2016;315(17):1864–1873

DATA METHODS AND STUDY DESIGN

Matthew W. Wheeler and A. John Bailer

An Empirical Comparison of Low-dose Extrapolation from Points of Departure (PoD) Compared to Extrapolations Based upon Methods that Account for Model Uncertainty

Regulatory Toxicology and Pharmacology 2013;67:75–82

LABORATORY SCIENCE

James M. Smith, Rachna Rastogi, Ryan S. Teller, Priya Srinivasan, Pedro M. M. Mesquita, Umadevi Nagaraja, Janet M. McNicholl, R. Michael Hendry, Chuong T. Dinh, Amy Martin, Betsy C. Herold, and Patrick F. Kiser

Intravaginal Ring Eluting Tenofovir Disoproxil Fumarate Completely Protects Macaques from Multiple Vaginal Simian-HIV Challenges

Proceedings of the National Academy of Sciences of the United States of America 2013;110(40):16145–16150

PREVENTION AND CONTROL

Tim McAfee, Kevin C. Davis, Robert L. Alexander Jr., Terry F. Pechacek, and Rebecca Bunnell

Effect of the First Federally Funded U.S. Antismoking National Media Campaign

The Lancet 2013;382(9909):2003–2011

LIFETIME SCIENTIFIC ACHIEVEMENT

Nancy J. Cox, PhD

Dr. Cox was recognized for her global leadership, expertise, mentorship, and scientific innovation in the epidemiology of influenza viruses and immunization.

2013

ASSESSMENT

Rachel M. Smith, Melissa K. Schaefer, Marion A. Kainer, Matthew Wise, Jennie Finks, Joan Duwve, Elizabeth Fontaine, Alvina Chu, Barbara Carothers, Amy Reilly, Jay Fiedler, Andrew D. Wiese, Christine Feaster, Lex Gibson, Stephanie Griese, Anne Purfield, Angela A. Cleveland, Kaitlin Benedict, Julie R. Harris, Mary E. Brandt, Dianna Blau, John Jernigan, J. Todd Weber, and Benjamin J. Park, for the Multistate Fungal Infection Outbreak Response Team

Fungal Infections Associated with Contaminated Methylprednisolone Injections—Preliminary Report

The New England Journal of Medicine 2012; doi: 10.1056/NEJMoa1213978

DATA METHODS AND STUDY DESIGN

Joseph Y. Abrams, John R. Copeland, Robert V. Tauxe, Kashmira A. Date, Ermias D. Belay, Rajal K. Mody, and Eric D. Mintz

Real-Time Modeling Used for Outbreak Management During a Cholera Epidemic, Haiti, 2010–2011

Epidemiology and Infection 2012; doi: 10.1017/S0950268812001793

LABORATORY SCIENCE

Yen T. Duong, Maofeng Qiu, Anindya K. De, Keisha Jackson, Trudy Dobbs, Andrea A. Kim, John N. Nkengasong, and Bharat S. Parekh

Detection of Recent HIV-1 Infection Using a New Infection Limiting-antigen Avidity Assay: Potential for HIV-1 Incidence Estimates and Avidity Maturation Studies

PLoS ONE 2012;7(3):e33328

PREVENTION AND CONTROL

Yan T. Novak, Jean Ludovic Kambou, Fabien V. K. Diomandé, Tiga F. Tarbangdo, Rasmata Ouédraogo-Traoré, Lassana Sangaré, Clement Lingani, Stacey W Martin, Cynthia Hatcher, Leonard W. Mayer, F. Marc LaForce, Fenella Avokey, Mamoudou H. Djingarey, Nancy E. Messonnier, Sylvestre R. Tiendrébéogo, and Thomas A. Clark

Serogroup A Meningococcal Conjugate Vaccination in Burkina Faso: Analysis of National Surveillance Data

The Lancet Infectious Diseases 2012;12(1):757–764

LIFETIME SCIENTIFIC ACHIEVEMENT

Larry J. Anderson, MD

Dr. Anderson was recognized for his innovative research on respiratory syncytial virus and its disease burden in the United States.

2012

ASSESSMENT

Concepción F. Estívariz, Hamid Jafari, Roland W. Sutter, T. Jacob John, Vibhor Jain, Ashutosh Agarwal, Harish Verma, Mark A. Pallansch, Ajit P. Singh, Sherine Guirguis, Jitendra Awale, Anthony Burton, Sunil Bahl, Arani Chatterjee, and R. Bruce Aylward

Immunogenicity of Supplemental Doses of Poliovirus Vaccine for Children Aged 6–9 Months in Moradabad, India: A Community-based Randomized Controlled Trial

The Lancet Infectious Diseases 2012;12(2):128–135 (published online 2011)

DATA METHODS AND STUDY DESIGN

Alula Hadgu, Nandini Dendukuri, and Liangliang Wang

Evaluation of Screening Tests for Detecting Chlamydia trachomatis Bias Associated with the Patient-infected-status Algorithm Epidemiology

Epidemiology 2012;23(1):72–82 (published online 2011)

LABORATORY SCIENCE

Brian H. Bird, Louis H. Maartens, Shelley Campbell, Baltus J. Erasmus, Bobbie R. Erickson, Kimberly A. Dodd, Christina F. Spiropoulou, Deborah Cannon, Clifton P. Drew, Barbara Knust, Anita K. McElroy, Marina L. Khristova, César G. Albariño, and Stuart T. Nichol

Rift Valley Fever Virus Vaccine Lacking the NSs and NSm Genes Is Safe, Nonteratogenic, and Confers Protection from Viremia, Pyrexia, and Abortion

Journal of Virology 2011;85(24):12901–1290949

PREVENTION AND CONTROL

Timothy R. Sterling, M. Elsa Villarino, Andrey S. Borisov, Nong Shang, Fred Gordin, Erin Bliven-Sizemore, Judith Hackman, Carol Dukes Hamilton, Dick Menzies, Amy Kerrigan, Stephen E. Weis, Marc Weiner, Diane Wing, Marcus B. Conde, Lorna Bozeman, C. Robert Horsburgh, and Richard E. Chaisson, for the TB Trials Consortium PREVENT TB Study Team

Three Months of Rifapentine and Isoniazid for Latent Tuberculosis Infection

The New England Journal of Medicine 2011;365(23):2155–2166

LIFETIME SCIENTIFIC ACHIEVEMENT

Henry Falk, MD, MPH

Dr. Falk was recognized for his expertise and global leadership in environmental health science and public health policy and practice.

2011

ASSESSMENT AND EPIDEMIOLOGY

Stacy M. Holzbauer, Aaron S. DeVries, James J. Sejvar, Christine H. Lees, Jennifer Adjemian, Jennifer H. McQuiston, Carlota Medus, Catherine A. Lexau, Julie R. Harris, Sergio E. Recuenco, Ermias D. Belay, James F. Howell, Bryan F. Buss, Mady Hornig, John D. Gibbins, Scott E. Brueck, Kirk E. Smith, Richard N. Danila, W. Ian Lipkin, Daniel H. Lachance, P. James B. Dyck, and Ruth Lynfield

Abattoir Workers Exposed to Porcine Brain

PLoS One 2010;5(3):e9782

LABORATORY AND METHODS

Robert D. Gilmore, Jr., Rebekah R. Howison, Gabrielle Dietrich, Toni G. Patton, Dawn R. Clifton, and James A. Carroll

The bba64 Gene of *Borrelia burgdorferi*, the Lyme Disease Agent, Is Critical for Mammalian Infection via Tick Bite Transmission

The Proceedings of the National Academy of Sciences of the United States of America 2010;107(16):7515–7520

PREVENTION AND CONTROL

Charles S. Chasela, Michael G. Hudgens, Denise J. Jamieson, Dumbani Kayira, Mina C. Hosseini-pour, Athena P. Kourtis, Francis Martinson, Gerald Tegha, Rodney J. Knight, Yusuf I. Ahmed, Deborah D. Kamwendo, Irving F. Hoffman, Sascha R. Ellington, Zebrone Kacheche, Alice Soko, Jeffrey B. Wiener, Susan A. Fiscus, Peter Kazembe, Innocent A. Mofolo, Maggie Chigwenembe, Dorothy S. Sichali, and Charles M. van der Horst, for the Breastfeeding, Antiretroviral, and Nutrition Study Group

Maternal or Infant Antiretroviral Drugs to Reduce HIV-1 Transmission

The New England Journal of Medicine 2010;362(24):2271–2281

LIFETIME SCIENTIFIC ACHIEVEMENT

Kathleen Kreiss, MD

Dr. Kreiss was recognized as a world-renowned expert in occupational respiratory disease. She has improved workplace safety by encouraging the use of safer materials and better work practices and controls.

2010

ASSESSMENT AND EPIDEMIOLOGY

Fatimah S. Dawood, Seema Jain, Lyn Finelli, Michael W. Shaw, Stephen Lindstrom, Rebecca J. Garten, Larisa V. Gubareva, Xiyan Xu, Carolyn B. Bridges, and Timothy M. Uyeki

Emergence of a Novel Swine-origin Influenza A (H1N1) Virus in Humans

The New England Journal of Medicine 2009;360:2605–2615

LABORATORY AND METHODS

Joseph U. Igietseme, Qing He, Kahaliah Joseph, Francis O. Eko, Deborah Lyn, Godwin Ananaba, Angela Campbell, Claudiu Banda, and Carolyn M. Black

Role of T Lymphocytes in the Pathogenesis of Chlamydia Disease

The Journal of Infectious Diseases 2009;200:926–934 51

PREVENTION AND CONTROL

Sandra L. Decker

Changes in Medicaid Physician Fees and Patterns of Ambulatory Care

Inquiry 2009;46(3):291–304

Manish Patel, Cristina Pedreira, Lucia Helena De Oliveira, Jacqueline Tate, Maribel Orozco, Juan Mercado, Alcides Gonzalez, Omar Alespin, Juan José Amador, Jazmina Umaña, Angel Balmaseda, Maria Celina Perez, Jon Gentsch, Tara Kerin, Jennifer Hull, Slavica Mijatovic, Jon Andrus, and Umesh Parashar

Association Between Pentavalent Rotavirus Vaccine and Severe Rotavirus Diarrhea Among Children in Nicaragua

JAMA 2009;301(21):2243–2251

LIFETIME SCIENTIFIC ACHIEVEMENT

Polly Marchbanks, PhD, MSN

Dr. Marchbanks was recognized for her global leadership and research, particularly in the area of contraception.

2009

ASSESSMENT AND EPIDEMIOLOGY

H. Irene Hall, Ruiguang Song, Philip Rhodes, Joseph Prejean, Qian An, Lisa M. Lee, John Karon, Ron Brookmeyer, Edward H. Kaplan, Matthew T. McKenna, and Robert S. Janssen, for the HIV Incidence Surveillance Group

Estimation of HIV Incidence in the United States

JAMA 2008;300:520–529

LABORATORY AND METHODS

Tracie L. Williams, Leah Luna, Zhu Guo, Nancy J. Cox, James L. Pirkle, Ruben O. Donis, and John R. Barr

Quantification of Influenza Virus Hemagglutinins in Complex Mixtures Using Isotope Dilution Tandem Mass Spectrometry

Vaccine 2008;26:2510–2520

PREVENTION AND CONTROL

Larissa Roux, Michael Pratt, Tammy O. Tengs, Michelle M. Yore, Teri L. Yanagawa, Jill Van Den Bos, Candace Rutt, Ross C. Brownson, Kenneth E. Powell, Gregory Heath, Harold W. Kohl III, Steven Teutsch, John Cawley, I-Min Lee, Linda West, and David M. Buchner

Cost Effectiveness of Community-based Physical Activity Interventions

American Journal of Preventive Medicine 2008;35:578–588

LIFETIME SCIENTIFIC ACHIEVEMENT

Stephen B. Thacker, MD, MSc

Dr. Thacker was recognized for his leadership and his work in fostering scientific communication and training of future leaders in public health. He has overseen the Epidemic Intelligence Service program since 1989, and under his direction, the first CDC plan for surveillance was completed in 1985.

2008

ASSESSMENT AND EPIDEMIOLOGY

Earl S. Ford, Umed A. Ajani, Janet B. Croft, Julia A. Critchley, Darwin R. Labarthe, Thomas E. Kottke, Wayne H. Giles, and Simon Capewell

Explaining the Decrease in U.S. Deaths from Coronary Disease, 1980–2000

The New England Journal of Medicine 2007;356:2388–2398

LABORATORY AND METHODS

Terrence M. Tumpey, Christopher F. Basler, Patricia V. Aguilar, Hui Zeng, Alicia Solórzano, David E. Swayne, Nancy J. Cox, Jacqueline M. Katz, Jeffery K. Taubenberger, Peter Palese, and Adolfo García-Sastre

A Two-Amino Acid Change in the Hemagglutinin of the 1918 Influenza Virus Abolishes Transmission

Science 2007;315:655–659

PREVENTION AND CONTROL

R. Louise Floyd, Mark Sobell, Mary M. Velasquez, Karen Ingersoll, Mary Nettleman, Linda Sobell, Patricia Dolan Mullen, Sherry Ceperich, Kirk von Sternberg, Burt Bolton, Bradley Skarpness, and Jyothi Nagaraja, for the Project CHOICES Efficacy Study Group

Preventing Alcohol-Exposed Pregnancies: A Randomized Controlled Trial

American Journal of Preventive Medicine 2007;32:1–10

LIFETIME SCIENTIFIC ACHIEVEMENT

Vincent Castranova, PhD

Dr. Castranova was recognized for his leadership in laboratory-based occupational health research. His contributions to the understanding of the biology of lung cells have been translated into the practical study of lung diseases and development of prevention programs.

2007

ASSESSMENT AND EPIDEMIOLOGY

Wolfgang Hladik, Shelia C. Dollard, Jonathan Mermin, Ashley L. Fowlkes, Robert Downing, Minal M. Amin, Flora Banage, Esau Nzaro, Peter Kataaha, Timothy J. Dondero, Philip E. Pellett, and Eve M. Lackritz

Transmission of Human Herpesvirus 8 by Blood Transfusion

The New England Journal of Medicine 2006;355:1331–1338

LABORATORY AND METHODS

Mary A. Hoelscher, Sanjay Garg, Dinesh S. Bangari, Jessica A. Belser, Xiuhua Lu, Iain Stephenson, Rick A. Bright, Jacqueline M. Katz, Suresh K. Mittal, and Suryaprakash Sambhara

Development of Adenoviral-vector-based Pandemic Influenza Vaccine against Antigenically Distinct Human H5N1 Strains in Mice

The Lancet 2006;368:1495–1502

PREVENTION AND CONTROL

Cynthia G. Whitney, Tamar Pilishvili, Monica M. Farley, William Schaffner, Allen S. Craig, Ruth Lynfield, Ann-Christine Nyquist, Kenneth A. Gershman, Marietta Vazquez, Nancy M. Bennett, Arthur Reingold, Ann Thomas, Mary P. Glode, Elizabeth R. Zell, James H. Jorgensen, Bernard Beall, and Anne Schuchat

Effectiveness of Seven-valent Pneumococcal Conjugate Vaccine Against Invasive Pneumococcal Disease: A Matched Case-control Study

The Lancet 2006;368:1495–1502

LIFETIME SCIENTIFIC ACHIEVEMENT

Roger I. Glass, MD, PhD, MPH

Dr. Glass was recognized for his leadership and accomplishments in viral gastroenteritis. His work led to the recognition of rotavirus as a problem in the United States and to development of a rotavirus vaccine to be used worldwide.

2006

ASSESSMENT AND EPIDEMIOLOGY

Lee Warner, Maurizio Macaluso, Harland D. Austin, David K. Kleinbaum, Lynn Artz, Michael E. Fleenor, Ilene Brill, Daniel R. Newman, and Edward W. Hook III

Application of the Case-crossover Design to Reduce Unmeasured Confounding in Studies of Condom Effectiveness

American Journal of Epidemiology 2005;161:765–773

Katherine M. Flegal, Barry I. Graubard, David F. Williamson, and Mitchell H. Gail

Excess Deaths Associated With Underweight, Overweight, and Obesity

JAMA 2005;293:1861–1867

LABORATORY AND METHODS

Terrence M. Tumpey, Christopher F. Basler, Patricia V. Aguilar, Hui Zeng, Alicia Solórzano, David E. Swayne, Nancy J. Cox, Jacqueline M. Katz, Jeffery K. Taubenberger, Peter Palese, and Adolfo García-Sastre

Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus

Science 2005;310(5745):77–80

PREVENTION AND CONTROL

Stephen P. Luby, Mubina Agboatwalla, Daniel R. Feikin, John Painter, Ward Billhimer, Arshad Altaf, and Robert M. Hoekstra

Effect of Handwashing on Child Health: A Randomised Controlled Trial

The Lancet 2005;366:225–233

LIFETIME SCIENTIFIC ACHIEVEMENT

Robert V. Tauxe, MD, MPH

Dr. Tauxe was recognized for his leadership in the prevention and control of foodborne diseases in the United States and internationally. His work and that of his colleagues have resulted in dramatic changes in foodborne disease surveillance, outbreak detection, practices, and policies.

2005

ASSESSMENT AND EPIDEMIOLOGY

Barbara Lopes Cardozo, Oleg O. Bilukha, Carol A. Gotway Crawford, Irshad Shaikh, Mitchell I. Wolfe, Michael L. Gerber, and Mark Anderson

Mental Health, Social Functioning, and Disability in Postwar Afghanistan

JAMA 2004;292:575–584

LABORATORY AND METHODS

Justin M. Hettick, Michael L. Kashon, Janet P. Simpson, Paul D. Siegel, Gerald H. Mazurek, and David N. Weissman

Proteomic Profiling of Intact Mycobacteria by Matrix-Assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry

Analytical Chemistry 2004;76:5769–5776

PREVENTION AND CONTROL

Marc Bulterys, Denise J. Jamieson, Mary Jo O’Sullivan, Mardge H. Cohen, Robert Maupin, Steven Nesheim, Mayris P. Webber, Russell Van Dyke, Jeffrey Wiener, and Bernard M. Branson, for the Mother-Infant Rapid Intervention at Delivery (MIRIAD) Study Group

Rapid HIV-1 Testing During Labor: A Multicenter Study

JAMA 2004;292:219–223

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

William H. Hannon, Barbara W. Adams, and Robert F. Vogt

National Center for Environmental Health/Agency for Toxic Substances and Disease Registry

Newborn Screening Quality Assurance Program

LIFETIME SCIENTIFIC ACHIEVEMENT

James M. Hughes, MD

Dr. Hughes was recognized for his expertise in infectious diseases and bioterrorism and response. His leadership in addressing emerging and reemerging global threats has brought global prominence to CDC and improved public health infrastructures nationwide.

2004

ASSESSMENT AND EPIDEMIOLOGY

Jennita Reefhuis, Margaret A. Honein, Cynthia G. Whitney, Shadi Chamany, Eric A. Mann, Krista R. Biernath, Karen Broder, Susan Manning, Swati Avashia, Marcia Victor, Pamela Costa, Owen Devine, Ann Graham, and Coleen Boyle

Risk of Bacterial Meningitis in Children with Cochlear Implants

The New England Journal of Medicine 2003;349:435–445

LABORATORY AND METHODS

Thomas G. Ksiazek, Dean Erdman, Cynthia S. Goldsmith, Sherif R. Zaki, Teresa Peret, Shannon Emery, Suxiang Tong, Carlo Urbani, James A. Comer, Wilina Lim, Pierre E. Rollin, Scott F. Dowell, Ai-Ee Ling, Charles D. Humphrey, Wun-Ju Shieh, Jeannette Guarner, Christopher D. Paddock, Paul Rota, Barry Fields, Joseph DeRisi, Jyh-Yuan Yang, Nancy Cox, James M. Hughes, James W. LeDuc, William J. Bellini, Larry J. Anderson, and the SARS Working Group

A Novel Coronavirus Associated with Severe Acute Respiratory Syndrome

The New England Journal of Medicine 2003;348:1953–1966

PREVENTION AND CONTROL

Cynthia G. Whitney, Monica M. Farley, James Hadler, Lee H. Harrison, Nancy M. Bennett, Ruth Lynfield, Arthur Reingold, Paul R. Cieslak, Tamara Piliushvili, Delois Jackson, Richard R. Facklam, James H. Jorgensen, and Anne Schuchat, for the Active Bacterial Core Surveillance of the Emerging Infections Program Network

Decline in Invasive Pneumococcal Disease After the Introduction of Protein-polysaccharide Conjugate Vaccine

The New England Journal of Medicine 2003;348:1737–1746

LIFETIME SCIENTIFIC ACHIEVEMENT

Harold W. Jaffe, MD

Dr. Jaffe was recognized as a national and international leader in the disease investigation of HIV/AIDS, which has increased scientific knowledge about HIV/AIDS and improved national and international approaches to prevention and control.

Walter A. Orenstein, MD

Dr. Orenstein was recognized for his leadership in reducing the occurrence of vaccine-preventable diseases in children. His work has been critical to the development of national vaccine policy and global immunization strategies.

2003

ASSESSMENT AND EPIDEMIOLOGY

Polly A. Marchbanks, Jill A. McDonald, Hoyt G. Wilson, Suzanne G. Folger, Michele G. Mandel, Janet R. Daling, Leslie Bernstein, Kathleen E. Malone, Giske Ursin, Brian L. Strom, Sandra A. Norman, Linda K. Weiss, Phyllis Wingo, Michael S. Simon, Ronald T. Burkman, Jesse A. Berlin, and Robert Spirtas

Oral Contraceptives and the Risk of Breast Cancer

The New England Journal of Medicine 2002;346:2025–2032

LABORATORY AND METHODS

Bharat S. Parekh, M. Susan Kennedy, Trudy Dobbs, Chou-Pong Pau, Robert Byers, Timothy Green, Dale J. Hu, Suphak Vanichseni, Nancy L. Young, Kachit Choopanya, Timothy D. Mastro, and J. Steven McDougal

Quantitative Detection of Increasing HIV Type 1 Antibodies After Seroconversion: A Simple Assay for Detecting Recent HIV Infection and Estimating Incidence

AIDS Research and Human Retroviruses 2002;18:295–307

PREVENTION AND CONTROL

Robert E. Quick, Akiko C. Kimura, Angelica Thevos, Mathias Tembo, Isidore Shamputa, Lori Hutwagner, and Eric Mintz

Diarrhea Prevention Through Household-level Water Disinfection and Safe Storage in Zambia

The American Journal of Tropical Medicine and Hygiene 2002;66:584–589

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

Barbara Lopes Cardozo, Bradley A. Woodruff, Muireann Brennan, and Paul B. Spiegel

National Center for Environmental Health International Emergency and Refugee Health Branch

LIFETIME SCIENTIFIC ACHIEVEMENT

William R. Jarvis, MD

Dr. Jarvis was recognized as a leader in the study of nosocomial infections and other threats to the safety of patients and healthcare workers. His research has led to interventions to reduce these risks and to the development of prevention guidelines.

2002

ASSESSMENT AND EPIDEMIOLOGY

Trudy V. Murphy, Paul M. Gargiulo, Mehran S. Massoudi, David B. Nelson, Aisha O. Jumaan, Catherine A. Okoro, Lynn R. Zanardi, Sabeena Setia, Elizabeth Fair, Charles W. LeBaron, Melinda Wharton, John R. Livengood, and Benjamin Schwartz, for the Rotavirus Intussusception Inspection Team

Intussusception Among Infants Given an Oral Rotavirus Vaccine

The New England Journal of Medicine 2001;344:564–572

LABORATORY AND METHODS

Brent S. Davis, Gwong-Jen J. Chang, Bruce Cropp, John T. Roehrig, Denise A. Martin, Carl J. Mitchell, Richard Bowen, and Michel L. Bunning

West Nile Virus Recombinant DNA Vaccine Protects Mouse and Horse from Virus Challenge and Expresses in vitro a Noninfectious Recombinant Antigen that Can Be Used in Enzyme-linked Immunosorbent Assays

Journal of Virology 2001;75:4040–4047

PREVENTION AND CONTROL

Belinda E. Ostrowsky, William E. Trick, Annette H. Sohn, Stephen B. Quirk, Stacey Holt, Loretta A. Carson, Bertha C. Hill, Matthew J. Arduino, Matthew J. Kuehnert, and William R. Jarvis

Control of Vancomycin-resistant Enterococcus in Health Care Facilities in a Region

The New England Journal of Medicine 2001;344:1427–1433

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

Ronald M. Davis, Gary A. Giovino, Michael D. Erikson, and the Office on Smoking and Health

National Center for Chronic Disease Prevention and Health Promotion

LIFETIME SCIENTIFIC ACHIEVEMENT

Gerald R. Cooper, MD, PhD

Dr. Cooper was recognized for his leadership in improving laboratory measures of lipids that led to the establishment of the CDC Lipid Standardization Program.

2001

ASSESSMENT AND EPIDEMIOLOGY

Paul B. Spiegel and Peter Salama

War and Mortality in Kosovo, 1998–99: An Epidemiological Testimony

The Lancet 2000;335:2204–2209

LABORATORY AND METHODS

K.B. Chua, William J. Bellini, Paul A. Rota, Brian H. Harcourt, Azaibi Tamin, S.K. Lam, Thomas G. Ksiazek, Pierre E. Rollin, Sherif R. Zaki, Wun-Ju Shieh, Cynthia S. Goldsmith, Duane J. Gubler, John T. Roehrig, B. Eaton, A.R. Gould, Jim Olson, H. Field, P. Daniels, A.E. Ling, Clarence J. Peters, Larry J. Anderson, and Brian W.J. Mahy

Nipah Virus: A Recently Emergent Deadly Paramyxovirus

Science 2000;288:1432–1435

PREVENTION AND CONTROL

Carolyn Buxton Bridges, William W. Thompson, Martin I. Meltzer, Gordon R. Reeve, Walter J. Talamonti, Nancy J. Cox, Heather A. Lilac, Henrietta Hall, Alexander Klimov, and Keiji Fukuda

Effectiveness and Cost-benefit of Influenza Vaccination of Healthy Working Adults: A Randomized Controlled Trial

JAMA 2000;284:1655–1662

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

National Center for Chronic Disease Prevention and Health Promotion

Behavioral Risk Factor Surveillance System

LIFETIME SCIENTIFIC ACHIEVEMENT

Joseph Edward McDade, PhD

Dr. McDade was the first to identify the bacterium *Legionella pneumophila* as the cause of the well-known outbreak of Legionnaires' disease. In the 1980s, he identified the cause of a previously unknown tickborne disease, ehrlichiosis.

2000

ASSESSMENT AND EPIDEMIOLOGY

Nathan Shaffer, Rutt Chuachoowong, Philip A. Mock, Chaiporn Bhadrakom, Wimol Siriwasin, Nancy L. Young, Tawee Chotpitayasunondh, Sanay Chearskul, Anuvant Roongpisuthipong, Pratham Chinayon, John Karon, Timothy D. Mastro, and R.J. Simonds

Short-course Zidovudine for Perinatal HIV-1 Transmission in Bangkok, Thailand: A Randomised Controlled Trial

The Lancet 1999;353:773–780

1999

Robert S. Janssen, Glen A. Satten, Susan L. Stramer, Bhupat D. Rawal, Thomas R. O'Brien, Barbara J. Weiblen, Frederick M. Hecht, Noreen Jack, Farley R. Cleghorn, James O. Kahn, Margaret A. Chesney, and Michael P. Busch

New Testing Strategy to Detect Early HIV-1 Infection for Use in Incidence Estimates and for Clinical and Prevention Purposes

JAMA 1998;280:42–48

1998

Denise M. Cardo, David H. Culver, Carol A. Ciesielski, Pamela U. Srivastava, Ruthanne Marcus, Dominique Abiteboul, Julia Heptonstall, Giuseppe Ippolito, Florence Lot, Penny S. McKibben, and David M. Bell, for the Centers for Disease Control and Prevention Needlestick Surveillance Group

A Case-control Study of HIV Seroconversion in Health Care Workers after Percutaneous Exposure

The New England Journal of Medicine 1997;337:1485–1490

1997

Jennifer S. Rota, Janet L. Heath, Paul A. Rota, Gail E. King, María L. Celma, Juan Carabaña, Rafael Fernandez-Muñoz, David Brown, Li Jin, and William J. Bellini

Molecular Epidemiology of Measles Virus: Identification of Pathways of Transmission and Implications for Measles Elimination

The Journal of Infectious Diseases 1996;173:32–37

Diana E. Schendel, Cynthia J. Berg, Marshalyn Yeargin-Allsopp, Coleen A. Boyle, and Pierre Decoufle

Prenatal Magnesium Sulfate Exposure and the Risk for Cerebral Palsy or Mental Retardation Among Very Low-birth-weight Children Aged 3 to 5 Years

JAMA 1996;276:1805–1810

1996

Peter M. Strebel, Nicolae Ion-Nedelcu, Andrew L. Baughman, Roland W. Sutter, and Stephen L. Cochi

Intramuscular Injections Within 30 Days of Immunization with Oral Poliovirus Vaccine—A Risk Factor for Vaccine-associated Paralytic Poliomyelitis

The New England Journal of Medicine 1995;332:500–506

1995

Robert D. Brewer, Peter D. Morris, Thomas B. Cole, Stephanie Watkins, Michael J. Patetta, and Carol Popkin

The Risk of Dying in Alcohol-related Automobile Crashes Among Habitual Drunk Drivers

The New England Journal of Medicine 1994;331:513–517

1994

Michael E. St. Louis, Munkolenkole Kamenga, Christopher Brown, Ann Marie Nelson, Tarande Manzila, Veronique Batter, Frieda Behets, Uwa Kabagabo, Robert W. Ryder, Margaret Oxtoby, Thomas C. Quinn, and William L. Heyward

Risk for Perinatal HIV-1 Transmission According to Maternal Immunologic, Virologic, and Placental Factors

JAMA 1993;269:2853–2859

1993

Brian R. Edlin, Jerome I. Tokars, Michael H. Grieco, Jack T. Crawford, Julie Williams, Emelia M. Sordillo, Kenneth R. Ong, James O. Kilburn, Samuel W. Dooley, Kenneth G. Castro, William R. Jarvis, and Scott D. Holmberg

An Outbreak of Multidrug-resistant Tuberculosis Among Hospitalized Patients with the Acquired Immunodeficiency Syndrome

The New England Journal of Medicine 1992;326:1514–1521

1992

Marta Gwinn, Marguerite Pappaioanou, J. Richard George, W. Harry Hannon, Shari C. Wasser, Martha A. Redus, Rodney Hoff, George F. Grady, Anne Willoughby, Antonia C. Novello, Lyle R. Petersen, Timothy J. Dondero, and James W. Curran

Prevalence of HIV Infection in Childbearing Women in the United States

JAMA 1991;265:1704–1708

1991

Edward A. Belongia, Craig W. Hedberg, Gerald J. Gleich, Karen E. White, Arthur N. Mayeno, David A. Loegering, Sandra L. Dunnette, Phyllis L. Pirie, Kristine L. MacDonald, and Michael T. Osterholm

An Investigation of the Cause of the Eosinophilia-myalgia Syndrome Associated with Tryptophan Use

The New England Journal of Medicine 1990;323:357–365

1990

Patricia M. Griffin, Robert V. Tauxe, Stephen C. Redd, Nancy D. Puhr, Nancy Hargrett-Bean, and Paul A. Blake

Emergence of Highly Trimethoprim-sulfamethoxazole-Resistant Shigella in a Native American Population: An Epidemiologic Study

American Journal of Epidemiology 1989;129:1042–1051

1989

Chin-Yih Ou, Shirley Kwok, Sheila W. Mitchell, David H. Mack, John J. Sninsky, John W. Krebs, Paul Feorino, Donna Warfield, and Gerald Schochetman

DNA Amplification for Direct Detection of HIV-1 in DNA of Peripheral Blood Mononuclear Cells
Science 1988;239:295–297

1988

Rebeca Rico-Hesse, Mark A. Pallansch, Baldev K. Nottay, and Olen M. Kew

Geographic Distribution of Wild Poliovirus Type 1 Genotypes
Virology 1987;160:311–322

1987

J. Steven McDougal, M. Susan Kennedy, Julie M. Sligh, Sheila P. Cort, Alison C. Mawle, and Janet K. A. Nicholson

Binding of HTLV–III/LAV to T4+ T Cells by a Complex of the 100K Viral Protein and the T4 Molecule
Science 1986(4736);231:382–385

1986

Arthur L. Reingold, Claire V. Broome, Allen W. Hightower, Gloria W. Ajello, Gail A. Bolan, Catherine Adamsbaum, Ellen E. Jones, Catherine Phillips, Hilaire Tiendrebeogo, and Adamou Yada

Age-Specific Differences in Duration of Clinical Protection After Vaccination with Meningococcal Polysaccharide A Vaccine
The Lancet 1985;2:114–118



Previous Keynote Speakers

Following is a list of colleagues who have made keynote speeches at the Shepard Science Awards Ceremony since its inception.

2019

Jon D. Duke, MD, MS
Georgia Tech College of Computing
"Unlocking Big Data and Analytics for Public Health"

2018

Roberta Ness, MD
The University of Texas
"Innovation and Creativity in Public Health"

2017

John Cacioppo, PhD
University of Chicago Center for Cognitive & Social Neuroscience
"Loneliness: Public Health Implications and Potential Mechanisms"

2016

Zulfiqar A. Bhutta, PhD, MBBS
The Hospital for Sick Children
"Global Child Survival: Challenges and Opportunities"

2015

Anthony S. Fauci, MD
National Institute of Allergy and Infectious Diseases
"Advances to Public Health Implementation"

2014

John E. Wennberg, MD, MPH
The Dartmouth Institute for Health Policy and Clinical Practice
"Unwarranted Variation in Health Care"

2013

No keynote speech

2012

James S. Marks, MD, MPH
Robert Wood Johnson Foundation Health Group
"Making Science and Health Matter"

2011

Brian Greenwood, MD, CBE
London School of Hygiene & Tropical Medicine, University of London
"Vaccines for Global Health"

2010

John Holdren, PhD
White House Office of Science and Technology Policy
"Science and Technology Policy for Ensuring the Public's Health"

2009

Paul Krugman, PhD
Princeton University
Columnist, *The New York Times*
“Health and the Economic Future”

2008

Neal Nathanson, MD
University of Pennsylvania School
of Medicine
“AIDS Vaccine at the Crossroads”

2007

Michael Marmot, PhD, MPH
Institute for Society and Health,
University College, London
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Institute for Healthcare Improvement
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National Academy of Medicine
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University of Pennsylvania School
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New York University School of Medicine
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Marc L. Miringoff, PhD
Fordham Institute for Innovation in
Social Policy
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Harvard University
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Johns Hopkins University Bloomberg
School of Public Health
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Steven N. Blair, PED
The Cooper Institute
Columnist, *The New York Times*
*“Physical Inactivity as a
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Harborview Injury Prevention and
Research Center
*“Injury Control—The Uses of Science
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David R. Cox, MD, PhD
Stanford University School of Medicine
"The Human Genome Project and Human Disease"

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Walter E. Massey, PhD
Morehouse College
"Science—The (Ever-Expanding) Endless Frontier"

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Columbia University
"Uncongenial Genealogies: Prediction and Protection in the Public Interest"

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Thomas J. Coates, PhD
University of California at San Francisco
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W. French Anderson, MD
University of Southern California School of Medicine
"The Scientific, Ethical, and Regulatory Issues of Gene Therapy"

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Barry R. Bloom, PhD
Howard Hughes Medical Institute
"Revisiting Mycobacteria"

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Lawrence K. Altman, MD
The New York Times
"Science and the Media"

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Purnell W. Choppin, MD
Howard Hughes Medical Institute
"The Role of a Private Medical Research Organization in Biomedical Research and Education"

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Joseph L. Goldstein, MD
University of Texas Health Sciences Center
"Lipoprotein Receptors: A Genetic Defense Against and Atherosclerosis"

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David Baltimore, PhD
Hospital Whitehead Institute
Massachusetts Institute of Technology
"Genetics and Modern Disease"

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Frank Press, PhD
National Academy of Sciences
"DNA in Washington"

1986

James O. Mason, MD
Centers for Disease Control
"CDC, Science, and the Future"



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