

CDC 2004 Programs in Brief

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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Safer • Healthier • People

At the Centers for Disease Control and Prevention (CDC), these three words say it all. Whether our safety is threatened by environmental hazards, injuries at home or at work, or a myriad of other dangers, CDC scientists are on the hunt for both hazards and potential interventions. Likewise, our health can be jeopardized by old foes like tuberculosis or influenza, as well as newer ones like drug-resistant microbes, poor diets, or tobacco use. Again, CDC's scientists work here and abroad to track health threats and identify the many ways we can be healthier—as individuals and as communities. Finally, whether promoting health or safety, here or abroad, CDC's work is about serving and protecting people.

When CDC was formed in 1946, the acronym stood for “Communicable Disease Center.” Today, the acronym remains the same, but the agency and its partners tackle much more than communicable disease. Chronic disease, global health, bioterrorism, injury, disability, occupational health, and environmental health are all areas where CDC contributes to scientific knowledge and its application. CDC's sister agency, the Agency for Toxic Substances and Disease Registry (ATSDR), examines the specific health effects of hazardous waste sites and unplanned releases of toxins.

In spite of this wide range of topics and disciplines, common threads—particularly a commitment to accurate data, sound science, and prevention—are the foundation of CDC's and ATSDR's activities and programs.

Grouped in 16 categories, the *2004 Programs in Brief* descriptions provided here help to illustrate the scope of CDC's and ATSDR's activities, as well as their shared goals of safer, healthier people here and around the world. Each description includes a statement of the public health issue or problem, describes CDC's or ATSDR's activities and accomplishments, and identifies steps for moving forward.

ABOUT CDC

The Centers for Disease Control and Prevention (CDC) is recognized as the lead federal agency for protecting the health and safety of people—at home and abroad, providing credible information to enhance health decisions, and promoting health through strong partnerships. CDC serves as the national focus for developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve the health of the people of the United States.

CDC, located in Atlanta, Georgia, is an agency of the Department of Health and Human Services (HHS). Dr. Julie Louise Gerberding is the Director.

CDC 's VISION FOR THE 21ST CENTURY: HEALTHY PEOPLE IN A HEALTHY WORLD—THROUGH PREVENTION

At CDC, we work hard to make people safer and healthier. By charting decisive courses of action, collecting the right information, and working closely with other health and community organizations, CDC has been putting science into action to tackle important health problems since 1946. With more than 8,500 employees across the country, CDC plays a critical role in protecting the public from the most widespread, deadly and mysterious threats against our health today and tomorrow.

CDC 's MISSION: TO PROMOTE HEALTH AND QUALITY OF LIFE BY PREVENTING AND CONTROLLING DISEASE, INJURY, AND DISABILITY

CDC seeks to accomplish its mission by working with partners throughout the nation and world to monitor health, detect and investigate health problems, conduct research to enhance prevention, develop and advocate sound public health policies, implement prevention strategies, promote healthy behaviors, foster safe and healthful environments, and provide leadership and training.

CDC has developed and sustained many vital partnerships with public and private entities that improve service to the American people. In 2000, the workforce of CDC comprised about 8,500 full-time employees in 170 disciplines with a public health focus. Although CDC's national headquarters is in Atlanta, Georgia, more than 2,000 CDC employees work at other locations, including 47 state health departments. About 120 are assigned overseas in 45 countries. CDC includes 12 Centers, Institutes, and Offices.

CDC PROTECTS HEALTH AND SAFETY

Infectious diseases, such as HIV/AIDS and tuberculosis, have the ability to destroy lives, strain community resources, and even threaten nations. In today's global environment, new diseases have the potential to spread across the world in a matter of days, or even hours, making early detection and action more important than ever. CDC plays a critical role in controlling these diseases, traveling at a moment's notice to investigate outbreaks abroad or at home.

But disease outbreaks are only the beginning of our protective role. By assisting state and local health departments, CDC works to protect the public every day: from using innovative “fingerprinting” technology to identify a foodborne illness, to evaluating a family violence prevention program in an urban community;

from training partners in HIV education, to protecting children from vaccine preventable diseases through immunizations.

CDC PROVIDES CREDIBLE INFORMATION TO ENHANCE HEALTH DECISIONS

We recognize that the best, most up-to-date health information is meaningless unless it is accessible to those it is meant to serve. By working with public health and grassroots partners, and by leveraging the voices of the Internet, and communication media, we ensure the best health and safety information is accessible to the communities and people who need it every day.

CDC PROMOTES HEALTH THROUGH STRONG PARTNERSHIPS

The everyday world provides a series of obstacles to continued good health: pollution and congestion in the air we breathe; contamination in our water supply; unsafe conditions in our daily workplaces. CDC works side by side with national, state and local organizations to help protect communities from dangerous environmental exposures. We may feel secure in our own health. But regardless of how vigilant we might be, the fact remains: in every town, in every community, and in every family, we are vulnerable to hazards in our environment, in our workplace, and even in our home.

CDC alone cannot protect the health of the American people. However, by engaging with others—from state and local health departments to private corporations, from media outlets to the public—we can achieve our vision of a better world, with safer, healthier people.

FUTURE CHALLENGES

Challenges that CDC faces in the future are highlighted below. CDC's mission and programs clearly focus upon these challenges. Specific action steps for each challenge are described briefly.

Improving People's Health by Putting Science into Action

CDC will continue to carry out a range of activities to improve the nation's health, including: conducting research about underlying health behaviors and problems; developing, testing, and applying interventions; and tracking changes in health status over time. High priority health promotion topic areas to be undertaken or expanded by CDC include reducing tobacco use; increasing physical activity, reducing obesity, and providing practical guidance to the public about the influence of dietary patterns on health outcomes; promoting and improving the quality of life of older adults; and assuring the developmental well-being of children.

Preventing Violence and Unintentional Injury

Injury, the leading cause of death for Americans ages 1 to 44 years, is largely preventable. CDC will continue and expand its work in several areas, including youth violence prevention, violence against women, bicycle helmet usage and head injury prevention, and fire-related injury prevention. Research, interventions, and programs focused on preventing and reducing violence and injury among the elderly will also be conducted.

Meeting the Health and Safety Needs of a Changing Workforce

American workers are getting older and becoming more diverse. Jobs in the American economy continue to shift from manufacturing to services. Americans are working longer hours, and more workers are in temporary positions. Addressing the occupational safety and health ramifications of the evolving nature of work

for a workforce that likewise is changing is one of the greatest public health challenges facing us today.

Using New Technologies to Provide Credible Health Information

The virtual explosion of publicly accessible health information, coupled with new and readily available technologies, will continue to change the nature of how CDC and others within the public health community communicate with each other, our constituents, and the world at large. CDC will develop and enhance data collection methods and analysis, develop innovative data dissemination methods, publish scientific and public health information efficiently via the web and other electronic means, and expand informatics fellowships.

Protecting Individuals against Emerging Infectious Diseases including Bioterrorism

CDC will continue to fight against infectious diseases, with particular emphasis on emerging and antimicrobially resistant infectious diseases. We will reinforce international work to reduce and eliminate re-emergent infectious diseases. We will continue to strengthen local, state, and national public health capacity to respond to growing threats from biological and chemical terrorism.

Eliminating Racial/Ethnic Health Disparities

With the goal of eliminating health disparities in six major areas by 2010, CDC has embarked upon work that will result in new knowledge about the causes of health disparities, enhanced disease prevention programs for all individuals, innovative methods of promoting health, and delivery of culturally competent and linguistically specific preventive and clinical services.

Fostering Safe and Healthy Environments

Protecting the health of Americans from risks related to their environment is accomplished through CDC's programs and activities that identify and determine the scope of public health problems, conduct research to identify probable causes of these problems, collect data to monitor health concerns, and develop and evaluate public health programs. Although exposures to some environmental hazards have decreased because of new regulations and standards, people continue to be exposed to unnecessary environmental hazards.

Working with Partners to Improve Global Health

Improving and protecting the public's health inside the United States is not feasible unless CDC is also active outside the United States. In response to increasing globalization, CDC has developed a new global health strategy called *Working with Partners to Improve Global Health* to guide our international work in the new century.

Futures Initiative

As the nation's leading agency for protecting the health of Americans, CDC has an important role to play in support of the overall mission of the Department of Health and Human Services. Since June 2003, CDC has been engaged in a strategic transformation process, the Futures Initiative. The initiative was developed to take a fresh look at CDC and ensure that the agency will continue to have the capacity to protect and improve the health of the American people in the 21st century. The primary motivation for the Futures Initiative was the belief that by modernizing its strategy, CDC could enhance its overall impact on the health status of Americans.

Powerful forces are affecting our nation's health including an aging population, escalating health costs, in-

creasing population diversity, changes in access to healthcare services, health disparities, global connectivity, and global threats, terrorism, and epidemic chronic diseases including cardiovascular disease, obesity, and diabetes. In addition, new opportunities for increasing CDC's impact on health have emerged, including health information technology, global communication capabilities, new rapid diagnostic tools, and public health genomics.

The process underlying the Futures Initiative will preserve CDC's excellence in science, its reputation as a credible and trustworthy agency, and the quality of its workforce. We will strive to provide better service to our partners, customer, and stakeholders and to enhance our support of HHS' critical public health mission. We are focusing on input, ideas, implementation, and impact.

The Futures Initiative has identified some critical principles:

- Our future will focus on achieving the greatest health protection impact for our customers, the people of our nation.
- CDC will align its priorities and investments to achieve two overarching health protection goals:
- *Preparedness*: People in all communities will be protected from emerging infectious, environmental, and terrorist threats.
- *Health promotion/disease, injury, disability prevention*: All people will achieve their expected lifespan with the best possible quality of health in every life stage.
- CDC will be a customer-focused organization.
- Science must remain as the foundation upon which all CDC programs, policies, and practices are based.
- CDC will leverage its partnerships to achieve the maximum health impact

Throughout the stages of the Futures Initiative, we'll continue getting input from the Department of Health and Human Services, from CDC staff, from our external partners, from our stakeholders, and from many others, including the public. Together, we're creating a stronger, a more effective, and an exciting CDC. We're extremely optimistic about the Future of CDC—together we'll be able to meet whatever challenges face us in the 21st Century.

CDC ORGANIZATION

CDC is one of the major operating components of the Department of Health and Human Services. CDC's major organizational components respond individually in their areas of expertise and pool their resources and expertise on cross-cutting issues and specific health threats. CDC is comprised of these organizational components:

The **National Center on Birth Defects and Developmental Disabilities (NCBDDD)** provides national leadership for preventing birth defects and developmental disabilities and for improving the health and wellness of people with disabilities.

The **National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)** prevents premature death and disability from chronic diseases and promotes healthy personal behaviors.

The **National Center for Environmental Health (NCEH)** provides national leadership in preventing and

controlling disease and death resulting from the interactions between people and their environment.

The **National Center for Health Statistics (NCHS)** provides statistical information that will guide actions and policies to improve the health of the American people.

The **National Center for HIV, STD, and TB Prevention (NCHSTP)** provides national leadership in preventing and controlling HIV infection, sexually transmitted diseases, and tuberculosis.

The **National Center for Infectious Diseases (NCID)** prevents illness, disability, and death caused by infectious diseases in the United States and around the world.

The **National Center for Injury Prevention and Control (NCIPC)** prevents death and disability from nonoccupational injuries, including those that are unintentional and those that result from violence.

The **National Immunization Program (NIP)** prevents disease, disability, and death from vaccine-preventable diseases in children and adults.

The **National Institute for Occupational Safety and Health (NIOSH)** ensures safety and health for all people in the workplace through research and prevention.

The **Epidemiology Program Office (EPO)** strengthens the public health system by coordinating public health surveillance; providing support in scientific communications, statistics, and epidemiology; and training in surveillance, epidemiology, and prevention effectiveness.

The **Public Health Practice Program Office (PHPPO)** strengthens community practice of public health by creating an effective workforce, building information networks, conducting practice research, and ensuring laboratory quality.

The **Office of the Director (CDC/OD)** manages and directs the activities of CDC; provides overall direction to, and coordination of, the scientific/medical programs of CDC; and provides leadership, coordination, and assessment of administrative management activities.

CDC performs many of the administrative functions for the **Agency for Toxic Substances and Disease Registry (ATSDR)**, a sister agency of CDC. The Director of CDC also serves as the Administrator of ATSDR.

BIOTERRORISM AND PUBLIC HEALTH PREPAREDNESS

CDC has been responding to public health emergencies for decades and has been preparing for bioterrorism in particular since 1998. CDC's bioterrorism plans were put into action in fall 2001, with the first biological attack in the United States.

Outbreaks of anthrax proved that the first line of defense is rapid identification—essential for ensuring a prompt response to a biological or chemical attack so that exposure can be limited and those affected can be treated. To accomplish this, regional and state laboratories have strengthened their capacity to detect different biological and chemical agents and to communicate the results to CDC and others. Along the same lines, CDC's Health Alert Network has upgraded the capacity of state and local health agencies to detect and communicate different health threats—including bioterrorism, emerging infectious diseases, chronic diseases, and environmental hazards. This means that we reap the benefits of these investments every day, not just in the event of a bioterrorist attack.

Finally, to help treat victims of a bioterrorist attack, CDC has worked with pharmaceutical companies and other partners to create regional stockpiles of the drugs that would be needed quickly to treat man-made outbreaks of anthrax, plague, tularemia, or other diseases. This resource was essential in responding to the terrorist attacks of September 11, 2001, as well as to the ensuing anthrax outbreak.

Collectively, these measures strengthen the existing public health system while preparing for bioterrorism, infectious disease outbreaks, and other public health threats and emergencies.

LABORATORY RESPONSE TO BIOLOGICAL TERRORISM

WHAT IS THE PUBLIC HEALTH ISSUE?

- Because most bioterrorist agents rarely cause naturally occurring disease, the enhancement of national capacity to rapidly identify these agents remains critical, both at CDC and at state and local public health laboratories.
- Early detection and identification of disease agents is essential in making decisions regarding patient management, guiding epidemiologic investigations, assisting law enforcement, and deploying healthcare resources.

WHAT HAS CDC ACCOMPLISHED?

CDC's laboratory system delivers accurate and timely identification of any agent causing a public health threat, including both naturally occurring diseases and organisms that could be used in a biologic terrorism attack.

CDC, in collaboration with the Association of Public Health Laboratories and the Federal Bureau of Investigation, established the Laboratory Response Network in 1999 to develop federal, state, and local public health laboratory capacity to respond to bioterrorism events. This network is a strategic domestic and international partnership designed to link front-line clinical microbiology laboratories in hospitals and other institutions to state and local public health laboratories. It also supports advanced capacities of public health, military, veterinary, agricultural, water, chemical, and food-testing laboratories at the federal level.

Depending on a laboratory's ability to handle dangerous pathogens, the laboratory is designated either as a reference laboratory or a sentinel laboratory. Reference laboratories are the core, advanced technology public health laboratories that can provide confirmatory testing for agents in biosafety levels 3 and 4. This includes the centralized, state-of-the-art national reference laboratory located at CDC to rapidly and accurately identify any agent used in a biological terrorism attack (the Rapid Response and Advanced Technology Laboratory). Reference laboratories have access to a secure website which allows for timely reporting and monitoring. These reference laboratories (about 120 laboratories) can access online agent protocols, share information, and order reagents. Sentinel laboratories are the basic diagnostic facilities, such as hospital clinical laboratories, that initially identify likely bioterrorism agents and submit specimens to reference laboratories for confirmatory testing. The estimated 25,000 sentinel laboratories are geographically dispersed and play an important role in detecting and reporting possible outbreaks.

CDC, in collaboration with federal, state, and local partners, has identified the biological agents likely to be involved in a terrorist attack and is developing scientifically validated rapid assays to help detect these agents.

WHAT ARE THE NEXT STEPS?

- Continue to enhance capacity of laboratories to rapidly detect and identify agents likely to be used in a terrorist attack and provide crucial information to health professionals.
- Expand training and technical assistance to state and local public health laboratories to ensure they will be better prepared to respond in the event of a terrorist attack.
Increase the number of laboratory members in appropriate sentinel and reference laboratory capacities for human, animal, food, chemical, and environmental testing.
- Increase the number of available validated rapid assays and environmental sampling procedures for biological and chemical agents.
- Optimize communication methods and linkages to facilitate rapid, accurate, secure, data transfer.

NEW PARTNERSHIPS FOR TERRORISM PREPAREDNESS

WHAT IS THE PUBLIC HEALTH ISSUE?

The critical importance of links between business and public health was observed in the aftermath of the fall 2001 terrorism acts. Several problems were revealed in the wake of those events, including the following:

- Almost all the incidents occurred in the workplace, highlighting the workplace risks for the approximately 48% of Americans who are employed.
- The businesses directly affected by these incidents expressed a clear need for information and assistance to take appropriate action.
- The majority of businesses are not linked to their appropriate public health systems.
- The business sector has a wide array of valuable resources that can be shared with the public health system during urgent-need emergency responses.

Therefore, the real and functional links between employers and public health are being developed and strengthened as part of our nation's overall terrorism-preparedness planning.

WHAT HAS CDC ACCOMPLISHED?

To ensure sufficient collaboration between private sector entities within the business community and state and local public health systems, CDC is implementing a cooperative agreement with the National Business Group on Health (NBGH) on two related projects: first, to identify and make recommendations regarding gaps in planning and coordination between the business and public health communities, and second, to collect information and advice from business and public health leaders about steps businesses can take to prepare for, and respond to, a terrorism event. This information will be summarized in a terrorism-preparedness checklist for businesses.

To date, NBGH has worked with CDC, the Association of State and Territorial Health Officers, and the National Association of City and County Health Officials to identify and complete interviews with representatives from the business and public health sector, including organizations that were directly involved with the response to the terrorism events of September 11, 2001, and the subsequent anthrax attacks. These interviews have identified gaps in coordination between the business and public health sectors, and each group has made recommendations to address these gaps. Additionally, a business workgroup has been formed and is providing guidance regarding project activities.

WHAT ARE THE NEXT STEPS?

CDC and NBGH, along with the business workgroup, will be pilot-testing the preparedness checklist during project activities in 2004 and will subsequently disseminate their findings. These efforts will strengthen community-level coordination for terrorism preparedness, emergency response, and other urgent health events.

SELECT AGENT PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

CDC regulates the possession, use, and transfer of select biological agents and toxins that have the potential to pose a severe threat to public health and safety. CDC's Select Agent Program oversees these activities and registers all laboratories and other entities in the United States that possess, use, or transfer a select biological agent or toxin. *The Public Health Security and Bioterrorism Preparedness and Response Act of 2002* (the *Act*) requires entities to register with the U.S. Departments of Health and Human Services (HHS) or Agriculture (USDA) if they possess, use, or transfer select biological agents or toxins that could pose a severe threat to public health and safety; to animal or plant health; or animal or plant products. In addition to ensuring that laboratories safely handle these select biological agents and toxins, the *Act* also requires increased safeguards and security measures of these agents, including controlling access, screening entities and personnel (i.e., security risk assessments), and establishing a comprehensive and detailed national database of registered entities. The *Act* also imposes criminal and civil penalties for the inappropriate use of select biological agents and toxins.

WHAT HAS CDC ACCOMPLISHED?

The Select Agent Program enhances the government's ability to prevent, prepare, and respond to bioterrorism and other public health emergencies. Prior to 2002, these agents were not systematically tracked. The *Act* provides a framework for monitoring threat agents that travel along the highways, railways, waterways, and airways of states.

The *Act* required that HHS promulgate an interim final rule in 180 days, published in the *Federal Register* on December 13, 2002. The December 2002 interim final rule established a phase-in period for certain requirements to allow for compliance without causing disruption or termination of research or educational projects. As a result of delays in completing security risk assessments for individuals and entities, an amendment to the interim final rule authorized provisional approvals to continue critical biodefense research. The December 2002 interim final rule regulated academic institutions and biomedical centers; commercial manufacturing (e.g., the pharmaceutical industry) or distribution facilities; federal, state, and local laboratories (including clinical and diagnostic laboratories); and research facilities.

The Select Agent Program helps to implement the *Act* through

- Evaluation and/or approval of requests to possess, use, and store threat agents.
- Approval of transfer of agents among registered laboratories.
- Registration of laboratories that possess threat agents (including specific viruses, bacteria, rickettsia, fungi, toxins, and recombinant organisms/molecules).
- Inspection of laboratories to ensure appropriate safety and security.
- A new regulation, effective February 7, 2003, which facilitated the registration of 332 entities as of November 12, 2003, and inspection of 211 entities.

WHAT ARE THE NEXT STEPS?

CDC expects to publish a final rule regarding select agents and toxins in late 2004 to address public comments and concerns that have emerged during implementation of the interim final rule. A new information management system, with a Web-based interface to improve customer service, timeliness and data reliability, is being developed.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

SMALLPOX VACCINATION AND RESPONSE

WHAT IS THE PUBLIC HEALTH ISSUE?

Smallpox is an extremely contagious and dangerous disease where 30% of all cases result in death. The last reported case in the United States occurred in 1949. The ring vaccination method was used to contain and eliminate the disease. Overall, the smallpox vaccinations proved very successful. In 1972, the vaccine was no longer administered, and in 1980 it was announced that smallpox was eradicated from the world. The risks of being infected are minimal, but the United States must still be prepared to respond quickly in the event of a terrorist attack using the smallpox virus. The smallpox vaccine can often prevent or substantially lessen the severity of infection when administered within a few days of exposure. CDC is taking action to protect the public from the dangers of smallpox by establishing response plans, developing vaccination policy and procedures, and providing training to professionals. CDC is committed to helping public health and healthcare communities improve smallpox preparedness and response.

WHAT HAS CDC ACCOMPLISHED?

The list below highlights several of CDC's accomplishments regarding smallpox vaccination and demonstrates the growing success of its terrorism preparedness and response program.

- Supported the development of a federal plan to better protect people from the threat of smallpox.
- Collaborated with the Department of Health and Human Services's (HHS) Health Resources Services Administration to establish the Smallpox Vaccination Injury Compensation Program, authorized through the *Smallpox Emergency Personnel Protection Act of 2003* (Public Law 108-20, 117 Stat. 638). This program appropriated \$42 million to provide medical, lost employment income, and death benefits to eligible individuals.
- Provided all 62 state, local, and territorial State and Local Preparedness Cooperative Agreement grantees a summary of the smallpox "recipient activities" that are found in each of the Cooperative Agreement Focus Areas. This annex provided a framework for how grantees should include smallpox recipient activities in work plans for relevant Focus Areas.
- Requested and helped states develop pre-event and post-event response plans.
- Worked with state and local governments to form volunteer Smallpox Response Teams.
- Helped enhance the nation's supplies of smallpox vaccine and vaccinia immune globulin (VIG), a serum that is used to treat the most severe reactions to smallpox vaccine. The United States currently has sufficient quantities of the vaccine to vaccinate every person in the country in an emergency; there are sufficient quantities of VIG to treat all anticipated adverse events from the current vaccination program.
- Held 19 training and education sessions on smallpox that reached an estimated 800,000 clinicians, public health workers, and the general population.

WHAT ARE THE NEXT STEPS?

- While the federal government is not recommending that the general public be vaccinated at this time, HHS is developing a process for making unlicensed vaccine available to those adult members of the general public without medical contraindications who want to be vaccinated either in 2003 with unlicensed vaccine, or in 2004, with licensed vaccine.
- Post-vaccination surveillance will be conducted for people receiving the smallpox vaccine. CDC is providing vaccination training for laboratorians and information on their role in diagnosing adverse events associated with smallpox vaccination.
- Training and education for Smallpox Response Teams will be critical; and, therefore, these teams will be provided information and instructions about pre- and post- vaccination. CDC will continue to educate clinicians about smallpox in conjunction with medical professional organizations.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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STATE AND LOCAL READINESS

WHAT IS THE PUBLIC HEALTH ISSUE?

The prospect of terrorists unleashing biological, chemical, radiological, or conventional weapons is a terrifying one. To protect the health of Americans, a fully prepared public health system must be in place at the state and local levels—where public health begins and ends. As the lead federal agency for public health, CDC assists state and local health departments in preparations to respond to terrorism, infectious disease outbreaks, and other public health emergencies. A well-planned, rapid, and effective response is critical to saving lives.

Across the country, state and local health officials are reconsidering the capabilities of their health departments to respond to a biological, chemical, radiological, or conventional weapons terrorism incident. Traditionally, the responsibilities of the state health departments have been disease surveillance and management. Health departments now are expanding their roles to include responding effectively to an intentional release of a terrorist agent into an unsuspecting population.

WHAT HAS CDC ACCOMPLISHED?

Since 1999, CDC has provided funding and support for the State and Local Preparedness Cooperative Agreement Program. The purpose of this program is to upgrade state and local public health jurisdictions' preparedness for and response to terrorism, infectious disease outbreaks, and other public health threats and emergencies. These cooperative agreements comprise the largest public health program outside of Medicare.

Examples of Program in Action

Since its inception, planning activities for the State and Local Preparedness Program have spread from 5 states or localities to the current 50 states, 4 localities, and 8 U.S. territories. Specific accomplishments achieved by the state and local jurisdictions include

- 100% of participants have identified a state-wide Director of Bioterrorism.
- 98% have established a Bioterrorism Advisory Committee.
- 91% can initiate a field investigation within 6 hours of an urgent disease report from all parts of a jurisdiction on a 24/7 basis.
- 100% established a timeline for a state-wide plan.
- 95% indicate a 24/7 system is in place to activate the response plans.
- 82% have systems established to rapidly detect a terrorist event through mandatory disease reporting.

CDC also initiated the current Public Health Preparedness Project. Working with subject matter experts within CDC and across public health, this project will define public health preparedness indicators. These indicators will improve strategic planning and management of CDC's cooperative agreements. By providing an evaluation framework, the indicators will also link preparedness levels to measurement of progress toward the long-term goals and measures of CDC's terrorism program.

WHAT ARE THE NEXT STEPS?

Because a chemical, biological, radiological or nuclear (CBRN) attack will most likely occur locally, disease-tracking systems at state and local health agencies must be ready to detect unusual patterns of disease and injury, and epidemiologists at these agencies must have expertise and resources for responding to reports of rare, unusual, or unexplained illnesses. CDC is also developing new methods to rapidly detect, evaluate, and report suspicious health events that might indicate natural or intentional CBRN releases for all state health departments and selected major metropolitan cities and territories.

STRATEGIC NATIONAL STOCKPILE

WHAT IS THE PUBLIC HEALTH ISSUE?

- An act of terrorism (or large-scale natural disaster) targeting the U.S. civilian population will require rapid access to large quantities of pharmaceuticals and medical supplies.
- Such quantities of pharmaceuticals and medical supplies may not be readily available unless special stockpiles are created.
- Few state or local governments have the resources to create stockpiles on their own. In addition, this would be inefficient due to the shelf life of medical supplies, requiring ongoing logistics management.
- No one can anticipate exactly when, where, or how a terrorist will strike.

WHAT HAS CDC ACCOMPLISHED?

In 1999, Congress charged the Department of Health and Human Services (HHS) and CDC with establishing the National Pharmaceutical Stockpile (NPS). In March 2003, NPS became the Strategic National Stockpile (SNS), managed jointly by the Department of Homeland Security (DHS) and HHS. The SNS is a national repository of antibiotics, chemical antidotes, antitoxins, life-support medications, IV administration supplies, airway maintenance supplies, and medical/surgical items. The SNS supplements and re-supplies state and local public health agencies within 12 hours of federal deployment. The SNS program works with governmental and nongovernmental partners to upgrade the nation's public health capacity for responding to a national emergency and manages and distributes SNS assets.

Example of Program in Action

The SNS program delivers 12-hour push packages to locations in the United States or its territories within 12 hours of federal deployment. Concurrent with the transportation of SNS assets, the SNS program will deploy its Technical Advisory Response Unit (TARU). The TARU staff will coordinate with state and local officials to ensure SNS assets are efficiently managed and used upon delivery. If additional pharmaceuticals and/or medical supplies are required, follow-on vendor managed inventory (VMI) supplies are shipped to arrive within 24 to 36 hours. If well-defined, VMI can be tailored to provide pharmaceuticals, supplies, and/or products specific to the suspected or confirmed agent(s).

WHAT ARE THE NEXT STEPS?

The CHEMPACK Project is an initiative to augment the nation's ability to respond to a chemical or nerve agent terrorist attack. While many states have been preparing for such an attack, CHEMPACK places federally owned antidote and symptomatic treatments in cities across the nation. It will remain federal property and remain in secure, monitored, and environmentally-controlled storage, unless locally needed for use in a chemical or nerve agent incident. As long as CHEMPACK material remains federal property, the material may be included in the Shelf-Life Extension Program (SLEP) of the Food and Drug Administration. Provided SLEP testing continues to certify its effectiveness, CHEMPACK provides readiness capability for a fraction of its replacement cost.

What Does This Mean For States?

The emergency response concept enhances state and local first response activities in an emergency. The SNS team arrives within 12 hours of federal deployment, with pharmaceuticals and other medical material and equipment. The state receives, per established priorities, support for as long as required. The SNS Logistics team will constantly update what is kept in stock to ensure it supports the needs of states. Additionally, the SNS program purchases items not stocked and provides training and technical assistance to states, major cities, and U.S. territories.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TERRORISM PREPAREDNESS AND EMERGENCY RESPONSE

WHAT IS THE PUBLIC HEALTH ISSUE?

New and emerging health risks associated with mass trauma events and chemical, biological, radiological, and nuclear (CBRN) agents are increasing matters of concern. Consequently, the role of our public health system is changing to include new areas of concern, such as public health law, forensic epidemiology, and national security.

This expansion has reshaped public health practice, and requires public health preparation for and response to emergencies in a more effective, efficient, and coordinated way. While embracing this new role, public health's cardinal responsibility remains the same—to protect people's health. CDC is committed to enhancing preparedness and emergency response expertise. Core competencies, such as detection; investigation and response; control, containment and recovery; laboratory science; and research have driven past successes and will now provide the foundation for renewed efforts to protect the public from ever changing health threats.

WHAT HAS CDC ACCOMPLISHED?

The list below highlights several of CDC's accomplishments in this emerging area and demonstrates the growing success of its terrorism preparedness and response program.

- Enrolled 25 new laboratories into the national Laboratory Response Network, bringing the total to 121.
- Continued to manage the State and Local Preparedness Cooperative Agreement and provided updated guidance to all 62 grantees.
- Successfully maintained the Strategic National Stockpile (SNS) with 12-hour push packages, ensuring onsite delivery within 12 hours.
- Administered the Select Agent Program, resulting in 332 entities being registered, 211 inspections completed, 131 select agent transfers tracked, and the publication of an interim Final Rule, amending the applicability requirements to allow provisional registration certificates.
- Established an agency-wide public health strategy for terrorism preparedness and response.
- Increased the availability of respirators certified against CBRN agents for first responders based on rigorous laboratory tests, evaluation of product specifications, and assessment of the manufacturer's quality control procedures.
- Issued criteria for testing/certifying CBRN Escape Respirators intended to reduce toxic exposures in the workplace.
- Participated in exercises such as TopOff2, Global Mercury, and Unified Defense 2003 to improve coordinated emergency response.
- Supported state and local public health departments' preparedness capabilities such that 95% of grantees indicate that round the clock systems are in place to activate response plans; 100% identified a state-wide Director of Bioterrorism; and 87% developed plans to receive and manage the SNS.
- Posted over 1,200 notifications on reports of outbreaks on the *Epidemic Information Exchange (Epi-X)*, CDC's nationwide secure communications system. *Epi-X* connects more than 1,800 public health officials, fills requests for epidemiologic assistance, and announces terrorist threats or acts.

WHAT ARE THE NEXT STEPS?

CDC is committed to strengthening the nation's public health system. CDC will continue providing technical assistance to states, improving laboratory capacity to detect biological and chemical agents, detecting emerging threats through a local/national data collection system, developing personal protective equipment technologies, and ensuring health information reaches all clinicians through a comprehensive network of satellite and other communication capacities.

BIRTH DEFECTS AND DEVELOPMENTAL DISABILITIES

Each year in the United States, 1 in 33 babies is born with a birth defect, amounting to 150,000 births. Another 3,000 babies are born with severe disorders that may not be obvious, but that can be detected—and treated—as early as possible, thanks to screening of dried blood spots collected at birth. In both arenas—prevention and early intervention—CDC has provided scientific leadership to laboratories, intervention programs, and media and education campaigns.

In about 25% of the cases, the causes of birth defects and developmental disabilities are known. For example, insufficient folic acid (a B vitamin) in pregnant women can lead to spina bifida (spine defects) and anencephaly (brain defects) in their infants; alcohol consumed during pregnancy can lead to Fetal Alcohol Syndrome. Because many women do not know they are pregnant until several weeks after conception, education about prevention measures (such as taking folic acid to prevent these defects, or avoiding alcohol) needs to reach women before they become pregnant. CDC is working to raise awareness of these and other prevention measures through media campaigns and specific education targeting physicians who provide routine medical care.

For the 75% of cases for which causes are still unknown, CDC supports national, regional, and local research efforts designed to discover the maternal, nutritional, genetic, and other risk factors that contribute to these conditions. Newborn screening is another detection and research tool that helps identify severe but hidden conditions as early as possible, when treatment can help make a difference. To help ensure a link between screening and follow-up, CDC is conducting a study of early detection and interventions related to hearing loss, which has potential application not only for other states but also for other conditions revealed by newborn screening. CDC also monitors the quality of newborn screening services across the country and is recognized as the worldwide expert in the most important tool for newborn screening: dried blood spot technologies.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

WHAT IS THE PUBLIC HEALTH ISSUE?

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurobehavioral disorder that affects almost 4 million school-aged children and can last into adulthood. The symptoms characterized with ADHD are unusually high and chronic levels of inattention, impulsivity/hyperactivity, or both. Relationships with peers and family members and performance at school or work may significantly be impaired if untreated. Studies also show that ADHD patients tend to have higher injury and healthcare use rates. Many children with ADHD have other impairing behavioral or learning problems. Adolescents and adults who have ADHD and another serious mental health condition have shown in recent studies to participate in illegal substances, risky behavior, and/or criminal activities more often than children who do not suffer from ADHD.

The scientifically supported treatment for ADHD is multimodal, using both medication and behavioral therapies in combination. Controversies over the wide use and safety of medication treatments have increased over the last decades, and many questions still remain unanswered about the specific risks and benefits of medication therapies in the long-term.

WHAT HAS CDC ACCOMPLISHED?

- Sites in Oklahoma, South Carolina, and Virginia were awarded cooperative agreements to conduct community-based research on ADHD, which included population-based studies of prevalence, risk factors, coexisting conditions, and community treatment.
- The Federal Interagency Working Group on Child Mental Health (publishers of *America's Children*) and CDC have collaborated with other federal agencies to elicit heightened awareness about mental health conditions affecting children.
- CDC funded Children and Adults with Hyperactivity-Attention Deficit Disorder (CHADD) to establish the National Resource Center on ADHD.
- CDC designed and implemented a study methodology for conducting the community-based research in three locations in the United States.
- CDC published a peer-reviewed journal article on ADHD in children and associations with maternal mental health status using a national data set.

WHAT ARE THE NEXT STEPS?

- Complete data collection for community-based ADHD studies and begin data analysis in collaboration with grantees.
- Continue to work with partners to promote data collection and to apply epidemiologic methodology to the study of ADHD.
- Strengthen collaborations with federal and nonfederal partners.
- Sustain the development and distribution of ADHD health education and outreach materials.
- Work with CHADD to further develop the National Resource Center on ADHD.

DISABILITY AND HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

Fifty-four million Americans are living with a functional limitation associated with a long-term physical, sensory, or cognitive condition. The annual economic cost associated with disabling conditions is an estimated \$300 billion. People with disabilities report higher rates of depression, anxiety, obesity, and acute pain in comparison to non-disabled persons. People with disabilities also report less access to healthcare compared to non-disabled populations.

CDC sponsors programs supporting the health, well-being, independence, productivity, and full societal participation of people with disabilities. These programs support research on risk factors for poor health and well-being; research on measures of health, functioning, and disability; data collection on the prevalence of disabilities and the health status of people with disabilities; health promotion interventions; and the implementation of public health policies related to disability and health. These initiatives also work to reduce the incidence and severity of secondary conditions such as pressure sores (decubitus ulcers), urinary tract infection, depression, and obesity.

WHAT HAS CDC ACCOMPLISHED?

- There are 16 states supported by CDC for various activities including disability surveillance, health promotion interventions, health education, and resource and policy development. The states awarded funding are Arkansas, California, Illinois, Iowa, Massachusetts, Montana, New Jersey, New York, New Mexico, North Carolina, Oregon, Rhode Island, South Carolina, Virginia, Vermont, and Washington.
- Extramural research projects have been implemented to increase the understanding of occurrence, risk/protective factors, costs associated with secondary conditions, and the impact of disability among special populations such as women, children, and racial/ethnic minorities.
- Three National Information Centers were awarded funds to provide comprehensive information and resource material to people with disabilities, their families, caregivers, and healthcare professionals. These centers include the National Center on Physical Activity and Disability, the National Limb Loss Information Center, and the Christopher and Dana Reeve Paralysis Resource Center.
- Conferences were supported to facilitate and stimulate dialogue; disseminate and exchange information; establish research and policy priorities; and outline and undertake next steps.
- CDC funded *Living Well with a Disability*, a community-based intervention which demonstrated that health promotion activities targeting people with disabilities not only improve health and wellness but also save money by reducing the frequency of medical visits.

WHAT ARE THE NEXT STEPS?

- Continue to translate research findings into practice to improve the lives of people living with disabilities, including encouraging the implementation of the *Living Well with a Disability* program.
- Develop and disseminate health information to individuals with disabilities and their families.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

EARLY HEARING DETECTION AND INTERVENTION

WHAT IS THE PUBLIC HEALTH ISSUE?

Hearing loss occurs in 12,000 babies each year (3 of every 1,000). Developmental delays can occur if hearing loss goes undetected. Early Hearing Detection and Intervention (EHDI) is a national initiative that supports the early identification of infants with hearing loss. The initiative uses hearing screening; audiologic and medical evaluation; and enrollment in early intervention services when appropriate. The average age of identification of children with hearing loss is 1.5 to 3 years of age, without EHDI programs, which research suggests is already past the start of the critical period for optimal speech and language acquisition. Families and professionals can make sure the child receives intervention services at an early age if a child's hearing loss is identified soon after birth. EHDI promotes early treatment for children with hearing loss to develop communication and language skills that will last a lifetime.

WHAT HAS CDC ACCOMPLISHED?

- A multi-state study was launched to evaluate the causes of hearing loss in newborns and young children.
- A prototype database was developed to provide state profiles. All EHDI information will be available to state health departments, other government agencies, parents, and other interested parties.
- A study in Utah was financed to determine the economic costs of screening, follow-up, and diagnosis associated with EHDI programs.
- Funding was provided for a study in Hawaii to evaluate the effectiveness of early identification and intervention in children with hearing loss.
- CDC initiated a study on the accuracy of the two-stage method of screening infants for hearing loss to determine if some infants with mild loss are missed.
- CDC partnered with the Health Resources and Services Administration to fund a multi-state investigation to determine the reasons children do not complete the EHDI process and to develop strategies to reduce this "loss to follow-up."
- CDC funded 30 states to track infants who screen positive for hearing loss to determine if they receive appropriate diagnostic and intervention services.

WHAT ARE THE NEXT STEPS?

- Continue to work with states to develop a more comprehensive database for monitoring progress on the following national *Healthy People 2010* goals: all infants are to be screened for hearing loss before 1 month of age, preferably before they are discharged from the hospital; infants who screen positive for hearing loss will be referred for an audiological evaluation before 3 months of age; and infants with confirmed hearing loss will be referred for comprehensive medical and intervention services before 6 months of age.
- Move from a prototype to actual usable database for state profiles.
- Continue to conduct and disseminate results from studies into causes of hearing loss and the effectiveness of screening and early intervention programs.

IMPROVING THE LIVES OF PEOPLE WITH LIMB LOSS

WHAT IS THE PUBLIC HEALTH ISSUE?

The 1996 National Health Interview Survey indicates that nearly 12 million people in the United States have an extremity absence, or limb loss (excluding tips of fingers or toes only). The prevalence rate averages 4.9 per 1,000 persons with an extremity loss. Data from the Healthcare Costs and Utilization Project, National Inpatient Sample indicate that between 1988 and 1996 an average of 133,235 limb-loss-related hospital discharges occurred per year, and 82% of these were due to vascular conditions such as diabetes and peripheral vascular disease. The risk of amputation increases substantially with age, mainly due to age-related risks including diabetes, cancer, and cardiovascular complications. Men generally are at higher risk than women, and African Americans have a higher risk of amputations due to higher occurrences of vascular disease. People who experience limb loss often express concerns about the inadequacy of prostheses and the isolation in conjunction with a relatively rare experience.

Limb loss often results in reduced mobility and increased reliance on prosthesis for daily activities like walking and climbing stairs. While current technologies allow for a more complete range of motion and ability, the advances in products and services do not address all health concerns. Conditions for which people with limb loss may be at increased risk include pressure sores, muscle atrophy/deterioration, depression, and obesity. These conditions can be prevented through education and health promotion programs.

WHAT HAS CDC ACCOMPLISHED?

- Johns Hopkins Bloomberg School of Public Health was awarded a cooperative agreement that supports research on the epidemiology and consequences of limb loss and limb deficiency.
- CDC financed the Amputee Coalition of America to develop and operate the National Limb Loss Information Center (NLLIC). The programs and services of NLLIC include a national hotline, a website, referral services, educational curricula, youth programs, a national peer network, consumer publications, fact sheets, and a library catalog.
- CDC funded the University of Washington School of Medicine to study the impact of social support among people living with limb loss.

WHAT ARE THE NEXT STEPS?

- Ensure that people with limb loss are included in all programs designed to improve the health and well-being of people with disabilities.
- Develop additional interventions aimed at promoting general health and improved quality of life for people with limb loss and limb deficiency.
- Expand research on vulnerable populations such as ethnic minorities and people with diabetes.

IMPROVING THE LIVES OF PEOPLE WITH PARALYSIS

WHAT IS THE PUBLIC HEALTH ISSUE?

Much still needs to be done to improve the overall health of people with paralysis. Some of the secondary conditions they suffer from include pressures sores (decubitus ulcers), urinary tract infections, depression, and obesity, which can be prevented through education and health promotion programs.

CDC has established a national coordinating facility to provide educational materials, referral services, and self-help guidance for people with paralysis, their families, and caregivers. Healthcare providers and professionals also receive information on paralysis, methods to prevent secondary conditions and address quality of life issues. CDC is expanding the dissemination of educational outreach materials to increase the knowledge and understanding of paralysis among those most affected. Collaborative national relationships have been established with rehabilitation facilities, hospitals, and disability advocacy and voluntary support groups. CDC is developing the ability to measure the public health impact of paralysis through demographic and statistical research with a focus on the prevalence, causes, and extent of secondary conditions. CDC will provide leadership in helping to facilitate health promotion activities (e.g., improving physical activity, exercise and nutrition, confronting depression/isolation issues, managing weight, quitting tobacco use) among people with paralysis to enhance physical and emotional health.

WHAT HAS CDC ACCOMPLISHED?

- CDC funded two studies to address the role of supportive social relationships among people with paralysis. These studies were conducted at the Medical University of South Carolina and the University of Nevada, Reno.
- CDC has supported the Christopher and Dana Reeve Paralysis Resource Center, which was established to help improve the quality of life for people with paralysis. The center is a coordinating facility with information specialists, a library, and a website providing educational materials, referral services, and self-help guidance to those living with paralysis, their families, and their caregivers. In addition, the center funds community-based projects to improve quality of life for people with paralysis.

WHAT ARE THE NEXT STEPS?

- Assist the Christopher and Dana Reeve Paralysis Resource Center to extend services and increase the impact of these services for all individuals and families who can benefit from them.
- Ensure that people with paralysis are included in all programs designed to improve the health and well-being of people with disabilities.
- Support additional research to expand the understanding of the public health impact of paralysis.

LEGACY FOR CHILDREN™

WHAT IS THE PUBLIC HEALTH ISSUE?

The effects of parenting styles on children's developmental outcomes require further investigation to enable more readily available information. CDC is conducting a long-term study of child development at two inner-city research sites (Miami and Los Angeles). This research study will attempt to determine whether low-income mothers can improve the long-term developmental outcomes of their children through increased maternal investment of time and energy and by fostering the belief in the "power of the parent." The CDC community-based early intervention study, *Legacy for Children™ (Legacy)* is a randomized, controlled trial that will test the *Legacy* early intervention model, which focuses on improving maternal self-efficacy, building a sense of community, and increasing parental investment through weekly mothers' groups. These groups provide mothers with a time and place to play with their children, have meetings to discuss their babies' development, and explore their beliefs about parenting. *Legacy* does not provide social services, but instead relies on the strength of each mother to work through her own family challenges with the support and camaraderie of other mothers. The understanding is that each *Legacy* group functions as a time and place for participants to focus on and invest in their children's development.

WHAT HAS CDC ACCOMPLISHED?

- Adapted the main study based on lessons learned in the pilot study.
- Completed recruitment for the study at the University of California at Los Angeles (UCLA) in January 2004 and at the University of Miami in September 2003.
- Completed the intervention phase of the pilot study at UCLA in July 2003.
- Presented process data from the pilot study at national conferences.
- Updated the intervention program for mothers to keep them engaged.

WHAT ARE THE NEXT STEPS?

- Continue to present process data from the pilot study at national conferences.
- Continue to use the Legacy Working Group to guide the study, collect data, and disseminate information as it becomes available.
- Make public a manuscript on methods in the *Legacy* study and on the "Sense of Community in Legacy for Children."
- Publish a manuscript on lessons learned from the pilot study.

LONG-TERM FOLLOW-UP OF NEWBORN SCREENING

WHAT IS THE PUBLIC HEALTH ISSUE?

Phenylketonuria (PKU) is a genetic disorder that affects the body's ability to convert certain proteins found in foods. Newborn screening was implemented in the 1960s to provide early diagnosis of PKU. Identifying the disorder early allows dietary management to prevent the development of mental retardation in these children. Since then, newborn screening programs have expanded to incorporate additional conditions such as hearing loss and disorders which affect a person's metabolism, blood, or hormones. Newborn screening programs have traditionally been limited to conditions that are serious, treatable, or controllable, influenced by age of diagnosis, and with a natural history that is understood.

In the 1990s the technology of tandem mass spectrometry was introduced for population-based newborn screening. This technology allows for more accurate measurement of a broader range of conditions than previously available. For some conditions, such as PKU, the benefits of newborn screening and early treatment are generally accepted. However, for other conditions there is little information on the long-term benefit from screening and intervention. Population-based tracking and follow-up studies of children identified through the latest technology are needed to assess the public health impact of newborn screening for many of the disorders identified with this technology. Ideally, this approach will include collection of information related to treatment options, treatment compliance, and long-term outcome. The infrastructure developed for this assessment can also be used in the future for evaluation of new newborn screening programs.

WHAT HAS CDC ACCOMPLISHED?

- Created hypothesis for assessing outcomes.
- Funded Iowa and a collaboration in Oregon and Idaho to develop a database system for long-term follow-up of newborn screening.
- Finalized research protocol for the collection and analysis of medical records data.
- Developed a database to assess the long-term effects of newborn screening.

WHAT ARE THE NEXT STEPS?

- Add component of standard developmental assessment for all children within study group.
- Complete database for long-term newborn screening assessment.
- Review records, collect data, and analyze long-term assessment of newborn screening.

MUSCULAR DYSTROPHY

WHAT IS THE PUBLIC HEALTH ISSUE?

Duchenne muscular dystrophy (DMD) affects about 1 in 4,000 males and is the most common form of muscular dystrophy in children. In the absence of newborn screening, DMD is usually diagnosed around children 3 to 6 years of age. Early signs include failure to walk by 18 months, frequent falling, difficulty getting up from a sitting or lying position, and a waddling gait. As muscle deterioration progresses, children with DMD become unable to walk around 12 years of age. The disease is fatal in the teens or early twenties, due to severe respiratory and heart problems. A milder form of the disease, Becker muscular dystrophy, is caused by mutations in the same gene. The combined spectrum is referred to as DBMD. Standard birth-defects monitoring systems in the United States do not detect children with DBMD because children do not have recognizable signs or symptoms at birth. Consequently, existing birth-defects monitoring systems would need to be supplemented with additional activities to find all cases of DBMD.

In addition to Muscular Dystrophy Association clinics and other muscular dystrophy clinics, cases may be ascertained through state or regional muscular dystrophy chapters or associations, hospitals, private physicians, and diagnostic laboratories. The lack of a uniform standard of care for DBMD results in inter-clinic variation in treatment options. A long-term follow-up study of children with DBMD is necessary to evaluate different treatment options and to develop and evaluate standards of care. In addition, these activities will serve as the basis for a population-based assessment of the impact of DBMD.

WHAT HAS CDC ACCOMPLISHED?

- Convened meetings with stakeholders to identify key epidemiologic research questions as well as research needs related to families with DBMD.
- Developed a plan for monitoring activities and awarded cooperative agreements to Arizona, Colorado, Iowa, and New York.
- Financed a survey of carrier females, women who carry the mutation for DBMD, but do not have DBMD.
- Funded the Children's National Medical Center in Washington, D.C., to develop materials and conduct a family needs assessment.
- Funded the University of Iowa to develop a system that can pool data across sites and conduct a qualitative study of family needs.
- Hired a parent consultant and public health genetic counselor to assist in various aspects of the program.
- Supported the efforts of existing state partners to enable them to conduct annual interviews of families participating in the family needs assessment project.
- Work with grantees to develop data collection strategies for DBMD.

WHAT ARE THE NEXT STEPS?

- Add an additional state to the surveillance network (depending on objective review panel findings).
- Continue to work closely with stakeholders, keeping them updated as new activities become operational.
- Convene national expert meetings on newborn screening for DBMD and on treatment.
- Fund one to two states to conduct a feasibility planning study for newborn screening for DBMD.
- Work with grantees to develop optimal case finding activities.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NATIONAL RESOURCE CENTER ON ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

WHAT IS THE PUBLIC HEALTH ISSUE?

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurobehavioral disorder that is characterized by problems with attention, impulsivity, and hyperactivity. The disorder affects almost 4 million school-aged children and can last into adulthood. If the condition goes untreated or unmanaged, significant difficulties in crucial areas of life such as relationships with peers and family members may occur. Performance at school or work can also be impaired.

ADHD affects between 3% and 7% of school-age children, in addition to 2% to 4% of the adult population. Almost 4 million youth ages 3 to 17 (6%) have been diagnosed with ADHD. Statistics show that boys are more than twice as likely as girls to have an ADHD diagnosis.

The National Resource Center on ADHD was opened in May 2003, to service the needs of many individuals and families seeking information and assistance related to ADHD. The center is the country's first and only national clearinghouse dedicated to evidence-based science and treatment of ADHD. Within the first 8 months of operation, the center averaged 1,200 inquiries (phone, Web, mail) per month and this figure is only expected to grow as the center expands its outreach activities. The center provides pragmatic and scientific data to clinicians, the public, and partner organizations which heighten awareness and strengthen support for ADHD.

WHAT HAS CDC ACCOMPLISHED?

- Collaborated with the Children and Adults with ADHD (CHADD) to create the ADHD National Resource Center. CHADD is a national non-profit organization providing education, advocacy, and support for individuals with ADHD.
- The center is the first and only national clearinghouse dedicated to the sharing of evidence-based science and treatment information about ADHD to the public and to professionals.
- Provides information about ADHD and associated concerns to the public and to various professional groups through their website (www.help4adhd.org), their telephone hotline (1-800-233-4050), and their electronic and onsite libraries. The materials available online and the assistance provided by telephone are available in English and Spanish.

WHAT ARE THE NEXT STEPS?

- Build capacity for the National Resource Center on ADHD to expand its ability to respond to requests by increasing the number of information specialists available to address caller needs.
- Continue to build and make available valuable and reliable resources through the online resource library and physical clearinghouse of ADHD resources.
- Evaluate the satisfaction of consumers who use the center so that program improvements can be made.
- Expand efforts to outreach to diverse communities with information about ADHD.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

USING DEVELOPMENTAL SCREENING TO IMPROVE CHILDREN'S HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

Children with developmental or behavioral disabilities are missing vital opportunities for early detection and intervention. In the United States, 12% to 16% of children have a developmental or behavioral disability including autism, mental retardation, and Attention-Deficit/Hyperactivity Disorder. However, only 50% of these children are identified as having a problem before starting school, by which time significant delays may have already occurred and opportunities for treatment have been missed.

Developmental screening is a brief assessment designed to identify children who should receive more intensive diagnosis or assessment and to provide early detection and intervention which can make a significant difference and reduce the need for more costly interventions. The health and well-being of children, especially children with developmental disabilities, can improve from developmental screenings. For example, the National Academy of Sciences concluded that early detection and intervention significantly improves outcomes for children with autism. As many as 85% to 90% of children with autism who participate in systematic intervention before they are 5 years of age gain the ability to talk, which helps them reach their full potential.

The healthcare system is one of the few places where children under 5 years of age are consistently seen and has the ideal system for tracking child development through screening. However, because of time constraints and concerns about financial reimbursement, most primary care providers either do not conduct developmental screening or rely on informal methods that identify less than half of the children with developmental and/or mental health problems.

WHAT HAS CDC ACCOMPLISHED?

- Developed a developmental screening public health research agenda and developed recommendations with key stakeholders.
- Developed a pilot screening program for autism and other developmental disabilities in Philadelphia.
- Co-sponsored and presented findings at the Health and Human Services Summit on Autism in November 2003.
- Devised an initial plan for a public health campaign to increase awareness in parents and key stakeholders on the importance of screening for autism and other developmental disabilities.
- Created intervention and the need for systematic developmental screening and assessment.
- Launched a CDC Developmental Screening website.

WHAT ARE THE NEXT STEPS?

- Acquire a manuscript on existing developmental screening data sources and systems.
- Develop other pilot screening and early intervention programs for developmental disabilities.
- Improve the capacity to monitor nationwide the integration of developmental screening into primary care and other relevant systems.
- Launch a public health campaign to increase awareness in parents and key stakeholders on the importance of screening for autism and other developmental disabilities.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

CANCER PREVENTION

Cancer is the second leading cause of death in the United States, contributing to one of every four deaths per year. But the real tragedy is that cancer need not be a leading cause of death. Many cancers are preventable outright, through measures such as exercising regularly, eating well, avoiding tobacco, or taking simple precautions (such as wearing sunscreen and hats to prevent the U.V. exposure that leads to skin cancer). Other cancers—such as colorectal cancer, cervical cancer, and many breast cancers—can be treated much more successfully when they are detected early. To improve the odds that more cancers will be prevented or at least detected as early as possible, CDC promotes healthy habits as well as early screening and detection.

In some cases, screening tests are not yet available (as for ovarian cancer) or are not yet linked to better survival outcomes (as with prostate cancer). In these areas, CDC works with partners to support research that will help unlock more of the clinical and demographic puzzles of why certain cancers strike some individuals and populations and not others, and how new knowledge about risk can be translated into prevention and survival. CDC's surveillance efforts—such as support for cancer registries—are an important contributor to new knowledge and understanding.

The word “cancer” encompasses many different types of cancer—breast, colorectal, prostate, skin, ovarian, lung—each with diverse affected populations; detection and treatment issues; providers; and other characteristics. One of CDC's goals is to strengthen overall cancer efforts by bringing these many forces together to create a strong, effective presence, especially at the state level. We are optimistic that these efforts will help topple cancer from its perch near the top of the list of causes of death.

BREAST AND CERVICAL CANCER EARLY DETECTION

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2004, an estimated 215,990 new breast cancer cases and 10,520 new cervical cancer cases will be diagnosed, an estimated 40,580 women will die from breast cancer, and an estimated 3,900 will die from cervical cancer.
- The risk of being diagnosed with breast cancer increases with age. Seventy-five percent of all diagnosed cases of breast cancer are among women aged 50 years or older. Mammography is the best available method to detect breast cancer in its earliest, most treatable stage and can detect cancers several years before a woman or her healthcare provider can feel a lump.
- Papanicolaou (Pap tests) screening has become more prevalent and pre-invasive lesions of the cervix are detected far more frequently than invasive cancer.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's breast and cervical cancer prevention appropriations, CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP) has raised awareness about the importance of early detection, contributing to the 18% increase in mammography use among women over age 50 since the program's inception in 1991. The program targets low-income women with little or no health insurance and has helped reduce disparities in screening for racial and ethnic minority women. About 50% of the women screened have been from racial/ethnic minority groups. Over 4 million screening tests have been provided with about 14,446 breast cancers, 55,210 precancerous cervical lesions, and 1,020 cases of invasive cervical cancer being diagnosed. CDC works with states to ensure that women diagnosed through NBCCEDP have access to treatment. In addition, the *Breast and Cervical Cancer Prevention and Treatment Act of 2000* allows women in NBCCEDP access to treatment through Medicaid.

Example of Program in Action

The California Department of Health's *Every Woman Counts Program* launched the first statewide breast cancer hotline in the United States for Asian-American women. As a way of reaching this population, the department broadened its hotline to offer information in Chinese (Mandarin and Cantonese dialects), Korean, and Vietnamese, in addition to the information already offered in English and Spanish. Through its 2000 public awareness campaign, *Every Woman Counts...Every Year*, the department sponsored radio and print ads in Chinese, Korean, and Vietnamese to let Asian-American women know about the hotline. Because of the campaign, calls to the hotline increased from 24 in April 2000 to 576 in June 2000. On average, the hotline receives 60 to 80 calls per month, three times the number received prior to the campaign.

WHAT ARE THE NEXT STEPS?

CDC will continue to work with programs to increase the number of eligible women to be screened and to implement effective re-screening strategies. Interventions that reach underserved, rarely or never-screened women, particularly when early stages of cancer can be detected, will be used. CDC will continue to work closely with the Centers for Medicare and Medicaid Services to implement the *Breast and Cervical Cancer Prevention and Treatment Act of 2000*.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

CANCER: A COMPREHENSIVE APPROACH TO PREVENTION AND CONTROL

WHAT IS THE PUBLIC HEALTH ISSUE?

- Cancer is the second leading cause of death in the United States, exceeded only by heart disease.
- One of every four deaths in the United States is from cancer. In 2004, an estimated 563,700 Americans will die of cancer—more than 1,500 people a day.
- The overall estimated cost for cancer in the United States in 2003 was \$189.5 billion, including healthcare expenditures and lost productivity from illness and death.
- Cancer is largely controllable through prevention, early detection, and treatment. However, the lack of coordination and integration of efforts between health agencies and their partners has hampered the effectiveness of cancer control activities.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC supports many state cancer registries and state cancer prevention and control programs, including those for breast, cervical, skin, colorectal, ovarian, and prostate cancers. These programs have made enormous strides in their own areas, but have lacked a comprehensive, coordinated focus. A comprehensive cancer control approach integrates and coordinates activities for prevention, early detection, treatment, rehabilitation, pain relief, and patient and family care during survivorship. A key component to the success of this approach is establishing partnerships between public and private sector stakeholders whose common mission is to reduce the burden of cancer. To build a coordinated focus for cancer efforts, CDC funds 51 programs to either create or implement comprehensive cancer control plans. These programs integrate the full range of cancer prevention activities, including research; evaluation; health education and communication; program development; public policy development; surveillance; and clinical services. By integrating these activities, health agencies and their partners use limited resources more efficiently; improve community-based education and health promotion; share expertise; and effectively address at-risk populations.

Example of Program in Action

Hawaii credits its Comprehensive Cancer Control Program with facilitating the successful passage of cancer legislation that potentially will decrease healthcare costs while addressing the burden of cancer. The new legislation replaced a seemingly outdated mandate (with a narrow focus on cervical cancer screening among female hospital inpatients) with new and broader legislation relating to cancer examinations as part of a statewide comprehensive cancer control plan to be developed by the department of health. The plan will include provisions for cancer examination, including cervical cancer screening, and the department will be working with other government agencies, healthcare providers, health insurers, and others to improve overall rates of screening, early diagnosis, and treatment of cancer.

WHAT ARE THE NEXT STEPS?

CDC plans to support comprehensive cancer control programs in more states, territories, and tribal organizations. Most states have developed comprehensive cancer plans or are in the process of creating them, but lack the resources necessary to carry out their plans. CDC will continue to offer technical support and tools to assist with the development and implementation of comprehensive cancer control efforts, as well as conduct evaluation research to help direct future program activities.

CANCER REGISTRIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Cancer is the second leading cause of death among Americans.
- In 2004, an estimated 563,700 Americans will die of cancer—more than 1,500 people per day.
- About 1.3 million new cases of cancer will be diagnosed in 2004. This estimate does not include *in situ* (pre-invasive) cancer or more than 1 million cases of nonmelanoma skin cancer that also will be diagnosed this year.
- The overall estimated cost for cancer in the United States in 2003 was \$189.5 billion, including healthcare expenditures and lost productivity from illness and death.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC's National Program of Cancer Registries (NPCR) is a fundamental component of CDC's state-based cancer control strategy. CDC supports registries in 45 states, the District of Columbia, and 3 territories, representing 96% of the United States population. Data collected by cancer registries enable public health professionals to better understand and address the cancer burden. Registry data are used to determine cancer patterns among various populations; monitor cancer trends over time; guide planning and evaluation of cancer control programs, such as those focused on preventing risk behaviors for cancer (e.g., tobacco use, sun exposure) or focused on deciding when and where cancer screening efforts should be enhanced; and advance clinical, epidemiologic, and health services research. Data collected by registries are also essential for monitoring the treatment provided to those with a diagnosis of cancer. Forty-five programs receive support to enhance existing registries, and four programs receive support to develop and implement new registries. CDC also provides training in data collection, analysis, interpretation, and quality assurance for completeness, timeliness, and quality. CDC has implemented the NPCR Cancer Surveillance System to improve the quality and usefulness of state cancer registries' data.

Example of Program in Action

In a New Jersey State Cancer Registry study using geographic information systems, two areas in the northeastern part of the state were identified as having unusually high proportions of late-stage breast cancer. Demographic information showed that these communities were more likely to be black, Hispanic, or foreign-born, and to speak a language other than English at home. To increase screenings in these areas, New Jersey produced culturally sensitive information about the availability of screening in various languages, such as Spanish, Polish, and Arabic.

WHAT ARE THE NEXT STEPS?

CDC's goal is to improve states' ability to report on cancer trends, assess program impact, identify cancer clusters, and respond to public inquiries and reports of suspected increases in cancer occurrence. Since fall 2002, CDC and the National Cancer Institute, in collaboration with the North American Association of Central Cancer Registries, produced a set of official federal cancer incidence statistics from each state having high-quality registry data. The report, *U.S. Cancer Statistics: 2000 Incidence*, includes cancer data from 41 states, 6 metropolitan areas, and the District of Columbia, representing about 84% of the U.S. population. Plans are to produce this report on an annual basis. Availability of regional- and national-level data will facilitate research on rare cancers; cancer among children and racial and ethnic minority populations; and occupation-related cancer. The data will also facilitate special studies focusing on patterns of care for cancer patients.

COLORECTAL CANCER EARLY DETECTION

WHAT IS THE PUBLIC HEALTH ISSUE?

- Colorectal cancer is the third leading cause of cancer-related death in the nation. In 2004, about 56,730 Americans will die from colorectal cancer and about 146,940 new cases will be diagnosed.
- Survival is greatly enhanced when this cancer is detected and treated early; yet only 38% of colorectal cancer cases are diagnosed at an early, localized stage.
- Screening for colorectal cancer can help prevent the disease by identifying precancerous polyps that can be removed before cancer develops. Unfortunately, these effective screening tests are underused.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC supports and promotes national colorectal cancer screening by educating healthcare providers and the public about the benefits of screening, the availability of screening procedures, and screening guidelines. CDC educates Americans aged 50 years or older about the importance of regular colorectal cancer screening with its national colorectal cancer action campaign, *Screen for Life*. CDC has developed an online training program, *A Call To Action* (www.cdc.gov/cancer/colorctl/calltoaction/index.htm) to further raise primary care providers' awareness and knowledge about the prevention and early detection of colorectal cancer. CDC supports epidemiological, behavioral science, and surveillance research efforts to gather and analyze data. CDC also funds prevention and intervention research projects and investigations related to colorectal cancer. In addition, CDC works with various national partners like the American Cancer Society to support efforts that inform and educate multiple audiences about the importance of colorectal cancer screening. CDC focuses its policies, programs, and efforts toward reaching the goal of increasing screening rates and reducing colorectal cancer deaths.

Example of Program in Action

Recent evidence indicates that screening reduces death rates from colorectal cancer. With support from CDC, through its comprehensive cancer control program, states and tribes are encouraged to create cancer control plans which integrate cancer prevention and control activities, especially those related to colorectal cancer. The overall objectives of these plans are to use resources as efficiently as possible, improve community-based education and health promotion, share expertise, and effectively target at-risk populations. For instance, a colorectal cancer control initiative may include these activities: develop broad-based coalitions, increase awareness about the need for and importance of screening, conduct colorectal cancer screening in local health departments across the state, and train healthcare professionals to perform flexible sigmoidoscopy (the screening test for colorectal cancer). Additional funding is provided to Alabama, Colorado, Georgia, Iowa, Massachusetts, Utah, Washington, and West Virginia to implement specific colorectal cancer strategies within their statewide comprehensive cancer control plans.

WHAT ARE THE NEXT STEPS?

CDC will promote colorectal cancer screening campaigns nationwide by educating healthcare providers and the public about current screening guidelines and the benefits of screening. CDC will support prevention and intervention research to find ways to improve colorectal cancer screening rates and answer questions related to clinical infrastructure, methods, frequency, and best practices for screening. CDC will enhance colorectal cancer reporting for racial and ethnic minorities and use registries to assess the quality of care received by people diagnosed with this disease. CDC will continue to work with its national partners to raise colorectal cancer awareness.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PROSTATE CANCER

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2004, about 230,110 new cases of prostate cancer will be diagnosed, and 29,900 men will die of the disease.
- At all ages, African-American men die of prostate cancer more often than do other men. In contrast, Asian/Pacific-Islander men experience some of the lowest rates of incidence and mortality. The reasons for the variation among groups are unknown. Recent reports on trends in mortality rates for prostate cancer by race/ethnicity in the United States indicate that death rates for prostate cancer decreased for all racial/ethnic groups.
- No scientific consensus on effective strategies to reduce risk of prostate cancer exists. Additionally, there is no agreement on the effectiveness of screening and treatment of early stage prostate cancer or that the potential benefits outweigh harms. Therefore, public health agencies face significant challenges in determining what actions to take to address prostate cancer.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC educates providers and the public about screening and treatment options and helps states build prostate cancer public health programs. CDC also supports grantees in comprehensive cancer control efforts, including activities that target prostate cancer. Activities include establishing broad-based coalitions, coordinating surveillance, and developing and disseminating public education programs to reduce cancer risk. To enable states to better design public health programs to control the disease, CDC is enhancing prostate cancer data in cancer registries, especially with regard to stage of diagnosis, quality of care and racial/ethnic information. In addition, CDC sponsors research to determine whether screening for prostate cancer reduces deaths, examine current screening practices among providers, and explore the public's knowledge, awareness and behaviors regarding prostate cancer screening.

Example of Program in Action

CDC developed a decision guide that targets men age 50 and older who have no symptoms to increase their knowledge and awareness about the prostate gland and prostate cancer; give them basic facts about prostate cancer screening; encourage them to discuss screening with their healthcare professionals; and educate them so they can make an informed decision about screening. In addition, a similar guide has recently been developed for African-American men. These guides are intended to stimulate thought and dialogue about prostate cancer screening by providing basic facts and resources.

WHAT ARE THE NEXT STEPS?

To advance efforts targeting prostate cancer, CDC will continue to encourage state health departments to integrate activities related to prostate cancer into their comprehensive cancer control plans and provide additional funding to some states to support the implementation of specific prostate cancer strategies within their statewide comprehensive cancer control plans. CDC will also continue to conduct surveillance activities to determine knowledge, attitudes, and behaviors of men and healthcare providers about prostate cancer screening and treatment options, especially focused on developing appropriate interventions to help men make informed decisions about screening.

In addition, CDC will continue to review and implement, as appropriate, recommendations from the December 2000 prostate cancer meeting of healthcare providers, researchers, survivors, advocates, and others with expertise in prostate cancer. CDC will also conduct epidemiologic and behavioral research to build the science base for this disease; expand research about prostate cancer screening and treatment options; and promote and disseminate informed decision-making materials nationwide.

REDUCING THE BURDEN OF OVARIAN CANCER

WHAT IS THE PUBLIC HEALTH ISSUE?

- Ovarian cancer is the fifth most common cancer and fourth leading cause of death for women.
- In 2004, an estimated 25,580 new cases of ovarian cancer cases will be diagnosed in this country and 16,090 women will die of the disease. Currently, half the women diagnosed with ovarian cancer die from the disease within 5 years.
- Only about 25% of ovarian cancers are diagnosed at an early stage. About 60% of cases are diagnosed after the cancer has spread, when the 5-year survival rate is close to 30%. When detected early, the 5-year survival rate increases to 95%.
- A reliable screening test, which is an important tool for improving early diagnosis rates, does not exist for ovarian cancer.

WHAT HAS CDC ACCOMPLISHED?

Since 2000, congressional funding has allowed CDC to develop public health activities aimed at reducing ovarian cancer morbidity and mortality. To identify unmet public health needs, CDC convened a workshop in 2000, entitled "Identifying Public Health Opportunities to Reduce the Burden of Ovarian Cancer." Attendees included leaders from state health departments and ovarian cancer advocacy groups, as well as physicians and scientists from federal agencies, medical centers, and cancer treatment programs. These experts agreed that although a satisfactory screening test for ovarian cancer was not yet available, there were important opportunities to reduce illness and death caused by the disease. A copy of the workshop report is available at www.cdc.gov/cancer/ovarian/index.htm. Information developed at this workshop is being used annually to guide several CDC ovarian cancer research and health communication activities.

Example of Program in Action

Several studies are being conducted at CDC-funded Prevention Research Centers. These include multi-year research projects at the Centers for Health Promotion and Prevention Research at the University of Texas in Houston and at the University of Alabama in Birmingham. The primary objective of these studies is to identify factors that distinguish women in whom ovarian cancer is diagnosed at stages 1 and 2 from those diagnosed at a later stage. Additional multi-year projects were funded at the Center for Health Promotion and Prevention Research at the University of Texas in Houston and at the University of Oklahoma Health Sciences Center in Oklahoma City. The objective of these two studies is to examine the barriers to ovarian cancer diagnosis and treatment. Identification of factors that can lead to earlier diagnosis is crucial in the development of programs to increase long-term survival rates

WHAT ARE THE NEXT STEPS?

In 2003, CDC funded Alabama, Colorado, and West Virginia to implement ovarian cancer activities that were identified and prioritized in their comprehensive cancer control plans. All three programs are working to develop ovarian cancer health messages for healthcare providers and the public. With additional funding, CDC will help more states create effective ovarian cancer prevention activities, support research efforts to better understand which populations are most affected by ovarian cancer and why, and evaluate the access and capacity of providers who treat ovarian cancer. CDC will develop health communication messages to provide appropriate education and information about ovarian cancer to physicians and healthcare providers.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

SKIN CANCER

WHAT IS THE PUBLIC HEALTH ISSUE?

- Skin cancer is the most common cancer in the United States, claiming the lives of 9,800 people in 2003.
- An estimated 55,100 new cases of melanoma will be diagnosed in 2004. Melanoma is the deadliest form of skin cancer, causing more than 75% of all skin cancer deaths. More than 1 million cases of basal and squamous cell cancers are expected to be diagnosed in 2004.
- Exposure to the sun's ultraviolet rays appears to be the most important environmental factor in the development of skin cancer, which is largely preventable when sun-protective practices are used consistently.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC's skin cancer prevention and education efforts are designed to reduce illness and death. In 2002, CDC published the "Guidelines for School Programs to Prevent Skin Cancer" to help state and local education agencies and schools play a role in reducing unsafe sun exposure. Recommendations include establishing policies to reduce sun exposure, providing an environment that supports sun-safety practices, providing health education, involving students' families, training healthcare professionals, and evaluating school skin cancer prevention programs. CDC released the *EXCITE Skin Cancer Module*, which can be used by high school students and teachers to learn more about skin cancer and epidemiology.

During 2003, the Task Force on Community Preventive Services— an independent panel supported by CDC—conducted a systematic review of selected population-based interventions to prevent melanoma and non-melanoma skin cancer. The review was published in CDC's *Morbidity and Mortality Weekly Report*. The research results from the Task Force included recommendations (for educational and policy approaches in primary schools and in recreational and tourism settings) to encourage people to wear hats or other garments that limit sun exposure.

Example of Program in Action

CDC provides funding to Colorado, Michigan, and North Carolina state education agencies to collaborate with their department of public health to conduct demonstration projects implementing the "Guidelines for School Programs to Prevent Skin Cancer." CDC also continues to fund several state departments of health to implement skin cancer prevention and education efforts that were identified and prioritized in the comprehensive cancer control plans.

WHAT ARE THE NEXT STEPS?

CDC plans to increase support for comprehensive cancer control in health agencies to integrate the full range of cancer control activities to better maximize resources, improve community-based education and health promotion, share expertise, and effectively target at-risk populations. In addition, CDC will work to further disseminate the "Guidelines for School Programs to Prevent Skin Cancer" among key partners.

CHRONIC DISEASE PREVENTION

Chronic diseases—such as heart disease, stroke, diabetes, and cancer—cause 70% of all deaths in the United States each year. A large proportion of these deaths, affecting millions of Americans and their families, are preventable. For example, 430,000 deaths each year (or about 20% of all deaths) are linked to tobacco use, which causes not only lung cancer and emphysema but also one-fifth of all cardiovascular disease deaths.

To help prevent the onset of chronic diseases, CDC conducts research and promotes programs that encourage physical activity and healthier diets and that reduce tobacco use, especially among teenagers. CDC also works to prevent the serious (and costly) complications of diseases like diabetes. Diabetes has increased at an alarming rate during the past decade, and the number of people facing potential but preventable complications—such as blindness; foot and leg amputations; and kidney disease—has increased as well.

Although research has unlocked many hidden features of various chronic diseases, much remains to be learned. CDC studies diseases by conducting survey research on people's behavior; supporting national surveillance systems and other data collection methods to track newer diseases (such as Chronic Fatigue Syndrome); and bringing a new public health perspective to well-known conditions such as epilepsy. In addition, CDC's laboratories help deepen our understanding of chronic diseases' causes and progression by designing and improving sophisticated measures of cholesterol, glucose, vitamin and mineral levels, as well as other critical markers.

From specific laboratory measures to more complex studies of behaviors and risk factors, CDC's efforts are designed to understand the causes and consequences of chronic diseases and to place the powerful tools of prevention within the reach of more people every day.

ARTHRITIS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Arthritis and/or chronic joint symptoms affect almost 70 million Americans—nearly 1 of every 3 adults—making it among the most common health problems in the United States.
- Arthritis is the most frequent cause of disability in the United States; more than 7 million people are limited in some way because of arthritis.
- Arthritis is costly to society and individuals. In 1995, arthritis cost more than \$22 billion in direct medical costs and over \$82 billion in total costs, according to the American Academy of Orthopedic Surgeons.
- Effective interventions exist, but are underused.

WHAT HAS CDC ACCOMPLISHED?

Funds from CDC's Chronic Disease Prevention and Health Promotion appropriations support CDC's arthritis program by improving the quality of life for people affected with arthritis. In 2002, CDC funded 36 states to work toward this goal. These CDC-funded states are building arthritis programs, developing action plans with their partners, and conducting pilot projects to improve the quality of life among people affected by arthritis. Many states are increasing the availability of the *Arthritis Self-Help Course* (a self management education program that has been shown to decrease pain and reduce the number of physician visits) and physical activity programs so more people can be reached. CDC is also working with state health departments and the Arthritis Foundation to implement a health communications campaign that promotes physical activity among people 45 to 64 years of age who have arthritis and who are members of lower socioeconomic levels. The campaign consists of taped radio spots, radio scripts, brochures, and print pieces with the theme line "Physical Activity: The Arthritis Pain Reliever." This campaign was rolled out in January 2003. In addition, CDC supports research to better determine why arthritis occurs and progresses and to find the best strategies for dealing with it.

Example of Program in Action

With CDC support, California is enhancing efforts to address arthritis among diverse populations. For example, to reach Hispanic farm and transient workers, the California State Health Department worked with the Southern California Chapter of the Arthritis Foundation to disseminate a Spanish language version of the *Arthritis Self-Help Course*. Hispanics participating in the course have reported improvements in their general health, sleep, depression, and activities of daily living. The program sponsors are expanding this successful program to other underserved areas.

WHAT ARE THE NEXT STEPS?

CDC will work with funded states and national partners to increase the number of people reached by existing arthritis programs and to develop and evaluate culturally appropriate programs to better serve diverse populations. CDC will conduct critically needed prevention research to develop and evaluate intervention programs and other strategies that help people better manage their symptoms and improve their quality of life.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

CHRONIC FATIGUE SYNDROME

WHAT IS THE PUBLIC HEALTH ISSUE?

- Chronic fatigue syndrome (CFS) affects about 800,000 Americans, mostly women.
- CFS is a long-lasting, debilitating disorder, yet fewer than 20% of those affected receive medical care.
- CFS appears to disproportionately affect racial/ethnic minorities, socially disadvantaged persons, and rural populations, but knowledge in these areas is incomplete.
- Despite more than a decade of research, the cause and pathophysiology of CFS remain unknown and no diagnostic tests have been developed, so control and treatment strategies have yet to be developed.

WHAT HAS CDC ACCOMPLISHED?

CDC's CFS program aims to develop control and prevention measures for CFS by

1. Estimating the magnitude of CFS as a public health problem.
2. Determining if CFS represents a single illness or a common response to a variety of physiologic and psychologic insults.
3. Defining the natural history, clinical parameters, and pathophysiology of CFS.
4. Identifying etiologic agents, risk factors, and diagnostic markers associated with CFS.
5. Providing current and appropriate technical information on CFS to various audiences.

An integrated approach (i.e., applying cutting-edge epidemiologic, clinical, and laboratory methods to studies of representative US populations) is used to achieve this goal.

Example of Program in Action

CDC has published studies on the burden of disease and its occurrence in the United States, the natural history and clinical parameters of CFS in persons identified with the illness, and the use of healthcare and medications by these persons. In 2003, CDC conducted a clinical evaluation study of 227 subjects with CFS and other fatiguing illnesses identified from the general population of Wichita, Kansas. No integrated study of this magnitude to elucidate the pathophysiology of CFS had been conducted before. CDC has developed a state-of-the-art molecular epidemiology laboratory program including the use of gene chip microarray assays.

WHAT ARE THE NEXT STEPS?

CDC is beginning a major surveillance study of CFS in various racial/ethnic groups of defined metropolitan, urban, and rural populations to identify the causes, risk factors, diagnostic markers, natural history, and economic impact of CFS. CDC will continue to lead international efforts to derive and evaluate an empiric case definition for CFS by analyzing data from 31,000 patients in 15 countries. CDC will complete analysis of data from the Wichita clinical study, which was designed to evaluate neuroendocrine and immune function, sleep characteristics, cognitive function, and psychiatric co-morbidity of persons identified from the community with CFS. CDC will also continue to develop plans for a national registry of CFS patients and to support and expand national efforts to train primary healthcare providers in the diagnosis and management of CFS.

EPILEPSY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Epilepsy is a chronic neurological condition affecting an estimated 2.3 million people in the United States. Of these, more than one third continue having seizures despite treatment.
- Each year, an estimated 181,000 people in the United States are diagnosed with epilepsy, with the very young and the elderly the most likely to be affected.
- Persons of lower socioeconomic status, residents of urban areas, and minority populations bear a disproportionate burden.
- Delayed recognition of seizures and inadequate treatment greatly increase the risk of subsequent seizures, brain damage, disability, and death from injuries incurred during a seizure.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC is developing a resource kit to support and empower parents of teens with epilepsy. A partnership with the national Epilepsy Foundation is underway to develop and implement programs to enhance epilepsy public awareness and promote partnership, education, and communication. CDC funded *Living Well with Epilepsy II: A Conference on Current Issues and Future Strategies*, the second national conference on public health and epilepsy. CDC collaborated with the Chronic Disease Directors to examine issues and expectations for the role of states in addressing public health issues related to lower prevalence chronic conditions. CDC completed extramural research to enable studies of epilepsy incidence and prevalence in managed care organization populations. CDC is investigating healthcare issues that relate to health outcomes in those with epilepsy and is reviewing national data sets and state survey data to analyze trends in access to care, levels of care, and other demographic variables related to epilepsy. CDC is supporting population-based epidemiologic studies of epilepsy prevalence, incidence, and healthcare needs in the Navajo nation, northern Manhattan, New York City, and South Carolina. CDC is conducting population-based studies of neurocysticercosis, an identifiable and preventable cause of epilepsy.

Example of Program in Action

Because combating stigma is a priority area for the epilepsy program, the goal of the communication project, "Development and Testing of a Tool to Assess the Public's Perception about People with Epilepsy," was to develop a valid and reliable measurement tool to assess the public's perception of epilepsy and seizure disorders using a representative sample of the U.S. population. This instrument will provide greater understanding of the public's awareness and level of acceptance of epilepsy.

WHAT ARE THE NEXT STEPS?

CDC will expand the study of the prevalence of self-reported epilepsy in selected state populations using state surveillance data. CDC will continue intramural and extramural research activities to better understand the epidemiology of epilepsy, specifically prevalence and incidence of epilepsy; patterns of care and healthcare needs of people with epilepsy; associated health conditions; disability; and quality of life. CDC will also continue collaborating with the Epilepsy Foundation to include a program focus on Hispanics, African Americans, and the elderly, in addition to continuing a public education and awareness campaign for teens and adolescents with epilepsy and their peers.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HEART DISEASE AND STROKE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Heart disease and stroke, principal components of cardiovascular disease (CVD), are our nation's first and third leading causes of death for both women and men, and account for nearly 40% of all deaths.
- Almost 90% of middle-aged Americans will develop high blood pressure in their lifetime. Nearly 70% of Americans with high blood pressure do not have it under control.
- Ten million Americans are disabled as a result of stroke and heart disease. Heart disease is a leading cause of premature, permanent disability in the U.S. labor force.
- In 2004, the cost of cardiovascular disease in the United States is estimated to be \$368 billion.
- Cardiovascular diseases are the leading cause of black/white life expectancy disparities, and account for one third of this disparity.

WHAT HAS CDC ACCOMPLISHED?

In 1998, with funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC launched the country's first nationwide state-based public health program to address the leading cause of death in our nation—heart disease and stroke. Today, 11 states are funded for basic implementation of this program. Twenty-two states and the District of Columbia are funded for planning and capacity-building processes, which prepare them for program implementation. These programs are attacking the major risk factors of high blood pressure and high blood cholesterol which contribute to heart disease and stroke. People die or are disabled unnecessarily every day because they delay getting medical help when experiencing symptoms of a heart attack or a stroke. Many people do not receive proper preventive care because, often, the medical care system does not fully adhere to national guidelines for the prevention and control of high blood pressure, high blood cholesterol, heart disease, and stroke.

CDC and state programs are working to promote education about the early signs of a heart attack or stroke, develop policies for universal 911 coverage, and improve access to quality care to prevent and manage high blood pressure, high blood cholesterol, stroke, and heart disease. CDC is also developing state-based registries to measure and improve the quality of acute and long-term care received by stroke survivors. Improving care for stroke survivors can significantly reduce the severity of disabilities, improve quality of life, and reduce deaths from stroke. In 2003, CDC released *A Public Health Action Plan to Prevent Heart Disease and Stroke* that charts a course for CDC and collaborating public health partners and other agencies for heart disease and stroke prevention over the next two decades. States funded in 2003 include: Basic Implementation—Florida, Georgia, Maine, Missouri, Montana, New York, North Carolina, South Carolina, Utah, Virginia, and West Virginia; Capacity Building—Alabama, Alaska, Arkansas, Colorado, Connecticut, District of Columbia, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Minnesota, Mississippi, Nebraska, North Dakota, Ohio, Oklahoma, Oregon, Tennessee, Texas, Washington, and Wisconsin.

Example of Program in Action

Montana's program is using the *Guidelines Applied in Practice*, developed by the American College of Cardiology, to help hospitals develop systems to implement acute care guidelines and secondary prevention practices. Missouri's program is partnering with the Diabetes Control Program and Federally Qualified Health Centers to administer and evaluate a comprehensive approach to improving standards of care for patients with cardiovascular disease, hypertension, and diabetes. Kentucky's program is addressing quality improvement and patient care management using the American Heart Association *Get with the Guidelines for Coronary Artery Disease*.

WHAT ARE THE NEXT STEPS?

CDC will continue as a national leader to strengthen state programs; identify populations at the highest risk for heart disease and stroke; and design programs for those populations. CDC will enhance monitoring and evaluation systems for measuring and improving program impact. CDC will also continue to build collaborations with national partners to promote policy and environmental changes to improve adherence to national guidelines and access to quality care.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NATIONAL DIABETES PREVENTION AND CONTROL

WHAT IS THE PUBLIC HEALTH ISSUE?

- More than 18.2 million Americans have diabetes, including nearly 5.2 million who do not know they have the disease.
- Since 1991, the national prevalence among adults of diagnosed diabetes (including gestational diabetes) increased 61% and is projected to increase 165% from 2000 to 2050.
- Diabetes is the leading cause of non-traumatic, lower-extremity amputations; chronic, irreversible kidney disease; and blindness among working-age adults.
- Diabetes contributes to over 200,000 deaths each year.
- Diabetes increases the risk of heart disease and stroke two to four times.
- Diabetes costs nearly \$132 billion annually; \$92 billion in direct and \$40 billion in indirect costs.
- Type 2 diabetes, once considered an adult chronic disease, is now found in children and teenagers.

WHAT HAS CDC ACCOMPLISHED?

Funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, support Diabetes Prevention and Control Programs in all 50 states, Washington, D.C., and 8 territories to reduce the complications associated with diabetes. The programs identify high-risk populations, improve the quality of diabetes care, involve communities in improving diabetes control, and increase access to diabetes care by improving and expanding services. The programs also educate health professionals and people with diabetes about the disease and its complications.

Example of Program in Action

The Missouri Diabetes Prevention and Control Program (MDPCP) participated in the National Diabetes Collaborative. Through the collaborative, the state program used the Chronic Care Model to form teams of diabetes-related healthcare specialists. These teams established an initial "population of focus" registry of patients with diabetes to monitor indicators of health behaviors, health status, and services received. MDPCP provided the health centers participating in the collaborative with financial support, technical assistance with registry development, health system redesign, and evaluation skills.

Over a 3-year period, 12 of the 16 diabetes-related care measures improved significantly. These improvements included increase in the prevalence of at least two A1c blood sugar tests 3 months apart (15%), dilated-eye exams (190%), foot exams (47%), flu vaccinations (76%), and setting of self-management goals (37%). Participation in the collaborative has improved the level of diabetes-related care and service delivered by MDPCP.

WHAT ARE THE NEXT STEPS?

Diabetes incidence is increasing at an alarming rate, and more people are getting diabetes at a younger age. A multifaceted national diabetes program implementing surveillance; prevention research; community and health system interventions; and communication strategies through state and national partners is needed to control this serious public health challenge. In support of HHS' *Steps to a Healthier U.S.* prevention initiative, CDC plans to increase the number of basic implementation diabetes prevention and control programs; expand prevention research and surveillance activities to address the unique needs of women and children with diabetes; develop and implement a national public health strategy to address type 2 diabetes in children; and expand the educational activities of the National Diabetes Education Program.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NUTRITION, PHYSICAL ACTIVITY, AND OBESITY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Obesity has reached epidemic proportions. In the past 20 years, the prevalence of obesity has increased by more than 60% among adults and tripled in children and adolescents. Fifteen percent of children and adolescents are overweight and more than half of these children have at least one cardiovascular disease risk factor, such as elevated cholesterol or hypertension.
- The cost of diseases associated with obesity has been estimated at \$117 billion per year.

WHAT HAS CDC ACCOMPLISHED?

CDC has expanded the national nutrition and physical activity program for preventing obesity and other chronic diseases. A comprehensive program design was developed to help states improve the effectiveness of their efforts to improve nutrition, increase physical activity, and prevent obesity and other chronic diseases. A new program announcement, published in the January 2003 *Federal Register*, produced 58 applications. Twenty applications were selected for funding in 2003. Seventeen of the approved programs are funded to build capacity, and three programs are funded for basic implementation activities. All 20 state programs will include activities aimed at primary prevention of obesity by providing the population with knowledge, skills, stronger intention, and greater self-efficacy. The programs go beyond individual-level efforts to address the need for supportive environments that provide opportunities for healthy eating and more physical activity. The interventions are designed to foster behavior change by mobilizing multiple levels of the social structure through individual and environmental strategies to affect and sustain a healthier lifestyle.

Example of Program in Action

With funding from CDC, the state of Washington is battling the obesity epidemic on multiple levels, from the behavior of individuals to the public health policies of communities and the state. This multi-faceted approach is being piloted in the small rural community of Moses Lake. The Moses Lake Healthy Communities Advisory Committee initially targeted three areas for immediate attention—creating a community garden open to all citizens; promoting, protecting, and supporting breast-feeding; and creating a network of linked trails and paths throughout the community. These projects have brought the community together to address a broad range of environmental and policy issues. The success of these initial efforts has spawned a second generation of initiatives and gone a long way toward justifying the Advisory Committee's motto: "Happy and Proud to Live Healthy in Moses Lake."

WHAT ARE THE NEXT STEPS?

CDC plans to increase assistance to the existing 20 state programs through translating science to programs by

- Building a coalition to join public health and medical systems around patient self-management for obesity.
- Developing a research-to-practice series of briefs intended for public health practitioners. The first in the series will feature the relationship between fruit and vegetable consumption and weight.
- Implementing further guidance for applying physical activity interventions based on recommendations in *The Guide to Community Preventive Services*, for communities diverse in culture, ethnicity, and socioeconomic status.

THE PAUL COVERDELL NATIONAL ACUTE STROKE REGISTRY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Stroke is a leading cause of serious, long-term disability in the United States.
- An estimated 4.8 million Americans and their families live with the disabling effects of stroke.
- Only 3% to 10% of eligible stroke victims get the emergency therapy that can lead to recovery.
- Only a fraction of stroke patients are getting to the hospital in time to receive a treatment that may make the difference between disability and full recovery.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC's Paul Coverdell National Acute Stroke Registry measures and improves hospital delivery of emergency care for stroke victims in order to reduce death and disabilities from stroke. The registry was launched through university-based prototypes which tested methods in eight states between 2001 and 2003. CDC will begin funding state health departments to establish registries in 2004.

CDC worked closely with representatives from the Brain Attack Coalition, the National Stroke Association, the American Heart Association/American Stroke Association, the National Institute for Neurologic Disorders and Stroke, and the Centers for Medicare and Medicaid Services to identify what quality improvement data should be collected by the Paul Coverdell Registry. Data from the initial prototypes (California, Georgia, Illinois, Massachusetts, Michigan, North Carolina, Ohio, and Oregon) show that large gaps exist between recommended treatment guidelines and what is actually being practiced in hospitals. The prototypes have implemented various quality improvement interventions to address these acute care gaps. Interventions were designed in collaboration with state health departments and hospitals and focus on improvements in emergency room diagnosis, in-patient management, and secondary stroke prevention (i.e., control of high blood pressure and high cholesterol, and smoking cessation). These data will be useful for designing and developing state efforts to reduce death and disability from stroke and to improve the quality of life for stroke survivors.

WHAT ARE THE NEXT STEPS?

Based on evaluation of the eight prototypes, CDC will design a model for a national registry and will begin funding registries in state health departments in 2004. The long-term goal is to establish state registries nationwide to reduce death and disability associated with stroke and to improve quality of life among stroke survivors.

PREVENTION RESEARCH CENTERS PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- The behavioral and environmental factors that cause many chronic diseases, injuries, poor pregnancy outcomes, and some infectious diseases need to be addressed and changed.
- Prevention research makes a critical contribution to keeping people free from disease and helping them alter risk factors in their lives and in their communities.
- Gaps that exist between known research findings and the translation of those findings into public health practice and policy need to be eliminated.
- As the nation's population ages and as healthcare costs increase, prevention is an even more critical part of the national healthcare agenda.

WHAT HAS CDC ACCOMPLISHED?

The Prevention Research Centers (PRC) program is a national network of 28 academic research centers committed to prevention research and the translation of that research into programs and policies. The centers work with members of their communities to develop and evaluate community-based interventions that address the leading causes of death and disability in the nation. Linking university researchers, health agencies, community-based organizations, and national nonprofit organizations facilitates the translation of promising research findings into practical, innovative, and effective programs. CDC's PRC program places special emphasis on improving quality of life among special populations (e.g., youth, elderly, underserved), and curbing the nation's excessive healthcare costs.

Example of Program in Action

Long-term, community-based research can help analyze how children's health behaviors including physical activity, eating habits, and substance abuse may put them at risk for disease as adults. In *Healthy Passages*, three PRCs (University of Texas Health Science Center, University of Alabama, and University of California at Los Angeles) are following a group of children from various ethnic and economic backgrounds for 12 years and periodically thereafter. By interviewing children and their parents and observing neighborhoods and schools, the researchers are assessing the role of the environment, cultural values, and other factors in influencing health. As data are gathered, they are shared with local community organizations that can put the information to immediate use in determining the types of intervention programs to offer locally.

WHAT ARE THE NEXT STEPS?

Through Project DEFINE (Developing an Evaluation Framework: Insuring National Excellence), CDC developed evaluation strategies for the PRC program in collaboration with the PRCs' faculty, staff, partners, and community members. The strategies ensure that each center can promote community health and contribute to the national program. All centers will report on performance indicators, which will allow for consistent tracking of outcomes over time.

PREVENTIVE HEALTH AND HEALTH SERVICES BLOCK GRANT

WHAT IS THE PUBLIC HEALTH ISSUE?

The Preventive Health and Health Services Block Grant (PHHSBG) is a critical public health resource used in states and communities to

- Respond rapidly to emerging health problems, including foodborne infections and waterborne diseases.
- Provide states with flexible funds to meet individual state and community needs.
- Fund critical prevention efforts in those states where categorical funding does not exist for health problems such as skin cancer, child safety seats, and untreated dental decay.
- Support the efforts and increase the effectiveness of categorically funded programs such as diabetes, cardiovascular health, and tuberculosis.
- Leverage small amounts of funds to make major impacts on health problems.

The flexibility of PHHSBG has become even more vital to sustaining our national public health system as states face the pressures of decreased resources for public health services.

WHAT HAS CDC ACCOMPLISHED?

CDC funds 61 grantees (50 states, the District of Columbia, 2 American Indian Tribes, and 8 U.S. territories). About 43% of funds are distributed directly to communities. In 2003, 67% were used to fill-in gaps to support critical public health needs, 27% provided the only funding available to address important health problems, 4% were used to start up new projects, and 2% went toward rapid response to emerging public health problems.

Example of Program in Action

In West Virginia, where deployment of emergency vehicles and certified Emergency Medical Services (EMS) personnel is stretched thin, CDC provided 62% of EMS funds for the state's 282,019 children under 12 years of age. Ohio's chronic disease mortality rates are among the highest in the nation. In 2003, \$1.92 million in funds were used to implement 21 projects covering 42 counties and 7,356,215 residents to educate and motivate individuals to increase heart healthy behaviors. The California Department of health leveraged \$263,775 in funds to obtain \$15 million from the California Endowment. The program is expected to increase access to fluoridated water from the current 17% (6 million residents) to 66% (23 million residents) by 2006, a major step towards increasing dental health in California. In Arizona, \$80,000 in funds provided the sole source of funding in the state's highly successful Environmental Protection Agency's *SunWise* program. More than 400 schools enrolled in the program and 12,000 children participated in *SunWise* activities taught in English and Spanish. Rhode Island implemented an innovative program wherein prompt cards comparing fast foods for seven national chains were developed to fit snugly over automobile visors.

WHAT ARE THE NEXT STEPS

State health departments and CDC are embarking on a 3-year plan to implement an application and reporting rating system. The system will improve the quality of application and report information; identify needs and opportunities for technical assistance to states; and increase workforce competency. Additionally, an electronic compliance review system that will retain important institutional knowledge is under development.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

STEPS TO A HEALTHIER U.S.

WHAT IS THE PUBLIC HEALTH ISSUE?

- In the United States, chronic diseases such as obesity, diabetes, and asthma, take a huge health and financial toll, with 7 out of 10 deaths caused by a chronic disease and more than 75% of the total healthcare budget spent on these diseases.
- Obesity rates have increased by more than 60% among adults in the last 10 years, doubled among children, and tripled among adolescents since 1980.
- Self-reported diabetes has increased by 50% since 1990.
- More than 31 million people in the United States have diagnosed asthma.
- The cost of obesity in the United States was \$117 billion in 2000; in 2002, average medical expenditures for a person with diabetes were \$13,243, that is 2.4 times greater than the cost for a person without diabetes; and the estimated cost of asthma was \$14.5 billion in 2000.
- Underlying these serious conditions are risk factors such as physical inactivity, poor nutrition, and tobacco use; all of these can be modified years before they contribute to illness and death.

Steps to a Healthier U.S. is a 5-year initiative that combines the strengths and resources of the Department of Health and Human Services agencies and programs to improve the lives of Americans through innovative, community-based programs that are proven effective in preventing and controlling chronic disease. With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC supports states, cities, and tribal entities to implement chronic disease prevention efforts focused on reducing the burden of diabetes, overweight, obesity, and asthma and addressing three related risk factors—physical inactivity, poor nutrition, and tobacco use.

WHAT HAS CDC ACCOMPLISHED?

In 2003, CDC supported 4 states representing 15 small cities or rural communities, 1 tribal consortium, and 7 large cities. These 23 communities will implement community action plans that build on existing local, state, and federal programming efforts related to obesity, diabetes, asthma, and their risk factors. It will also include a special focus on populations with disproportionate burden of disease and disparities in access to preventive services. Organized community, environmental, educational, media, and policy interventions will be implemented in school, community, healthcare, and workplace settings.

Example of Program in Action

The *Philadelphia Steps* program will support local, governmental, and community initiatives that address crime and safety in areas where people exercise. New Orleans will collaborate with farmers markets, produce sellers, and community gardens to increase neighborhood accessibility of fruits and vegetables. Seattle and King County, Washington, will promote environmental changes to encourage physical activity such as a bike-to-school program and point-of-decision prompts to encourage people to use the stairs instead of elevators at workplaces.

WHAT ARE THE NEXT STEPS?

CDC will continue to support and evaluate community efforts to reduce health disparities and promote quality healthcare and prevention services in obesity, diabetes, and asthma. CDC will focus on increasing physical activity and good nutrition, and reducing tobacco use.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TOBACCO CONTROL

WHAT IS THE PUBLIC HEALTH ISSUE?

- Tobacco use, the single most preventable cause of death and disease in the United States, causes more than 440,000 deaths and costs at least \$75 billion in medical expenses and \$80 billion in indirect costs each year.
- An estimated 46.5 million adults in the United States smoke cigarettes. Nearly 70% of smokers want to quit, but only 2.5% per year are able to quit smoking permanently.
- Each day, about 4,400 young people try their first cigarette. Of these teens, one in three eventually will die from smoking.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC has expanded the science on the effectiveness of comprehensive tobacco control programs and the value of sustaining state tobacco control funding; met the 2003 Government Performance and Results Act goal of reducing to 26.5% the percentage of youth (grades 9–12) who smoke; facilitated production of a report outlining aggressive, science-based action steps to encourage tobacco use cessation; and produced a manual assisting state programs with the planning, implementation, and evaluation of their counter-marketing programs.

CDC provides federal leadership in tobacco control by strengthening tobacco-use science for public health action and by working with partners to create comprehensive tobacco programs nationally and globally. CDC funds the development, implementation, and evaluation of comprehensive tobacco control programs in all 50 states, the District of Columbia, 7 U.S. territories, 7 tribal support centers, and 8 national networks. CDC also supports state-based media activities to educate the public on the health hazards of tobacco use. CDC conducts tobacco surveillance and research to strengthen the science behind tobacco control, including expanding knowledge of the health risks of nicotine, additives, and other potentially toxic compounds in tobacco through laboratory research. CDC also provides support for global tobacco control by expanding the science-base through surveillance and research, building capacity, promoting information exchange, and sharing expertise.

Example of Program in Action

Dramatic results are evident in states where comprehensive programs consistent with CDC's guidelines have been implemented. As many states continued to cut funding for tobacco control due to fiscal crises, a 2003 study found double the decrease in cigarette sales among states that spent more on comprehensive tobacco control programs than in the United States as a whole. Between 1990 and 2000, sales fell an average of 43% in four key states with large program expenditures—Arizona, California, Massachusetts, and Oregon—compared with 20% for all states. Program funding levels accounted for a substantial portion of the difference, above and beyond the effect of cigarette excise tax hikes, with increasing expenditures producing bigger and faster declines in sales.

WHAT ARE THE NEXT STEPS?

Reaching the *Healthy People 2010* objective of cutting in half the smoking rates for youth and adults will require substantial national commitment to implement and sustain effective tobacco use prevention and control programs employing educational, clinical, regulatory, economic, and comprehensive approaches. If current trends continue, tobacco will be the leading cause of preventable and premature death worldwide by 2030. Cohesive strategies and concerted action at both national and international levels are needed to help curb the global tobacco epidemic.

ENVIRONMENTAL HEALTH

The air we breathe, the water we drink or swim in, the soil beneath us, even the buildings that surround us—all make up our environment. Sometimes our surroundings harbor health hazards, both natural and man-made. CDC's responsibility is to monitor these hazards, discover how to minimize or eliminate them, and share that information to improve health.

Monitoring environmental hazards is technically challenging because it often requires techniques that can detect infinitesimally small levels of exposure—such as parts per trillion. CDC's environmental health laboratories have met this challenge many times, advancing the scientific frontiers of measuring environmental hazards. For example, CDC developed a breakthrough technique that can measure exposure to environmental tobacco smoke in small amounts of blood or urine.

Measuring exposure and levels of toxins is critical to surveillance, scientific leadership, and the design of effective interventions. CDC's environmental health programs address threats as diverse as asthma (the leading cause of missed school days), lead poisoning, radiation, response to natural and man-made disasters (such as the use and safe disposal of chemical weapons), radiation exposure, food safety, and even the sanitation on cruise ships. Whether on land, in the air, or on the water, CDC works to make the environment that surrounds us as safe and healthy as possible.

CHEMICAL WEAPONS DISPOSAL PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

The Department of Defense (DOD) is in the process of destroying the entire U.S. stockpile of aging and obsolete chemical weapons. The original stockpile contained 63 million pounds of chemical weapons disseminated at eight sites in the continental United States and at Johnston Atoll in the Pacific. Additional non-stockpile materials, such as buried chemical warfare materiel, are located at more than 200 sites in the United States and U.S. territories. The entire stockpile must be destroyed to comply with the Chemical Weapons Convention Treaty. The health of workers and the public near the storage and disposal sites must be protected during this process.

WHAT HAS CDC ACCOMPLISHED?

Congress has charged CDC with public health oversight of DOD's chemical weapons disposal program. To ensure protection of the public's health, CDC reviews all disposal plans. As of March 2003, more than 15.8 million pounds of chemical agents and weapons have been safely destroyed. CDC will continue to protect the public's health while managing the safe disposal of the remaining 47 million pounds of chemical agents and weapons.

Buried or abandoned chemical weapons have been removed from several sites, including Rocky Mountain Arsenal, Spring Valley (a Washington, D.C. suburb), Memphis Army Depot (TN), a residential site in Guam, England Air Force Base (LA), Raritan Depot (NJ), and Fort Meade (MD). With CDC guidance and technical assistance, the Army has implemented a rigorous chemical agent quality assurance monitoring program to ensure that appropriate corrective actions are taken if the release of a lethal chemical agent is detected. Additionally, CDC has developed baseline community guidelines for medical readiness in case of such a release.

WHAT ARE THE NEXT STEPS?

CDC has proposed revised recommendations for exposure limits to the chemical agents during disposal. Using the most up-to-date toxicity information, the revised limits will ensure that workers and persons living in nearby communities are protected from potential adverse health effects.

CDC is also helping the Army evaluate new monitoring techniques, destruction technologies (such as chemical neutralization at two sites), and system safeguards for existing disposal facilities and for those under construction. CDC provides advice regarding medical readiness at each site before disposal operations begin.

CHILDHOOD LEAD POISONING PREVENTION PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- Childhood lead poisoning remains a major preventable environmental public health problem in the United States. According to recent data, an estimated 434,000 U.S. children 1 to 5 years of age have blood lead levels greater than 10 micrograms per deciliter, a level at which harmful health effects are known to occur.
- Lead poisoning can affect nearly every system in the body and cause learning disabilities and behavioral problems. At very high levels, lead poisoning can cause seizures, coma, and death. Lead poisoning often occurs with no obvious symptoms and frequently goes unrecognized.
- Children from all social and economic levels can be affected by lead poisoning. However, children living near the poverty level and in old, poorly maintained housing are disproportionately affected as are children from some racial and ethnic groups.
- The economic benefit of preventing lead exposure among children reaching 2 years of age was estimated to be on average \$213 billion in 2000.

WHAT HAS CDC ACCOMPLISHED?

In 1990, CDC established the Childhood Lead Poisoning Prevention Program which provides leadership to state and local health departments in developing comprehensive childhood lead poisoning prevention programs. Additionally CDC has

- Funded nearly 60 childhood lead poisoning prevention programs to develop, implement, and evaluate lead poisoning prevention activities.
- Provided technical assistance to support the development of state and local lead screening plans.
- Fostered agreements between state and local health departments and state Medicaid agencies to link surveillance and Medicaid data.
- Provided training to public health professionals through CDC's National Lead Training Resource Center.
- Supported the formation of collaborative relationships between CDC's funded partners and other lead poisoning prevention organizations and agencies (e.g., community-based, nonprofit, and housing groups).
- Developed the Childhood Blood Lead Surveillance System through which 46 states report data to CDC.
- Expanded public health laboratory capacity in states to analyze blood and environmental samples and to ensure quality, timely, and accurate analysis of results.

In 2003, CDC awarded \$31.7 million to 42 state and local health departments to continue their comprehensive childhood lead poisoning prevention efforts to achieve the *Healthy People 2010* goal of eliminating childhood lead poisoning as a public health problem.

WHAT ARE THE NEXT STEPS?

CDC is committed to the *Healthy People 2010* goal. CDC continues to assist state and local childhood lead poisoning prevention programs, provide a scientific basis for policy decisions, and ensure that health issues are addressed in decisions about housing and the environment.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

COMMUNITY ENVIRONMENTAL HEALTH ASSESSMENT IN PERU

WHAT IS THE PUBLIC HEALTH ISSUE?

- Poverty-stricken informal settlements in peri-urban areas of Latin America have numerous environmental health problems, typically related to a lack of infrastructure and basic services.
- Residents of these communities suffer ongoing health problems related to environmental health conditions, including lack of water, sanitation, and solid waste services; poor air quality; and deficient food safety.
- National and local environmental health programs have neither the resources nor the personnel to prevent or respond to these problems. For example, the District of San Juan de Lurigancho has a population of about 750,000 people but has only 12 staff members in the local environmental health program.

WHAT HAS CDC ACCOMPLISHED?

CDC, in collaboration with CARE/Peru, applied the *Protocol for Assessing Community Excellence in Environmental Health* (PACE-EH) in the Peruvian communities of San Juan de Lurigancho and Iquitos. PACE-EH guides communities in defining and prioritizing environmental health problems and planning interventions. Members of both communities effectively worked together to define their top priority areas. For example, San Juan de Lurigancho citizens identified three problems as top priorities for intervention: lack of safe drinking water; inappropriate food handling and hygiene habits; and erratic and inefficient solid waste services.

Examples of Program in Action

- The Peru PACE-EH process has brought together various stakeholders (including community groups, government agencies, local municipalities, private enterprises, and nongovernmental organizations) to define and prioritize local environmental health problems and to develop action plans to overcome those problems. Thus, problems can be addressed more quickly and efficiently. For example, in Iquitos, the PACE-EH process has resulted in funding to implement a water and sewer project, an intervention that would not have taken place for at least 20 years according to the local public utility.
- CDC, in cooperation with CARE/Peru, has translated the PACE-EH guidebook into Spanish.

WHAT ARE THE NEXT STEPS?

CDC continues to work in cooperation with CARE/Peru to implement the PACE-EH process in three additional Peru communities: Tarapoto, Puno, and Arequipa. In addition, CDC will provide technical assistance in the implementation and evaluation of water and sanitation interventions in Iquitos.

CDC continues to translate PACE-EH guidance documents for others in Latin America and Spanish-speaking areas in the United States. For example, CDC is preparing an implementation manual titled *PACE-EH en la Práctica: La Experiencia Peruana de CARE Perú y el CDC* (*PACE-EH in Practice: The Peruvian Experience of CARE Peru and CDC*) which shares lessons learned from experiences in the first two Peruvian communities.

ENVIRONMENTAL HEALTH SERVICES WORKFORCE

WHAT IS THE PUBLIC HEALTH ISSUE?

- State and local health departments historically have been responsible for providing essential environmental health services to protect the public's health, including preventing or addressing problems with potable water, sewage systems, food safety, and vector control. However, new and emerging issues (e.g., highly toxic wastes, terrorism, newly discovered diseases) have arisen at a time when state and local capacities are limited.
- Local environmental health practitioners are the "frontline troops" in the public health battle to prevent disease, yet many have no formal training in environmental health or public health. There are currently only 23 accredited undergraduate and 3 accredited graduate programs in the field of environmental health.
- State and local environmental health programs do not have performance standards, and their activities may not coincide with community needs.
- Some state and local environmental health programs do not have the capacity to use the essential public health service approach to solve environmental health problems. Environmental health practitioners have inadequate resources to determine the role the environment plays in disease transmission. It was estimated in the year 2000 that 19,431 people are a part of the environmental health workforce employed by local health departments. This workforce makes up a small percentage of the total public health workforce and continues to shrink, further diminishing workforce capacity.

WHAT HAS CDC ACCOMPLISHED?

CDC provides funding and technical assistance to public health agencies, associations, and universities to establish programs for developing a competent and effective environmental health services workforce. The following are recent examples:

- Funded the Association of Environmental Health Academic Programs to expand the number of accredited programs teaching environmental health and to increase the number of graduates.
- Funded Tulane University and the University of Washington to develop training modules based on environmental sciences and public health for practitioners entering the field.
- Partnered with the American Public Health Association to sponsor the *Environmental Health Competency Project*, which outlines core competencies needed by environmental health practitioners to anticipate, recognize, and respond to environmental health challenges.

WHAT ARE THE NEXT STEPS?

- Create an environmental health problem-solving methodology for environmental health practitioners.
- Develop the National Environmental Health Services Corps modeled after the Epidemic Intelligence Service. This 2-year program would teach and implement problem-solving methodology as part of a state or local field assignment.
- Implement an environmental health leadership institute.
- Make available to state and local programs environmental health performance standards based on the 10 essential services of public health.

EXPOSURE INVESTIGATION

WHAT IS THE PUBLIC HEALTH ISSUE?

- According to the Pew Commission on Environmental Health, 90% of the registered voters in the United States believe that the environment plays a significant role in their health.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency. About 15 million people live within 1 mile of NPL sites.
- Environmental public health is responsible for identifying and reducing adverse health effects that may be associated with exposure to hazardous substances in the environment.

WHAT HAS ATSDR ACCOMPLISHED?

The Agency for Toxic Substances and Disease Registry (ATSDR) conducts exposure investigations (EIs) to gather and analyze site-specific information to determine whether human populations have been exposed to hazardous substances. An EI is often conducted as part of a site public health assessment. EIs include

- Biomedical testing (e.g., urine, blood samples), which often indicates exposure to a contaminant.
- Environmental testing (to detect contamination of soil, water, or air) at locations near where people live, spend leisure time, or might come into contact with contaminants under investigation.
- Exposure-dose reconstruction analyses, which are used to estimate the contaminant levels that people may have been exposed to in the past or may be exposed to in the future.

ATSDR staff and partners conducted 19 EIs in 2002. Environmental risk managers and public health professionals use the information to assess the effectiveness of previous remedial efforts and intervention strategies in minimizing or eliminating human exposures.

Example of Program in Action

ATSDR, in conjunction with its cooperative agreement partner, the South Carolina Department of Health and Environmental Control, conducted an EI to assess human exposure to uranium from well-water in two South Carolina communities where drinking water had high levels of uranium. Urine samples for 105 residents were tested for uranium 1 to 3 months after the residents had stopped drinking well-water. The concentration of uranium in urine samples from 94 (90%) of the residents exceeded the 90th percentile of the national comparison population. ATSDR and state health department physicians were available for consultation with physicians about their patients' test results and follow-up medical management. Residents were supplied with an alternative water source while municipal water lines were under construction.

WHAT ARE THE NEXT STEPS?

ATSDR continues to conduct EIs for a particular site when people have been exposed to hazardous contaminants, additional information related to the exposure is needed, and/or the results from the EI could affect public health decisions. In addition, ATSDR is investigating ways to improve the EI, including using data from unexposed populations to provide comparison information and adopting innovative environmental sampling techniques.

FOOD SAFETY ENVIRONMENTAL PRACTICE

WHAT IS THE PUBLIC HEALTH ISSUE?

Foodborne diseases cause about 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year. FoodNet data indicate that eating outside the home poses an increased risk of developing a foodborne illness. Food preparation is a complex process with many factors that may influence the safety of the food. Some of those factors include the knowledge and hygienic practices of the people who prepare food, as well as the equipment used the preparation process and inherent qualities of the food itself. To prevent foodborne illness, it is necessary to understand the factors that set the stage for outbreaks and illness to occur.

WHAT HAS CDC ACCOMPLISHED?

CDC, in collaboration with the Food and Drug Administration and eight states (California, Colorado, Connecticut, Georgia, Minnesota, New York, Oregon, and Tennessee), has established the Environmental Health Specialists Network (EHS-Net), a network of environmental health specialists who work to improve environmental health. Although EHS-Net plans to address various environmental health issues such as air and water quality, the current focus is food safety. EHS-Net has designed a project to better understand food-handling practices and how these practices relate to foodborne illness. Environmental health specialists will gather information from restaurants and other facilities where food is served outside the home. The objective is to determine what causes foodborne outbreaks and why these outbreaks occur.

Environmental health specialists evaluate food-handling practices and policies in food establishments that have had recent outbreaks, as well as in establishments with no known recent history of outbreaks or illness complaints. Data collected from these evaluations are entered into an electronic database and analyzed to identify underlying factors related to foodborne disease. This information will help environmental health specialists determine the effectiveness of existing strategies and also help them develop new prevention strategies for foodborne illness.

WHAT ARE THE NEXT STEPS?

As data from EHS-Net activities are collected, CDC will share findings with federal, state, local, and tribal food protection programs so that they can design effective food safety programs. Results anticipated for 2004 include

- Establishing policies associated with food-handling practices in restaurants that prepare eggs all day and support an egg-handling study to identify the rate of high-risk egg-handling practices.
- Conducting focus groups with food workers to determine behavioral factors, barriers, and motivations that influence safe food-handling practices.
- Evaluating the knowledge, attitudes, and behaviors of environmental health specialists regarding food safety and food establishment inspections.
- Assessing the prevalence of self-reported safe food handling practices of food workers.

HEALTH ASSESSMENT

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 40,000 uncontrolled hazardous-waste sites have been reported to the federal government. Additionally, thousands of inadvertent environmental releases of toxins occur each year.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency (EPA). About 15 million people live within 1 mile of NPL sites.

WHAT HAS ATSDR ACCOMPLISHED?

The Agency for Toxic Substances and Disease Registry (ATSDR) public health assessment process reviews available information about hazardous substances onsite and evaluates whether exposure causes harm to people. ATSDR assesses public health issues for every site included or proposed on the NPL and EPA maintains the information.

ATSDR looks at three primary sources of information in the public health assessment process:

- Environmental data, including information about contaminants and how people could come in contact with them.
- Health data, including available information on community-wide rates of illness, disease, and death compared with national and state rates.
- Reports evaluating if certain sites affect the health and/or quality of life in communities.

ATSDR's public health assessment process identifies health studies or other public health actions that might be indicated. The public health assessment process enables ATSDR to provide advice to EPA and other federal, state, and local agencies on actions to prevent or reduce people's exposure to hazardous substances.

In 2002, ATSDR and its cooperative agreement states performed more than 1,481 health assessment activities and prepared 159 public health assessment documents for 122 sites. Of the sites ATSDR assessed, 28.5% were found to pose a public health hazard. Of the 122 sites, 88 were NPL sites, 34 non-NPL, 4 were sites for which the community or others had petitioned ATSDR to conduct a public health assessment, and 6 were sites that were covered by the *Resource Conservation and Recovery Act* (RCRA). RCRA is a legislative act that addresses the control of hazardous substances at operating facilities. ATSDR's resulting site-specific recommendations have been widely accepted by individual sites.

WHAT ARE THE NEXT STEPS?

ATSDR is developing a certification program for those who conduct health assessments at sites. The certification program, piloted in 2003 and implemented in 2004, will provide minimum training requirements and certification testing. The health assessor certification protocol is intended to standardize the basic skills for health assessors. Continuing education requirements are also being established.

HIGH-INTENSITY TARGETED SCREENING FOR CHILDHOOD LEAD POISONING

WHAT IS THE PUBLIC HEALTH ISSUE?

- Lead poisoning is one of the most preventable environment-related health problems affecting young children, but nearly 1 million children under 6 years of age have elevated blood lead levels (BLLs) (i.e., above 10 micrograms per deciliter).
- Lead poisoning, which can affect virtually every body system, can result in learning disabilities, behavior problems, and at very high levels seizures, coma, and even death.
- To reach the goal of eliminating childhood lead poisoning by 2010, the process of screening children for lead poisoning must be improved.

WHAT HAS CDC ACCOMPLISHED?

In 2001, CDC developed the High-Intensity Targeted Screening (HITS) approach for improving the nation's ability to target and screen children for lead poisoning and prevent exposure to lead. HITS consists of the following components:

- *Door-to-Door Screening:* Teams of staffers from local childhood lead poisoning prevention programs and community members, assisted by CDC, visit homes in high-risk communities to screen children for lead poisoning.
- *Intervention:* When children are found to have elevated BLLs, their families are offered appropriate medical treatment and an evaluation of the presence of lead within their homes.
- *Capacity Building:* Local programs will use HITS data to improve lead screening plans, better direct resources, increase technical capacity, and monitor progress toward lead poisoning elimination.
- *Partnership Building:* The HITS approach requires partnerships to be developed between community members and multiple federal, state, and local agencies, which will result in a more comprehensive approach to eliminating childhood lead poisoning at the local level.

Example of Program in Action

In November 2001, the screening phase of the first HITS project in two inner-city communities in Chicago was completed. Blood samples were collected from 580 children aged 12–71 months. Preliminary analyses indicate that about 30% of these children have elevated BLLs. Data analysis is ongoing and will direct interventions. The cost of the project is estimated at \$62,000.

WHAT ARE THE NEXT STEPS?

CDC and its partners will share the results of the first HITS project and use the lessons learned to implement HITS projects in additional communities. In 2002, CDC spent \$120,000 on planning and implementing at least two HITS projects in new locations.

NON-FEDERALLY REGULATED DRINKING WATER SYSTEMS

WHAT IS THE PUBLIC HEALTH ISSUE?

- About half of the residents of some states drink water from small drinking water systems not regulated by the *Safe Drinking Water Act* (SDWA). Forty-two million of these people obtain their drinking water from private wells.
- The quality of these non-federally regulated drinking water supplies is largely unknown, but recent well surveys, periodic outbreaks of waterborne diseases, and anecdotal evidence suggest that major public health problems exist with these water systems.
- State, tribal, and local environmental health programs do not have the resources or personnel to effectively deal with these small, non-federally regulated drinking water systems.

WHAT HAS CDC ACCOMPLISHED?

CDC convened two workshops where state and local representatives from 16 states discussed concerns regarding small drinking water systems not regulated under SDWA. Participants in the workshops identified three broad areas of concern regarding the public health impact of small drinking water systems:

- State and local resources are inadequate to address small systems issues.
- Members of the public served by these small systems are often complacent about or unaware of the quality of their drinking water.
- States need technical assistance and guidance in developing and maintaining these types of small systems.

WHAT ARE THE NEXT STEPS?

CDC will work to help workshop participants implement the following:

- Provide technical assistance to state, tribal, and local environmental health agencies through regional CDC offices staffed with laboratory, epidemiology, and environmental health personnel.
- Increase public awareness of the importance of safe drinking water through public information campaigns and translate into consumer-friendly language technical information about potential adverse human health effects from drinking water contaminants.
- Consider expanding non-regulatory provisions within SDWA to include small drinking water systems.

VESSEL SANITATION PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

New and larger cruise vessels are being built each year, with the largest vessels carrying as many as 5,000 passengers and crew members. In 2002, about 7.4 million (up from 6.8 million in 2001) passengers took cruises to North-American ports. Both passengers and crew members are at risk for illness from contaminated food and water and other environmental sources including person-to-person disease transmission.

WHAT HAS CDC ACCOMPLISHED?

CDC established the model Vessel Sanitation Program (VSP) in 1975, which combines industry cooperation with CDC's ability to take aggressive actions to protect the health of travelers. Currently, VSP is the only CDC program funded completely by user-service fees; each vessel owner pays a fee, based on tonnage, for all inspections. The program assists the industry in developing and implementing comprehensive sanitation programs to minimize risks for gastrointestinal diseases. Every vessel that has a foreign itinerary and carries 13 or more passengers is subject to two unannounced inspections each year. Additionally, since 1989, CDC staff have offered sanitation seminars to shipboard management five times a year. In 2002, more than 140 cruise ships participated in this innovative program. VSP has demonstrated amazing success working with the cruise ship industry, resulting in an 87% decrease in disease outbreaks among passengers during the last 25 years.

In 2002, VSP's highlighted accomplishments include the following:

- Instituted an automated e-mail-based Gastrointestinal Illness Surveillance System to receive and process more than 300 cruise vessel reports per month.
- Conducted 17 gastrointestinal illness investigations.
- Conducted 235 routine unannounced inspections of cruise vessels in U.S. ports.
- Conducted 12 detailed new construction plan/drawing reviews and more than 37 final construction inspections.
- Provided several training sessions to Egyptian Inspectors and managers responsible for inspections of Nile cruise boats and hotels, which serve more than 500,000 passengers each year.
- Served on the World Health Organization committee charged with revising the *Guide to Ship Sanitation*.
- Streamlined inspection report delivery process by providing an instant draft report at the close of inspections.
- Added cruise vessels' Corrective Action Statements to the detailed online database of VSP inspection reports.

WHAT ARE THE NEXT STEPS?

CDC will continue to focus VSP operations on identifying critical areas to prevent potential disease from food, water, and other environmental sources. CDC will continue to assist U.S. and international public health agencies, the public, and the cruise ship industry in maintaining the highest public health standards for passengers and crew members aboard cruise vessels by conducting training sessions, construction plan reviews, and vessel inspections. CDC will continue its efforts to use this model cooperative voluntary public health service program as a basis for improved land-based public health programs. Finally CDC will continue working with the cruise lines to institute the most advanced measures needed to ensure the highest level of safety possible.

Every day, 2 million people cross national borders as tourists, business travelers, immigrants, or refugees. World trade moves produce and manufactured goods from one end of the earth to another in a matter of hours or days. Disease vectors like mosquitoes have no regard for borders. All of this movement means that, in terms of disease, the world has become a very small place indeed. Health events far from our shores are significant in their own right, but also have the potential to influence health within the United States.

CDC has been involved in global health since its post-World War II origins as a malaria control center. Today, that tradition continues as CDC supports various initiatives designed to prevent diseases around the world. For example, CDC supports a micronutrient malnutrition prevention and control program that helps prevent the millions of cases of childhood blindness that occur each year in developing countries (caused by vitamin A deficiencies), mental retardation (caused by iodine deficiencies), and maternal deaths in the developing world (25% of which are caused by iron-deficiency anemia). With its partners around the world, CDC provides technical and financial assistance to eradicate diseases like measles and malaria. In addition, CDC's global health efforts help address the health effects of both natural and man-made disasters through humanitarian relief and surveillance efforts such as an ongoing effort to document the health effects of landmines that are still buried in 71 countries.

In addition to disease- and country-specific assistance, CDC's global health efforts help to transfer technical and scientific knowledge and leadership skills to public health counterparts around the world. For example, CDC's Field Epidemiology Training Program offers the same quantitative methods that have been used successfully to define, solve, and evaluate public health problems in the United States to researchers and healthcare professionals in other countries. Global surveillance programs help link our own disease detection networks to those around the world, providing an early warning of new and emerging threats to health. In the increasingly small world of public health, all of these efforts contribute to better health—both here and abroad.

CONTROLLING TUBERCULOSIS GLOBALLY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Tuberculosis (TB) is a global emergency and a leading infectious killer of young adults worldwide, claiming the lives of about 2 million people each year. About one third of the world's population is infected with the bacterium that causes TB, *Mycobacterium tuberculosis*.
- By 2020, nearly 1 billion people will be newly infected, and despite the existence of effective treatments, 200 million will get sick, and 35 million will die from TB.
- Controlling TB is cost-effective; the World Bank has ranked the directly observed therapy short-course (DOTS) strategy as one of the "most cost-effective of all health interventions."

WHAT HAS CDC ACCOMPLISHED?

CDC works closely with the World Health Organization (WHO), the International Union Against TB and Lung Diseases, the U.S. Agency for International Development (USAID), the Royal Dutch Tuberculosis Society, and the TB control programs of numerous countries to control the spread of the disease globally. Efforts are focused on improving the quality of TB control programs in countries with a high burden of TB or those that contribute most to the U.S. epidemic. The global strategy is based on cornerstone activities that are mutually reinforcing and include providing program support with technical assistance in program management and implementation, focusing on those countries which impact U.S. morbidity the most with TB cases in non-U.S.-born populations, and addressing multi-drug resistant TB (MDR TB) and TB/HIV co-infection. Collaborative efforts include the *Stop TB Initiative* and the Tuberculosis Coalition for Technical Assistance that provides assistance to specific countries.

Example of Program in Action

TB rates in Russia are increasing at an alarming rate, as are rates of drug resistance and HIV prevalence. Factors contributing to the increase in TB include the inability to financially support the needed infrastructure for TB diagnosis and treatment, the unavailability of quality drugs, high levels of TB transmission in prison settings, and a reluctance to adopt the DOTS strategy as employed in other countries with a high burden of TB and in the United States, as recommended by WHO. CDC is collaborating with USAID and WHO to implement and strengthen basic DOTS programs in the four Russian oblasts (territorial administrative divisions). CDC has implemented DOTS-plus, the WHO strategy for the management of MDR TB treatment in low-resource settings, in two of these oblasts.

CDC has developed an extensive diagnostic and treatment protocol; assigned staff on 3-month temporary duty assignments to help implement the DOTS and DOTS-plus strategies; assigned a technical advisor for TB at USAID/Russia; helped establish a national TB surveillance system; supported epidemiologic studies of risk factors for the development of MDR TB in the Russian setting; provided laboratory training and quality assurance for drug sensitivity testing; revised international training materials for use in Russia; and developed a pilot project and country strategy to address the impact on of these interventions on TB control within Russia. CDC has also developed and is implementing a pilot project to evaluate and implement effective strategies for the control, care, and treatment of HIV-associated TB.

WHAT ARE THE NEXT STEPS?

CDC will continue to collaborate with international partners to support global TB programs; work to evaluate the effectiveness of treatment strategies for MDR TB in low-resource settings, particularly in countries of the former Soviet Union; continue to support expansion of the DOTS strategy in countries with high TB burden; and support regional TB activities throughout southern Africa.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

GLOBAL AIDS PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), of the estimated 40 million adults and children who were living with HIV/AIDS at the end of 2003, 95% lived in developing countries—and more than 90% were estimated to live in a country served by CDC's Global AIDS Program (GAP). In 2003, an estimated 5 million people were newly infected with HIV, and over 3 million died of AIDS.
- Sub-Saharan Africa populates 70% of the HIV/AIDS rates worldwide; in 2003, 77% of all AIDS deaths were in this region.

WHAT HAS CDC ACCOMPLISHED?

CDC works collaboratively with other U.S. government agencies, including the U.S. Agency for International Development; international health and economic organizations such as the World Health Organization, UNAIDS, and the World Bank; nongovernmental organizations; and host country governments to mitigate the devastating effects of HIV/AIDS. In 2003, CDC's GAP worked in 25 countries in Africa, Asia, Latin America, and the Caribbean and has regional offices/activities in the Caribbean, Southeast Asia, Southern Africa, and Central America. GAP has three primary program foci: infrastructure and capacity development—including surveillance, laboratory support, information systems, monitoring and evaluation; primary prevention—including voluntary counseling and testing, blood safety, activities targeted toward youth; and care and treatment—including treatment and care of tuberculosis (TB) and opportunistic infections, preventing mother-to-child transmission, appropriate provision of antiretroviral drugs, and soothing care (see www.cdc.gov/nchstp/od/gap/default.htm).

GAP is part of two ground-breaking U.S. initiatives to address HIV/AIDS in 14 countries hardest hit by the epidemic. The *International Mother and Child HIV Prevention (PMTCT) Initiative*, announced by President Bush in 2002, focuses on preventing the transmission of HIV from mothers to infants and improving healthcare delivery in Africa and the Caribbean. The PMTCT initiative has been incorporated into the broader *Emergency Plan for AIDS Relief*, announced by President Bush in 2003, which aims to prevent 7 million new infections, treat 2 million HIV-infected people, and care for 10 million HIV-infected individuals and AIDS orphans (see www.whitehouse.gov/infocus/hiv aids/).

Example of Program in Action

Botswana has been one of the countries hardest hit by the HIV pandemic with adult seroprevalence at about 39%. To combat this epidemic, CDC works closely with the Botswana Ministry of Health in all of its HIV/AIDS activities. In the past year, CDC has provided funding and assistance to support 16 voluntary HIV counseling and testing sites. CDC also supports PMTCT activities through the training of health workers, provision of technical assistance to strengthen the counseling, testing, treatment, public education, and addition of 200 counseling and education units to prenatal clinics throughout Botswana. CDC, in collaboration with local partners, launched a radio series, focusing on culturally-specific AIDS-related issues. Finally, GAP assisted in the piloting of an Isoniazid Preventive Therapy program to prevent TB and is working with the government to expand efforts to prevent TB, the leading cause of AIDS-related deaths in Botswana (see www.cdc.gov/nchstp/od/gap/countries/botswana.htm).

WHAT ARE THE NEXT STEPS?

CDC will continue to collaborate with multiple partners to provide technical assistance and direct support to country programs worldwide. In addition, CDC will support regional programs to serve a greater number of countries.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

GLOBAL INITIATIVES IN LABORATORY IMPROVEMENT

WHAT IS THE PUBLIC HEALTH ISSUE?

The Global AIDS Program (GAP) supports 25 countries in Asia, Africa, South America, and the Caribbean, which have a substantial burden of HIV infection, tuberculosis (TB), and other diseases. While most countries have a unique infrastructure of laboratories that provide support for disease surveillance, prevention, and care activities, in other countries, this laboratory infrastructure may be lacking or non-existent. Programs to ensure the technical and managerial training for laboratory staff are needed. GAP countries have expressed concerns over having qualified personnel, adequate laboratory training, technology, resources, and other tools to maintain adequate laboratory testing services.

WHAT HAS CDC ACCOMPLISHED?

CDC works closely with partners to strengthen the laboratory systems, implement comprehensive laboratory quality assurance programs, and conduct laboratory training in GAP countries. Strengthening the laboratory systems requires conducting in-depth assessments and assuring testing capability and capacity at the national and international levels. A key component is integrating quality laboratory services across prevention and care programs. Additionally, laboratory training is provided through a multifaceted approach of developing training materials, linking GAP and U. S. laboratories, planning, facilitating, and conducting laboratory training courses, as well as enhancing in-country training capacity.

CDC is working with partners to provide leadership for laboratory training, as well as developing and implementing quality systems for HIV/sexually transmitted infections/opportunistic infections testing services supporting surveillance, prevention, and care activities in India, Asia, and 14 Sub-Sahara African countries. Activities include assessments and ongoing technical support to develop laboratory systems and quality assurance programs in Botswana, Cambodia, the Caribbean (the Caribbean Epidemiology Center), Ethiopia, Guyana, India (Tamil Nadu state), Malawi, Tanzania, Thailand, Zambia, and Zimbabwe

As a major regional initiative, CDC has developed a new Laboratory Quality systems framework that addresses basic infrastructure for all laboratory testing and provides practical materials for implementation. CDC has also worked with partners, such as the World Health Organization and the Association of Public Health Laboratories, to provide leadership in creating training materials and quality assurance guidelines for TB and HIV. These efforts have garnered international recognition and are distributed worldwide.

Examples of Program in Action

Plans and activities have been developed and initiated in many African and Asian countries to demonstrate the value of a laboratory systems approach that integrates service, quality assurance, and the healthcare system. For example, CDC

- Presented a Laboratory Quality Systems workshop in Botswana for 67 delegates from 16 African countries.
- Convened and presented an Atlanta conference, "Update on GAP Technical Strategies and Approaches for Lab Support."
- Conducted a workshop on integrated disease laboratory testing in Ethiopia.
- Published and distributed *Guidelines for Appropriate Evaluation of HIV Testing Technologies* in Africa.
- Provided comprehensive technical support to the Zimbabwe National Quality Assurance Program.
- Produced a training videotape "Performing Rapid HIV Tests," training aides and posters for Acid Fast Bacillus Microscopy and Rapid HIV tests.

WHAT ARE THE NEXT STEPS?

Successful implementation of the laboratory systems in each of the GAP countries will require continued coordination, communication, and interaction between the ministries of health, public health laboratories, regional and local public health laboratories, and each of the constituents that provide testing of public health importance.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

GLOBAL POLIO ERADICATION

WHAT IS THE PUBLIC HEALTH ISSUE?

Polio, once the leading cause of permanent disability in the United States, remains a substantial cause of disability in polio-endemic countries. As of January 2004, a provisional total of 667 confirmed cases of paralytic polio were reported to the World Health Organization (WHO) for 2003. Currently, more than 200 countries and territories are polio-free, and indigenous polio is confined to parts of six countries in South Asia and Africa. Until polio is eradicated in every country, it remains a threat to children in polio-free countries and a scourge we must eradicate.

WHAT HAS CDC ACCOMPLISHED?

In collaboration with WHO, Rotary International, and the United Nations Children's Fund (UNICEF), CDC has provided epidemiologic, laboratory, programmatic expertise, and funding support to help polio-endemic countries with polio eradication activities. For example,

- During 2003, CDC contributed about 465 million doses of oral polio vaccine, through UNICEF, to eradicate polio.
- CDC helps countries conduct National Immunization Days (NIDs). During these activities, every child under 5 years of age receives two doses of oral polio vaccine, one month apart, regardless of their prior immunization status.
- Twenty CDC professional staff are assigned to partner agencies, including WHO and UNICEF, in critical positions within the global project. Moreover, CDC's Atlanta-based staff travels extensively to provide technical assistance to regions and countries.
- CDC sends public health professionals with experience in epidemiology and surveillance to polio-endemic countries to assist with surveillance and to plan, implement, and evaluate NIDs through Stop Transmission of Polio (STOP) Teams. Since January 1999, 483 STOP team members have participated in 3-month assignments in 39 countries.
- CDC and the Global Polio Eradication Initiative partners have intensified activities to strengthen active surveillance for acute flaccid paralysis especially in India, Bangladesh, Pakistan, Afghanistan, Nigeria, Ethiopia, Angola, Egypt, and other countries in Asia and Africa.
- CDC assists WHO in building global polio and measles laboratory networks, and serves as a WHO Global Specialized Reference Laboratory for polio. To date, 147 laboratories are in the global polio network.

Example of Program in Action

Since 1999, CDC has provided short-term consultants to help with polio eradication efforts in Bangladesh. As a result, disease tracking has improved, and poliovirus circulation appears to have been stopped. The last confirmed case of polio in Bangladesh occurred in 2000.

WHAT ARE THE NEXT STEPS?

The Global Polio Eradication Initiative's goal is that by 2005 wild poliovirus transmission will be interrupted and the world will be certified as polio-free in 2008. CDC will continue to fight polio by collaborating with partners to improve surveillance and increase the number and quality of NIDs, so that disease transmission is interrupted in the remaining six polio-endemic countries. CDC will provide scientific assistance to improve monitoring and documentation necessary to certify that polio eradication has occurred and continue to be a leader in the development and implementation of global plans for laboratory containment of polioviruses. Finally, CDC is leading research and consensus development efforts to determine the best strategies for stopping oral polio vaccine use in the post-eradication era.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

INTERNATIONAL MICRONUTRIENT MALNUTRITION PREVENTION AND CONTROL PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

Deficiencies of micronutrients such as iron, iodine, vitamin A, and folate affect nearly one-third of the world's population, and the consequences can be devastating. For example, iron deficiency among 6 to 24 month olds is impairing the mental development of 40% to 60% of children in developing countries, while more than 50,000 young women die each year during pregnancy and childbirth as a result of severe iron deficiency anemia. Because of iodine deficiency in pregnancy, as many as 20 million babies annually are born mentally impaired. Vitamin A deficiency compromises the immune systems of about 40% of preschool children in developing countries and results in the deaths of nearly 1 million children every year. Folate deficiency in pregnancy is the cause of severe birth defects in about 200,000 children and is associated with approximately 1 of every 10 adult deaths from heart disease per year. Effective and inexpensive interventions such as food fortification, supplementation, and dietary diversification have eliminated most cases of micronutrient deficiencies in developed countries. These interventions can be replicated in the developing world.

WHAT HAS CDC ACCOMPLISHED?

CDC has been working with the United Nations Children's Fund, the World Health Organization, the U.S. Agency for International Development (USAID), and the Global Alliance for improved nutrition to assist countries to assess the burden of micronutrient deficiencies through national surveys and implementation of surveillance systems to monitor food fortification and micronutrient supplementation programs and track the micronutrient status of target populations. CDC also has supported regional training workshops on micronutrient survey methods, food fortification monitoring, and micronutrient program communication planning. In addition, CDC has developed computer-based tools to train public health professionals in micronutrient program planning and management; micronutrient survey methods; and health communication planning in support of micronutrient intervention programs. Through its International Micronutrient Reference Laboratory, CDC has collaborated with partners to establish a global network of resource laboratories to enhance and monitor the quality of national micronutrient laboratories.

Example of Program in Action

Under an interagency agreement with USAID, CDC's International Micronutrient Malnutrition Prevention and Control (IMMPaCt) Program has been collaborating with Micronutrient Operational Strategies and Technology (MOST), the Micronutrient Initiative, and the Ministry of Health in Nicaragua to strengthen the national nutrition monitoring system in that country. The purpose of the monitoring system is to obtain regular and reliable process and impact data to strengthen the management of the national food fortification (salt with iodine, flour with iron and folic acid, and sugar with vitamin A) and supplementation (iron and vitamin A) programs in Nicaragua.

WHAT ARE THE NEXT STEPS?

CDC will continue to support selected countries in their efforts to better assess micronutrient status of their populations and monitor and evaluate the process and impact of their intervention programs, especially food fortification. CDC will expand its regional training programs and laboratory improvement activities. CDC also will collaborate with international and national wheat and flour industries, and public and civic organizations at the global, regional, and national levels through the Flour Fortification Initiative to promote fortification of flour with vitamins and minerals.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

MEASLES MORTALITY REDUCTION AND REGIONAL GLOBAL MEASLES ELIMINATION

WHAT IS THE PUBLIC HEALTH ISSUE?

Measles caused an estimated 644,000 deaths worldwide in 2002 and is the leading cause of childhood death from a vaccine-preventable disease globally. In 1989–1991, a measles outbreak affected more than 55,000 Americans, resulting in 123 deaths. The United States remains at risk of importation of measles from countries that have not yet eliminated the disease. A total of 54 confirmed measles cases were reported in the United States in 2003. From July 13 to September 13, 2003, a total of 647 measles cases were reported on Majuro Atoll in the Republic of the Marshall Islands. This was the first measles outbreak reported there since 1988. Low coverage rates, at the time, contributed significantly to the spread of the disease. This outbreak resulted in the importation of 21 cases of measles into the United States.

WHAT HAS CDC ACCOMPLISHED?

Transmission of indigenous measles virus in the Americas was interrupted as of November 2002, demonstrating the effectiveness of current control strategies in a large geographic area. During 2003, the provisional number of confirmed measles cases reported in the Western Hemisphere was 104. These cases occurred mainly in Mexico and the United States, with all cases related to importations from endemic countries outside of the Western Hemisphere. U.S. success in measles-control efforts is the result of routine measles vaccination coverage achieved among over 90% of children by the age of 1 year, combined with successful follow-up campaigns implemented in the Western Hemisphere since 1988.

With funds from CDC's immunization appropriations, CDC contributed about \$42 million in grants and other scientific and technical assistance to control measles globally during 2003. CDC grantees included the Pan American Health Organization (PAHO) to eliminate measles from the Western Hemisphere, and the Measles Partnership—a joint effort by the American Red Cross/The International Federation of Red Cross and Red Crescent Societies, the World Health Organization (WHO), the United Nations Children's Fund, the United Nations Foundation, and CDC—to reduce measles-related mortality in Africa. To date, the partnership has vaccinated over 115 million children and prevented an estimated 220,000 deaths in Africa.

Example of Program in Action

CDC provides epidemiologic and laboratory assistance for disease tracking, vaccine for outbreak control and other supplementary immunization activities, and assignments of CDC scientific staff to priority countries. In 2003, CDC provided scientific, technical, and programmatic support for measles outbreak investigation and control activities in Niger and Burkina Faso. These efforts resulted in recommendations for improved surveillance and control activities and showed that measles mortality rates in an outbreak may be higher than previously expected.

WHAT ARE THE NEXT STEPS?

In 2004, CDC and its partners will continue to apply current measles control strategies to maintain elimination of measles in the Western Hemisphere. CDC will promote PAHO strategies in Africa and other regions to reduce mortality from measles and to stop endemic measles transmission in WHO regions with a measles elimination goal.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

STRENGTHENING GLOBAL IMMUNIZATION SYSTEMS

WHAT IS THE PUBLIC HEALTH ISSUE?

About 2.4 million children die each year from vaccine-preventable diseases because 30% of the world's children do not receive all of the available vaccinations. Globally, child immunization programs routinely use vaccines to prevent nine diseases, preventing over 2 million child deaths each year. Working together, the countries of the world have eradicated smallpox and hope to eradicate polio by 2005, and eventually measles. Because of the risk of disease importation, no country is truly free of these diseases unless all countries have effective immunization programs.

WHAT HAS CDC ACCOMPLISHED?

CDC is committed to improving access to sustainable and safe immunization services worldwide. Together with international partners, CDC helps to reduce illness and death caused by vaccine-preventable diseases by strengthening routine immunization activities and building a strong platform for the introduction of new vaccines in the developing world.

Strengthening Childhood Immunization Services

- Since 2001, CDC has collaborated with international partners in projects at the country and regional levels to provide technical assistance to strengthen immunization programs; improve health information systems and use of data; and increase coordination with polio eradication and measles morbidity reduction strategies.
- CDC is providing epidemiologic and programmatic expertise and funding support for the development of standardized computer entry and analysis modules for vaccination coverage and surveillance data.

Supporting the Global Alliance for Vaccines and Immunizations

- CDC is working closely with international partners in the Global Alliance for Vaccines and Immunizations (GAVI). GAVI's mission is to help provide vaccines to the 36 million unimmunized children around the world. Through the generosity of partners such as the Bill and Melinda Gates Foundation Vaccine Fund, GAVI will provide more than \$1.2 billion to support childhood immunization over the next 5 years, with more than 60 countries receiving GAVI funding support.
- For the past 3 years, CDC has served as the technical institute representative on the GAVI Board. CDC has provided technical support at the global, regional, sub-regional, and country levels in the implementation and evaluation of GAVI-related activities. Other partners include the World Health Organization, the United Nations Children's Fund, the World Bank, the International Federation of Pharmaceutical Manufacturers Association, other public health and research institutions, and national governments.

WHAT ARE THE NEXT STEPS?

CDC will expand its work with developing countries and partners to increase access to sustainable and safe immunizations; develop and evaluate best practices to strengthen routine immunization; and use these findings to help sustain achievements towards polio eradication, measles elimination, and mortality reduction from all vaccine-preventable diseases. CDC also plans to work with partners to evaluate the impact of GAVI funding on strengthening routine immunization, introducing new vaccines and enhancing safety of injections given for immunization. CDC will use these findings to develop better programs.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

SUSTAINABLE MANAGEMENT DEVELOPMENT FOR GLOBAL PUBLIC HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

- Many public health workers in developing countries lack basic management skills, including planning, priority setting, and problem solving, needed to effectively implement interventions to prevent disease and disability (e.g., immunizations, oral rehydration therapy, malaria chemoprophylaxis).
- This shortage of management skills has been compounded by recent global trends shifting responsibility from management to workers in the health system.
- Most developing countries lack qualified faculty, appropriate curricula, and the most basic training resources to provide competency-based training for their public health workforce.

WHAT HAS CDC ACCOMPLISHED?

Since 1992, CDC's Sustainable Management Development Program (SMDP) has trained 235 instructors in 55 countries worldwide in the basic management skills of planning, priority setting, problem solving, budgeting, and supervision. SMDP has helped strengthen the public health infrastructure supporting the nearly 4 billion people who live in these countries. Program graduates return home to teach these skills in various public health settings, including academic institutions, government training programs, and nongovernmental organizations. SMDP's strategy includes working with international donor partners to provide in-country technical assistance that supports alumni in such areas as curriculum development; marketing, organizing and teaching workshops; and supervising applied learning projects. SMDP also produces ready-to-use management training tools that are specifically designed to facilitate teaching management concepts to health workers in developing countries.

Example of Program in Action

Since 1994, CDC's SMDP has worked with the Philippines Department of Health to strengthen its capacity to train program managers at the provincial and district levels. The 16 Filipino SMDP alumni have institutionalized a Field Management Training Program within the Philippines Department of Health, a program which now provides management training for health workers throughout the Philippines. Graduates of the Philippines program have also begun serving as training consultants in Asia and the Pacific helping professionals in other countries develop management training programs. Other SMDP-supported management training programs exist in Botswana, Croatia, Guam, Malawi, Mexico, Nicaragua, Uganda, Vietnam, and Zambia.

WHAT ARE THE NEXT STEPS?

CDC continues to work with established programs, such as the one described above in the Philippines, to expand regional training capacity and help identify donor organizations willing to invest in strengthening public health management training capacity.

WORLD HEALTH COLLABORATING CENTER FOR PUBLIC HEALTH PRACTICE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Globally public systems are not adequately prepared for rapidly evolving health threats.
- Many countries are decentralizing their public health systems without ensuring that the local public health infrastructure can cope with the increasing responsibilities and changing tasks.
- Regular measurement of a country's public health system performance is needed to ensure that its populations are protected and served by effective public health services.

WHAT HAS CDC ACCOMPLISHED?

CDC and the Pan-American Health Organization (PAHO) have worked collaboratively since 1996. In December 2001 these organizations established the World Health Collaborating Center for Public Health Practice. The center's mission is to strengthen public health systems globally and ensure the effective delivery of essential public health services through performance measurement, improvement planning, and systems development at both the national and subnational levels. Analysis of the data from the assessment of public health systems, completed in 42 countries around the world, continues to be done. Through this type of analysis, factors that can affect performance of health systems will be determined. Some countries have already begun to use the information in their national level health planning.

Examples of Program in Action

- The application of the assessment process in each country has been seen as an intervention in itself. The data are readily available for discussion by participants who are drawn from all levels of the health system. The discussions that take place permit immediate identification of problem areas within the system as well as targeted interventions to strengthen the system. This has led to some of the countries using the data to help develop national health plans. Jamaica has incorporated the data to plan a wide range of projects. A formal project is underway in collaboration with the Caribbean Program Office of PAHO to determine how other countries in the Caribbean have also used the data to strengthen health planning activities at all levels.
- In collaboration with the Caribbean Program Office of PAHO, the center facilitated participation of a team from that region to participate in the 2003–2004 leadership development program of the Public Health Leadership Institute. This is the first time that individuals from the English-speaking Caribbean will participate.
- The center continued its collaborative efforts with the World Bank, AfriHealth, and CDC's Sustainable Management Development Program (SMDP). From the collaboration with SMDP, an invitation was extended to the World Health Collaborating Center by Croatia to participate in the first Croatian Congress on Preventive Medicine and Health Promotion. Future work in the area of performance measurement and capacity building is anticipated with both Croatia and Macedonia.

WHAT ARE THE NEXT STEPS?

Technical assistance services are being strengthened to support use of the assessment instrument. Some countries are developing regional and local level assessment instruments. Their use will be coordinated with national-level assessments. The instruments will promote collaboration of the public and private sectors. In partnership with the World Bank, the Collaborating Center will continue to work with that institution to ensure more targeted use of funds that will improve accountability and quality improvement of public health systems.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HEALTH PROMOTION

What is health? Ideally, it is a sense of mental and physical well-being that is much more than the mere absence of disease. Promoting healthy behaviors is one of the best ways of preventing the diseases and disabilities that characterize the lives of too many Americans and their families.

Many CDC activities are designed to help individuals and communities achieve and maintain a healthy lifestyle at any age. For example, starting as early as possible—during pregnancy—CDC’s Safe Motherhood initiative tries to improve the health of pregnant women and their infants. An innovative nutrition program promotes breast feeding and addresses iron deficiencies among infants and toddlers. Adolescent and school health programs try to help young people develop the healthy habits that will serve them well throughout their lives, such as avoiding tobacco use, eating more fruits and vegetables, and making physical activity a part of their daily routines. With an unfolding epidemic of obesity (and a related epidemic of diabetes) escalating among both children and adults, adopting healthier diets and exercise routines will pay off for individuals and for our population as a whole.

CDC’s WISEWOMAN program offers a range of health promotion and screening services to women who have already taken a positive step to improve their health by seeking breast cancer screening. Initiatives on aging, arthritis, and disability help maintain independence and improve millions of Americans’ quality of life, while oral health efforts improve access to this important—but often overlooked—aspect of overall health.

As we work to promote health for all Americans at every stage of life, it is particularly important to bring the benefits of healthy living to minorities and low-income populations who have not benefitted fully from the health advances of recent decades. At the same time, CDC is working with its partners to contribute to a more scientific understanding of complementary and alternative medicine and its role in promoting health. Working on these many fronts simultaneously, CDC hopes to bring the message—and, most importantly, the tangible benefits—of health promotion to every American family and community.

ADOLESCENT AND SCHOOL HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

- Each day 4,400 young people try their first cigarette.
- Daily participation in high school physical education classes dropped from 42% in 1991 to 32% in 2001.
- Almost 80% of young people do not eat the recommended number of servings of fruits and vegetables.
- Nearly 30% of young people are overweight or at risk of becoming overweight.
- Every year, almost 800,000 adolescents become pregnant and about 3 million become infected with a sexually transmitted disease.

WHAT HAS CDC ACCOMPLISHED?

Every school day, more than 53 million young people attend 120,000 schools across our nation. Because of the size and accessibility of this population, school health programs are one of the most efficient means of shaping our nation's future health, education, and social well-being. In 1987, in response to the growing impact of HIV infection, CDC began funding state and local education agencies for HIV prevention education. In 1992, while continuing to provide funding to all states for HIV education, CDC started an initiative to support coordinated school health programs that reduce chronic disease risk factors: poor eating habits, physical inactivity, and tobacco use. In 2003, with funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC supported 22 state-coordinated school health programs. In addition, more than 40 professional and volunteer organizations work with CDC to develop model policies, guidelines, and training to help states implement high-quality school health programs.

Example of Program in Action

The North Carolina State Board of Education adopted the Healthy Active Children policy which requires physical education/activity in schools (pre- K-8), local school health advisory committees, and implementation of model coordinated school health programs in each local school district. North Carolina's policy prohibits physical activity and recess from being taken away from children as a "punishment," regulates class size, and defines the elements of a quality physical education class.

WHAT ARE THE NEXT STEPS?

Health risk behaviors often established during youth such as tobacco use, unhealthy dietary patterns, and inadequate physical activity contribute to adult mortality and morbidity resulting from lung and heart disease, cancer, and other chronic diseases. Research has established that school health programs effectively reduce the prevalence of health risk behaviors among youth. Funded state and local education agencies will continue to provide youth with a healthy school environment and the information and skills needed to avoid these risk behaviors. CDC will help these agencies improve the overall quality of their school health programs by strengthening school health policies; improving curricula and instruction; training staff; involving families and communities in school health education; and evaluating program effectiveness.

HEALTHY AGING

WHAT IS THE PUBLIC HEALTH ISSUE?

Without greater public health emphasis on disease prevention and health promotion, the dramatic aging revolution will result in an unprecedented and overwhelming demand on public health, healthcare, and social services.

- By 2030, the number of adults age 65 and older will more than double from 35 million today to 70 million, or 1 of every 5 Americans.
- Effective prevention measures exist today to substantially reduce illness, disability, and long-term care needs among older adults. However, these measures are substantially underused.
- Critical public health strategies for older adults include promoting healthy lifestyles; expanding the use of preventive services (e.g., cancer screening); expanding the use of immunizations against pneumonia and influenza; reducing injury risks in homes (grab bars, improved lighting) and communities (e.g. curb cuts); and promoting the use of chronic disease self-management techniques.

WHAT HAS CDC ACCOMPLISHED?

- Established the “Healthy Aging Network” to determine current gaps in prevention research, identify promising interventions, and examine the feasibility of applying such interventions in community settings.
- Collaborated with the aging network (e.g., the Administration on Aging) to jointly fund mini-grant projects in 14 states/communities that focus on promotion of physical activity, expanding the use of preventive services, and increasing the availability of chronic disease self-management programs.
- Collaborated with external partners to develop and widely disseminate a compendium of key health indicators for older adults (a “Report Card”) for use by policymakers and health and aging professionals.
- Continues to support national organizations (e.g., the American Society on Aging, the National Council on the Aging) to promote healthy lifestyles, increase use of preventive services, and prevent injuries among older adults.

WHAT ARE THE NEXT STEPS?

Aggressive outreach and fuller application of effective health-preserving strategies are critical to meeting the needs of a rapidly growing senior population. State and local health departments, the aging network, and organizations serving older adults are looking to CDC for scientific and programmatic expertise in strategies that reduce long-term care needs and preserve health and quality of life. CDC will lay the foundation for a nationwide “Healthy Aging” program that will serve as a vital resource to states and communities for up-to-date, science-based information. The program will also provide training and technical assistance; as well as provide successful and replicable program models to promote healthy lifestyles; increase the use of early detection services and adult immunizations; reduce home and community hazards for injuries; and promote the use of effective chronic disease self-management techniques.

MATERNAL AND CHILD NUTRITION AND HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

CDC promotes optimal nutrition for pregnant women and young children throughout the United States and abroad. While major improvements in nutritional status were made in the 20th century, significant problems still exist. Despite a gradual decline in pediatric anemia during the past decade, 13% of low-income children are anemic, and rates of anemia are greater than 30% among low-income groups in some areas, putting these children at increased risk of developmental delays and impaired cognitive ability. During pregnancy, anemia continues to be problematic, especially among low-income women—33% are anemic, greatly increasing their risk of having pre-term and low birth-weight babies. Inadequate weight gain during pregnancy also contributes to the chances for unhealthy births; 26% of low-income women do not gain enough weight during their pregnancies. About one third of U.S. newborns are never breast-fed, and less than half of these continue for 6 months, putting them at increased risk for diarrhea, ear infections, pneumonia, type 1 diabetes, celiac disease, and childhood overweight. In addition, more than 13% of low-income children are overweight.

WHAT HAS CDC ACCOMPLISHED?

CDC has developed and implemented Web-based training modules on the new CDC pediatric growth charts, which healthcare providers use to evaluate and monitor the weight status of over 82 million infants, children, and adolescents. CDC helped develop the “HHS Blueprint for Action on Breast-feeding” and has supported efforts to promote breast-feeding in the healthcare system, workplace, and community as outlined in the blueprint. CDC also funded two studies of iron supplementation during pregnancy among low-income women. Results of both studies provide evidence that iron supplementation of all pregnant women reduces early deliveries and improves birth weight.

Example of Program in Action

CDC collaborated with the Mississippi Department of Health to evaluate a breast-feeding peer counseling program that had been implemented gradually in about half of the state’s WIC clinics. The proportion of mothers who breast-fed increased eight percentage points in the clinics where the peer counseling was implemented, but only rose one and a half percentage point in clinics without peer counseling. The peer counseling program subsequently was implemented statewide and has served as a model for similar programs around the country.

WHAT ARE THE NEXT STEPS?

CDC continues to facilitate implementation of activities addressed in the “HHS Blueprint for Action on Breast-feeding.” Efforts include collaborating with the U.S. Department Agriculture to help states develop strategies to establish breast-feeding-friendly communities and conduct qualitative research on infant feeding behaviors among African-American women. CDC also funds a range of breast-feeding evaluation projects to help determine the most effective and cost-beneficial interventions. CDC is conducting two etiologic studies to investigate the pockets of high rates of anemia among low-income children. To build on research related to iron supplementation during pregnancy, CDC funds a study in China to evaluate the impact of iron and other mineral and vitamin supplements given during pregnancy. CDC conducts a pilot research project on pediatric overweight through the American Academy of Pediatrics and other partners. CDC has expanded its comprehensive nutrition and physical activity program to prevent overweight among young children by providing funding to 20 states.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

MEDIA CAMPAIGN TO IMPROVE THE HEALTH OF AMERICA'S CHILDREN

WHAT IS THE PUBLIC HEALTH ISSUE?

A staggering number of young people are putting their health in jeopardy by engaging in behaviors with serious short- and long-term consequences. According to CDC's Youth Risk Behavior Surveillance System, only 27% of children in the United States attend physical education classes daily—down from 42% in just the past 9 years. Decreasing physical activity, coupled with unhealthful eating, has resulted in a doubling of the percentage of children and adolescents who are overweight over the past 20 years. Emerging trends of type 2 diabetes in youth may be one of the first consequences of the epidemic of obesity in youth. Tobacco, alcohol, and marijuana use remain high, as are the rates of teenage depression and suicide. Every year, almost 1 million adolescents become pregnant, and about 3 million become infected with a sexually transmitted disease. Given the implications of physical inactivity and other unhealthy, risky behaviors, efforts to improve adolescent well-being must address these behaviors.

WHAT HAS CDC ACCOMPLISHED?

CDC launched *VERB™ It's what you do*, a national multicultural campaign to promote healthy lifestyles among “tweens” (9 to 13 years old) in 2002. The goal of the campaign is to increase and maintain physical activities among tweens through media; public and private sector partnerships; and community efforts with the support and involvement of parents and adult and teen role models. In 2003, the campaign built awareness and affinity for VERB brand among tweens. The VERB campaign exceeded CDC's 1-year awareness target (that tweens have seen the campaign and know what it is about). Seventy-four percent of tweens are aware of the VERB brand and tell us that VERB is “cool.” This positive acceptance of VERB positions the campaign to motivate tweens to get and stay physically active. Through contests, tours, sweepstakes, and the Internet, VERB directly touched almost 5 million children and parents. The campaign has been seen 46 million times nationwide with 147 broadcast, print, and online placements. Audience research is conducted continuously to ensure the ads resonate with youth and parents.

WHAT ARE THE NEXT STEPS?

Today's young people are a generation with high rates of media consumption including television, radio, music, print, and Internet use. These media sources offer a tremendous opportunity to market healthy behaviors to young people. The youth media campaign has been planned as a 5-year effort and will continue to involve young people in all aspects of planning and implementing of fresh, new ideas to keep the campaign relevant for young audiences. Building on the success of its initial phase to create awareness for VERB, the campaign enters its second phase with messages designed to encourage tweens to be physically active on a continued basis. The second phase of the VERB campaign focuses on providing tweens with opportunities and access to fun, physically inspiring events and activities throughout the year.

NATIONAL ORAL HEALTH PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- A silent epidemic of oral disease is affecting our most vulnerable citizens including poor children, the elderly, and many members of racial and ethnic minority groups.
- In 2003, Americans spent an estimated \$74 billion on dental services, yet many children and adults still go without regular dental services and other measures that have been proven effective in preventing oral disease.
- Almost 25% of children 6 to 17 years of age and 30% of adult Americans have untreated tooth decay. Children of some racial and ethnic groups continue to experience far greater rates of untreated decay. Both African-American children and Mexican-American children have twice the amount of untreated decay as white children.
- More than 100 million Americans lack the proven benefits of fluoridated water.
- Dental sealants applied to children's teeth can prevent tooth decay, yet less than 25% of children—less than 5% in certain low-income groups—have had sealants.
- More than 8,000 people, mostly older Americans, die from oral and pharyngeal cancers each year—nearly one person every hour. This year, 28,260 new cases of oral cancer will be diagnosed.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC works with 12 states and 1 territory to build effective oral health prevention programs and reduce disparities among disadvantaged populations. This effort includes working with states to develop school-based or school-linked programs to reach children at high risk of oral disease with proven and effective education and prevention services, such as dental sealants. CDC also works with states to expand the fluoridation of community water systems and operates a fluoridation training and quality assurance program. CDC works with states to track oral diseases and provide valuable health information to assess the effectiveness of disease prevention programs and help target those programs to populations at greatest risk. CDC assesses the risk of infectious disease transmission in dental care settings and provides nationally recognized guidance to minimize the risk of disease transmission in dental offices.

Example of Program in Action

With grant assistance from CDC, Nevada has made significant progress in expanding the number of communities with fluoridated water. CDC funds helped the water utility in Clark County, Nevada, which has a population of 1 million primarily in Las Vegas and Henderson, to purchase some of the equipment needed to implement water fluoridation. This increased the population in Nevada with access to water fluoridation from 28,000 to 1 million residents, or about two-thirds of the state population served by public water systems. With funding from a current CDC Cooperative Agreement, Nevada also is working to strengthen its capacity to monitor oral diseases, further extend water fluoridation, and provide dental sealants to children through school-based services.

WHAT ARE THE NEXT STEPS?

CDC plans to fund up to 10 additional states to enhance their current oral health programs, and will continue to work with states to assess the extent of oral diseases; target prevention programs and resources to those at greatest risk; and evaluate changes in policies, programs, and oral disease. This effort includes implementing water fluoridation in additional communities and improving use of sealants through school programs. CDC plans to work to reduce disparities in oral cancers and oral diseases, such as periodontal disease, that are linked to chronic diseases such as diabetes and heart disease and risk factors such as tobacco use.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

RACIAL AND ETHNIC APPROACHES TO COMMUNITY HEALTH (REACH 2010)

WHAT IS THE PUBLIC HEALTH ISSUE?

- The leading causes of death and disability (i.e., heart disease, cancer, stroke, diabetes, and HIV/AIDS) are dramatically higher among racial and ethnic minority populations in the United States.
- Rates of death from stroke are 41% higher among African Americans than among whites.
- Although African Americans and Hispanics represent only 26% of the U.S. population, they account for roughly 69% of adult and children AIDS cases, 69% of new HIV infections among U.S. adults, and 90% of pediatric (under 13 years of age) AIDS cases.
- While Asian-American cancer rates are lower than other minority populations, cancer is the leading cause of death among Asian-American women. The incidence of cervical cancer among Vietnamese-American women is five times higher than that of white women.
- African Americans and Hispanics have significantly lower influenza and pneumococcal immunization rates compared to the rest of the population. Influenza vaccination coverage among adults 65 years of age and older is 69% for whites, 50% for African Americans, and 49% for Hispanics. The gap for pneumococcal vaccination coverage among ethnic groups is even wider, with 60% for whites, 37% for African Americans, and 27% for Hispanics.

WHAT HAS CDC ACCOMPLISHED?

With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, Racial and Ethnic Approaches to Community Health (REACH) 2010 supports community coalitions in the design, implementation, and evaluation of unique community-driven strategies to eliminate health disparities by addressing racial and ethnic disparities in infant mortality; breast and cervical cancer; cardiovascular diseases; diabetes; HIV/AIDS; and immunizations. Communities served include African Americans, American Indians, Hispanic Americans, Asian Americans, Pacific Islanders, and Alaska Natives. CDC funds 35 communities, and 5 tribes and tribal organizations under the American Indian/Alaska Native Core Capacity Building program.

Example of Program in Action

The Medical University of South Carolina/Charleston and Georgetown REACH Diabetes Coalition has been successful in eliminating the 21% disparities gap in A1c (blood sugar) testing among African Americans and whites living in Charleston and Georgetown, South Carolina. The Vietnamese Community Health Promotion Project (VCHPP), supported by the University of California, San Francisco, organized the Vietnamese REACH for Health Initiative, which has been instrumental in improving awareness about cervical cancer and associated risk factors among Vietnamese-American women in Santa Clara County, California. Through various prevention and intervention strategies, such as a media education campaign, lay health worker outreach efforts, and patient navigation, VCHPP has increased the percentage of women receiving Papanicolaou tests by 15%.

WHAT ARE THE NEXT STEPS?

Working in partnership with local communities, CDC has been able to make substantial strides in reducing racial and ethnic disparities in health. CDC plans to continue to expand current intervention and dissemination activities as the agency strives to meet its goal of eliminating disparities in health.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

SAFE MOTHERHOOD

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 1 in 4 women, or 1 million per year, have a significant complication during labor and delivery.
- For every 100,000 deliveries in the United States, about 20 women will die from pregnancy complications. This translates to about 3 deaths per day.
- African-American women continue to have almost 4 times the risk of dying due to pregnancy complications than white women.
- Women 35 to 39 years of age are nearly 3 times as likely to experience a pregnancy-related death compared to women 25 to 29 years of age.
- The maternal mortality rates in the United States have not declined in the last 20 years.
- The United States ranks 29th among developed countries in maternal mortality.

WHAT HAS CDC ACCOMPLISHED?

For more than a decade, CDC has worked with state and local health departments, universities, health maintenance organizations, and others to improve the nation's ability to identify illness and deaths due to pregnancy; and determine causes and develop strategies aimed at averting maternal complications and deaths. With funds from CDC's Chronic Disease Prevention and Health Promotion appropriations, CDC assigns eight maternal and child health (MCH) epidemiologists, six MCH Fellows, and one Epidemic Intelligence Service Officer to assist state health departments and tribal organizations. CDC also provides funding to three additional states for MCH epidemiologists. In addition, CDC funds the Pregnancy Risk Assessment Monitoring System (PRAMS) in 31 states and New York City. PRAMS enables states to identify and monitor maternal and infant health outcomes before, during, and after pregnancy not available from other sources. PRAMS now covers 62% of births in the United States.

Example of Program in Action

Arizona uses the Perinatal Periods of Risk model, adapted and validated by CDC's MCH epidemiologist assignees and partners, to analyze its fetal and infant death records. This model allows analysts to determine the period of risk in which the death occurred to better target intervention strategies. The approach divides fetal-infant mortality into four strategic prevention areas: maternal health and premature birth; maternal care; newborn care; and infant health. Arizona found that most deaths were linked to the pre-pregnancy periods of risk, which caused state personnel to rethink their emphasis on prenatal care and to pay more attention to improving women's health during the reproductive health years. As a result, the Governor's Commission of the Health Status of Women and Families in Arizona was formed and a statewide initiative begun.

WHAT ARE THE NEXT STEPS?

Monitoring of health outcomes will provide additional information to improve maternal and infant health programs and to direct future research efforts. Further research is needed to address the fact that there has been no decline in the risk of death from pregnancy complications in the past two decades, and disparities in the risk for maternal death persist. Racial and ethnic disparities in maternal and infant health must be addressed if CDC is to meet the *Healthy People 2010* objectives. Finally, CDC must translate research findings into effective training for healthcare providers; effective maternal and child health programs; and best practices for safe motherhood.

CDC has been involved in the fight against HIV and AIDS from the epidemic's earliest days. Initially, CDC's contribution was the detective work that characterizes epidemiology and surveillance, as CDC scientists observed a link among a cluster of rare cancers that heralded the ominous presence of the virus in the United States and around the world. Today, those surveillance efforts continue to document the epidemic's path by monitoring not only AIDS case rates but also, wherever possible, the extent of HIV infection and its impact on specific populations at heightened risk, such as inmates in correctional facilities.

CDC has also emphasized two other features of public health that are critical to controlling the epidemic: prevention and community involvement. HIV prevention has helped slow the rate of new HIV infections in the United States from over 150,000 per year in the mid-1980s to 40,000 today. Perinatal transmission from HIV-infected women to their children has been reduced from 1,000 to 2,000 infants in the early 1990s to several hundred today. CDC's 5-year strategic plan to guide HIV prevention builds on these types of successes, but recognizes that profound challenges remain, both here and abroad. For example, since up to a third of the estimated 850,000 to 950,000 people in the United States who are infected with HIV are unaware of their condition, an important goal is to increase the number of people who are aware of their serostatus so that they can receive early and effective treatment and prevent inadvertent transmission to their partners.

CDC ADVANCING HIV PREVENTION INITIATIVE

WHAT IS THE PUBLIC HEALTH ISSUE?

CDC's HIV prevention activities over the past two decades have focused on helping uninfected persons at high-risk for acquiring HIV change and maintain behaviors to keep them uninfected. Despite the success of these efforts in reducing HIV incidence in the late 1980s and early 1990s, the number of new HIV infections is estimated to have remained stable around 40,000 per year since the early 1990s, and the number of persons living with HIV continues to increase. In April 2003, CDC announced a new initiative, "Advancing HIV Prevention (AHP): New Strategies for a Changing Epidemic," aimed at reducing the number of new infections caused by HIV each year in the United States. The new initiative expands on current HIV prevention strategies and models other approaches that have proven effective in preventing infectious diseases. The initiative has four key strategies: making HIV testing a routine part of medical care; implementing new models for diagnosing HIV infections outside medical settings; preventing new infections by working with persons diagnosed with HIV and their partners; and further decreasing perinatal HIV transmission.

Keeping people from becoming infected with HIV, whether through working with HIV-positive or HIV-negative persons, remains CDC's primary HIV prevention mission. To this end, CDC will continue to support activities—primarily health education/risk reduction activities—that focus on high-risk HIV-negative persons, both directly and through indirect funding provided to community-based organizations (CBOs) through state and local health departments.

WHAT HAS CDC ACCOMPLISHED?

CDC has taken steps to implement this new initiative. It has described the new initiative in a series of "Dear Colleague" letters to all of its grantee partners; discussed the new initiative at conferences and other meetings with prevention partners and with stakeholders; issued interim technical guidance on the four strategies; and incorporated the initiative strategies in the new program announcements for state and local health departments and directly funded CBOs.

Example of Program in Action

To support the four AHP strategies, CDC funded seven types of 2-year demonstration projects to show the feasibility of and provide detailed information about the following: routine HIV testing in medical settings with high seroprevalence; rapid HIV testing to improve partner participation in partner counseling and referral services; rapid HIV testing to improve diagnosis of HIV among incarcerated persons in short-stay correctional facilities; social network strategies for reaching persons at high-risk in communities of color; rapid HIV testing in nontraditional medical settings; prevention case management to reduce risk-taking behaviors among people living with HIV who have comorbidities; and HIV prevention in medical settings by integrating prevention messages into medical clinic visit. CDC also is working with health departments and CBOs to ensure they have the skills and resources to incorporate rapid HIV testing. CDC and OraQuick manufacturer, OraSure Technologies, have conducted 20 regional rapid HIV test training sessions for health departments and CBOs that plan to conduct rapid HIV testing. Additional sessions and audio conferences are planned in 2004. In 2003, about 250,000 OraQuick Rapid HIV-1 Antibody test kits were purchased by CDC and distributed to 50 sites around the country.

WHAT ARE THE NEXT STEPS?

In 2004, CDC will continue to support a series of demonstration projects to provide information on the initiative's four strategies. These demonstration projects will study methods to improve the science base in specific areas related to the initiative, such as single encounter prevention messages, behavioral interventions for HIV-positive persons who are racial/ethnic minorities, and increasing the demand for testing in high-risk groups; and develop and disseminate standard procedures for use by all health departments, CBOs, and private-sector providers. CDC will also continue to support many of the surveys and evaluations begun in 2003 to develop baselines and monitor progress in implementing the new initiative.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

CDC ROLE IN THE PRESIDENT'S EMERGENCY PLAN FOR AIDS RELIEF

WHAT IS THE PUBLIC HEALTH ISSUE?

- According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), of the 40 million adults and children who were living with HIV/AIDS at the end of 2003, 95% lived in developing countries. In 2003, an estimated 5 million people were newly infected with HIV, and more than 3 million died of AIDS.
- The World Health Organization (WHO) estimates that 6 million people worldwide are in immediate need of AIDS treatment.

WHAT HAS CDC ACCOMPLISHED?

In 2003, President Bush announced the Emergency Plan for AIDS Relief (PEPFAR), a 5-year, \$15 billion initiative to turn the tide in combatting the global HIV/AIDS pandemic. This commitment of resources will help the most afflicted countries in Africa and the Caribbean wage and win the war against HIV/AIDS, thus extending and saving lives. Specifically, the initiative is intended to prevent 7 million new infections, treat 2 million HIV-infected people, and care for 10 million HIV-infected individuals and AIDS orphans. This initiative focuses a significant amount of these resources on the most afflicted countries in Africa and the Caribbean: Botswana, Cote d'Ivoire, Ethiopia, Guyana, Haiti, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia.

CDC's Global AIDS Program (GAP) works collaboratively with other U.S. government agencies, including the U.S. Agency for International Development (USAID); international health and economic organizations such as WHO, UNAIDS, the United Nations Children's Fund, and the World Bank; nongovernmental organizations; and host country governments to achieve the PEPFAR goals.

Example of Program in Action

In Uganda, CDC collaborates with the AIDS Support Organization, the Uganda Ministry of Health, District Health Officials, and USAID on the Home-Based AIDS Care Project (HBAC) of Uganda. The project was developed to study how people living in rural, resource-limited settings, can best access quality, comprehensive HIV care and treatment that includes antiretroviral therapy. This project provides voluntary testing and counseling; HIV prevention education; tuberculosis screening and treatment; safe water; provision of cotrimoxazole (an antibiotic to prevent infections); and treatment and adherence support for those who are HIV-infected. Trained field officers bring these critical services into the homes of project participants, who otherwise might not have access.

This ground-breaking project recognizes the importance of focusing on simple, evidence-based care for people living in rural, resource-limited settings. The project has shown that safe water and cotrimoxazole have reduced mortality among persons with HIV and have reduced malaria and diarrhea among family members. Operational research and pilot programs are often needed before full-scale implementation, and this pioneering project provides critical information for PEPFAR as AIDS care in Africa and the Caribbean is expanded.

WHAT ARE THE NEXT STEPS?

CDC will continue to collaborate with other U.S. government agencies and other partners worldwide to provide technical assistance to reach the PEPFAR goals of preventing 7 million infections, treating 2 million HIV-infected people, and providing care for 10 million HIV-infected individuals and AIDS orphans.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

COMPREHENSIVE HIV PREVENTION

WHAT IS THE PUBLIC HEALTH ISSUE?

- In the United States, an estimated 850,000 to 950,000 people are infected with HIV, roughly half of whom remain undiagnosed, untreated, or both. HIV prevention has helped slow the rate of new HIV infection in the United States, but the rate of new infections is still unacceptably high, at about 40,000 annually.
- Male-to-male sexual contact is the predominant mode of HIV exposure. In 2002, men accounted for 74% of all new AIDS diagnoses among adults in the United States.
- Of the 71,996 female adults and adolescents living with HIV/AIDS in the 30 areas with confidential name-based HIV infection reporting, 72% had been exposed through heterosexual contact, and 26% through injection drug use.
- Communities of color are disproportionately affected by HIV. More than 61% of the estimated 384,906 people now living with AIDS are African American and Hispanic/Latino.

WHAT HAS CDC ACCOMPLISHED?

Prevention remains the best strategy for reducing the human and economic toll from HIV/AIDS. CDC efforts are designed to decrease by 50% the number of new HIV infections in the United States by addressing changes in the epidemic and incorporating the latest scientific research into program interventions. CDC's goals include decreasing the number of people at high risk for HIV infection and strengthening the capacity nationwide to monitor the epidemic and implement and evaluate programs. HIV prevention hinges on a comprehensive strategy of tracking the epidemic, researching prevention, and helping communities implement programs at the local level. CDC monitors HIV and AIDS nationally and publishes annual reports that provide national information about the epidemic. CDC also conducts surveys of HIV-related behaviors to inform and target prevention programs and supports biomedical and behavioral research regarding HIV prevention. Finally, CDC supports local communities in their HIV prevention efforts with both funding and technical assistance.

CDC announced a new initiative, "Advancing HIV Prevention: New Strategies for a Changing Epidemic," aimed at reducing the number of new infections caused by HIV each year in the United States. The new initiative expands on current HIV prevention strategies and models other approaches that have proven effective in preventing infectious diseases.

Example of Program in Action

The Family Health Centers of San Diego is the largest comprehensive provider of HIV-related services in San Diego County, California. For more than 13 years, the centers have targeted services to medically underserved communities. Currently, the centers collaborate with local healthcare agencies to provide a comprehensive network of HIV prevention, testing, and referral services to communities of color at risk for HIV. CDC funds the centers' services in three program announcements targeting gay men of color, persons at high risk for HIV, and young men of color who have sex with men.

WHAT ARE THE NEXT STEPS?

CDC will continue to focus prevention efforts on populations at highest risk for HIV infection, especially communities of color. Key strategies include making voluntary HIV testing more routine, creating new models for diagnosing HIV infections, and providing prevention services for persons living with HIV and their partners. CDC will continue to support primary prevention and behavioral risk-reduction programs for persons at high risk for acquiring HIV through programs funded through state and local health departments and through directly-funded community-based organizations program

CORRECTIONAL HEALTH

WHAT IS THE PUBLIC HEALTH ISSUE?

U.S. prisons held more than 2 million people on any given day in 2002. Annually, around 600,000 inmates are discharged from prisons, and about 8 to 9 million inmates are released into the community. Correctional facilities house individuals who are disproportionately affected by high rates of infectious diseases and adverse social conditions. Prevalence rates for HIV/AIDS are significantly higher among inmates and releasees than in the total U.S. population. At the end of 2001, the rate of confirmed AIDS in state and federal prisons (0.49%) was more than three times higher than in the total U.S. population (0.14%). Studies have shown that in some facilities, between 14% and 25% of inmates are infected with tuberculosis (TB). Rates of sexually transmitted diseases range from 5% to 35%. About 80% of inmates have a history of substance use or abuse. Most facilities lack comprehensive discharge planning to link releasees with community-based providers for healthcare, substance abuse treatment, and other services.

WHAT HAS CDC ACCOMPLISHED?

CDC promotes a community approach to improve the health of inmates using the collaborative efforts of correctional institutions, public health, and community-based healthcare and social service organizations. CDC and the Health Resources and Services Administration (HRSA) have jointly funded seven state/city health departments to design and implement innovative demonstration projects for HIV prevention and care among inmates in prisons and/or juvenile detention centers. CDC has also prepared guidance to help develop and implement TB control programs in correctional settings. In addition, CDC has awarded small grants to more than 20 public health departments to work collaboratively with prisons and juvenile detention facilities in their communities to screen inmates upon intake for syphilis, gonorrhea, chlamydia, TB, and HIV.

Example of Program in Action

The San Francisco Department of Public Health (SFDPH) provides healthcare services to inmates in the San Francisco County jail system. As part of the CDC/HRSA corrections demonstration project, SFDPH partners with the community-based organization Continuum, to provide discharge planning and transitional case management services for HIV-infected individuals being discharged from the prisons. These services include housing, medical treatment, and basic community survival skills, such as money management education. In addition, SFDPH is piloting a project to provide hepatitis prevention education services and hepatitis B vaccine to high-risk inmates in the prison.

WHAT ARE THE NEXT STEPS?

CDC is developing a website to serve as a resource for those working in correctional health; creating a manual and pocket guide series to help correctional health leaders and practitioners learn more about interventions in prisons; supporting and expanding local coalitions that use discharge planning and case management to link inmates to care and services that focus on areas with high rates of HIV/AIDS or syphilis; and sponsoring forums to facilitate collaboration between public health and correctional agencies.

ELIMINATING PERINATAL HIV TRANSMISSION

WHAT IS THE PUBLIC HEALTH ISSUE?

Perinatal HIV transmission occurs when the virus is passed from mother to child during pregnancy, labor or delivery, or through breast-feeding. Perinatal transmission accounts for 91% of all AIDS cases reported among U.S. children, and an estimated 17,000 HIV infections have occurred among children since the epidemic began. Women of color and their children have been disproportionately affected. Of the 3,748 children reported with perinatally-acquired AIDS in 2002, 3,200 (85%) were African American and Latino/Hispanic.

WHAT HAS CDC ACCOMPLISHED?

There have been dramatic reductions in perinatal HIV transmission rates and perinatal AIDS cases in the United States in the past decade. During the early 1990s, an estimated 1,000 to 2,000 infants were born with HIV infection each year. In 2002, an estimated 90 cases of perinatally acquired AIDS cases were diagnosed in the United States. These declines reflect the success of widespread implementation of the Public Health Service recommendations for routine counseling and voluntary HIV testing of pregnant women, the use of zidovudine (AZT, also called ZDV) by HIV-positive women during pregnancy and delivery; for treatment of the infant after birth; and the use of antiretroviral therapies for the pregnant woman's own care. Recently, some of the decline in perinatal AIDS may also be credited to improved treatments, which delay the onset of AIDS symptoms in HIV-positive children.

Decreasing perinatal HIV transmission is one of four key strategies included in CDC's new initiative, "Advancing HIV Prevention: New Strategies for a Changing Epidemic," announced in the *Morbidity and Mortality Weekly Report* on April 17, 2003. CDC plans to work with partners to promote routine, voluntary prenatal testing, with right of refusal; develop guidance for using rapid tests during labor and delivery or post partum; provide training in conducting prenatal testing; and monitor integration of routine prenatal testing into medical practice. CDC recommends that clinicians routinely screen all pregnant women for HIV infection, using an "opt-out" approach, and that jurisdictions with statutory barriers to such routine prenatal screening consider revising them. CDC is focusing its prevention efforts in the states and cities that account for the highest number of perinatal HIV cases. Activities include educating providers about offering counseling and voluntary testing to all pregnant women, outreach to increase the use of prenatal care among high-risk women; case management for HIV-positive pregnant women to ensure they have access to appropriate care; support for public information campaigns; and support of testing at delivery for women with unknown HIV status.

Example of Program in Action

CDC is funding targeted perinatal prevention programs in 16 high HIV prevalence states (CA, CT, DE, DC, FL, GA, IL, LA, MD, MA, NJ, NY, PA, PR, SC, and TX). Several of these states (LA, NJ, and CT) have developed programs to offer rapid testing around the time of labor and delivery to women whose HIV status is unknown when they are in labor. These projects demonstrate the feasibility of carrying out rapid HIV testing in busy inner city hospitals and offering rapid antiretroviral interventions to prevent perinatal transmission.

WHAT ARE THE NEXT STEPS?

The best way to prevent perinatal HIV transmission is to first prevent HIV infection in women. CDC is working through these targeted perinatal prevention programs to ensure that all HIV-positive and at-risk pregnant women have access to and use prenatal care. Further, CDC is working to ensure that these women are provided the opportunity to learn their HIV status early in their pregnancy and, if infected, to be offered anti-retroviral interventions to prevent transmission and protect their own health. Achieving this goal will require CDC to continue to work towards linking high-risk women with appropriate healthcare and to offer universal HIV screening as a routine part of prenatal care.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HIV/AIDS SURVEILLANCE

WHAT IS THE PUBLIC HEALTH ISSUE?

HIV/AIDS surveillance is the tool CDC and state and local health departments use to track the epidemic. Surveillance provides demographic, laboratory, clinical, and behavioral risk data used to identify populations at greatest risk for HIV infection. These data also help CDC to estimate the size and scope of the epidemic at the national level.

- Through 2002, 859,000 persons in the United States had been reported having AIDS; an estimated 501,669 persons had died.
- During 2002, 43,950 AIDS cases were reported from 39 states and territories; 35,147 HIV cases among persons who had not yet developed AIDS were reported from 39 states and territories with confidential named-based HIV infection reporting.
- Women account for an increasing proportion of the epidemic. In 2002, 32% of reported HIV infections and 26% of AIDS cases were among women.
- There are racial/ethnic disparities among persons with HIV and AIDS. In 2002, 64% of men diagnosed with AIDS were African American and Hispanic/Latino. Among women, 81% were African American and Hispanic/Latino.

WHAT HAS CDC ACCOMPLISHED?

CDC gathers, compares, and publishes data from several sources to evaluate the status of the HIV epidemic. These sources include case reports of HIV and AIDS, special surveys of infected and high-risk populations, mortality data from the national vital statistics systems, and surveys of the general population. Every state requires reporting of the number of people diagnosed with and the number who die from AIDS each year. This information is critical to identify those in need of services and care, allocate prevention and treatment resources, and track the course of the epidemic over time. However, AIDS cases alone are not indicative of recent trends in the epidemic. All states and the District of Columbia have regulations in place to receive reports about newly diagnosed HIV-positive persons. HIV reporting has become a critical factor to capture HIV disease case counts which would encompass all HIV infections including those which have progressed to AIDS. CDC's 2002 *HIV/AIDS Surveillance Report* has been revised to present data on persons with HIV infection, including those in whom HIV infection has progressed to AIDS. Surveillance data on HIV infection provides a more complete picture of the epidemic and the need for prevention and care services than that provided by AIDS data alone. Such comprehensive information is also needed to allocate resources and evaluate program effectiveness.

Example of Program in Action

CDC has taken several steps towards creating a national population-based surveillance system to provide estimates of HIV incidence through the serologic testing algorithm for recent HIV seroconversion. Five areas were funded in 2002 to pilot this method, and 19 additional areas were funded in 2003. In 2004, CDC added 10 new HIV Incidence sites and has 33 areas funded for incidence surveillance. The monitoring of HIV incidence will be critical in evaluating progress toward CDC's goal of reducing the number of new HIV infections in the United States from 40,000 to 20,000 per year by 2005.

WHAT ARE THE NEXT STEPS?

CDC will continue to monitor the HIV/AIDS epidemic by working to enhance and expand existing surveillance programs and surveys. Efforts will include continued assistance to states with the implementation of HIV reporting and interpretation of data; expansion of surveys to gather information about the characteristics and behaviors of those who are HIV positive or are at high-risk of infection; and development of systems to better measure HIV incidence and prevalence.

HIV AND STD PREVENTION FOR MEN WHO HAVE SEX WITH MEN

WHAT IS THE PUBLIC HEALTH ISSUE?

Despite significant declines in HIV infection rates since the early years of the epidemic, men who have sex with men (MSM) continue to be the population at highest risk for HIV and many sexually transmitted disease (STD) infections. The HIV epidemic, which began primarily among white gay men, is now dramatically affecting African-American and Hispanic/Latino MSM. Although there have been significant reductions in high-risk behaviors among MSM, motivating individuals to maintain long-term behavior change is required. In addition, recent outbreaks of STDs, including syphilis, have occurred among MSM in urban areas, signifying the presence of unsafe behaviors that make this population vulnerable to continued STD and HIV transmission. Prevention efforts must be expanded to reach MSM of all races, be sustained over time, and be initiated anew for each generation.

WHAT HAS CDC ACCOMPLISHED?

The rise in HIV and STD infection rates among African-American and Hispanic/Latino MSM can be attributed to various factors: difficulties in consistently practicing safer sex; incorrect assumptions about a partner's infection status; lesser concern of infection with available antiretroviral treatments; and a lack of direct experience with HIV or STDs. Effective HIV and STD prevention approaches should address audiences in terms appropriate for their age and relevant to their culture and lifestyle. Research indicates that interactive programs led by peer leaders are very effective in improving communications skills and enhancing self-esteem among MSM participants. CDC has prioritized prevention for MSM in its *HIV Prevention Strategic Plan*, with the goal of significantly reducing the disease toll among high-risk populations. CDC is also conducting a four project epidemiologic study of risk behaviors of African-American and Hispanic/Latino MSM to improve understanding of risk influences.

Example of Program in Action

Bienestar Human Service's *Sabores Program* provides outreach, prevention case management, individual and group level interventions, and HIV counseling, testing and referral to Hispanic/Latino young men who have sex with men (YMSM) in East Los Angeles and Pomona, California. In the first year of the program, over 1,500 YMSM were contacted during outreach, provided risk reduction information, and referred for other prevention services. Group level interventions were provided to 144 YMSM with 61 YMSM receiving prevention case management services, and over 1,000 YMSM attending informational events. Participants in the program have reported a decrease in high-risk behavior, greater social connectiveness, and a decrease in depression.

WHAT ARE THE NEXT STEPS?

Social, behavioral, and healthcare services need to be supported and expanded. Evaluation and close collaboration with CDC's community-based and health department partners are key in improving these services. Further, additional behavioral research studies to better measure HIV and STD risk is needed to understand contemporary risk influences and respond with new interventions for gay men, especially YMSM.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HIV PREVENTION FAITH INITIATIVE

WHAT IS THE PUBLIC HEALTH ISSUE?

The faith community plays an essential role in shaping the public's knowledge, attitudes, beliefs, and behaviors. Partnering with faith-based organizations is a key component to a comprehensive HIV prevention strategy in building awareness, mobilizing communities, and reducing HIV-associated stigma. Since 1987, CDC has made a concerted effort to bring faith and religious partners into the CDC portfolio of HIV prevention partners.

WHAT HAS CDC ACCOMPLISHED?

Since 1987, CDC has seen an increased interest in HIV prevention among faith-based organizations. In 1999, CDC funded five faith-based direct service programs; four capacity-building programs to provide technical assistance and training to faith-based organizations; and one divinity school to establish an HIV and substance abuse prevention curriculum and training program for faith leaders serving disproportionately affected communities. Since that time, CDC has increased funding to faith-based organizations. CDC funds 23 faith-based organizations to conduct direct HIV prevention service programs and four faith-based capacity-building providers. Secular-based programs have also been funded in the capacity development of faith-based organizations.

Example of Program in Action

The Health Education Leadership Project (HELP), a project of the Interdenominational Theological Center, in Atlanta, incorporates seven strategies aimed at developing capacity-building for faith leaders. The project includes a National Faith Leader's Training Institute, a 2-day intensive capacity-building program which trains faith leaders to address issues of HIV and substance abuse prevention affecting congregations and outreach ministries. HELP has also developed a curriculum, *Affirming A Future With Hope, HIV Substance Abuse Prevention for African-American Communities of Faith*, to teach faith leaders techniques to address theological and ethical issues and to implement a comprehensive instructional program that addresses HIV prevention through the use of faith-based narratives, spiritual principles, and individual experience.

WHAT ARE THE NEXT STEPS?

CDC intends to continue to provide financial assistance to those faith-based organizations that successfully compete for funding and will continue to collaborate with key leaders in the faith-based community. The primary goal is to develop a comprehensive strategy to engage faith-based and community-based organizations—particularly those serving disproportionately affected racial and ethnic communities—into HIV prevention and health promotion, stigma reduction, intervention development, and counseling and testing programs.

MINORITY AIDS INITIATIVE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Communities of color have been disproportionately affected by the HIV/AIDS epidemic.
- Of the estimated 40,000 new HIV infections each year, nearly 70% occur among minorities.
- In 2002, minorities represented over 63% of persons living with AIDS.
- In 2002, African Americans accounted for 54% of all new diagnoses of HIV/AIDS.
- In 2002, an estimated 171,000 men who have sex with men (MSM) were living with AIDS, and 46% of those were MSM of color.

To be successful, HIV prevention must address the diverse communities affected by the HIV epidemic. Prevention efforts must focus on groups at greatest risk, particularly African-American and Hispanic/Latino youth. Programs must be relevant to the lives of the target population—appropriate to age, culture, community standards, and language. They must be designed with input from the affected community and delivered by organizations and people with credibility in that community.

WHAT HAS CDC ACCOMPLISHED?

Since 1999, CDC has received funding through the Minority AIDS Initiative (MAI) to enhance efforts to prevent the acquisition or transmission of HIV infections in racial and ethnic communities. With MAI, CDC supports community-based programs to prevent HIV, capacity building programs to assist community-based organizations (CBOs), and targeted education efforts to raise awareness of the importance of HIV testing. CDC also conducts supplemental surveillance to define the magnitude of the epidemic in racial and ethnic communities and research to develop and refine prevention programs.

Example of Program in Action

The Minority HIV/AIDS Research Initiative is a capacity-building initiative that funds investigators to conduct studies on gaps in HIV/AIDS research in African-American and Hispanic/Latino populations. In 2003, nine research projects were funding in the following states: California, Florida, Georgia, New York, Rhode Island, Pennsylvania, South Carolina, and Washington, D.C. Two research projects were funded in Jackson, Mississippi. Examples of research include access to HIV testing and treatment in the nonurban South; HIV knowledge and HIV testing activities among low-income heterosexual young adult African Americans; acceptance of HIV clinical trials by African Americans; HIV testing in primary care settings; and equal access to HIV vaccine trials by African Americans, Latinos, and whites.

WHAT ARE THE NEXT STEPS?

CDC continues to build the capacity of local communities to prevent HIV. In particular, CDC will continue to provide financial support and technical assistance to CBOs through programs addressing populations at high risk for HIV infection. CDC is also evaluating the MAI program to assess the impact of this effort and guide future HIV prevention efforts.

NATIONAL HIV BEHAVIORAL SURVEILLANCE

WHAT IS THE PUBLIC HEALTH ISSUE?

In order to reduce the annual number of new HIV infections in the United States, information is needed about risk behaviors among groups of persons at high-risk for HIV infection, trends in these behaviors over time, and exposure to and use of HIV prevention services. Such information can help explain trends in HIV incidence, prevalence, and new diagnoses. These data can also be used to evaluate prevention programs and direct future HIV prevention activities.

Historically, risk behaviors have been assessed through the use of cross-sectional surveys (the presence or absence of exposure and disease are assessed at the same point in time) or longitudinal cohorts studies (subjects are classified on the basis of exposure to a particular factor, and then followed over time). CDC has conducted several cross-sectional studies on at-risk persons; however, these studies have been limited in time and geography and, therefore, were unable to measure changes in HIV-related risk behaviors over time in the United States.

WHAT HAS CDC ACCOMPLISHED?

As of 2004, CDC will have funded 25 Metropolitan Statistical Areas (MSA) to implement a behavioral surveillance system for three groups at highest risk for acquiring HIV infection: men who have sex with men (MSM), injecting drug users (IDU), and high-risk heterosexuals (HRH). The 25 MSAs were selected based on high AIDS prevalence and include Atlanta, Baltimore, Boston, Chicago, Dallas, Denver, Detroit, Ft. Lauderdale, Houston, Las Vegas, Los Angeles, Miami, New Orleans, New York City, Newark, Norfolk, Philadelphia, Phoenix, San Diego, San Juan (Puerto Rico), St. Louis, San Francisco, Seattle, Suffolk/Nassau, and Washington, D.C.

Example of Program in Action

The objectives of the new National HIV Behavioral Surveillance System are to assess risk behaviors among persons at high-risk for HIV infections; assess HIV testing behaviors; evaluate exposure to, use, and impact of prevention services; and follow trends in these behaviors over time. The overall national strategy involves conducting alternating 12-month cycles of surveillance in high-risk populations at highest risk for acquiring HIV infection. Standardized questionnaires will be used to collect information about behavioral risks for HIV, testing, and exposure to and use of prevention services. To date, about 700 questionnaires have been completed in seven MSAs.

WHAT ARE THE NEXT STEPS?

Over the next year, CDC will implement and evaluate national behavioral surveillance in MSM and pilot alternative sampling methods for IDUs. CDC will also develop computer-assisted technologies such as the audio-computer assisted interview and the handheld-assisted personal interview, to enhance survey administration and to pilot a study for using the Internet as a venue for recruiting survey participants. In the future, studies in HRH will be piloted to determine the best method to conduct behavioral surveillance in this population, and CDC will explore new approaches for collecting behavioral data that can be used in low to medium morbidity areas. Data collection for the additional MSAs will begin in 2004.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NEW BIOMEDICAL HIV INTERVENTIONS

WHAT IS THE PUBLIC HEALTH ISSUE?

In 2003, it was estimated that 4.2 million adults worldwide acquired HIV infection. In the United States, there is continuing HIV transmission, with increasing concentration among African Americans and Hispanics/Latinos, especially among women of color. These trends reinforce the importance of identifying effective new HIV prevention methods. A key effort is the development of new biomedical interventions, such as vaccines and microbicides, to prevent HIV infection.

The development of a safe and effective HIV vaccine would greatly decrease the incidence of HIV, and ultimately AIDS worldwide. However, there are many challenges to the development of an HIV vaccine. Since early vaccine candidates are unlikely to be as effective as vaccines for other infectious diseases and unlikely to be effective against all HIV strains, behavior change will remain important to prevent HIV infection. In addition, the development of safe and effective vaginal microbicides (chemical compounds that can be applied topically to inactivate HIV) will be a critical addition to HIV prevention. This is important for many women, especially in the developing world, because some male sex partners may be unwilling to use condoms consistently, if at all. In addition to vaccines and microbicides, other potential biomedical interventions, such as pre-exposure prophylaxis, are starting to emerge.

WHAT HAS CDC ACCOMPLISHED?

CDC staff has conducted laboratory, clinical, and behavioral studies related to vaccines and microbicides. Current activities in HIV vaccine research focus on a large-scale vaccine efficacy trial in Thailand and vaccine trial preparatory work in Thailand and Kenya. The results of the United States and Thailand trials of the vaccine, AIDSVAX, were announced in 2003. Although the results indicated that the vaccine was not effective in reducing the risk of HIV infection, the trial has provided critical information that will guide future research on vaccines against HIV. About 20 other vaccine candidates are being developed and evaluated for safety and immune response. Several promising microbicides have also been identified at CDC in laboratory studies. CDC has participated in evaluations of microbicide safety in Cote d'Ivoire and Thailand and plans to participate in an evaluation of microbicide efficacy in Botswana.

Example of Program in Action

CDC helped to evaluate AIDSVAX in the United States and Thailand. CDC has also helped to evaluate Caraguard™, a compound derived from seaweed, as a vaginally applied microbicide in safety and acceptability studies in women in Thailand. In addition, CDC is beginning an evaluation on the safety and efficacy of daily oral Tenofovir as a pre-exposure prophylaxis to prevent HIV transmission.

WHAT ARE THE NEXT STEPS?

CDC will continue to evaluate new tools and techniques, such as microbicides, vaccines, and oral prophylaxis, to prevent HIV transmission. Researchers are working with scientists worldwide to evaluate the safety and effectiveness of biomedical interventions that can prevent infection with HIV. Similarly, CDC works with organizations to develop linkages between communities and scientists relative to biomedical research and the development of effective interventions.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

IMMUNIZATIONS

Immunizations are one of the great public health success stories of the 20th century, having made once-common diseases such as diphtheria, measles, mumps, and pertussis diseases of the past. Vaccines are now available to protect children and adults against 15 life-threatening or debilitating diseases. This has reduced cases of all vaccine-preventable diseases by more than 97% from peak levels before vaccines were available, saving lives and saving treatment and hospitalization costs.

Polio has been eradicated from this hemisphere, even though many Americans can still remember iron lungs, leg braces, and worried parents forbidding their children to swim in lakes and rivers during the summer. CDC and its partners believe that polio will soon be eradicated from the rest of the world as well, leading to savings of at least \$350 million in the United States alone, since polio vaccines will no longer be necessary.

Despite these success stories, several challenges remain. Even though coverage has improved, pockets of under-immunized children remain, leaving the potential for outbreaks of disease. Many adolescents and adults are under-immunized as well, missing opportunities to protect themselves against vaccine-preventable diseases such as hepatitis B, influenza, and pneumococcal disease. The safety of vaccines requires continued monitoring by systems like the Vaccine Adverse Event Reporting System, so that adverse effects—like those associated with the recent recall of the rotavirus vaccine—can be detected quickly. CDC works closely with public health agencies and private partners to improve and sustain immunization coverage and to monitor the safety of vaccines so that this public health success story can be maintained and expanded in the century to come.

ADULT AND ADOLESCENT IMMUNIZATION

WHAT IS THE PUBLIC HEALTH ISSUE?

Each year, 46,000 to 48,000 adults die from vaccine-preventable diseases. Influenza vaccination levels remain low for adults. As of 2002, only 67% of adults aged 65 years or older and 29% of high-risk adults aged 18 to 64 years reported receiving influenza vaccination. Influenza vaccination coverage levels among persons aged 65 years or older were lower among African Americans (48%) and Hispanics (54%) compared to non-Hispanic whites (68%). The gap is even wider for pneumococcal vaccination. In 2000, hepatitis B coverage, recommended for all adolescents, was only 44% among 13 to 15 years old, based on parent-held vaccination records.

WHAT HAS CDC ACCOMPLISHED?

In 2001, the Department of Health and Human Services made eliminating racial and ethnic disparities in influenza and pneumococcal vaccination for people 65 years of age and older a priority. To address this priority, CDC established the Racial and Ethnic Adult Disparities in Immunization Initiative (READII) demonstration project in 5 sites (Chicago, Rochester [NY], San Antonio, Milwaukee, and 19 counties in the Mississippi Delta region). These sites are developing and implementing community-based plans by partnering with public health professionals, healthcare providers, and community organizations. CDC and the Centers for Medicare and Medicaid Services (CMS) also continue to collaborate to improve influenza and pneumococcal vaccination rates in nursing homes and hospitals.

CDC also makes available a number of tools for immunization programs:

- Published by CDC in 2002, the Adult Immunization Schedule is the first schedule ever approved by the Advisory Committee on Immunization Practices; it has also been accepted by the American College of Obstetricians and Gynecologists and the American Academy of Family Physicians.
- In 2003, the *Standards for Adult Immunization Practices* (Standards) were revised based on previous efforts to improve adult immunization coverage and in response to changes in the healthcare delivery system. These revised standards focus on vaccine accessibility, effective communication of vaccination information, improving vaccination rates, and community partnership development.
- The Adult Clinic Assessment Software Application, created in 2002, is a tool that practitioners or clinic managers can use to estimate the vaccine coverage levels of the patients they serve and to help determine an appropriate course of action to improve coverage.
- A collaboration between CDC and the Association of Teachers of Preventive Medicine produced a “What Works” CD-ROM which individual practice and clinic staff can use to test their adult vaccination knowledge; reference a substantial amount of background material; review frequently asked questions and model practices; select strategies to increase vaccination rates; and create an action plan.

WHAT ARE THE NEXT STEPS?

- Continue working with other federal agencies; state and local health departments; and private and community partners to
- Support state health departments to develop comprehensive plans for vaccination of adolescents and adults.
- Address and eliminate persistent racial and ethnic disparities in adult immunization coverage levels.
- Develop, evaluate, and promote standing orders and patient/provider reminder systems.
- Help improve physician and institutional practices that lead to increased vaccination coverage among adolescents and adults.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

ANTHRAX VACCINE

WHAT IS THE PUBLIC HEALTH ISSUE?

The purpose of the Anthrax Vaccine Research Program (AVRP) is to conduct studies to determine factors associated with side effects from the vaccine. The goal is to discover whether the vaccine route can be changed and the number of doses reduced, while still providing protection against anthrax disease. The studies are also expected to provide more information on when a person becomes protected and how long the protection lasts. The current anthrax vaccine is injected in a series of 6 doses over 18 months, followed by a booster dose given each year. One of the most common side effects of the vaccine is redness and swelling in the arm because the shot is given just under the skin instead of into the muscle. Some recent studies have shown that if the shot is given in the muscle, there may be less pain and swelling. It may also be possible to protect people with fewer than 6 shots. By doing this research, CDC hopes to reduce the number of side effects seen with the vaccine, while maintaining its effectiveness and increasing its acceptability.

WHAT HAS CDC ACCOMPLISHED?

CDC designed and initiated a human clinical trial to assess route change and dose reduction. To date, the five study sites have enrolled 1470/1560 (94%) of volunteers; full accrual is expected by March 2004. The interim analysis will be presented to the Food and Drug Administration in September of 2004. The goals are to reduce the number of doses administered by dropping the 2 week dose in the priming series (currently recommended 0, 2, and 4 weeks in the primary series) while not diminishing the peak anti-protective antibody levels following the 4 week dose and to change injection site to the intramuscular way of administration. The final analysis will be presented to FDA in 2007.

CDC also designed and implemented non-human primate (NHP) studies to determine correlates of protection against inhalation anthrax and to support research on dose reduction in the human clinical trial. Animals are vaccinated by similar regimens as in human study and are challenged at 12, 30 and 42 months post-vaccination with lethal doses of *B. anthracis* spores. The NHP experiments began in 2002 and final data are expected by 2005. Data from these studies will determine whether a person is protected by anthrax vaccine, when protection is achieved, and what the duration of protection is. CDC has developed laboratory assays to measure the human and animal vaccine study primary endpoints. These assays will be used to assess human immune response to second generation anthrax vaccines now in development. The anthrax vaccine studies were endorsed by the Institute of Medicine Committee for CDC Anthrax Vaccine Safety and Efficacy Plan.

WHAT ARE THE NEXT STEPS?

For bioterrorism preparedness, CDC has undertaken studies to test efficacy of an anthrax immune globulin product as treatment for persons who are ill with anthrax, but failing traditional antibiotic therapy. The benefits of this research extend to both the military and civilian communities. The AVRP studies will help optimize the use of the current vaccine, increase its acceptability, and provide greater understanding about correlates of protection that will extend to next generation anthrax vaccines.

DEVELOPMENT OF IMMUNIZATION REGISTRIES

WHAT IS THE PUBLIC HEALTH ISSUE?

In 2002, 25% of the nation's 2-year-olds were not fully up-to-date on immunizations, placing them and others at risk of vaccine-preventable diseases. Public health officials cannot easily predict which communities are at risk for outbreaks of vaccine-preventable diseases. Because about 23% of U.S. children change healthcare providers by age 2 and/or receive immunizations from more than one provider; incomplete records are scattered among different doctors, resulting in both redundant and insufficient vaccination. The public's concerns about potential adverse health effects associated with vaccination have increased in recent years. Immunization information systems are needed that can easily and accurately track immunization coverage and data related to vaccine safety.

WHAT HAS CDC ACCOMPLISHED?

- CDC worked with the American Immunization Registry Association and the Association of Immunization Managers to form the Programmatic Registry Operations Workgroup (PROW) to develop the PROW *Standards of Excellence*. The National Vaccine Advisory Committee in 2003, endorsed this document which supports vaccine management, provider quality assurance, service delivery, consumer information, vaccine-preventable disease surveillance, and vaccination coverage assessment.
- 12 minimum registry functional standards and Standards for Certification were established. Certification is a voluntary process that will be performed at the request of the registry. In 2002, three statewide registries self-reported that they met all of the standards.
- Immunization registries demonstrated the value of immunization registry data by providing reliable information on the impact of the DTaP and pneumococcal conjugate vaccine shortage on vaccination coverage levels.
- A cost study to characterize the costs of immunization registries in the United States was conducted at 24 sites and the results of this study will be published in Spring 2004. In addition, CDC staff is working with the Utah Department of Health to collect data that measure the administrative impact of its immunization registry on the Vaccine for Children Program's related reporting activities.
- CDC, the Vaccine Adverse Event Reporting System, and Kaiser Permanente staff have demonstrated that vaccine adverse events can be reported in standard health level 7 (HL7) immunization electronic messages by providers and state/local health departments. Final message structure and processes will be completed and published in 2004.
- Updates to the HL7 Implementation Guide for Immunization Data Transactions and the de-duplication tool kit are now available online at www.cdc.gov/nip/registry/hl7guide.pdf and www.cdc.gov/nip/registry/dedup/dedup.htm.

WHAT ARE THE NEXT STEPS?

Healthy People 2010 objectives include increasing the proportion of children less than 6 years of age participating in fully operational immunization registries to 95%. To reach this goal, future immunization registry activities, supported by Section 317 Immunization Grant Program funds, will focus on

- Increasing the proportion of children and healthcare providers that participate in registries.
- Ensuring the privacy, confidentiality, and security of registry data.
- Promoting the use of accurate and efficient immunization registries and data.

IMMUNIZATION GRANT PROGRAM (SECTION 317)

WHAT IS THE PUBLIC HEALTH ISSUE?

Almost 50,000 adults and 300 children in the United States die annually from vaccine-preventable diseases or their complications. Despite high immunization coverage levels for preschool-aged children, pockets of need remain. A January 2003 survey revealed that 19 states reported insufficient 317 funds to implement Pneumococcal Conjugate Vaccine recommendations. Additional doses of vaccines are needed for children who are not eligible for the Vaccines for Children program, but go to state and local public health departments for vaccinations. Children served through 317 are under-insured and therefore under-immunized. A stable immunization program, at the state level, is necessary to fully vaccinate all children.

Immunization infrastructure is crucial, especially when public health priorities can shift rapidly in the event of an outbreak of a vaccine-preventable disease, or a bioterrorism event. Managing immunization resources to deal with urgent events poses a challenge to state programs. During the 2003–2004 influenza seasons, the use of 317 funds to respond to influenza season challenges reduced the grant funds available for essential routine vaccination programs.

WHAT HAS CDC ACCOMPLISHED?

Federal funding for the Immunization Grant Program (also called the “317 grant program”) was launched in 1963. Forty years later, CDC awarded \$408 million in federal grants to state, local, and territorial public health agencies for program operations and vaccine purchases. The majority of 317 program funds are dedicated to routine childhood programs, with a smaller portion remaining for adult immunization programs. Despite high immunization coverage rates of preschool-aged children, adult vaccination rates remain considerably lower.

The 317 grant program works to ensure that children, adolescents, and adults receive appropriate immunizations by partnering with health providers in the public and private sectors. The program helps assure the implementation of effective immunization practices and proper use of vaccines to achieve high immunization coverage, and supports infrastructure for essential activities such as immunization registries, outreach, disease surveillance, outbreak control, education, and service delivery. A strong immunization infrastructure ensures optimal coverage with routinely recommended vaccines.

- During the 2003–2004 influenza seasons, grantees assisted with the redistribution of influenza vaccine to individuals at high risk for complications. This vaccine management role is similar to the vital role grantees play during pediatric vaccine shortages.
- Flexibility of 317 grant funds allowed states to deliver additional doses of influenza vaccine to alleviate some of the shortages reported during the early severe influenza outbreaks of the 2003–2004 seasons.
- CDC has partnered with the Department of Agriculture to assess the immunization status of the children participating in the Women, Infants and Children program; children missing recommended immunizations may be referred to a healthcare provider.

WHAT ARE THE NEXT STEPS?

CDC will continue to work with federal, state, and local partners to

- Build support for adult immunizations, increase immunization coverage, and educate parents and providers.
- Address pockets of need where there are substantial numbers of under-immunized groups.

IMMUNIZATION SAFETY

WHAT IS THE PUBLIC HEALTH ISSUE?

No vaccine is 100% safe. As more and more people receive vaccinations and the risk of disease decreases, both real and perceived vaccine side effects increase. The end result is heightened public concern about the safety of vaccines and loss of public confidence in vaccines, which could result in decreased vaccination levels, followed by epidemics of disease. A credible immunization safety monitoring system to determine which illnesses are caused by vaccines, and which are not, must exist to maintain public confidence in immunizations and prevent the return of disease epidemics.

WHAT HAS CDC ACCOMPLISHED?

CDC has implemented a multi-faceted strategy to address immunization safety issues, which includes various programs and partnerships. The Vaccine Adverse Event Reporting System (VAERS) is operating in collaboration with the Food and Drug Administration and serves as an early-warning system to detect problems that may be related to vaccines. CDC is adding Web-based reporting to improve the timeliness, accuracy, and efficiency of VAERS. Work is also under way to ensure vaccine safety through continued research and enhancements to the Vaccine Safety Datalink (VSD) project. VSD is a linked database containing comprehensive medical and immunization histories of over 7.5 million people. VSD enables researchers to compare the incidence of health problems between vaccinated and unvaccinated people. CDC has established a vaccine safety data sharing process so that external researchers can access final datasets created through VSD.

Other programs aimed at improving immunization safety include the Clinical Immunization Safety Assessment (CISA) Network, which provides in-depth, standardized clinical evaluations for individuals with unusual or severe vaccine adverse events, and the Safe Injection Global Network, a global consortium working to solve the problem of unsafe injections as a major means of transmitting diseases like hepatitis B, C, and HIV/AIDS.

CDC is also working with the Institute of Medicine to increase outside participation in evaluating safety concerns and guiding research efforts. CDC is continuing its efforts to determine how best to disseminate information on the benefits and risks of vaccinations; develop safer vaccines and delivery methods (especially needle-free jet injectors for mass immunization campaigns); and establish a global collaboration to standardize case definitions for study of vaccine reactions, thereby creating a common “vocabulary” for vaccine safety research.

Example of Program in Action

VSD provided valuable information regarding the safety of influenza vaccine in children to the Advisory Committee on Immunization Practices,⁷ which led to the formulation of the committee’s policy recommendation for routine influenza vaccination of children to 23 months of age in the United States.

WHAT ARE THE NEXT STEPS?

To enhance the current immunization safety program, CDC plans to

- Increase the knowledge of genetic risk factors for vaccine reactions.
- Enhance analysis of VAERS data and increase research of immunization safety concerns through VSD and CISA.
- Conduct research regarding how the public perceives and accepts the risks and benefits of vaccines.
- Improve vaccine benefit-risk communication to parents and healthcare professionals through partnerships.

INFLUENZA IMMUNIZATION

WHAT IS THE PUBLIC HEALTH ISSUE?

About 36,000 deaths and 114,000 hospitalizations per year in the United States are the result of influenza infections. These infections occur in all age groups, but deaths occur most frequently among persons aged 65 years or older. In 2003, an unusually early onset of severe influenza outbreaks resulted in strong consumer demand for influenza vaccine. This demand exceeded that seen in previous flu seasons. In prior years, the supply of influenza vaccine was generally sufficient to meet demands. However, demand in 2003 remained high well into December, when flu vaccination clinics are typically winding down.

Production of influenza vaccines is a complex process that requires many steps, including selection of suitable vaccine viruses, reproduction of these viruses in eggs, and testing to ensure the safety and purity of the vaccine. Recommendations for strains to be included in U.S. vaccines are based on year-round surveillance. Typically, these recommendations are released in February for vaccines that will be used in the following season.

WHAT HAS CDC ACCOMPLISHED?

During the 2003 influenza season, contracts were developed to deliver additional vaccine to state and local health departments to alleviate spot shortages reported. Work with the vaccine manufacturers, distributors, healthcare providers, and state and local public health departments was performed to redistribute vaccine wherever possible. Communication was extensively initiated throughout the year to advise partners and others about developments related to the production, distribution, and administration of influenza vaccine; provider and patient educational materials to encourage timely vaccination of high-risk groups were revised; and CDC participated in media events to highlight the benefits of influenza vaccination. These communications relied upon strengthened influenza disease surveillance, resulting in the systematic dissemination of information to characterize the degree and extent of influenza disease.

Ongoing influenza programs continued to work on making influenza vaccinations more broadly available. During 2003, CDC updated immunization recommendations and developed education materials for the new nasal-spray, FluMist™, Live Attenuated Influenza Vaccine, licensed in 2003. Also, CDC and the Centers for Medicare and Medicaid Services completed a 3-year program to promote and evaluate the use of standing orders of vaccines in nursing homes. Initial data showed that standing orders are both more effective and more cost-effective than other available methods for immunizing nursing home residents against influenza and pneumococcal diseases.

WHAT ARE THE NEXT STEPS?

CDC will continue to work with other federal agencies, state and local health departments, and private and community partners to facilitate communication and collaboration about influenza vaccine supply and distribution; develop strategies to improve annual immunization coverage among high-risk populations; and encourage providers to extend vaccination efforts into December and beyond where needed. Improving physician and institutional practices will lead to increased vaccination coverage among adolescents and adults. Efforts are also underway to address the unique supply issues associated with a seasonal vaccine that changes annually. CDC will continue to plan, prepare, and exercise responses to the eventual occurrence of an influenza pandemic.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PANDEMIC INFLUENZA PLANNING

WHAT IS THE PUBLIC HEALTH ISSUE?

New strains of influenza viruses can emerge unpredictably and spread rapidly and pervasively through susceptible populations. A significant shift in the virus's genetic structure could mean that the entire population would be vulnerable. Influenza pandemics, or global epidemics, occurred three times during the 20th century: in 1918, 1957, and 1968. The 1918 pandemic resulted in more than 500,000 deaths in the United States and over 20 million deaths globally. Experts agree that future pandemics of influenza are likely, if not inevitable. In the United States alone, preliminary estimates indicate that an influenza pandemic would cause between 89,000 and 207,000 deaths and that the economic impact would range from \$71 billion to \$166 billion, not including disruptions to commerce and society.

Pre-pandemic planning is essential if influenza pandemic-related morbidity, mortality, and social disruption are to be minimized. The sudden and unpredictable emergence of pandemic influenza and its potential to cause severe health and social consequences necessitate developing a national plan and implementing preparedness activities called for by that plan.

WHAT HAS CDC ACCOMPLISHED?

CDC worked with federal partners to develop the Pandemic Influenza Preparedness and Response Plan, which was submitted to the Department of Health and Human Services. The goal of this preparedness and response plan is to limit the total burden of disease (morbidity and mortality) caused by an influenza pandemic and to reduce social disruption and economic loss. Objectives include strengthening global and domestic surveillance, public health and healthcare system readiness, and conducting research to improve influenza vaccines and other preventive interventions.

In collaboration with the Council of State and Territorial Epidemiologists, CDC assists state and local public health and emergency management agencies in developing their pandemic influenza plans. A software program, FluAid, 2.0, that estimates the number of deaths, hospitalizations, and outpatient visits that may occur during the next pandemic was developed. It helps state and local public health officials and policymakers prepare for the next influenza pandemic. The software also will help planners calculate the potential burden of an influenza pandemic on healthcare resources (e.g., number of hospital beds required and doctors available to see outpatients as a percentage of existing capacity).

CDC has also supported and strengthened the World Health Organization's global system of influenza laboratories and the U.S. influenza lead physician, virologic, and mortality surveillance systems. CDC has contributed to pandemic influenza vaccine development efforts by producing reassortant pandemic vaccine candidate viruses against avian influenza A viruses subtypes H5 (Eurasian lineage) and H9. CDC has also identified key cell surface receptors that contribute to the decline in immune function in the elderly. This research will lead to the development of more effective vaccines.

WHAT ARE THE NEXT STEPS?

CDC will continue to work with partners to enhance preparedness for an influenza pandemic based on the National Preparedness and Response Plan. Areas of future attention include providing increased technical assistance to states for pandemic planning, including the development of tabletop and field exercises, assuring a supply of antiviral drugs, improving the adult immunization infrastructure, and developing a hospital surveillance system to monitor more severe cases of influenza.

PEDIATRIC VACCINE STOCKPILES

WHAT IS THE PUBLIC HEALTH ISSUE?

An unprecedented and unanticipated shortage of routinely-recommended vaccines occurred in the United States beginning in 2001; this shortage included vaccines administered against 8 of the 11 vaccine-preventable childhood infectious diseases. This situation led the Advisory Committee on Immunization Practices, the American Academy of Pediatrics, and the American Academy of Family Physicians to recommend deferral of certain immunizations and to set priorities for high-risk patients until vaccine supplies returned to normal. These deferrals posed an increased risk of otherwise preventable infectious diseases.

Vaccine stockpiles, first developed by CDC in 1983, can be used to interrupt disease outbreak situations and ameliorate short-lived production problems, which are likely to occur from time to time. The pediatric vaccine stockpiles use dynamic inventory systems in which vaccine stock is rotated, as older vaccines are rotated into the market for use, fresh doses of vaccines enter the stockpiles. Stockpiles do not currently exist for all recommended childhood vaccines. CDC needs to ensure that a 6-month national supply of all recommended childhood vaccines is available for use in case of supply disruptions or outbreaks of vaccine-preventable diseases. In light of recent vaccine shortages and increased concerns about an influenza pandemic or bioterrorism event, expansion of CDC's stockpiles has become a pressing public health need. Due to supply constraints, as of December 2003, there has been no stockpile purchase of diphtheria, tetanus, and acellular pertussis (DTaP) vaccine.

WHAT HAS CDC ACCOMPLISHED?

The Department of Health and Human Services' Office of General Counsel has reviewed the legal authority of the *Omnibus Reconciliation Act* (OBRA) of 1993 legislation and confirmed the Secretary's authority under current law to build Vaccines for Children (VFC) program stockpiles equal to the amount needed for the U.S. pediatric population for 6 months of routinely recommended vaccines. In 2003, CDC began purchasing vaccine for expanded national pediatric stockpiles with the \$172 million of VFC funds apportioned for the stockpile. CDC has purchased 6-month stockpiles of measles, mumps, rubella (MMR), varicella, and inactivated polio (IPV) vaccines. Completion of delivery of all varicella and IPV doses is expected in 2004. CDC has also purchased partial stockpiles of hepatitis B, hepatitis A, pneumococcal conjugate (PCV) and *Haemophilus influenzae* type b (Hib) vaccines. CDC plans to continue purchasing those vaccines and others, like DTaP, for the stockpiles in 2004.

With input from key stakeholders, CDC has completed its strategic plan for the management of the pediatric vaccine stockpiles. This plan addresses the Government Accounting Office's (GAO) recommendations about the number of doses needed nationally, vaccine form (e.g., bulk, filled, labeled, packaged), storage location, and maintenance.

WHAT ARE THE NEXT STEPS?

Legislation improving the VFC program has been proposed and includes a provision to simplify the administration of the stockpiles with respect to stockpile sales. The new legislation will allow stockpile funds to be used to purchase 6-month national stockpiles of DTaP, Hib, hepatitis A, hepatitis B, influenza, IPV, MMR, PCV, and varicella vaccines. The combination vaccine *Pediarix*, containing DTaP, IPV, and hepatitis B, will also be eligible with these funds.

RACIAL AND ETHNIC ADULT DISPARITIES IN IMMUNIZATION INITIATIVE

WHAT IS THE PUBLIC HEALTH ISSUE?

About 46,000 to 48,000 adults in the United States die each year from vaccine-preventable diseases and about 114,000 people are hospitalized because of influenza. An average of 36,000 people, mostly aged 65 years and older, die annually due to influenza and its complications. Annually, about 60,000 cases of invasive pneumococcal disease occur in the United States, with one-third of these cases and half of the resulting deaths occurring in people 65 years of age and older. African Americans and Hispanics have significantly lower influenza and pneumococcal immunization coverage levels compared to the rest of the population. Influenza vaccination coverage among adults 65 years of age and older is 68% for whites, 48% for African Americans, and 54% for Hispanics. The gap for pneumococcal vaccination coverage among ethnic groups is even wider, with 60% for whites, 38% for African Americans, and 36% for Hispanics. Little is known about the best intervention strategies for these populations.

WHAT HAS CDC ACCOMPLISHED?

The Department of Health and Human Services (HHS) has made the elimination of racial and ethnic disparities in influenza and pneumococcal vaccination coverage for people 65 years of age and older a priority. To address these disparities and to assist in reaching the 2010 national health goal of 90% influenza and pneumococcal vaccination rates among persons 65 years of age and older, HHS, in collaboration with CDC and other federal partners, launched the Racial and Ethnic Adult Disparities Immunization Initiative (READII) in July 2002.

CDC is implementing the READII project with the support of the Centers for Medicare and Medicaid Services, the Health Resources and Services Administration, the Administration on Aging, the Agency for Healthcare Research and Quality, and other federal agencies. A READII demonstration project is being conducted in five sites (Chicago; Rochester [NY], San Antonio, Milwaukee, and 19 counties in the Mississippi Delta region) to improve influenza and pneumococcal vaccination rates for African Americans and Hispanics 65 years of age and older. READII sites have developed partnerships with public health professionals, medical providers and community organizations (e.g., large health plans, insurers, minority health professional organizations, churches, local community groups, and civic leaders). They are collaborating with these stakeholders to develop and implement community-based plans focusing on evidence-based interventions and innovative approaches to increasing immunization levels.

READII interventions include provider-based interventions (assessment and feedback to providers, multi-component provider education, standing orders, and provider reminder/recall); increasing community demand for vaccinations (client reminder/recall and multi-component interventions including community-wide and clinic-based education); enhancing access to vaccination services (expanding access in healthcare settings and reducing out of pocket costs); and vaccination interventions in nonmedical settings. Interventions vary by site and are based on state and local choice. Each site has developed multifaceted evaluation plans containing outcome, intervention specific, and process measures.

WHAT ARE THE NEXT STEPS?

At the conclusion of the READII demonstration project, CDC plans to share lessons learned and, should additional resources become available, replicate “what works” in other sites across the country.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TRACKING VACCINE-PREVENTABLE DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

Dramatic declines in the incidence of vaccine-preventable diseases have created a need for surveillance systems that are sensitive enough to detect rare cases and isolated outbreaks of vaccine-preventable diseases. As new vaccines are licensed and recommended, new strategies for monitoring the incidence of additional diseases are also needed. Some of the diseases that have been newly identified as vaccine-preventable are not easily monitored through existing public health surveillance systems. These diseases require development of new and more complex strategies for surveillance.

WHAT HAS CDC ACCOMPLISHED?

CDC provides leadership and guidance for vaccine-preventable disease surveillance, investigation, and outbreak control throughout the United States. Recent accomplishments include documenting the elimination of naturally-acquired polio and indigenous measles in the United States. Scientific assistance provided to state and local health departments enables disease trends to be monitored and has demonstrated the effectiveness and impact of vaccines in controlling rubella, mumps, tetanus, diphtheria, *Haemophilus influenzae* type b, and chickenpox.

Example of Program in Action

Illness from nine infectious diseases (i.e., smallpox, diphtheria, pertussis, tetanus, paralytic polio, measles, mumps, rubella, and *H. influenzae* type b) has decreased by 95% to 100% since the beginning of the 20th century. Surveillance challenges presented by newly licensed vaccines against diseases such as chickenpox, which is not nationally notifiable, have led CDC to develop enhanced surveillance methods that include documentation of vaccine usage and the impact of vaccine recommendations. Results from three sites indicate a decrease in cases of chickenpox in all age groups, with the greatest decline occurring among children 1 to 4 years of age, the primary target group for vaccination. Results also show that the varicella vaccine is more than 90% effective in preventing moderate to severe cases of chickenpox when given routinely. Accomplishments have also been made through the New Vaccine Surveillance Network. This network has documented the burden of disease due to influenza among children 6 to 23 months of age.

WHAT ARE THE NEXT STEPS?

The need for enhanced surveillance to define disease burden and monitor vaccine impact continues. New approaches to surveillance include increased use of data from managed-care organizations, proprietary hospital discharge databases, state-based immunization registries, and laboratories.

VACCINES FOR CHILDREN PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

In the past, private providers referred children to public health department clinics for immunizations when the children lacked health insurance or their health insurance did not cover vaccinations. Since 1994, the Vaccines for Children (VFC) program, established by Section 1928 of the *Social Security Act*, has allowed children to receive vaccinations as part of routine care, supporting the reintegration of vaccination and primary care.

While VFC covers underinsured children, their access to vaccines has been limited, permitting them to receive vaccines only at federally-qualified health centers or rural health centers. Because the VFC authorizing legislation still imposes a price cap on all vaccines for which a federal contract existed prior to May, 1993, manufacturers of Tetanus Diphtheria (Td, DT) vaccines have refused to bid on CDC contracts since 1998. Consequently, these vaccines are unavailable for purchase through the VFC program. An unprecedented shortage of many routinely recommended vaccines included in the VFC program occurred in the United States, beginning in 2001. These shortages posed an increased risk to children of preventable infectious diseases. To ensure that providers enrolled in the VFC program adhere to the many VFC program requirements, increased automated accountability processes are needed.

WHAT HAS CDC ACCOMPLISHED?

The VFC program is CDC's largest public-private partnership. Based on the total doses of routinely recommended pediatric vaccines distributed in the United States, the VFC program served about 41% of the childhood population in 2002. The VFC program provides publicly purchased vaccines for use by all participating providers. These vaccines are given to eligible children without cost to the provider or the parent. In 2003, CDC awarded \$975 million in VFC funds to state, local, and territorial public health agencies for program operations and the purchase of vaccines.

The VFC program provides immunizations for children who are uninsured, Medicaid recipients, Native Americans, and Alaska Natives at their doctors' offices. VFC also provides immunizations for children whose insurance does not cover immunizations at participating federally-qualified health centers and rural health clinics. By decreasing referrals to public health departments, the VFC program has improved the continuity of care and promoted the "medical home" concept. The program has contributed to high immunization rates and reduced delays in immunizations and, subsequently, the risk of serious illness or death from vaccine-preventable diseases.

The VFC program ensures that all eligible children receive the benefits of newly recommended vaccines, thus strengthening immunity levels in their communities. The program also ensures that access to newly recommended vaccines for children in low-income and uninsured families does not lag behind that for children in middle- and upper-income families.

WHAT ARE THE NEXT STEPS?

Legislation improving the VFC program has been proposed and includes expanding access to underinsured children seeking immunization services in state and local public health clinics; removing the price caps on vaccines and allowing Td and DT to be purchased with VFC funds again; and amending authorities to simplify the administration of the pediatric vaccine stockpile with respect to stockpile sales. Pediatric vaccine stockpiles are being expanded in 2004–2006 to create a 6-month supply of all recommended pediatric vaccines.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

VACCINE-PREVENTABLE DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

Each day 11,000 babies are born in the United States who will need up to 20 vaccinations before they are 2 years old, to be protected against 11 vaccine-preventable diseases. For most of the vaccine-preventable diseases, there has been a 99% or greater reduction in morbidity. However, we cannot take high immunization coverage levels for granted. To continue to protect America's children and adults from vaccine-preventable diseases, we must attain maximum immunization coverage in all populations, establish effective partnerships, conduct reliable scientific research, implement immunization systems, and ensure vaccine safety.

WHAT HAS CDC ACCOMPLISHED?

CDC provides national leadership to reduce disability and death from diseases that can be prevented through vaccination. Through the continued work of CDC vaccination programs, especially the Section 317 Grant Program and Vaccines for Children Program, outstanding progress has been made in coverage rates for children up to 2 years of age. Immunization levels for most individual vaccines such as measles, polio, Hib, hepatitis B, and three doses of diphtheria-tetanus-acellular pertussis (DTaP) are at 90% or higher.

Disparities in childhood immunization coverage rates among racial and ethnic groups have been eliminated or greatly reduced for most vaccines. For example, in 1970, the measles immunization rate for racial and ethnic minority children was 18% lower than the rate for white children. According to the 2002 National Immunization Survey, over 93% of children 19 to 35 months of age in all races had received three or more doses of any diphtheria and tetanus toxoids and pertussis vaccines. Vaccination rates for Hispanic, white, and Asian, Pacific Islander, Alaska Native, Native Hawaiian or other Pacific Islander children, 19 to 35 months of age were reported to be at or above 90%, and African American vaccination coverage rates were 85%.

Licensed in 1995, the varicella vaccine for chickenpox is one of the most recently added vaccines on the recommended childhood schedule. The development of new vaccines creates opportunities for better health but also presents difficult challenges for immunization programs because they increase the complexity and cost of the immunization schedule. In spite of these challenges, great progress has been made in educating healthcare provider and the public about the benefits of the varicella vaccine. Coverage jumped from 57.5% in 1999 to over 80% in 2002; an increase of about 28% in just 3 years.

WHAT ARE THE NEXT STEPS?

CDC is committed to improving the health of all Americans and individuals internationally through vaccination. Next steps include

- Extending the success of domestic childhood immunizations program to the adult population.
- Increasing and sustaining vaccine coverage levels in all populations for all recommended vaccines.
- Assisting partners in implementing proven strategies for immunization by assuring adequate vaccine supplies, supporting community- and state-based immunization registries, and focusing efforts to increase immunization in areas with low coverage levels.
- Continuously improving vaccine safety efforts by working with other agencies and partners to improve CDC's Vaccine Adverse Event Reporting System; expand the Vaccine Safety Datalink; and increase opportunities for communications, epidemiological, and genetic vaccine safety research.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

INFECTIOUS DISEASES

Infectious diseases seem to lurk everywhere—in undercooked hamburgers, on unwashed hands, or carried by blood, water, ticks, or mosquitoes. Some, like the pathogens that cause influenza or syphilis, have preyed on humans for centuries. Others like West Nile virus or hantavirus are relatively new or emerging threats. Old threats like tuberculosis have adapted to the drugs we use against them, making harder to treat and more dangerous.

The combination of improved hygiene and sanitation, vaccinations, and antibiotics has helped turn the tide against infectious diseases in this country, but new diseases and the resurgence of old ones make infectious diseases a constant threat. To counter this threat, CDC has worked to increase the capacity of laboratories and surveillance systems here and abroad to detect and monitor changes in disease patterns and to serve as an early warning system (e.g., the ever-present threat of an influenza pandemic is monitored not only in the United States but in surveillance centers in Asia).

Outside of the laboratory, CDC promotes control of vectors like mosquitoes and ticks. CDC also has worked with public and private partners to change the way antibiotics are prescribed and used, and to help maintain the usefulness of existing anti-microbial drugs in hospitals and other settings. Combinations of all of these tools—epidemiology, partnerships, education of healthcare providers and patients, and vector control—are used to counter the spread of specific infectious disease threats ranging from sexually transmitted diseases like syphilis and chlamydia to bloodborne threats like hepatitis C. Together, these tools can help us control existing infectious disease threats and prepare for the new ones that we know are always emerging.

ANTIMICROBIAL RESISTANCE

WHAT IS THE PUBLIC HEALTH ISSUE?

- In the United States and around the world, many important human infections are developing resistance to the antimicrobial drugs used to treat them. Up to 35% of *Streptococcus pneumoniae*, an organism which is a common cause of ear infections, meningitis, and pneumonia, found in some areas of the United States are no longer susceptible to penicillin, and multidrug resistance is common. About 16% of *S. pneumoniae* are now resistant to “third generation” cephalosporin antimicrobials, and resistance to the newest fluoroquinolone antimicrobials has also emerged. In the 1970s, virtually all *S. pneumoniae* were susceptible to preferred drugs.
- Nearly all strains of *Staphylococcus aureus*, a common cause of skin and more serious infections, in the United States are resistant to penicillin and over 60% of *S. aureus* infections acquired in U.S. intensive care units are now resistant to the preferred methicillin class drugs (Methicillin resistant *S. aureus*, also called MRSA) and usually have multidrug resistance. In 2002, two cases of *S. aureus* resistant to the drug vancomycin, for years the only effective treatment, were reported.
- MRSA strains identified recently outside of healthcare settings often have antimicrobial susceptibility patterns that differ from healthcare associated strains and carry a virulence factor that may increase the chance for serious illness.
- Resistance to the most effective antimicrobial drugs can require treatment with less effective and more expensive alternatives, which may also be associated with a greater risk for side effects. Some infections found among hospitalized patients are resistant to virtually all effective antimicrobial drugs available, making therapy difficult.

WHAT HAS CDC ACCOMPLISHED?

- *Surveillance and Response:* CDC, in collaboration with state and local health departments, monitors and tracks drug-resistant infections. For example, pneumococcal infections are tracked in 10 geographic areas with a combined population of 20 million; healthcare-acquired infections in 300 hospitals in 15 states; and foodborne and diarrheal infections in 50 states. CDC also monitors drug-prescribing practices.
- *Applied Research:* In 2003, CDC awarded over \$4 million in grants to 11 academic institutions for applied research on antimicrobial resistance. CDC develops laboratory tests to detect drug resistance; studies the molecular basis of resistance; and evaluates interventions, such as improved prescribing and infection control practices.
- *Infrastructure/Training:* CDC improves the capacity of health departments, healthcare providers, and clinical laboratories to detect and report resistant infections and to implement prevention and control strategies. CDC’s Multilevel Antimicrobial Susceptibility Testing Educational Resource Program website provides up-to-date information on susceptibility testing, and a CD-ROM was developed to train clinical microbiology laboratory personnel on standardized susceptibility testing methods.
- *Prevention and Control:* CDC translates research findings into community-based and healthcare-based prevention programs to promote appropriate antimicrobial use, infection control, vaccine use, and detection of drug-resistant infections. CDC and an alliance of partners aim to improve antimicrobial use in the United States through the public health campaign, “Get Smart: Know When Antibiotics Work” which uses public service announcements and comprehensive outreach. CDC’s “Campaign to Prevent Antimicrobial Resistance in Healthcare Settings” focuses on providing evidence-based methods for preventing antimicrobial resistance among specific patient populations.

WHAT ARE THE NEXT STEPS?

In 1999, CDC, the Food and Drug Administration, and the National Institutes of Health co-chaired a task force to better coordinate public health efforts to address antimicrobial resistance. Since 2001, the agencies have been implementing the task force’s action plan as resources allow. Priority actions include improving monitoring of drug resistance and use; improving drug prescribing by educating the public and clinicians to reduce the development and spread of resistance in the community; and improving infection control practices to prevent the transmission of drug-resistant infections in healthcare settings and elsewhere.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

EMERGING INFECTIOUS DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Infectious diseases are a leading cause of death worldwide and are a continuing threat to our nation's health. The outbreaks of severe acute respiratory syndrome (SARS) and West Nile virus (WNV) are recent reminders of the ongoing threat of infectious diseases.
- Some infectious diseases, like influenza, are familiar foes that have affected humans for centuries. Others, like WNV, monkeypox, and SARS, are new or emerging threats. More than 35 newly emerging infectious diseases were identified between 1973 and 2000, and new infectious disease threats continue to be identified. The current public health challenge includes responding to the extraordinary ability of microbes to adapt, evolve, and develop drug-resistance, as well as addressing the implications of changes in demographics and human behaviors.
- SARS demonstrated that U.S. health and global health are inextricably linked and that fulfilling CDC's domestic mission—to protect the health of the U.S. population—requires global awareness and collaboration with international partners to prevent the emergence and spread of infectious diseases. Microbes constitute a global threat that puts every nation and every person at risk.

WHAT HAS CDC ACCOMPLISHED?

Since 1994, CDC strives to revitalize national capacity to protect the public from infectious disease. Safeguarding U.S. health also requires international action and cooperation, because U.S. health and global health are inextricably linked. U.S. citizens and foreign governments alike have come to rely on CDC for help and information. CDC's strategy to revitalize capacity to protect the public from infectious disease threats focuses on four goals: Surveillance and Response: to detect, investigate, and monitor emerging pathogens, the diseases they cause, and the factors influencing their emergence; Applied Research: to optimize public health practice; Infrastructure and Training: to strengthen our nation's public health capacity for outbreak detection and response; and Prevention and Control: to ensure prompt implementation of prevention strategies and enhance communication of public health information about emerging diseases.

CDC's response to the 2003 SARS outbreak demonstrates successful work toward these goals. Within a month of receiving clinical specimens for analysis, CDC scientists isolated, typed, and sequenced the genome of the SARS coronavirus, working closely with coronavirus experts around the globe. Using this collective knowledge, CDC researchers worked to develop specific diagnostic tests for SARS, and are currently refining these tests and distributing them to collaborating public health laboratories nationwide. CDC coordinated and mobilized more than 800 staff in the SARS response, and rapidly disseminated information to the public about prevention, diagnosis, treatment, and control of SARS via the Internet, CDs, press conferences, and live, worldwide satellite broadcasts. Nearly two million health professionals in China received essential SARS information this way.

WHAT ARE THE NEXT STEPS?

Emerging infectious diseases are cause for increasing concern. A 2003 Institute of Medicine report, *Microbial Threats to Health: Emergence, Detection, and Response*, recognizes that while we have made dramatic advances in the prevention and control of infectious diseases, the magnitude and urgency of the problem require renewed concern and commitment. The report emphasizes the need for CDC to further enhance global response capacity and improve global infectious disease surveillance. CDC's strategies to combat infectious diseases will focus on increasing preparedness to address the emergence of dangerous new threats by investing in and building upon the public health system that was established over a century ago.

EPIDEMIC INTELLIGENCE SERVICE

WHAT IS THE PUBLIC HEALTH ISSUE?

- There is a growing need for specially trained epidemiologists to address current public health problems, as well as emerging and re-emerging infectious diseases, throughout the nation.
- As the events of fall 2001 demonstrated, the nation requires “rapid response” capability to meet the real and ongoing threats of terrorism and bioterrorism.
- CDC needs an available cadre of trained epidemiologists to provide technical assistance requested by local, state, and national governments.

WHAT HAS CDC ACCOMPLISHED?

The Epidemic Intelligence Service (EIS) is a unique 2-year, post-graduate program that consists of service and on-the-job training for health professionals interested in epidemiology. Since 1951, about 2,500 EIS officers (CDC’s “Disease Detectives”) have graduated from the program. In addition to on-the-job training gained by investigating disease outbreaks, natural and man-made disasters, and other public health emergencies, the EIS program provides formal instruction to EIS officers through courses in epidemiology, biostatistics, public health ethics and law, evaluation of surveillance systems, scientific writing, and prevention effectiveness.

- In fall 2001, over 125 EIS officers were deployed—often multiple times—to help state and local health departments respond to the September 11th terrorist and anthrax attacks.
- The 2003 EIS conference brought together over 1,500 current EIS officers and alumni, other public health officials or researchers, and the media. Papers presented at the conference addressed a vast range of public health problems tackled by EIS officers, including the groundbreaking documentation of West Nile virus transmission through blood transfusions and organ transplants. That conference also included a special session on Sudden Acute Respiratory Syndrome.
- In 2003, EIS officers responded to 77 formal requests for epidemiological assistance in various locations (63 in the United States and 14 in other countries). Requests for assistance primarily concerned infectious disease problems. However, investigations also addressed environmental health issues, injuries, maternal and child health issues, and other problems.

Example of Program in Action

In the summer of 2003, EIS officers played leading roles in the investigation of the multi-state monkeypox outbreak. These investigations, in collaboration with the Food and Drug Administration, state and local health departments, and other organizations, documented the first-ever appearance of this human illness in the Western Hemisphere and led to banning the importation and interstate transportation of imported exotic animals.

WHAT ARE THE NEXT STEPS?

Implementing a plan to place an EIS officer or EIS-trained epidemiologist (Career Epidemiology Field Officer) in every state to help improve the public health infrastructure is a priority. Training for these officers has been expanded to include terrorism preparedness and emergency response. CDC also plans to partner with academia and state and local health departments to improve epidemiologic capacity.

FOOD SAFETY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Foodborne diseases cause about 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year.
- Hospitalization costs for these illnesses are estimated at more than \$3 billion per year. Costs from lost productivity are estimated at \$8 billion per year.
- Known pathogens account for an estimated 14 million illnesses, 60,000 hospitalizations, and 1,800 deaths. *Salmonella*, *Listeria*, and *Toxoplasma* are responsible for 75% of these deaths each year.
- Undetermined agents account for the 62 million illnesses, 265,000 hospitalizations, and 3,200 deaths annually.

WHAT HAS CDC ACCOMPLISHED?

CDC monitors occurrences of foodborne disease illnesses in the United States. These surveillance systems provide early warning of dangers in the food supply, provide data on new or changing patterns of foodborne diseases, track progress of current prevention efforts, and provide information for development of new prevention strategies. CDC works with state and local health departments to build their epidemiology, laboratory, and environmental health capacities for foodborne disease surveillance and outbreak response. CDC also works with federal food safety regulatory agencies to identify and evaluate foodborne disease prevention strategies.

Example of Program in Action

FoodNet is a network of 10 sites around the United States that monitors more than 36 million persons (13% of the U.S. population). This network monitors the major causes of foodborne illness, conducts surveys for unreported foodborne illness, and studies risk factors associated with illness. FoodNet data provide the most comprehensive information available for foodborne illness. FoodNet data for 1996 through 2002 indicate substantial declines in the incidence of *Campylobacter*, *Listeria*, *Typhimurium*, and *Yersinia*. *Campylobacter*, and *Listeria* incidences are approaching their respective national health objectives, indicating important progress in food safety. PulseNet, winner of the Innovations in Government award, performs molecular fingerprinting of bacterial foodborne pathogens. This network facilitates the prompt recognition of large and small foodborne outbreaks so interventions can be implemented promptly and disease can be prevented. PulseNet participants include all 50 state public health laboratories, 4 local public health laboratories, 7 Food and Drug Administration laboratories and the U.S. Department of Agriculture FSIS laboratory. In 2003, PulseNet detected several large multi-state outbreaks in less than 14 days.

WHAT ARE THE NEXT STEPS?

CDC will continue to

- Detect, investigate, and monitor emerging foodborne pathogens, the diseases they cause, and the factors influencing their emergence.
- Assist state and local health departments in response to unique and multi-state foodborne disease outbreaks.
- Build state and local health department capacity to detect and respond to foodborne disease outbreaks through technology transfer, guidance, training, and providing funds to enhance infrastructure.
- Advance laboratory diagnostics and expand laboratory networks for foodborne bacteria, viruses, parasites, and other contaminants.
- Improve integration of laboratory science and epidemiology resources to optimize public health practices for the prevention and control of food-related illnesses.
- Disseminate public health information about foodborne illnesses to physicians and the public.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HEPATITIS C VIRUS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Hepatitis C virus (HCV) infection is the most common chronic bloodborne viral infection in the United States.
- About 1% of the non-institutionalized people in the United States (2.7 million) is chronically infected with HCV. Many of these persons are not aware of their infections and are not clinically ill.
- Direct exposure to blood poses the highest risk for HCV transmission. Injection drug users account for the largest number of infected persons; 60% to 80% of persons who have injected drugs for 5 years or more are infected with HCV.
- Cirrhosis of the liver develops in 10% to 20% of persons with chronic hepatitis C over 20 to 30 years, and liver cancer develops in 1% to 5%.
- Chronic liver disease is the 10th leading cause of death among adults in the United States. An estimated 40% to 60% of chronic liver disease is due to hepatitis C.

WHAT HAS CDC ACCOMPLISHED?

CDC currently supports the following:

- Cooperative agreements with 50 states and large metropolitan areas to create hepatitis C coordination activities that will help lead to the integration of viral hepatitis counseling, testing, referral, and surveillance into existing public health programs.
- Cooperative agreements with 17 state and local health departments to evaluate the delivery of viral hepatitis prevention counseling and testing, referral, and education in sexually transmitted diseases, HIV, drug treatment, and correctional healthcare settings.
- 12 cooperative agreements with nongovernmental organizations to develop and disseminate hepatitis information and education materials to the general public and groups at high-risk of infection.
- 7 demonstration sites to evaluate strategies for states to implement chronic viral hepatitis infection surveillance.
- A population-based study of the etiology of and trends in chronic liver disease in the United States.

CDC also has published guidelines for collecting and reporting information about persons with chronic HCV; laboratory testing and reporting of HCV antibody results; and prevention and control of infections with hepatitis viruses in correctional settings. CDC recently distributed the *Hepatitis C Toolkit*, which contains educational material for physicians and their patients, to a test population of 140,000 physicians.

WHAT ARE THE NEXT STEPS?

CDC will continue to support state and local hepatitis C coordination activities; help translate lessons learned from the demonstration projects to state and local health programs; develop and provide training to healthcare professionals; improve and expand surveillance for HCV infection and chronic liver disease at national and state levels; evaluate the progress of notifying transfusion recipients who received blood from donors who later tested positive for HCV; determine the need for additional studies or recommendations to prevent perinatal and sexual transmission; and assist corrections health programs with ways to address the prevention and control of HCV infection in prison populations.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

INFLUENZA

WHAT IS THE PUBLIC HEALTH ISSUE?

- Influenza viruses cause annual epidemics and periodically cause pandemics (sudden pervasive infections in all age groups on a global scale). Three pandemics have occurred during the past century.
- In the United States, influenza epidemics are associated with an annual average of 36,000 deaths and more than 110,000 hospitalizations. Between 50,000 to 70,000 influenza-related deaths and 200,000 hospitalizations can occur during serious epidemics.
- According to CDC mathematical models, an influenza pandemic could result in an estimated 5-fold increase in U.S. deaths (89,000 to 207,000) and hospitalizations (314,000 to 734,000) compared with an average influenza epidemic.
- Of all emerging infections, influenza has the greatest likelihood of causing widespread illness, death, and social disruption.
- Many bioterrorist threats first present as an influenza-like illness and many similarities exist between influenza pandemic preparedness and preparing for bioterrorism.

WHAT HAS CDC ACCOMPLISHED?

- CDC continues to strengthen the international network of collaborating laboratories to monitor the emergence and spread of new epidemic and pandemic strains of influenza. CDC also provides both international and domestic outbreak response.
- CDC provides support to states to improve the infrastructure needed to respond to epidemics and a possible pandemic of influenza and provides technical assistance for pandemic planning.
- CDC conducts research aimed at developing rapid molecular methods for characterizing novel influenza viruses and the human antibody response to them.
- In partnership with other government agencies, CDC continues to work on a plan for pandemic influenza response.

Example of Program in Action

Through the World Health Organization, CDC has provided support for influenza surveillance in Asia, Europe, and Latin America. This support allows long-term, year-round influenza surveillance to monitor for variant viruses that could circulate in the United States in the future. Early identification allows inclusion of new variant viruses in the annually reformulated influenza vaccine before epidemics caused by these viruses occur in the United States.

WHAT ARE THE NEXT STEPS?

With its partners, CDC will continue to develop and implement a comprehensive, practical, and action-oriented approach for both the public and private sectors to improve the prevention and control of influenza in the United States during the present inter-pandemic period. CDC and partners will also identify and implement mechanisms, policies, and procedures to improve our readiness for a future pandemic.

LYME DISEASE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Lyme disease, an infection that is commonly spread through ticks, is the most prevalent vector-borne infectious disease in the United States.
- More than 23,000 cases were reported to CDC in 2002, but many more cases are unreported.
- If not diagnosed and treated in its early stages, Lyme disease can result in serious complications, such as arthritis, neurological abnormalities, and rarely, cardiac problems.
- Laboratory testing for Lyme disease has improved, but greater understanding is needed of its performance in clinical practice.
- New, environmentally safe and cost-effective approaches to control ticks are also needed.

WHAT HAS CDC ACCOMPLISHED?

CDC's Lyme disease prevention and control activity is a science-based program of education, research, and service conducted in partnership with other federal agencies, state and local health departments, and other nonfederal organizations. CDC supports national surveillance, epidemiologic response, field and laboratory research, consultation, and educational activities through intramural initiatives. CDC also funds collaborative studies on community-based prevention methods, improved diagnosis and understanding of pathogenesis, tick ecology, and development and testing of new tools and methods for tick control.

CDC has initiated several extramural and intramural efforts to develop and disseminate education materials that promote Lyme disease prevention. With funding from a CDC cooperative agreement for Lyme disease education, Connecticut Public Television produced an award-winning 1999 documentary on Lyme disease. CDC funds also enabled the Massachusetts Department of Public Health to create a physician's reference manual on tick-borne diseases in 2003.

CDC has mapped the national distribution and risk for Lyme disease and has defined environments, activities, and behaviors that place people at high risk of infection. CDC has developed new and effective devices and methods for preventing infection and safely reducing vector ticks in the environment, such as insecticide-treated rodent bait boxes.

WHAT ARE THE NEXT STEPS?

Lyme disease and other emerging tick-borne infectious diseases are cause for increasing concern with regard to public health and safety in the outdoor environment. CDC's program for 2004 and beyond emphasizes the goal of working with Lyme disease endemic communities to develop a wide assortment of practical, integrated tick control strategies for their use in preventing Lyme disease. Such strategies include environmental management, biological and chemical control of ticks, and enhanced personal protection through tick avoidance and other measures. Areas of research include the development of natural forest products for use as environmentally acceptable alternatives in pest control, deer- and rodent-targeted methods of insecticide application, further efforts to predict Lyme disease risk on a national scale, and further understanding of host immune responses to infection with the Lyme disease bacterium.

PATIENT SAFETY

WHAT IS THE PUBLIC HEALTH ISSUE?

According to a sentinel 2000 Institute of Medicine (IOM) report on patient safety, about 44,000 to 98,000 Americans die each year from preventable medical errors, and wound infections are the second leading type of preventable adverse events. The report also estimates that costs associated with medical errors are estimated to be as much as \$29 billion annually; adverse events affecting medical care occur in about 3% to 4% of all patients; and existing technology and knowledge can prevent many errors, but prevention strategies have not been widely implemented. Healthcare-associated infections cost the U.S. healthcare system an estimated \$4.5 billion and, according to CDC estimates, contribute to about 90,000 deaths annually, or one death every 6 minutes.

WHAT HAS CDC ACCOMPLISHED?

CDC has expanded the infection control and prevention public health program to prevent other types of healthcare-associated medical injuries. In 2003, CDC continued existing collaborations with state and local health agencies, private-sector consortia and academic medical centers and healthcare providers to develop, implement, and evaluate cutting-edge research and demonstration programs.

Examples of Program in Action

- In the past decade, hospitals participating in CDC's National Nosocomial Infections Surveillance (NNIS) system for monitoring and preventing adverse healthcare events have had a 30% to 50% decline in targeted infections.
- A study conducted in collaboration with investigators in the NNIS system has demonstrated an association between an increased incidence of preventable complications, specifically catheter-associated bloodstream infections in intensive care units and declines in full-time nurses.
- Demonstration projects in collaboration with healthcare providers in Chicago have shown the feasibility and utility of using improved information systems and targeted educational interventions to help providers improve healthcare quality and reduce process variation that can lead to errors and poor outcomes of care, including healthcare-associated infections.
- CDC is collaborating with healthcare providers and sponsoring organizations in Southwestern Pennsylvania in demonstrating the feasibility and potential long-term advantages of both a regional approach to quality improvement and the applicability of industrial process improvement technology to improving patient safety by preventing Methicillin Resistant Staphylococcus aureus.
- A state-wide survey in Iowa to assess clinician perceptions of and barriers and facilitators to patient safety was completed and a demonstration project focusing on patient-provider communication and comprehension is underway.
- CDC collaborates with University of Iowa to assess the incidence of and to prevent microbiology laboratory errors, especially errors in antimicrobial susceptibility testing.
- CDC and other federal and private partners are developing a new activity targeting surgical adverse events, including surgical site infections, with a goal of a 50% reduction over 5 years. The project is proposed as a national rollout in 2005.

WHAT ARE THE NEXT STEPS?

Federal agencies and state and local health departments can facilitate widespread adoption and implementation of strategies to prevent and control healthcare-associated harm. CDC plans to evaluate improved information systems that allow healthcare providers to efficiently identify and monitor errors and adverse events to enhance the healthcare system's capacity to respond to the greatest risks and needs.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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PREVENTING INFERTILITY IN WOMEN

WHAT IS THE PUBLIC HEALTH ISSUE?

- Chlamydia and gonorrhea are the most important preventable causes of infertility and potentially fatal tubal pregnancy. If not adequately treated, up to 40% of women infected with chlamydia or gonorrhea will develop infection in the uterus or fallopian tubes. Known as pelvic inflammatory disease (PID), this infection can lead to infertility or ectopic pregnancy.
- Chlamydia is the most commonly reported notifiable disease in the United States. In 2002, a total of 834,555 chlamydial infections were reported to CDC from 50 states and the District of Columbia. An estimated 2.8 million cases of chlamydia occur annually. The number of reported cases is lower than the estimated total number because infected people are often unaware of, and do not seek treatment for, their infections.
- Each year about 718,000 people in the United States are infected with gonorrhea.
- Chlamydia and gonorrhea rates are highest among adolescent girls. In 2002, 41% of chlamydia infections in females were reported among 10- to 19-year-old girls, and 39% of gonorrhea infections were reported in this age group.
- Chlamydia increases the risk of HIV infection at least 3-fold to 5-fold.

WHAT HAS CDC ACCOMPLISHED?

CDC, in collaboration with the Office of Population Affairs (OPA), supports a national Infertility Prevention Program that funds chlamydia screening and treatment services for low-income, sexually active women attending family planning, Sexually transmitted diseases, and other women's healthcare clinics. This program has shown that routine screening of women can reduce chlamydia prevalence and PID incidence in women. Data from the Health Plan Employer Data and Information Set indicate that chlamydia screening of young, sexually active women in commercial-managed care settings is inadequate (less than 27%). CDC is conducting infertility prevention research that focuses on performance of diagnostic tests, factors associated with recurrent chlamydia infections, and effectiveness and feasibility of chlamydia screening in males to reduce infection in women.

Example of Program in Action

Since the start of a chlamydia screening program in 1988, chlamydia positivity in the Pacific Northwest has dropped 55% (from 13% in 1988 to 5.8% in 2002) among women attending family planning clinics. A randomized controlled trial conducted in a managed-care setting in this area also showed that screening programs can reduce cases of PID by almost 60%.

WHAT ARE THE NEXT STEPS?

Increases in program funding have helped expand this project to all 50 states. In 2002, program funding expanded to screen and treat about 59% of young, sexually active, and low-income women in the 20 states where screening was first initiated and 36% in the remaining 30 states. CDC aims to reduce this inequitable distribution of services and expand chlamydia screening and treatment to low-income women through the network of public service providers in each state. CDC also plans to examine reasons for recent increases in gonorrhea and re-evaluate gonorrhea screening criteria to help programs better target scarce resources and improve disease prevention strategies.

SYPHILIS ELIMINATION

WHAT IS THE PUBLIC HEALTH ISSUE?

Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*. Syphilis is curable if detected. However, there is an estimated 2-fold to 5-fold increased risk of acquiring HIV infection if a syphilis sore is present. Syphilis can also be transmitted from a pregnant woman to her unborn child. CDC launched the National Plan to Eliminate Syphilis in 1999. At that time the number of cases of infectious syphilis was low, and the geographical areas in which they were occurring were limited, making identification and treatment of cases feasible. Syphilis was mainly found in communities of color where poverty and access to healthcare were key factors allowing it to persist. In 1998 the infectious syphilis rate for non-Hispanic blacks was 34 times greater than the rate for non-Hispanic whites. The Syphilis Elimination program improved access to high-quality, culturally-sensitive preventive and care services, provided education about prevention of syphilis among minority communities, and strengthened outbreak response preparedness. CDC also strengthened partnerships with other public health organizations, the private medical community, and other partners in STD and HIV prevention.

WHAT HAS CDC ACCOMPLISHED?

Syphilis elimination accomplishments from 1997 to 2002 include the following:

- Infectious syphilis rates in women decreased by 59%.
- The rate of congenital cases fell by 62%.
- Overall rate of infectious syphilis fell by 20%.
- The number of counties responsible for half of all U.S. cases declined 48%, from 31 counties in 1997 to 17 counties in 2002.

Success of the Syphilis Elimination program in reducing racial disparity and rates in women has been offset by a rise in cases of infectious syphilis among men. Following a decade-long decline and an all-time low in 2000, new cases of infectious syphilis began to rise in 2001. Between 2001 and 2002, the rate of infectious syphilis increased 9.2% overall, and 26.7% among men. This increase is predominantly among a sub-group of men who have sex with men (MSM) who have increased unprotected sexual practices. Data collected from 29 states showed a 17% increase in HIV diagnoses among MSM between 1999 and 2002. These findings raise concerns about a resurgence of HIV in this population. Some MSM report a reduction in safer sex practices, partly resulting from better physical health and well-being, and belief that advances in AIDS drugs have made HIV a chronic, but not deadly disease.

Example of Program in Action

In 2002 a pilot program was implemented in eight cities with the greatest number of MSM syphilis cases. This program is working with community organizations and local health departments to increase syphilis screening, symptom recognition, and outreach efforts.

WHAT ARE THE NEXT STEPS?

CDC and its partners are stepping up efforts to address increases in MSM syphilis. This includes collecting data on behavior and other risk factors to better understand factors associated with the spread of syphilis, and developing strategies for identifying and contacting sex partners met anonymously to ensure potentially infected individuals are tested.

TUBERCULOSIS ELIMINATION

WHAT IS THE PUBLIC HEALTH ISSUE?

- Tuberculosis (TB) is a leading infectious killer of young adults worldwide, claiming the lives of more than 3 million people each year. About one third of the world's population is latently infected with the bacterium that causes TB.
- An estimated 10 to 15 million U.S. citizens have latent TB infection, and about 10% of these individuals will develop TB at some point in their lives. Those who are infected with HIV have a greater chance of developing TB.
- Persons born outside the United States now account for half of all U.S. TB cases.

WHAT HAS CDC ACCOMPLISHED?

CDC works to eliminate TB in the United States and to control the spread of the disease globally. Within the United States, CDC provides financial and technical assistance to local, state, and territorial TB control programs to monitor TB, sustain decreases in new cases, and support directly observed therapy and investigation of contacts to active TB cases. CDC also supports the TB Trial Consortium to develop and test new therapies, the TB Epidemiological Studies Consortium to evaluate new approaches to controlling TB, and the Model TB Centers to provide training and education in TB prevention and control.

We are making progress in efforts to eliminate TB in the United States. Since 1992, the most recent peak of the epidemic, reported cases has declined 43.5%. From 2001 to 2002, reported cases of TB in the United States declined 5.7% (from 15,989 to 15,075). This represents the 10th consecutive year that TB cases have declined nationally. Internationally, CDC collaborates with the U.S. Agency for International Development, the World Health Organization, and others through efforts such as the *Stop TB Initiative* (see www.stoptb.org) and through assistance to specific countries.

Example of Program in Action

New York City's TB control program has been one of the most dramatic public health successes in recent decades. In the early 1990s, the city was the epicenter of the TB and multidrug-resistant TB epidemic in the country. Funding from federal, state, and local sources enabled the city's program to implement new TB control initiatives, such as

- Case management of all TB patients and directly observed therapy.
- Cohort reviews by program staff on all TB cases.
- Improved delivery of clinical care by health department chest clinics.
- Targeted testing of high-risk populations.
- New regulations on detaining noncompliant TB patients.

The result was a decline in the number of TB cases to 1,084 cases in 2002, a 72% decrease from 1992, the peak year of the recent epidemic. Multi-drug resistant TB declined by nearly 95% from the 1992 peak of 441 cases to 25 cases in 2002.

WHAT ARE THE NEXT STEPS?

CDC will work in concert with state, national, and international partners to continue to address the Institute of Medicine's recommendations released in their report *Ending Neglect: The Elimination of Tuberculosis in the United States*. As incidence declines, new challenges in controlling TB emerge. In 2003, CDC will continue a pilot project to increase the capacity of low incidence states to respond to outbreaks and intensively manage and review TB cases to determine the barriers to elimination. CDC continues to support state and local TB programs to maintain control of TB in low incidence areas; to implement directly observed therapy and contact investigation; to disseminate new tools to aid in TB control, including diagnostics and treatments; and to help control TB globally.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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WEST NILE VIRUS

WHAT IS THE PUBLIC HEALTH ISSUE?

The human and animal epidemic of West Nile encephalitis, which began in the northeastern United States in the summer and fall of 1999 and has since spread coast-to-coast, underscores the ease with which emerging infectious pathogens can be introduced into new areas. The persistence of virus activity in the United States over the past 5 years indicates that West Nile virus (WNV) has become established in North America. In 2002, WNV caused the largest ever human flaviviral epidemic in recent U.S. history, reinforcing the need to rebuild the public health infrastructure to deal with vectorborne diseases in this country. Extensive severe disease activity continued in 2003, expanding significantly westward, and increased availability of commercial testing lead to the identification of far greater number of West Nile Fever (less severe disease) and the total of human cases nearing 9,000.

WHAT HAS CDC ACCOMPLISHED?

- *Surveillance and Response:* CDC evaluates, revises, and publishes national guidelines for surveillance, prevention, and control of WNV on a continuing basis, issuing the third update during 2003. Using a national electronic surveillance system (ArboNet), CDC works with local and state health departments to track WNV infections in humans, birds, mosquitoes, horses, and other animals. Data from ArboNet guided prevention and control activities at the state and local level during 2003. Continually updated information on WNV surveillance is available at www.cdc.gov/westnile and at www.westnilemaps.usgs.gov.
- *Applied Research:* CDC developed/implemented new laboratory tests to detect the presence of WNV antigen in human, avian, veterinary, and mosquito specimens. CDC continued to monitor the genetic evolution of WNV worldwide and identified novel routes of WNV infection, including tissue transplantation and blood transfusion. CDC continued funding 13 universities and health facilities for applied research to better understand WNV biology. CDC scientists continued work to further characterize the behavior of the *Culex* vector mosquito and identify the most effective mosquito control measures.
- *Infrastructure and Training:* CDC provided funding to 56 state and local health departments to enhance epidemiologic and laboratory capacity for surveillance of and response to WNV infection and other arboviral diseases. This funding improves the overall readiness to response to vector-borne diseases. CDC also funds cooperative agreements for training in medical arbovirology at four universities. Formal training courses have been held in laboratory diagnosis of WNV infection and in medical entomology. CDC has sponsored 5 national meetings on WNV.
- *Prevention and Control:* CDC has promoted an integrated strategy for prevention and control of WNV, including large-scale emergency plans for mosquito control to be used by states in response to a large human outbreak. CDC funded and collaborated in the development of informational and educational materials for the public, specific audiences, and healthcare workers. Testing of all blood donations in the United States began in July 2003 to respond to the risk of WNV transmission through blood transfusion and organ donation identified in 2002. CDC worked with the Food and Drug Administration, the Health Resources and Services Administration, blood collection agencies, state and local health departments, and the pharmaceutical industry to implement this testing, which has reduced the risk of transfusion-associated WNV infection substantially by removing hundreds of units of potentially infectious blood products donated by asymptomatic donors.

WHAT ARE THE NEXT STEPS?

WNV is now established in North America, with a geographic range now stretching from coast-to-coast and into Latin America, the Caribbean, and Canada. Effective systems are needed to ensure expanded monitoring for WNV and other arboviral diseases in North America and further development of prevention and control measures, including integrated pest management, public education, optimal mosquito control measures, vaccines, and antiviral therapy. Further research on the basic biology of the virus and its natural ecology is also being pursued.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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INJURY PREVENTION

To many people, the deaths and injuries that result from a car crash, a fall, or a violent act seem random and thus impossible to prevent. However, many of these tragedies are preventable. By studying the causes of injury, CDC scientists are helping individuals and communities make daily life safer—at home, at school, at work, and at play. Seat belts, helmets, safer playground surfaces, pool fencing, and other devices can prevent serious injuries—such as traumatic brain injuries or drowning.

Preventing suicides, youth violence, and violence between intimate partners involves more complicated and difficult behavior changes than wearing a helmet or putting on a seat belt, but these deadly behaviors also can be understood and prevented.

By understanding the factors that place people at risk of injury—whether it is intentional or not—we can also understand how to protect ourselves and those around us. These are tasks not only for CDC scientists and other researchers, but for entire communities. Together, we can shift the prevailing view that injuries are inevitable to a more optimistic sense that they can be prevented and controlled, averting both physical and emotional trauma for those injured and their families.

MONITORING TRAUMATIC BRAIN INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

At least 5.3 million Americans live with disabilities resulting from traumatic brain injuries (TBIs). Each year, about 1.5 million Americans sustain a TBI. Of those injuries, about 1.1 million (75%) are concussions or other forms of mild traumatic brain injuries (MTBIs). Though labeled “mild,” brain injuries of this type can cause long-term or permanent impairments and disabilities. As a result of all types of TBIs, each year:

- 50,000 Americans die.
- More than 80,000 Americans experience the onset of long-term or lifelong disability.
- More than 1 million Americans get emergency care for TBIs.
- An estimated \$56 billion in direct and indirect costs is spent.

WHAT HAS CDC ACCOMPLISHED?

CDC is a leader in the study of TBI. Under the *Children’s Health Act of 2000*, CDC is creating a system to monitor TBIs. CDC has funded more than 15 state health departments to determine the number of persons who seek care in the emergency department, seek other hospital care, sustain TBI-related disabilities, or die due to TBIs. States use these data to develop programs to prevent TBIs, educate the public about TBIs, and identify the need for services for persons with TBIs. CDC is also exploring the impact of TBIs in mass-trauma events by funding a study to identify possible TBIs among hospitalized survivors of the World Trade Center attacks.

In 2003, CDC published a report to Congress on the rate of occurrence of MTBIs among the U.S. population. CDC convened an expert panel, the Mild Traumatic Brain Injury Work Group, which recommended appropriate and feasible methods to measure the magnitude of the problem of MTBI in this country. The *Report to Congress on Mild Traumatic Brain Injury in the United States: Steps to Prevent a Serious Public Health Problem* presents the findings and recommendations of the work group (see www.cdc.gov/ncipc/pub-res/mtbi/report.htm).

Example of Program in Action

With funding from CDC, the Colorado Department of Public Health and Environment conducted a study to determine the effectiveness of linking people with TBI to a 1-800 number for TBI services. Letters about the helpline were sent to a random sample of persons with TBIs who were identified from a CDC-funded TBI surveillance system. As a result of the letters, the number of calls to the helpline increased four-fold. Because of the success of this small project, Colorado has since received funding from the Health Resources and Services Administration to extend the program to more persons with TBIs.

WHAT ARE THE NEXT STEPS?

TBI is a major public health problem, affecting not only injured individuals, but also their family members and society. CDC will continue its efforts to monitor and prevent TBIs. CDC has funded the University of Maryland, Baltimore County, to evaluate the effectiveness of the Florida TBI registry. This information will help other states interested in developing their own registries. In addition, CDC is developing a tool kit to raise awareness among high school coaches, athletes, parents, and school officials about sports-related concussion and the need to prevent and manage concussions.

NATIONAL VIOLENT DEATH REPORTING SYSTEM

WHAT IS THE PUBLIC HEALTH ISSUE?

- The United States has one of the highest rates of violence in the world, with roughly 50,000 deaths each year resulting from homicide or suicide.
- Homicide is the second leading cause of death for people 15 to 24 years of age in the United States, and suicide is the third leading cause of death for those 10 to 24 years of age.
- Accurate assessment of the factors that increase the risk for violence and the circumstances that surround violent deaths in the United States is necessary.

WHAT HAS CDC ACCOMPLISHED?

CDC provides funding for the National Violent Death Reporting System (NVDRS). Thirteen states (AK, CO, GA, MA, MD, NC, NJ, OK, OR, RI, SC, VA, and WI) have begun recording data on homicides, suicides, and deaths of undetermined cause. NVDRS will generate information at the national, state, and local levels that has been compiled from multiple state-based sources. These sources include medical examiners, coroners, police, crime labs, and death certificates. One goal of NVDRS is to improve the overall understanding of conditions surrounding violent deaths. Individually, these information sources provide a fragmented view of the factors leading to violence, but collectively they define its scope and nature. Through NVDRS, local governments will quickly see how their problems compare with other communities across the nation. This information can help develop, inform, and evaluate violence prevention strategies at both the state and national levels.

Example of Program in Action

San Francisco served as a pilot city for the National Violent Injury Statistics System, a prototype for NVDRS run by the Harvard School of Public Health. Data collected in San Francisco has helped hospital trauma staff identify neighborhoods with high incidence rates of violence. This information led to the development of the Wrap Around Project, an intervention designed to prevent violence-related injury from reoccurring. This program connects victims of violence with drug counseling, vocational training, and other social services. It also provides skills they can use to remove themselves from dangerous situations.

WHAT ARE THE NEXT STEPS?

Within 10 years, CDC plans to incorporate all 50 states and the District of Columbia into NVDRS. NVDRS is modeled on the Fatality Analysis Reporting System (FARS), which tracks deaths from motor vehicle crashes. Operated by the National Highway Traffic Safety Administration, FARS has led to numerous improvements in motor vehicle safety. CDC will develop state-specific data files, allowing each state to better assess its violent injury situation. CDC will also continue to work toward standardizing data collection of law enforcement agencies, medical examiners, and coroners; resulting in easier data collection and the data being more comparable.

PREVENTING ALCOHOL-RELATED INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Excessive alcohol consumption contributes to more than 100,000 deaths each year in the United States.
- Nearly half of alcohol-related deaths result from motor-vehicle crashes, falls, fires, drowning, homicides, and suicides.
- An alcohol-related motor vehicle crash kills someone every 30 minutes and injures someone every 2 minutes.
- Nearly two-thirds of children ages 14 years and younger killed in alcohol-related crashes are riding with the drinking driver.
- Each year about 120 million episodes of alcohol-impaired driving occur in the United States.
- Between 20% and 30% of patients seen in U.S. hospital emergency departments (ED) have alcohol problems.

WHAT HAS CDC ACCOMPLISHED?

Funding from CDC facilitates work on several fronts to combat alcohol-impaired driving, the single most important cause of alcohol-related injuries. CDC conducts basic surveillance to assess the extent of the problem and the risk factors associated with alcohol and also evaluates the effectiveness of existing interventions in preventing alcohol-impaired driving. CDC monitors U.S. injury trends, including surveillance of impaired driving; develops and tests interventions to reduce alcohol-related injuries; and funds state health departments to implement and evaluate community-based programs to prevent motor vehicle-related injuries and death. Through these efforts, CDC can determine not only what works, but also which promising programs and policies should be emphasized. CDC works in partnership with the National Highway Traffic Safety Administration and others to coordinate efforts targeted to improve and promote alcohol-impaired driving prevention policies and programs nationwide.

Previous research has provided insight into the effect of alcohol on injuries. For example, CDC researchers analyzed data about child passenger fatalities in alcohol-related crashes. Their findings revealed that, of the more than 5,500 children ages 14 years and younger who were killed in an alcohol-related crash between 1985 and 1996, nearly two-thirds (64%) were riding in the same vehicle as the drinking driver. On the basis of these findings, Mothers Against Drunk Driving formed an expert panel to study the issue of impaired driving with child passengers as “child endangerment,” and to assess what could be done about it.

Example of Program in Action

CDC and the Center for Rural Emergency Medicine at West Virginia University are conducting a clinical trial to determine the efficacy of screening ED patients for alcohol problems and counseling those who screen positive. Almost 44% of the nearly 3,000 patients who have been screened had alcohol problems. More than 1,200 have been randomized to standard treatment and counseling arms of the study, and over 95% of the patients assigned to the counseling group were willing to accept counseling.

WHAT ARE THE NEXT STEPS?

CDC will evaluate strategies to implement and disseminate known, effective interventions that reduce alcohol-impaired driving, and CDC will continue to test the effectiveness of new, innovative strategies.

PREVENTING CHILD MALTREATMENT

WHAT IS THE PUBLIC HEALTH ISSUE?

- Child maltreatment includes fatal and nonfatal physical abuse, neglect (physical, educational, emotional, or medical), sexual abuse, emotional abuse (psychological and verbal abuse or mental injury), abandonment, exploitation, and threats to harm the child.
- Every year, 900,000 to 1 million children experience nonfatal child maltreatment.
- Homicide is the fourth leading cause of death for U.S. children 1 to 9 years of age, the fifth leading cause of death for children 10 to 14 years of age, and the second leading cause of death for youth 15 to 24 years of age.

WHAT HAS CDC ACCOMPLISHED?

CDC has funded five state health departments (CA, MN, MI, MO, and RI) for 3 years to examine the feasibility of collecting mortality and morbidity data for child maltreatment. The states are comparing alternative approaches to surveillance for fatal and nonfatal child maltreatment and are testing methods for measuring the extent of violence against children. This project will help determine how useful various data sources are in producing more accurate information about the scope and nature of the problem of child maltreatment.

CDC also funded a grant to the University of South Carolina to implement and evaluate a multilevel parenting program to prevent child maltreatment by improving positive parenting skills. The university will implement the *Triple-P: Positive Parenting Program* in communities throughout South Carolina. The results from this program will identify the effect that parental skills building can have on preventing child maltreatment.

CDC funded the Child Sexual Abuse Prevention Collaboratives funded in three states (GA, MA, and MN), which focus on adult and community responsibility for preventing child sexual abuse. This perspective complements existing programs that focus on victim identification and services, thus building a comprehensive approach to child sexual abuse prevention. To date, all three states have conducted baseline statewide inventories of child sexual abuse prevention programs and random digit dial surveys to assess current knowledge and attitudes towards child sexual abuse prevention.

Example of Program in Action

CDC is developing standard definitions for child maltreatment to promote consistency in terminology and data collection. A consistent definition is necessary to monitor the incidence of and trends for child maltreatment, determine the scope of the problem, and compare the problem across jurisdictions. The standard definitions are being developed with the state health departments involved in the State Surveillance of Child Maltreatment project and a diverse group of child maltreatment experts in the fields of epidemiology, social sciences, public health, and medicine, as well as state and federal officials.

CDC is also funding research conducted by the Grady Health System and Emory University in low-income, African-American communities to examine individual, socioeconomic, and environmental factors and the link between partner violence and child maltreatment. This study will investigate factors that place youth at risk of child maltreatment or protect them from such violence.

WHAT ARE THE NEXT STEPS?

CDC will continue to identify effective approaches and programs to prevent child maltreatment. Approaches will evaluate efforts to improve positive parenting skills and emphasize research priorities to ensure preventive measures.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING CHILDHOOD INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Unintentional injuries are the leading cause of death for children age 1 and older in the United States and homicide is the fourth leading cause of death for children 1 to 9 years of age.
- In 2001, a total of 1,579 child passengers 0 to 14 years of age died in motor vehicle crashes in the United States, and more than 250,000 sustained injuries requiring treatment in an emergency department.
- In 2001, an estimated 903,000 U.S. children experienced or were at risk for child abuse or neglect. An estimated 1,300 children died from such maltreatment.
- Each year between 20% and 25% of all children sustain a severe injury requiring medical attention, missing school, or bed rest.

WHAT HAS CDC ACCOMPLISHED?

Booster Seats

CDC-supported extramural research evaluated the effectiveness of a multifaceted community-based booster seat campaign to increase booster seat use among child passengers in motor vehicles. Fifteen months after the campaign began booster seat use nearly doubled to 26% in communities where it had been implemented.

The University of Washington was funded for a 3-year study to use ethnographic research methods to develop a deeper understanding of behavioral barriers to booster seat use among Latinos in Washington State. These results will be used to develop a tailored community-based intervention. The long-term goal of this study is to disseminate proven child safety technology to Latino families to better protect children in motor vehicle crashes.

Child Maltreatment Prevention

CDC has funded the University of South Carolina to implement and evaluate a multilevel parenting program to prevent child maltreatment by improving positive parenting skills. With this \$1.5 million grant, the university is implementing the *Triple-P: Positive Parenting Program* in communities throughout South Carolina. This is an important step toward understanding the effect of parental skill building on the problem of child maltreatment.

CDC is also funding three state organizations to form statewide collaborations: Prevent Child Abuse Georgia; Project Pathfinder, Inc., in Minnesota; and Massachusetts Citizens for Children. These collaborative partnerships will develop and implement child sexual abuse prevention programs that focus on adult and community responsibility for prevention. The funding will support projects that use existing infrastructures to broaden their prevention efforts.

Sports and Recreational Injuries

CDC recently conducted a study to estimate the impact of sports and recreational injuries in the United States. Sixty-eight percent of sports and recreational injuries occur among 5 to 24 year olds, accounting for more than one-fifth of all emergency department visits in this age group.

WHAT ARE THE NEXT STEPS?

Parents and caregivers play a critical role in the prevention of injuries among children. CDC is examining the dimensions of age-appropriate, adequate parental and caregiver supervision to better understand the role it has in preventing unintentional injuries among children. Results will also help inform parenting programs working to prevent child abuse and neglect.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING FALLS AMONG OLDER ADULTS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Among people ages 65 years and older, falls are the leading cause of injury deaths and hospital admissions. In 2001, more than 11,600 people 65 years and older died and 373,000 were hospitalized because of fall-related injuries.
- Hip fractures are the most serious fall-related fracture. Hospital admissions for hip fractures among people over age 65 have steadily increased from 230,000 admissions in 1988 to 321,000 admissions in 2000. The number of hip fractures is projected to exceed 500,000 by 2040.
- Only half of older adults who were living independently before their hip fracture were able to live on their own a year later.
- The direct cost of fall injuries for people age 65 years and older in 1994 was \$20.2 billion. By 2020, the cost of fall injuries is expected to reach \$32.4 billion (before adjusting for inflation).

WHAT HAS CDC ACCOMPLISHED?

CDC distributed more than 6,000 copies of its *Tool Kit to Prevent Senior Falls*, a comprehensive collection of research findings, materials, and tools, in English and Spanish, to fall prevention programs through its website. In 2001, CDC published *U.S. Fall Prevention Programs for Seniors: Selected Programs Using Home Assessment and Modification*, describing 18 model fall prevention programs. The CDC-funded National Resource Center on Aging and Injury at San Diego State University was established to collect, organize, and disseminate information about preventing unintentional and violence-related injuries. This information will be provided to public health practitioners, senior service providers, and others through an interactive website.

CDC is funding two randomized controlled trials to learn what community-based strategies are effective in preventing falls among adults ages 65 and older. The California State Health Department is studying the effectiveness of the “No More Falls!” program, which integrates fall prevention strategies into existing community-based public health programs for older adults. The Wisconsin Department of Health, in collaboration with the University of Wisconsin, is studying a comprehensive approach to preventing falls among high-risk seniors; this approach will use in-home assessments followed by individualized plans to reduce fall risks.

Example of Program in Action

In October 2000, CDC began funding state health departments (in AK, MA, MN, NC, and VA) to implement and evaluate *Remembering When: A Fire and Fall Prevention Program for Older Adults*, based on a curriculum jointly developed by the National Fire Protection Association and CDC. This innovative program teaches older adults how to prevent both fires and falls. In August 2002, Georgia State University was awarded a cooperative agreement to perform an in-depth evaluation of the effectiveness of this program.

WHAT ARE THE NEXT STEPS?

Injuries affecting older adults will increase as the population ages. Identifying effective science-based interventions, translating these interventions into programs, and implementing the programs in community settings nationwide are the next critical steps in fall prevention. The final step is to support local evaluations of programs so that communities can tailor effective programs to suit their specific needs.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING INJURIES AMONG OLDER ADULTS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Injuries among older adults include injuries from falls, motor vehicle-related injuries, suicide, and elder abuse.
- Among older adults, falls are the leading cause of injury deaths and the most common cause of nonfatal injuries and hospital admissions for trauma.
- In 2000, medical expenditures to treat injuries for people age 65 years or older were over \$29 billion.
- Nearly 7,500 adults ages 65 years or older die, and an estimated 259,500 suffer nonfatal injuries in motor vehicle crashes each year. The numbers are increasing. Older drivers have higher crash fatality rates than all but teenage drivers.
- In 2001, over 5,000 adults age 65 or older died by suicide.
- In 1998, the National Elder Abuse Incidence Study reported over 550,000 incidents of abuse among the elderly.

WHAT HAS CDC ACCOMPLISHED?

CDC funds the National Resource Center on Safe Aging (NRCSA), a joint effort between the Center on Aging at San Diego State University and the American Society on Aging, which provides information about injury prevention among older adults to public health professionals, senior service providers, and others through its website (www.afeaging.org). NRCSA provides information about both intentional and unintentional injuries, focusing on falls, pedestrian injuries, fires, and elder abuse.

CDC distributed more than 6,000 copies of its *Tool Kit to Prevent Senior Falls*, a comprehensive collection of research findings, materials, and tools, in English and Spanish, to fall prevention programs. Much remains to be learned about fall-related risk factors and how falls occur. In an effort to better understand these factors, CDC is supporting the expansion of the National Electronic Injury Surveillance System of the Consumer Product Safety Commission. This surveillance system will collect information about fall injuries from hospital emergency departments.

CDC also monitors trends in motor vehicle-related injuries among adults ages 65 or older and conducts research on the risk factors for this age group. Analysis of fatality data shows that older adult drivers were less likely than drivers 16 to 34 years of age to be involved in crashes where someone else died.

Example of Program in Action

Using CDC funding, the California State Health Department is studying a fall prevention demonstration program for older adults. This is the first state-level program to include home modification, medication review, and exercises that increase strength and balance. Additionally, CDC is funding state health departments in Michigan and Washington to develop, implement, and evaluate fall prevention programs. CDC has also awarded funds to the University of Iowa to evaluate the implementation and impact of state adult protective service statutes and regulations on the conduct of elder abuse investigations and outcomes.

WHAT ARE THE NEXT STEPS?

The next steps are to identify effective, science-based interventions; translate these interventions into programs; implement programs in community settings; and evaluate programs, document outcomes, and provide information that allows communities to tailor programs to serve their specific needs.

PREVENTING MOTOR VEHICLE INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Motor vehicle crashes remain the leading cause of death for people 1 to 34 years of age in the United States and the leading cause of injury death for all ages, accounting for nearly 44,000 deaths in 2001.
- Impaired driving will affect one in three Americans during their lifetime. In 2002, alcohol-related motor vehicle crashes accounted for 41% of all traffic-related deaths.
- Two out of five deaths among U.S. teens are the result of motor vehicle crashes. Per mile driven, teen drivers 16 to 19 years of age are four times more likely than older drivers to crash.
- Children 4 years and younger are particularly vulnerable. Of the 459 children ages 4 years and younger who were fatally injured in 2002, 40% were completely unrestrained.

WHAT HAS CDC ACCOMPLISHED?

CDC and the Task Force on Community Preventive Services have systematically reviewed the literature on community-based interventions to reduce alcohol-impaired driving. A recent review revealed that, under certain conditions, mass media campaigns effectively prevent alcohol-impaired driving. Another review found evidence that school-based educational programs decrease riding with alcohol-impaired drivers. However, there was insufficient evidence on whether the programs effectively decreased alcohol-impaired driving (see www.thecommunityguide.org). CDC researchers found that between 1982 and 2001, the number of fatal alcohol-related crashes among drivers 16 to 20 years of age decreased almost 60%, suggesting that prevention measures targeting this age group have been effective. Analyses published in a CDC *Morbidity and Mortality Weekly Report* study showed that American Indians and Alaska Natives continue to suffer motor vehicle death rates nearly twice those of other Americans.

Learning to drive safely takes time and practical experience. Graduated drivers licensing (GDL) is one strategy that encourages skills development. This system limits young drivers by setting restrictions that are systematically lifted as driving experience and competence is gained. GDL studies worldwide have found 5% to 16% reductions in crashes among teenage drivers. CDC supported and contributed to both a special edition of the *Journal of Safety Research* documenting GDL research evidence and a special supplement of *Injury Prevention* focusing on young drivers.

Example of Program in Action

CDC funds and assists health department programs in Colorado and Michigan to implement and evaluate community-based interventions to reduce motor vehicle-related injuries. The planned interventions were selected from *The Community Guide to Preventive Services*, a systematic review of community-based interventions lead by CDC scientists. In 2004, CDC will fund two Native American tribes to implement and evaluate interventions selected from *The Guide*.

WHAT ARE THE NEXT STEPS?

CDC will conduct research to determine differences in motor vehicle-related injury rates by race in order to identify health disparities and inform effective interventions. To address the growing concern of older drivers, researchers need to better understand the transportation and safety behaviors of older adults and the consequences of driving as well as driving cessation.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING RESIDENTIAL FIRE-RELATED INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2001, more than 396,500 home fires in the United States claimed the lives of an estimated 3,140 people and injured another 15,575.
- Residential fires accounted for 77% of fire-related injuries and 84% of fire-related deaths in 2001.
- Persons at greatest risk of sustaining fire-related injuries are children ages 5 years and younger and adults ages 65 and older; African Americans, American Indian and Alaska Natives, rural dwellers, and persons living in substandard housing or older manufactured homes.
- In 2001, residential fires resulted in direct property damage totaling \$5.6 billion.
- About half of home fire deaths occurred in homes without working smoke alarms.

WHAT HAS CDC ACCOMPLISHED?

Since 1998, CDC has funded smoke alarm installation and fire safety education programs in high-risk communities. A survey of program homes found an estimated 499 lives have been saved thus far. Program staff canvassed almost 265,000 homes and installed more than 185,000 long-lasting smoke alarms in high-risk homes, targeting households with children ages 5 years and younger and adults ages 65 years and older. Fire safety messages have reached nearly 7.5 million people as a result of these programs. In 2002, 16 states were awarded funding for 5 years to continue these activities. CDC also funded research to develop a long-lasting (10 year) lithium battery-powered alarm with a hush button to quiet nuisance alarms. CDC collaborated with the U.S. Consumer Product Safety Commission and other partners to evaluate current and prototypic smoke alarm technologies in actual fire situations in manufactured homes and in one- and two-story houses.

Example of Program in Action

CDC is partnering with the U.S. Fire Administration, the U.S. Consumer Product Safety Commission, and a number of nongovernmental organizations to eliminate deaths from residential fires by 2020. Joint activities include research examining the risk factors for residential fire-related injuries; data collection and analysis to track trends and progress; CDC's smoke alarm installation and fire safety education project; and the recent development of 12 state Civilian Fire Safety Corps whose primary purpose is to conduct community-based fire safety education. The corps is comprised of volunteers who deliver programs in schools, senior centers, and other public settings.

CDC's fire prevention efforts also include funding five states to implement and evaluate curriculum developed by the National Fire Protection Association, the U.S. Consumer Product Safety Commission, and CDC to teach older adults how to prevent fires and falls; developing a National Fire Risk Factor Survey to collect nationally representative data on the causes, risk factors, and health outcomes related to residential fires; directing a study on the sequences of events and human behaviors that lead to home fire injuries and deaths; and partnering with the U.S. Fire Administration to evaluate fire safety and prevention programs.

WHAT ARE THE NEXT STEPS?

Eliminating deaths from residential fires can be achieved. By expanding existing smoke alarm installation and fire safety education programs and applying lessons learned from an evaluation of current programs to increase the effectiveness and efficiency of community-based programs, the United States can reduce and eradicate residential fire-related deaths.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING SUICIDE AND SUICIDAL BEHAVIOR

WHAT IS THE PUBLIC HEALTH ISSUE?

- More than 30,000 lives are lost to suicide each year in the United States.
- Almost 325,000 Americans are treated in U.S. hospital emergency departments (EDs) each year, after attempting to take their own lives.
- Adults ages 70 years and older have the highest suicide rate of any age group, averaging one suicide every two hours.

WHAT HAS CDC ACCOMPLISHED?

CDC is supporting groundbreaking research that has preliminary results documenting the efficacy of a community-based cognitive therapy program for preventing suicidal behavior among suicide attempters identified in EDs. While mental health issues are addressed in this program, the main intervention is to help patients develop more adaptive ways of thinking about their situation and more functional ways of responding to periods of emotional distress. Preliminary results show an impact on suicide reattempts in this high-risk population.

CDC is working with the Consumer Product Safety Commission to collect and examine data from hospital EDs. The National Electronic Injury Surveillance System-All Injury Program tracks data on all types and external causes of nonfatal injuries and poisonings treated in U.S. hospital EDs. Using these data, CDC researchers are able to generate national estimates of nonfatal injuries, including those related to suicidal behavior.

CDC established the Suicide Prevention Research Center at the University of Nevada. This center serves the Rocky Mountain region (CO, AZ, NV, UT, NM, ID, MT, and WY), which has the highest suicide rates in the country. The central feature of the center is its ability to link all sources of suicide information within the region. It provides a complete listing of all evaluated suicide prevention programs in existence for 5 years or longer, the common characteristics, and the specific population groups they serve. Information obtained is used to develop and implement suicide prevention interventions specific to the region.

Example of Program in Action

CDC is conducting an in-depth, multi-state examination of the development and implementation of state suicide prevention plans. The results will help other states develop suicide prevention plans and gain the support of stakeholders so that these plans can be put into practice. Insights gleaned from this study will help inform state-based prevention efforts in other public health problem areas such as violence against women and child maltreatment.

CDC is also funding two states (ME and VA) to develop suicide prevention programs specific to their needs. This funding provides the necessary resources to advance from data gathering and analysis to identifying best practices for suicide prevention.

WHAT ARE THE NEXT STEPS?

CDC will continue to collaborate with private and public health agencies to develop comprehensive suicide prevention activities. CDC will conduct further research and surveillance activities to identify protective and risk factors in specific populations and to provide information for targeted evaluation studies.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING VIOLENCE AGAINST WOMEN

WHAT IS THE PUBLIC HEALTH ISSUE?

- About one in three female homicide victims is murdered by her intimate partner.
- One in six American women has been raped at some time in her life.
- Nearly two-thirds of women who reported being physically assaulted, raped, and/or stalked after age 18 were victimized by an intimate partner.

WHAT HAS CDC ACCOMPLISHED?

CDC funds all 50 states, the District of Columbia, and eight territories to support rape prevention and education efforts. The states educate communities about the extent of sexual assault and develop programs to prevent it. CDC also funds 14 state domestic violence coalitions. The Domestic Violence Prevention Enhancement and Leadership Through Alliances program is adding a prevention focus to existing community-based domestic violence efforts and providing prevention funding to local communities.

CDC researchers demonstrated that the health-related costs of rape, physical assault, stalking, and homicide by intimate partners exceed \$5.8 billion each year. Of this total, nearly \$4.1 billion are for direct medical and mental healthcare services, and productivity losses account for nearly \$1.8 billion. Researchers examined the data from the 1995 National Violence against Women Survey for the incidents of intimate partner violence (IPV), costs, how healthcare was used, and how much work-related time was lost for women who were assaulted by intimate partners.

Example of Program in Action

CDC is funding activities in five states (KY, OK, OR, MI, and MN) to monitor and track occurrences of IPV. The goal is to help reduce IPV in these states by collecting timely and credible data that can be used to plan, implement, and evaluate prevention programs. CDC has developed a guide for practitioners who specialize in preventing violence against women. This guide describes recent prevention and batterer intervention programs showing promising results and makes recommendations that can be incorporated into prevention programs.

CDC is also studying the linkages between dating violence, other peer violence, and suicide to assess shared and unique risks and protective factors. This information will guide decisions about using strategies to prevent many forms of violence versus taking unique approaches to prevent specific types of violence.

The *Violence against Women Outcome Evaluation Guide* is designed to help programs develop and implement outcome evaluations. The guide will provide a clear definition of evaluation research based on CDC guidelines and an overview of the issues to be considered in evaluating violence against women programs.

WHAT ARE THE NEXT STEPS?

CDC will continue to identify effective approaches and programs that prevent violence against women. These programs will focus on primary prevention and will aim at reducing perpetration. By better understanding the current social norms that influence violence against women, it may be possible to affect change in social norms and thereby reduce the violence.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING YOUTH VIOLENCE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Homicide is the fourth leading cause of death for U.S. children 1 to 9 years of age, the fifth leading cause of death for children 10 to 14 years of age, and the second leading cause of death for youth 15 to 24 years of age.
- Homicide and suicide combined account for 29% of deaths among youth.
- Every day in the United States, an average of 17 Americans ages 24 years and younger die as victims of homicide.

WHAT HAS CDC ACCOMPLISHED?

CDC's National Academic Centers of Excellence on Youth Violence Prevention work with communities to address the public health problem of youth violence. Five centers focus on developing and implementing community response plans, training healthcare professionals, and conducting small pilot projects to evaluate effective strategies for preventing youth violence. The other five centers conduct more comprehensive activities, including researching risk factors for youth violence and evaluating prevention strategies. The centers are located at Virginia Commonwealth University, the University of California at San Diego, the University of California at Riverside, the University of Puerto Rico, the University of Michigan, Columbia University, Johns Hopkins University, Harvard University and University of Hawaii.

CDC's National Youth Violence Prevention Resource Center is a Web-based source of information and materials on preventing violence and suicide among our nation's youth. The resource center is a collaborative effort between the Department of Health and Human Services, CDC, and other federal agencies. To date, more than 21,000 publications have been ordered. Sections include critical information aimed at helping children and youth cope with disaster, youth violence news highlights from around the United States, and fact sheets addressing bullying, aggression, depression, community interventions, and school violence.

Example of Program in Action

The Thompson Island Outward Bound CHOICES Project, a project of the Harvard Youth Violence Prevention Center (HYVPC), works with middle school students in Boston to reduce interpersonal conflict, violence, and drug use by helping students learn to make positive choices in their school, home, and social lives. The intervention involves a 9-week "character education" curriculum facilitated by two Outward Bound instructors. Another intervention project helps physicians understand and deal with youth violence. In this project, each pediatrician in the state receives a handbook on youth violence prevention and access to a related Web page. The results of the project will help determine the usefulness of the materials and whether physicians find the materials instrumental in changing knowledge, attitudes, or behaviors of participating youth.

The University of Michigan's Flint Youth Violence Prevention Center (YVPC) is governed by a steering committee composed of representatives from community organizations. The YVPC promotes healthy development through collaboration among community, university, and health department partners. The YVPC Photovoice Project brought together young people from around Flint to generate dialogue about their own experiences and perceptions of the root causes and solutions for violence in their communities. Photovoice participants strengthen their own voices through a collective process of sharing photographs and writings about issues that matter to them.

WHAT ARE THE NEXT STEPS?

CDC will continue studying ways to improve the adoption of effective youth violence prevention programs at national, state, and local levels. CDC will continue its collaborative efforts to clarify the relationship between youth violence and other forms of violence and to identify prevention strategies that effectively address multiple forms of violent behavior.

RESPONDING TO MASS TRAUMA EVENTS

WHAT IS THE PUBLIC HEALTH ISSUE?

A mass trauma event (MTE) is any large-scale natural disaster, conventional weapon attack (such as a terrorist bombing), or industrial explosion. An MTE causes widespread injuries, deaths, and disabilities. Little is known about the immediate or long-term medical needs of MTE survivors. Our current understanding of effective MTE response is limited, and more information is needed to effectively coordinate the resources and needs of first responders. More accurate information on the management of such events is also necessary. Standardized needs assessment tools and data collection instruments can help build this knowledge, but they must be readily available for immediate and comprehensive responses to MTEs.

WHAT HAS CDC ACCOMPLISHED?

CDC has developed a mass trauma preparedness and response website. It provides communities with information and tools that can help them prepare for and respond to injuries and mental health consequences of explosion-related MTEs (see www.cdc.gov/masstrauma).

In 2003, CDC developed partnerships with public health and mental health experts and advocates. These partnerships have helped CDC learn about and track psychosocial and behavioral consequences of MTEs and set priorities for dealing with the medical and psychiatric implications. CDC also is examining factors that might affect a community's ability to quickly recover from an MTE.

In April 2003, CDC hosted a meeting of experts from the fields of public health, emergency, medicine, and disaster recovery. The purpose of this meeting was to develop recommendations for data collection following an MTE. The experts recommended methods and materials needed to rapidly identify victims and pinpoint their needs. They also proposed ways in which data collection can improve MTE coordination and response efforts.

In 2002, CDC provided grants to four national organizations specializing in acute medical care, trauma, and emergency medical services (EMS). The purpose of these grants was to stimulate collaboration among the grantees, CDC, and the state and local public health programs so that they may effectively respond to terrorism MTEs. The grantees include the National Association of Emergency Medical Services Physicians (NAEMSP). In July 2003, NAEMSP, in partnership with CDC and other organizations, conducted a meeting addressing the need for better communication among responders who provide care to MTE victims. Findings from the meeting are intended to raise awareness and promote further discussion, and have been distributed to attendees and other professionals in acute care, trauma, EMS, and public health fields.

WHAT ARE THE NEXT STEPS?

CDC continues to support partnerships and collaborative efforts among professionals in acute medical care, trauma, EMS, and state and local public health agencies. CDC is developing relationships with various federal and state agencies that will be vital in acute care, trauma, and EMS response operations during MTEs. At the same time, CDC is also strengthening its internal partnerships, to make better use of the various divisions that share expertise, research, and insights in this area. This combined expertise will strengthen planning related pre-event, response, and recovery efforts during an MTE.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PARTNERS IN PUBLIC HEALTH

CDC's mission—healthy people in a healthy world, through prevention—could never be accomplished by CDC alone. As a result, partnerships are integral to almost every CDC activity. For example, through a collaborative effort with the nation's schools, CDC has developed background materials on epidemiology that teachers can incorporate into existing curriculums and special events such as science contests. CDC works closely with private sector partners such as employers, managed care organizations, faith-based organizations, and business and industry representatives to help bring the powerful potential of prevention to new audiences.

In the medical and health arenas, CDC participates with other partners in setting quality assurance measures and making sure that preventive measures are well represented. CDC also lends its expertise to investigations of outbreaks here and abroad, working with partners around the world to identify new and old health threats. A funder of interventions and extramural research, CDC works closely with grantees to advance knowledge and address critical community health issues, such as persistent racial disparities in health outcomes.

With the help of partners in schools, hospitals, universities, community-based organizations, workplaces, foundations, and many other settings, CDC can make more significant contributions to the public's health than it ever could alone.

ACADEMIC CENTERS FOR PUBLIC HEALTH PREPAREDNESS

WHAT IS THE PUBLIC HEALTH ISSUE?

- The health of America's communities hinges on the nation's public health workforce, which consists of physicians, nurses, environmental health scientists, health educators, laboratorians, and managers, as well as other professionals, first responders, and volunteers forming the public health frontline.
- Without preparation in core competencies of terrorism and emergency preparedness, the capacity of agencies and communities to respond to terrorism and other emergency health threats will be unpredictable.
- Strong collaboration and partnerships are required among federal, state and local agencies; educational institutions; and professional organizations to establish a systematic approach to education and training to ensure national preparedness and response.

WHAT HAS CDC ACCOMPLISHED?

In 2000, CDC established a national system of Academic Centers for Public Health Preparedness (A-CPHPs) to strengthen state and local workforce capacity to respond to terrorism and other global health threats. In just 3 years, the program has expanded to a \$25 million investment supporting 21 Academic Centers in 23 schools of public health that serve 46 states and link schools of public health with state, local, and regional health departments to support terrorism preparedness and to address public health infrastructure needs.

Examples of Program in Action

- More than 300 bioterrorism-related courses, seminars, workshops, and modules are available at www.asph.org/phpc.
- In Pennsylvania, the University of Pittsburgh CPHP established year-long training for Regional Counter-Terrorism Task Forces in cross-agency planning and problem solving; the CPHP identifies and evaluates competency-based training to be used for preparing 52,000 frontline workers to serve as state-wide surge capacity for terrorism preparedness.
- In Georgia, over 1,000 public health workers are profiled in "G-TRAIN," a customized learning management system developed by the Emory University Center for Public Health and Preparedness Research. Data are available about computer access, learning preferences, competency needs, and topics of interest. The Georgia Division of Public Health and the Emory Center will design and implement state-wide terrorism training and monitor results with G-TRAIN.
- In California, the University of California Los Angeles Center for Public Health and Disasters trained 292 public health and emergency response personnel from seven county health agencies; 94% of participants rated this training extremely effective; results were validated by testing knowledge and performance gains.
- Team Epi-Aid at the University of North Carolina Center for Public Health Preparedness provided critical surge capacity during the public health response to hurricane Isabel.
- The University of Oklahoma College of Public Health's Southwest Center for Public Health Preparedness offers an academic certificate in public health preparedness to staff at the state health department.

WHAT ARE THE NEXT STEPS?

- Expand the A-CPHP Program to ensure nationwide coverage.
- Evaluate the impact of the national network of A-CPHP's public health workforce readiness.
- Build upon the accomplishments of the A-CPHPs to continue providing the nation with a competent and sustainable public health workforce.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

ENHANCING PREVENTION THROUGH PUBLIC-PRIVATE PARTNERSHIPS

WHAT IS THE PUBLIC HEALTH ISSUE?

- The majority of Americans obtain health insurance through their employers and spend one-third of their waking hours in the workplace.
- Employers play a key role in promoting performance-driven healthcare systems and incentives for improvement in their role as purchasers of healthcare, as well as through their worksite health promotion programs, and as community leaders.
- The majority of Americans receive their care through the private healthcare delivery system, paid for by their employers, Medicare, or Medicaid.
- New partnerships with employers and other healthcare purchasers, as well as healthcare delivery organizations and providers, are necessary to advance the science and practice of health promotion and disease and injury prevention.

WHAT HAS CDC ACCOMPLISHED?

To strengthen its ties with these groups and to provide support for prevention initiatives, CDC has developed a number of programmatic and research activities.

- The CDC Business Cooperative Agreement, a partnership with member companies of the National Business Group on Health and the National Business Coalition on Health, addresses opportunities to improve evidence-based purchasing of preventive health services for employees and dependents, worksite health programs, and the value of population-based health promotion.
- In addition to private purchasers of healthcare, CDC also works with the American Association of Health Plans, the Alliance of Community Health Plans, the National Institute for Healthcare Management, and Blue Cross Blue Shield Association of America to ensure that healthcare delivered through or supported by these groups represents the public health perspective on behalf of CDC and supports the delivery of quality preventive services wherever possible.
- CDC manages two task-order contracts that fund prevention research and programs in diverse care settings, including Health Maintenance Organizations and Preferred Provider Organizations. With these contracts, CDC supports 23 projects, totaling \$35 million, to promote use of its products and programs, create public and private linkages to improve health outcomes, influence health policy, test prevention and healthcare delivery strategies, and evaluate their effects.

WHAT ARE THE NEXT STEPS?

As rapid changes in the U.S. healthcare system continue, and healthcare purchasers, health plans, and providers of care struggle to control costs, these groups will need to unite with public health to solve problems of collective concern. CDC must continue to participate in these discussions and partnerships to influence and create opportunities for new prevention-oriented research and improved prevention health services delivery to improve healthcare for all Americans.

FAITH AND PUBLIC HEALTH COLLABORATION

WHAT IS THE PUBLIC HEALTH ISSUE?

To ensure an effective and comprehensive approach to the vast range of public health challenges, it is paramount that the public health community works collaboratively with faith-based organizations to build supportive partnerships. People's attitudes, health beliefs, lifestyle choices, and their environment are among the many factors that influence today's health problems. These factors are in turn often influenced by faith-based organizations and the services and support they provide to individuals, families, and communities. Faith-based organizations play an important role in the lives of many citizens and, as such, are natural partners for public health collaboration. To more completely address important public health issues, it is essential that public health reach out to faith-based organizations.

WHAT HAS CDC ACCOMPLISHED?

CDC has a rich and expanding history of partnerships with faith-based organizations. These partnerships have supported efforts to combat specific diseases like HIV and cancer as well as in broader health-related areas such as safe, affordable childcare, drug-free settings for youth, and family-friendly support systems. Faith-based partnerships have also been effective in addressing other community-wide concerns and health issues.

Examples of Program in Action

- Heart, Body, and Soul began as a coalition of 230 places of worship in East Baltimore. Together they saw the need to improve the health of their community and increase health resources available to the larger community. Based on this need, they trained 29 lay community health workers with help from their public health partner. The community health workers organized hundreds of volunteers in places of worship to provide health screenings and implement programs that addressed smoking cessation and other health concerns. This model has been replicated by others to reach more than 55,000 people with health promotion, smoking cessation, and other related services.
- "Health-e-AME" is a physical activity initiative aimed at increasing exercise among African Americans in South Carolina. Over 600 churches across the state participate in this initiative. Plans for the program were created with African Methodist Episcopal church members and include education about exercise, social support, Praise Aerobics (moving to gospel music), and walking clubs.

WHAT ARE THE NEXT STEPS?

CDC will continue to build a network of leaders in public health and faith organizations who can advise on the design, implementation, and evaluation of partnerships between public health programs and faith-based organizations. To support the continued development of this network, CDC has partnered with Emory University's Rollins School of Public Health's Interfaith Health Program to provide national and regional Institutes for Public Health and Faith Collaborations. These institutes are preparing leaders in faith-based and public health organizations to increase their effectiveness in working together to improve community health.

HEALTHCARE PROVIDER EDUCATION ABOUT HAZARDOUS WASTE SITES

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 40,000 hazardous-waste sites have been reported to the federal government. Additionally, thousands of inadvertent environmental releases of toxins occur each year.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency. About 15 million people live within 1 mile of NPL sites.

WHAT HAS ATSDR ACCOMPLISHED?

The Agency for Toxic Substances and Disease Registry (ATSDR) uses many approaches to ensure health education and information to health professionals is nationally attained. ATSDR's activities include grand rounds presentations, off-site seminars and workshops, newsletters, fact sheets, satellite broadcasts, and Web-based training. ATSDR's health-education activities focus on implementing a national strategy to provide environmental health training for nurses and other frontline healthcare providers and expanding partnerships in environmental health expertise.

ATSDR collaborates in many instances with other organizations to strengthen their efforts. Some partners include national organizations, local universities, and professional societies. ATSDR and national partner organizations have made progress in increasing awareness of environmental health by establishing educational infrastructures, developing and distributing educational materials, and implementing community health activities and programs. ATSDR works with 10 national health professional organizations to advance environmental health education.

ATSDR also has developed health-education and promotion partnerships with states, other entities, and tribal governments and consortia through cooperative agreements. These cooperative agreements will help ensure the development of environmental health education and training programs for use by health professionals within tribal communities. In support of health education and training, participants in ATSDR's cooperative agreement program developed 140 different education materials that were distributed to more than 67,000 individuals in 2002. Training was provided to more than 10,000 healthcare professionals.

WHAT ARE THE NEXT STEPS?

ATSDR continues to develop electronic (via the Internet) and distance (via satellite broadcast) training programs to better service the needs of healthcare providers. ATSDR also expects to develop a national measurement protocol to evaluate the level of healthcare professional's expertise in recognizing, diagnosing, and treating exposure-related illness.

LABORATORY QUALITY ASSURANCE

WHAT IS THE PUBLIC HEALTH ISSUE?

- Every U.S. citizen expects access to the highest quality medical care, including laboratory testing. Changes in the healthcare environment make it difficult to determine whether laboratory services are safe, effective, timely, and adequately patient-centered.
- Public health officials have expressed concerns over qualified personnel shortages, adequate laboratory training, use of new technology, fiscal constraints, changes in clinical practice, and additional voluntary or regulatory laboratory standards.

WHAT HAS CDC ACCOMPLISHED?

CDC provides leadership in addressing these quality issues in laboratory testing by convening Institutes on Critical Issues, such as the Quality Institute Conference, which focuses on ways to improve the quality of laboratory services and patient safety. CDC's laboratory practice research agenda is Evaluation of Quality in Laboratory Practice and Standards (EQLPS), which provides information on the distribution of laboratory tests by type and location. This is the first comprehensive body of information about the number and types of tests conducted in the nation's 184,500 clinical laboratories.

The Model Performance Evaluation Program provides ongoing information about the testing practices and performance of laboratories that test for HIV-1 infection and for tuberculosis. Additionally, CDC has taken a leadership role in assessing activities related to genetics testing. Through national information gathering efforts about genetics testing, CDC is developing science-based and policy approaches to assist public health and clinical professionals in assuring high-quality testing and in understanding the benefits of testing for genetic disorders.

Examples of Program in Action

- EQLPS conducted a survey of hospital coagulation laboratory practices, identifying several instances where best practice guidelines were not being used.
- The Quality Institute Conference brought together many stakeholders in the healthcare system to discuss ways to improve the quality of laboratory services and enhance patient safety.
- CDC, through a grant with Dartmouth Medical School, developed an interactive CD-ROM tutorial emphasizing the genetic testing process and instructing on the use of genetics in clinical practice. The product was sent to all U.S. medical schools and is being distributed through the American College of Medical Genetics.

WHAT ARE THE NEXT STEPS?

CDC will work with the laboratory community to create a laboratory quality measurement and reporting system, which will focus on information needed by specific audiences including policymakers, professionals, and the public. The Institute for Quality in Laboratory Medicine, a public/private partnership, is being developed to provide a framework for improving the quality of the nation's laboratory services.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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LABORATORY READINESS

WHAT IS THE PUBLIC HEALTH ISSUE?

The current nationwide network of laboratories performing testing for events of public health significance is a loose association of public health and private clinical laboratories. The nation's well-being depends upon timely identification of disease outbreaks and environmental events; rapid communication and dissemination of pertinent information; and containment of any adverse results. The public health laboratory community and private medical community must work together to effectively detect public health threats and provide timely reports of such threats to minimize any negative impact of such health events.

Enhanced communication and collaboration among public health laboratories and frontline clinical laboratories (e.g., hospital, academic medical center, independent laboratories) are necessary to protect the nation from biological and chemical terrorism events, emerging infectious diseases, foodborne diseases, and environmental factors impacting public health.

WHAT HAS CDC ACCOMPLISHED?

CDC is working with partners to develop an enhanced laboratory communication and collaboration network called the National Laboratory System (NLS), throughout the American public health system. Such a network will benefit the public by providing

- Better detection, response, and tracking of infectious diseases.
- Increased capacities to collect, analyze, and distribute test data.
- Improved assessment of current laboratory practices, equipment, and staffing needs.
- An effective mechanism for developing policy and adopting appropriate guidelines across states and regions.

Examples of Program in Action

NLS pilot projects in Michigan, Minnesota, Nebraska, and Washington have demonstrated the value of collaboration and communication throughout the public and private laboratory communities.

- In Minnesota, clinical bioterrorism laboratories were recruited for a program linking the laboratories to enable rapid communications. This communications system was effective during the anthrax attacks and has also been used during other public health threats. A proficiency testing module was also used to assess testing accuracy in clinical laboratories.
- In Michigan, a specimen transportation system was created to reduce delays in critical testing for public health threats.
- In Nebraska, a statewide anti-bioterrorism laboratory system was created which leveraged existing laboratory capacity in the private sector.
- In Washington, training to improve detection of antimicrobial resistance was provided to more than 700 individuals at 161 sites, covering 16 states.

WHAT ARE THE NEXT STEPS?

Successful implementation of NLS requires continued coordination, communication, and interaction between state and local public health laboratories, and the constituent hospital and independent laboratories that provide testing of public health importance.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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NATIONAL PUBLIC HEALTH PERFORMANCE STANDARDS PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

State and local public health practice is the backbone of the nation's health system, but little is known about capacity and performance. Additionally, while there are program standards in some public health related areas (e.g., laboratory standards), no national standards for overall public health practice exist.

- The 2002 Institute of Medicine report states that there must be "systems of accountability to ensure the quality and availability of public health services."
- *Healthy People 2010*, the nation's prevention agenda, supports the use of "performance standards for the essential public health services."
- Little data about the performance and capacities of public health systems exist.

WHAT HAS CDC ACCOMPLISHED?

The National Public Health Performance Standards Program (NPHPSP) was initiated in 1998 as a CDC partnership with six national public health organizations. This partnership established model public health performance standards and is facilitating their use by state and local public health systems and local public health governing bodies. The standards and assessment instruments address the performance of essential public health services and were developed between 1998 and 2002. The standards were released nationally in July 2002. CDC and its partners support states and localities in their use of the performance standards to assess current performance, identify strengths and weaknesses, and implement plans for improvement. Thus far, 11 states, 607 local health agencies, and about 20 local boards of health have used the assessment instruments.

Examples of Program in Action

- Throughout Mississippi, the state agency and system partners conducted the state assessment; 81 local jurisdictions conducted the local system assessment; and the state board of health used the governance performance assessment. As NPHPSP recommended, Mississippi conducted the assessments using a wide variety of public health system stakeholders. As a result of these activities, Mississippi has used the information to develop legislation for a capital improvement bond, used the results for the state's terrorism preparedness proposal to CDC, and used the data for the state's Sunset Commission report for a proposal addressing environmental health improvement.
- In New Jersey and Ohio, the application of NPHPSP at the local level has been incorporated into state regulation. In Ohio, the accreditation program for local public health agencies requires all agencies and their system partners to conduct the local public health system assessment periodically. In New Jersey, NPHPSP local standards were used as a basis for developing standards for all New Jersey local public health agencies.

WHAT ARE THE NEXT STEPS?

- Strengthening technical assistance and training services to promote wide use of the performance standards and more effective implementation of the assessment instruments.
- Supporting state and local performance improvement efforts, which ensure that assessment results lead to action.
- Developing a comprehensive evaluation plan to assess the impact of NPHPSP and to determine how the program can better support public health practice.
- Analyzing the assessment data to evaluate the current state of the nation's public health systems and determine how NPHPSP data can contribute to public health systems research.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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PEDIATRIC ENVIRONMENTAL HEALTH SPECIALTY UNITS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Each year, thousands of unplanned environmental toxins are released.
- More than 1,500 uncontrolled hazardous-waste sites are on the National Priorities List and are targeted for clean-up by the Environmental Protection Agency (EPA).
- In the United States, one in four children lives within 4 miles of a hazardous waste site and is at greater risk of exposure to environmental contamination.

WHAT HAS ATSDR ACCOMPLISHED?

In 1998, the Agency for Toxic Substances and Disease Registry (ATSDR) collaborated with the Association of Occupational and Environmental Clinics to develop the Pediatric Environmental Health Specialty Unit (PEHSU) program. The PEHSUs are also supported by EPA. The program serves as a national resource for pediatricians, other healthcare providers, and communities. The program is designed to

- Reduce environmental health threats to children.
- Improve access to expertise in pediatric environmental medicine.
- Strengthen public health prevention capacity.

The key focus areas of the units are medical education and training, clinical consultation, and clinical specialty referrals for children who may have been exposed to hazardous substances in the environment. Healthcare providers specifically trained in both pediatrics and environmental medicines are available on a case-by-case basis to provide services to children and their families and to provide professionals with training and information on childhood environmental health issues. In several cities, the PEHSUs are affiliated with poison control centers, which are a resource for parents whose children have been exposed to toxic substances. During 2002, the PEHSU staff have clinically evaluated more than 1,550 children, conducted more than 29,700 telephone consultations, and provided education and training activities to more than 23,000 healthcare and public health professionals.

WHAT ARE THE NEXT STEPS?

Public use and demand for the PEHSU services has consistently increased since the program's inception. Eleven PEHSU clinics are operating in the United States; at least one is located in each of the Department of Health and Human Service's regions. ATSDR is working with healthcare and medical officials in Canada and Mexico to provide guidance on the development of PEHSU-type centers in those countries that also would be accessible to border communities in each country. In addition, ATSDR is exploring opportunities for the PEHSUs to collaborate with the Centers for Children's Environmental Health and Disease Prevention Research, a joint project of EPA, the National Institute for Environmental Health Sciences, and CDC.

PUBLIC HEALTH LAW

WHAT IS THE PUBLIC HEALTH ISSUE?

Law made an indispensable contribution to the great public health achievements of the 20th century, but has not kept pace with rapidly evolving public health challenges. For example,

- *Healthy People 2010*, the prevention agenda for the nation, concluded that “many laws, rules, regulations and ordinances pertaining to public health are outmoded.”
- A 2002 Institute of Medicine report stated that outdated and inconsistent public health laws may lead to inadequate responses to public health crises.
- Public health practitioners and attorneys have limited access to law-related training and information about best practices.

WHAT HAS CDC ACCOMPLISHED?

In 2000, CDC created the Public Health Law Program to stimulate a national initiative to upgrade public health’s legal tools. Integral to CDC’s strategy to strengthen the nation’s public health system, the program helps state and local health departments and other partners build their capacity to apply law as a tool in advancing the public’s health. The program conducts research on public health laws, develops law-related training, and provides a forum for strong, cross-disciplinary partnerships.

Examples of Program in Action

- Experience has shown that public health and law enforcement agencies need better coordination and understanding of their respective roles and responses to bioterrorism and other emergencies. To address this issue, the Forensic Epidemiology course was created to train public health and law officials in effective, joint investigations of terrorist attacks and other public health emergencies.
- Canada and other countries affected by Severe Acute Respiratory Syndrome in 2003 made greater use of quarantine (a law-based intervention), than seen globally in the previous half-century. CDC sponsored U.S.-Canada teleconferences on quarantine during the outbreak and commissioned an independent study of legal lessons learned during the outbreak.

WHAT ARE THE NEXT STEPS?

In 2004, CDC, in collaboration with the Department of Justice, state and local partners, will support the following:

- Disseminating the Forensic Epidemiology course nationwide.
- Developing an Advanced Forensic Epidemiology course.
- Providing technical assistance to states and communities assessing their public health emergency legal preparedness.
- Sponsoring the third annual conference in public health law.

PUBLIC HEALTH READY

WHAT IS THE PUBLIC HEALTH ISSUE?

- Local response to public health emergencies in the earliest phases of an event may prove insufficient if surge capacity or adequate resources are lacking.
- Effective preparation for emergency response must include planning, workforce training, and ongoing performance evaluation through exercises and drills.

WHAT HAS CDC ACCOMPLISHED?

CDC supports a voluntary recognition and certification program, Public Health Ready, for Local Health Departments (LHDs) in collaboration with the National Association of County and City Health Officials. The program envisions “a public protected from bioterrorism, infectious disease outbreaks, or other public health threats and emergencies.” LHDs achieve recognition based on documentation of emergency response planning, competency-based staff training, and evaluation of agency performance through exercises and drills. The criterion was developed by a national advisory committee, which also coordinates peer-review.

Twelve local agencies of varying sizes, governance structures, and geographic areas were selected as the Public Health Ready program. Pilot sites each represents a collaboration of the local public health agency with emergency management, state partners, and a CDC-funded academic Center for Public Health Preparedness. Public Health Ready is designed to support achievement of national preparedness goals and complements CDC’s national, state, and local preparedness programs. Initial pilot sites are expected to complete certification by March 2004. Pending an independent evaluation, plans for a national roll out will be considered.

Example of Program in Action

Among the locations selected as pilot sites for the Public Health Ready program are the Allentown City Health Bureau, Allentown, Pennsylvania; Montgomery County Department of Health and Human Services in Rockville, Maryland; Thurston County Public Health and Social Services Department, Olympia, Washington; Tarrant County Public Health, Fort Worth, Texas; Winnebago County Health Department, Rockford, Illinois and seven other LHDs. To date, state-wide or regional roll outs of the Public Health Ready model are under consideration in Texas, Iowa, Florida, Washington, and Massachusetts.

WHAT ARE THE NEXT STEPS?

As the pilot program nears completion, CDC will

- Evaluate the impact of the Public Health Ready program on LHDs’ emergency response preparedness.
- Consider expanding the Public Health Ready program to 25 sites and 4 to 5 programs.
- Disseminate best practices and lessons learned from the program nationally.

PUBLIC HEALTH WORKFORCE DEVELOPMENT

WHAT IS THE PUBLIC HEALTH ISSUE?

- The health, safety, and preparedness of America's communities hinges on the nation's public health workforce, which consists of physicians, nurses, environmental health scientists, health educators, laboratorians, managers, and other professionals who practice on the frontlines of public health.
- Frontline public health staff needs a broad array of skills to ensure progress in achieving national *Healthy People 2010* objectives, eliminating health disparities, and achieving readiness against global health threats.
- Workforce shortages are anticipated over the next 5 years in governmental public health due to retirements and limited entry by new graduates into the field.

WHAT HAS CDC ACCOMPLISHED?

In collaboration with a broad array of partners, CDC developed a strategic plan for public health workforce development. The plan outlines strategies for monitoring workforce trends, identifying needed competencies, developing model curriculum, designing an integrated distance learning system, providing incentives for learning and conducting evaluation and research. The 2003 Institute of Medicine Report on educating the public health workforce and building public health infrastructure validates current strategic directions.

The competencies required for core public health practice, bioterrorism and emergency preparedness, as well as leadership development, law and informatics are identified and are being used to develop frontline training programs. In 2000, a national network of Centers for Public Health Preparedness was funded to accelerate availability and access to terrorism-specific training and to complement state and local capacity by linking academia and practice. Since then, over 5 million public health and healthcare providers have been reached through national training activities sponsored by CDC and partners, in response to emerging infections and terrorism preparedness. CDC continues to facilitate a national dialogue on certification and credentialing in public health and disseminated a research agenda for workforce issues to stimulate and inform the field.

Examples of Program in Action

- The Third Annual Public Health Workforce Development Meeting presented national strategies to help develop a competent and sustainable workforce.
- The Public Health Training Network (PHTN) is a network of partners, headquartered at CDC, that collaborate to provide distance learning, using a variety of instructional media, to meet the training needs of the public health workforce nationwide. During the past year, PHTN courses reached more than 1.6 million learners in the domestic public health workforce, and the network was instrumental in the response to the heightened need for information and education related to smallpox and Severe Acute Respiratory Syndrome.
- The National Laboratory Training Network (NLTN), a training system sponsored by the Association of Public Health Laboratories and CDC, is dedicated to improving laboratory practice of public health significance through quality continuing education. NLTN trains approximately 11,000 public health and other healthcare workers each year in areas such as biological and chemical terrorism preparedness, molecular diagnostics, detection of anti-microbial resistance, and other public health concerns.
- Hundreds of public health leaders benefit from national programs (the Public Health Leadership Institute) and regional institutes.
- The 21 Academic Centers for Public Health Preparedness, based in schools of public health, provide training for the public health workforce in 46 states.
- The 21 Academic Centers for Public Health Preparedness in Schools of Public Health reach the workforce in 46 states.

WHAT ARE THE NEXT STEPS?

- Implement national strategies in collaboration with partners to address workforce shortages, current and emerging needs and support for life long learning.
- Disseminate national curriculum guidelines for terrorism preparedness and response in local public health agencies.
- Strengthen access to life-long learning through PHTN, NLTN, leadership institutes/programs and the Centers for Public Health Preparedness.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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QUALITY OF PREVENTIVE SERVICES

WHAT IS THE PUBLIC HEALTH ISSUE?

Concern regarding the quality of healthcare and the prevalence of medical errors has led to increased scrutiny of healthcare delivery from both government and the private sector. Recent Institute of Medicine (IOM) reports, including *Crossing the Quality Chasm: Next Steps Toward a New Health Care System* and *Measuring the Quality of Health Care*, increased awareness of the role that public health agencies should play in quality and safety.

WHAT HAS CDC ACCOMPLISHED?

To improve the quality of healthcare for all Americans, CDC has joined with other federal agencies and public health officials in serving on numerous advisory committees and working groups. Examples of these coordination efforts include the Quality Interagency Coordinating Task Force, National Quality Forum, Patient Safety Task Force, serving as a liaison to the IOM committee addressing objectives from the *Quality Chasm* report, and working with the Center for Medicare and Medicaid Services. CDC has also partnered with the National Committee for Quality Assurance (NCQA) to develop measures for the Health Plan Employer Data and Information Set (HEDIS). HEDIS is a set of about 50 measures designed to help employers and other healthcare purchasers evaluate the performance of the majority of the nation's health plans. CDC has contributed to the development of measures for areas such as adolescent immunizations, smoking, childhood immunizations, chlamydia screening among women, colorectal cancer screening, influenza vaccination, low birth-weight, management of menopause, otitis media, pneumococcal immunizations, asthma treatment, cervical cancer screening, cholesterol management after acute cardiovascular events, appropriate antibiotic use, and prenatal care. Additionally, CDC works with the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the largest accreditor of hospitals. This teamwork resulted in performance measures for preventive services in JCAHO's most recent *Network Accreditation Manual*.

Example of Program in Action

CDC is working with the National Business Coalition on Health (NBCH) and leading employers in refining the common request for information instrument (RFI) currently used to solicit information from over 85 major health plans to report on the quality of healthcare they deliver through the eValue8 project. This project ranks health plans based on quality and value, and the information is used by purchasing coalitions and major employers to select the health plans and benefits packages they will offer employees. Input from CDC is being used to ensure the information requested as part of the common RFI is based on the latest and most robust evidence regarding the effectiveness of preventive services that improve the quality of healthcare.

WHAT ARE THE NEXT STEPS?

CDC will continue to work closely with NCQA to develop new performance measures and with NBCH on refinements to the eValue8 common RFI in 2004. This will lead to a substantially streamlined and efficient instrument for 2005 and beyond. These activities will contribute to improved delivery of quality of care and clinical preventive services for all Americans.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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RESEARCH, TECHNOLOGY, AND DATA

Surveillance—the ongoing, systematic collection, analysis, and interpretation of health-related data—is critical to every aspect of public health research. By tracking diseases and injuries, surveillance systems help define the burden of disease and disability, identify the populations most at risk, and shape effective prevention efforts.

CDC supports various surveillance efforts by setting common standards, providing technical guidance to states and other partners, testing and developing new statistical methods for interpreting data, and identifying data gaps that can be addressed through improved or expanded surveillance. Through registries, reporting, and surveys, these systems cast a wide net to capture data on items as varied as occupational and work-related injuries, vaccine-preventable diseases, births, deaths, health status, access to healthcare, behavioral risk factors, and cancer incidence. Many of these surveillance systems function as an early warning system for new or emerging conditions, highlighting their usefulness as prevention tools. Others help monitor trends in existing conditions, or—best of all—are able to document some of public health’s greatest successes, such as the elimination of polio and indigenously acquired measles from the United States.

As in other sectors, technology has revolutionized the potential of these systems. For example, automation has allowed increased accuracy and volume, while dramatically reducing time lags for both reporting and data retrieval—in many cases, from days or weeks to minutes or seconds. Several CDC surveillance initiatives are designed to apply new technology to speed communication of urgent public health information among public health officials and healthcare providers, while maintaining high security standards to protect confidentiality of sensitive health-related data.

Aided by new technology and sophisticated analytic techniques, CDC’s surveillance systems help collect and filter voluminous health-related information so that researchers and program designers can act decisively to prevent future cases of the diseases, injuries, and disabilities we track today.

122 CITIES MORTALITY REPORTING SYSTEM

WHAT IS THE PUBLIC HEALTH ISSUE?

The Asian influenza pandemic of 1957 prompted CDC to develop weekly reporting and monitoring of pneumonia and influenza deaths by cities to rapidly assess the size, timing, and geographic distribution of epidemics. The high rate of person-to-person influenza transmission and the genetic diversity of the influenza virus over time require constant vigilance. Today, influenza continues to cause substantial morbidity and mortality. Since 1962, CDC has managed the 122 Cities Mortality Reporting System as part of its national influenza surveillance effort. The system provides weekly mortality data reported voluntarily from selected cities across the United States. Information regarding the mortality impact of various strains of influenza is used to help formulate each year's vaccine.

WHAT HAS CDC ACCOMPLISHED?

Weekly data regarding pneumonia and influenza deaths from the 122 Cities Mortality Reporting System are published in the *Morbidity and Mortality Weekly Report*. During each influenza season, CDC uses these data to monitor the numbers of pneumonia and influenza deaths (deaths for which influenza and/or pneumonia are mentioned as contributing factors or are identified as the underlying cause) in the United States. CDC evaluates these data to assess the severity of influenza epidemics. Since mortality data from the National Vital Statistics System, which tracks births and deaths in the United States, do not become available until at least 10 to 12 months after an influenza epidemic, the 122 Cities Mortality Reporting System provides more timely information for public health action.

Example of Program in Action

During the 2002–2003 influenza seasons, the 122 Cities Mortality Reporting System data were presented in CDC's Weekly Influenza Activity Report, which also incorporates information from other influenza surveillance activities, to present a timely and comprehensive picture of influenza activity in the United States. Information regarding current influenza trends is disseminated to healthcare providers and the public through national print, radio, and television news media to guide disease prevention efforts. Additionally, during the second quarter (April–June 2003), CDC program staff updated and distributed the 122 Cities Mortality Report System surveillance and reporting training materials to city vital registration staff. A Second Quarter Reporters' Update provided information on the use of the data and outlined steps to ensure the timeliness, accuracy, and completeness of the data.

WHAT ARE THE NEXT STEPS?

The quality of CDC influenza and pneumonia mortality data will continue to improve as new developments in reporting systems, including electronic death registration systems and revised standard death certificates, are implemented. CDC's plans include

- Facilitating weekly Web-reporting through the Internet via the secure data network.
- Collaborating with state epidemiologists/registrars to ensure timely reporting from cities within their jurisdiction.
- Improving collaboration with vital statistics reporters to maintain voluntary participation through teleconferences and regular feedback.
- Evaluating new information technologies aimed at improving the coverage, quality and timeliness of 122 Cities Mortality Reporting System mortality data in support of health promotion and disease prevention.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

WHAT IS THE PUBLIC HEALTH ISSUE?

Health tracking, or “surveillance,” is the essential underpinning for all public health efforts. State-level data on behavioral risk factors are essential to efficiently and effectively target scarce public health prevention resources. States use such data to identify health problems, plan and evaluate public health responses, and target populations with the greatest needs. In addition, states need to be able to identify public health trends over time. For example, one way CDC was able to alert public health programs to the obesity epidemic was through the use of Behavioral Risk Factor Surveillance System (BRFSS) data.

WHAT HAS CDC ACCOMPLISHED?

BRFSS is the nation’s premier system for measuring critical health problems and a wide variety of health-related behaviors in the U.S. population. The data underpin many public health policy and program decisions in states and for the nation. BRFSS is a cross-sectional telephone survey conducted by state health departments, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. States collect and use BRFSS data to track critical health problems and to develop and evaluate public health responses. CDC provides technical assistance to participating states and territories. BRFSS is the primary source of information (for many states it is the only source) on risk behaviors that contribute to the leading causes of death among adults. It is a unique, state-based surveillance system active in all 50 states, and it is the largest telephone-based surveillance system in the world.

BRFSS provides flexible, timely, and ongoing data collection that allows for state-to-state and state-to-nation comparisons and is flexible to meet individual state needs. BRFSS data can also be analyzed by age, sex, education, income, race, ethnicity, and other variables so that states can identify groups at highest risk for health problems and tailor efforts accordingly. Recognizing the value of BRFSS, other countries, including Canada, Russia, and Australia, have turned to CDC for assistance in establishing similar systems for their populations. In 2003, CDC collaborated with state and local health officials to make health information from BRFSS available for specific local areas (“SMART—Selected Metropolitan/Micropolitan Area Risk Trends from the Behavioral Risk Factor Surveillance System.”) This analysis provided data for 98 metropolitan and micropolitan statistical areas and many of the counties within those areas.

Example of Program in Action

New York uses data on the prevalence of regular consumption of whole milk to guide the state’s Low Fat Milk campaign. Maryland used BRFSS data to determine priorities for *Healthy Maryland 2010*. Following the 1995 bombing in Oklahoma City, health department staff analyzed questions on stress, nightmares and feelings of hopelessness in order to better address the psychological impact of the disaster. In Arkansas, BRFSS data assessing the correlation between physical activity and hypertension among black women have been used to target special intervention and education programs.

WHAT ARE THE NEXT STEPS?

CDC will continue to support state-level monitoring of emerging health problems and health-related behaviors through BRFSS. The role of BRFSS in public health planning will continue and grow as increasingly sophisticated methods of data collection and analysis make possible new and additional uses of BRFSS, such as local area analysis.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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CDC ASSESSMENT INITIATIVE

WHAT IS THE PUBLIC HEALTH ISSUE?

The 2002 Institute of Medicine Report “The Future of the Public’s Health in the 21st Century” identified a need for greater assessment capacity at the federal, state, and local levels. Assessment is defined as the regular, systematic collection, assembly, analysis, and dissemination of information on the health of a community. Such information is critical in determining community health problems, trends in the occurrence of these problems, and reasons for their occurrence. This information is also used to establish priorities and drive public health policy development and decision making.

WHAT HAS CDC ACCOMPLISHED?

In 1992, CDC began funding states to develop new systems and methods to improve how data are used in the public health policy- and decision-making process. Since that time, CDC has entered into cooperative agreements with 15 states (FL, IA, ME, MA, MN, MO, NM, NY, NC, OH, OR, RI, TX, UT, and WA) to

- Improve community access to health data and information.
- Develop epidemiologic skills in the public health workforce to support accurate interpretation and understanding of data.
- Design systematic approaches to developing and evaluating community health assessments at the local level.
- Form partnerships with managed care organizations and Medicaid agencies to link disparate data sets, thus increasing their utility.

In 2003, in coordination with state partners, CDC sponsored the Fourth Assessment Initiative Conference, drawing on expertise from state and local health departments, federal agencies, universities, and public health organizations nationwide to share information on promising practices to improve assessment capability.

Example of Program in Action

Through the Assessment Initiative, the New York State Department of Health developed an evaluation tool to rate the overall completeness and usability of community health assessments (CHAs) completed by local health departments (LHDs). The results of this evaluation were shared with the staffs of 125 LHDs in four facilitated feedback sessions to compare state and local perspectives on characteristics of an effective CHA. Other goals included strengthening the statewide guidance and format for completing a CHA; identifying public health workforce training needs; and providing a baseline against which future CHA quality evaluations can be compared. One outcome of this process was the development of an electronic CHA Clearinghouse designed to share examples of promising practices employed by LHDs, CHA data sources/tools, and links to evidence-based community health practices. The clearinghouse is available as a resource to all public health agencies at www.health.state.ny.us/nysdoh/chac/index.htm.

WHAT ARE THE NEXT STEPS?

In the future, CDC’s Assessment Initiative will focus on

- Producing widely applicable knowledge on effective assessment methods and practices that can be shared amongst all states.
- Supporting the evaluation and sustainability of innovative systems and methodologies to enhance assessment capacity.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

ENVIRONMENTAL HEALTH SURVEILLANCE SYSTEMS

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 40,000 hazardous waste sites have been reported to the federal government. Additionally, thousands of unplanned releases of toxins into the environment occur each year.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency. About 15 million people live within 1 mile of NPL sites.
- A broad range of adverse health effects—from birth defects to chronic diseases such as cancer, multiple sclerosis, or lupus—are increasingly being linked to exposure to environmental contamination.

WHAT HAS ATSDR ACCOMPLISHED?

The Agency for Toxic Substances and Disease Registry (ATSDR) performs environmental health surveillance via the National Exposure Registry and the Hazardous Substances and Emergency Events Surveillance (HSEES) system. ATSDR initiated HSEES in 1990. ATSDR maintains the active, state-based HSEES system to describe the public health consequences associated with the release of hazardous substances. In 2003, 15 states participated in HSEES.

In 2002, ATSDR published a report summarizing the findings of the surveillance for the 2-year period from 1999 through 2000. This report included information on 13,808 hazardous substance events and 4,425 injured persons (74 of whom died).

Participating states used the 1999–2000 data analysis to identify and implement prevention outreach activities that were geared to preventing spills, releases, and resulting injuries. Prevention activities have included developing fact sheets, reports, posters, presentations, websites, news articles, and journal articles. These activities were focused on counties and industries (e.g., chlorine users, transportation, agricultural industries) with the most frequent spills, and the most frequently spilled chemicals (i.e., ammonia, chlorine, mercury, pesticides, and illicit methamphetamine chemicals). Other prevention activities have targeted population groups that are frequently injured, such as employees, first responders, and students.

WHAT ARE THE NEXT STEPS?

Developing the HSEES system's capabilities to enable users' access via the Internet is a primary focus. ATSDR is working with the Pew Environmental Health Commission and other public health professionals to offer solutions to surveillance challenges cited in Pew's 2000 report, *America's Environmental Health Gap*.

EPI INFO

WHAT IS THE PUBLIC HEALTH ISSUE?

Public health practitioners around the world rely on various tools to help them rapidly assess disease outbreaks. Without the ability to quickly identify patterns and frequency of health events in a population, public health practitioners are unable to effectively offer preventive measures. *Epi Info*, a set of software tools for epidemiologists and other public health staff, enables rapid, effective management and analysis of data collected in the field in response to public health problems and emergencies. In recent years, *Epi Info* has been used to prepare public health practitioners for responding to biological, chemical, radiological, and other mass-trauma events related to terrorism.

WHAT HAS CDC ACCOMPLISHED?

Epi Info can be used to design questionnaires, manage data, and produce graphs, line lists, maps, tables, and epidemiologic statistics. The World Health Organization extensively uses *Epi Info*, and promotes it as a valuable surveillance and investigation tool to the international community. *Epi Info* runs on either of two operating systems (DOS and Windows) and is distributed free in the public domain from the CDC website (see www.cdc.gov/epiinfo/downloads).

- About 145,000 copies of the *Epi Info* DOS version program are in use worldwide, and about 12,000 copies of the newest Windows version *Epi Info* 2000 are downloaded from the CDC website site each month.
- *Epi Info* is used in 181 countries, including remote parts of the world, with translations in 14 languages.
- In 2003, increased training opportunities, including onsite training courses, were offered to public health partners in New Jersey, New York, Ohio, San Diego, and Vermont. Many of these training courses help public health practitioners use *Epi Info* for terrorism preparedness at the state and local levels.
- *Epi Info* collaborations within CDC have assisted in the development of new modules and surveillance management systems most appropriate to each locality for supporting international public health needs.
- In 2003, a two-phase evaluation of *Epi Info* began and will deliver stakeholder and user feedback to guide future improvements of *Epi Info*.

Example of Program in Action

Since 2000, Wyoming's Office of Emergency Medical Services has used *Epi Info* to track emergency dispatches. The *Epi Info* tracking system provides Wyoming with critical data regarding the efficiency of responding to an emergency situation and the skills needed by emergency personnel.

WHAT ARE THE NEXT STEPS?

- In 2004, *Epi Info* plans to release a new version that contains enhanced capabilities for mapping, graphing, and statistics, built around the Microsoft Access database format.
- A new tool will come with the software: *Epi Report*. *Epi Report* was developed in collaboration with CDC partners and offers reporting capabilities, streamlining information analysis, and presentation tools.
- Enhancements are underway to improve the current *Epi Info* version addressing existing software challenges of the system. All versions of *Epi Info* will continue to be supported and maintained as improvements are made with guidance from a stakeholder and user evaluation of the software.
- CDC plans to increase *Epi Info* training opportunities for public health practitioners related to terrorism preparedness and traditional surveillance to meet the growing demand from the state and local level.

EPIDEMIC INFORMATION EXCHANGE

WHAT IS THE PUBLIC HEALTH ISSUE?

The urgency of outbreaks, terrorist events, toxic exposures, and other acute public health events underscores the critical need for a reliable and accurate communications tool that supplies public health officials with up-to-the-minute reports, alerts, discussions, and assistance. A secure, Web-based communications network for public health investigation and response simplifies and expedites the exchange of routine and emergent public health information among CDC and other health agencies.

WHAT HAS CDC ACCOMPLISHED?

In December 2000, CDC launched the *Epidemic Information Exchange (Epi-X)* as the nation's secure, Internet-based communications network for public health investigation and response. *Epi-X* provides public health officials throughout the United States with up-to-the-minute information, reports, alerts, and discussions regarding terrorist events, toxic exposures, disease outbreaks, and other public health events. When public health officials post reports to *Epi-X*, the information is shared rapidly with colleagues across many states and jurisdictions. This sensitive information is encrypted and secured from access by outside sources. Since its launch, *Epi-X* has posted over 2,400 reports of disease outbreaks, other new public health activities, and requests for epidemiologic assistance from CDC. As of August 2003, more than 1,800 federal, state, and local epidemiologists, laboratorians, and other designated health scientists use *Epi-X* in such capacities as

- Finding, notifying, and communicating instantly with colleagues and specialists regarding urgent public health events across a secure, encrypted, Intranet-based network.
- Creating reports to track information for outbreak investigations and response.
- Creating online conferences to disseminate and discuss topics such as terrorism response, anthrax investigations, and West Nile virus activity.
- Researching outbreaks and unusual health events through a flexible search interface.
- Alerting health officials by pager, phone, and e-mail of urgent events.
- Customizing their home Internet pages, information, and options to meet their specific needs.
- Requesting assistance to investigate epidemics from CDC online.
- Communicating simultaneously with command centers at the Department of Health and Human Services and CDC, as well as all state and large metropolitan terrorism response programs.

WHAT ARE THE NEXT STEPS?

Epi-X is expanding secure public health communications capacity at the national level. To reach its full potential, *Epi-X* must increase the base of designated users to ensure rapid secure communications at all levels of the public health and safety workforces. CDC plans to integrate *Epi-X* more closely with disease monitoring systems, provide improved secure communications for response teams in the field, and provide intelligence regarding international outbreaks that might affect public health in the United States.

EXPOSURE AND DISEASE REGISTRIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 40,000 hazardous waste sites have been reported to the federal government. Additionally, there are thousands of unplanned releases of toxins into the environment each year.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency. About 15 million people live within 1 mile of NPL sites.
- Exposure registries offer a way to catalog health effects that might be associated with exposure to substances.

WHAT HAS ATSDR ACCOMPLISHED?

The Agency for Toxic Substances and Disease Registry (ATSDR) created the National Exposure Registry (NER), which records and follows reported health information from persons with documented exposures to specific hazardous substances. The information is collected according to chemical-specific registries. These registries are designed to aid in assessing the long-term health consequences of low-level, long-term exposures to hazardous chemicals identified at hazardous waste sites. NER consists of four established registries: Trichloroethylene, Dioxin, Trichloroethane, and Benzene. Registrants on all four registries have reported increases of such problems as anemia, other blood disorders, and urinary tract disorders. Other conditions that appear on at least three of the registries include skin rashes, eczema, other skin allergies, and stroke. ATSDR shares registry information with participants so that they can make informed decisions about their health. ATSDR also analyzes information gathered from the exposure registries to identify opportunities for future health studies. For example, analysis of the approximately 5,000 female registrants across all registries revealed a statistically significant increase in several conditions, such as diabetes, kidney problems, liver problems, and urinary tract disorders.

WHAT ARE THE NEXT STEPS?

To date, 666 workers and 1,765 household contacts that are still living have been identified. ATSDR is in the process of expanding the NER website to include all NER publications and the information collected for NER (without personal identifiers) to allow other researchers the opportunity to use the data in their own research. ATSDR will continue to work with the current registries, expanding the number of participants as appropriate.

ATSDR is investigating the formation of disease registries to facilitate the identification and evaluation of specific health outcomes (e.g., multiple sclerosis, Parkinson disease) that might be associated with exposure to hazardous substances in the environment. In 2002, ATSDR began a tracking project to locate and determine the vital status of former workers of industry sites where exposures have been recorded. To date, 666 workers and 1,765 household contacts that are still living have been identified. For example, ATSDR is developing a Tremolite Asbestos Registry for people who were exposed to tremolite asbestos (a type of asbestos that contaminated vermiculite mined in Libby, Montana). The registry will include former vermiculite workers in Libby, their household contacts, and people who have participated in ATSDR's medical testing program in Libby. ATSDR will continue to help the New York City Department of Health and Mental Hygiene develop the World Trade Center Registry, which will follow the health of persons most exposed to the events and aftermath of the September 11, 2001, attack. ATSDR will strengthen its collaborations with the Pew Environmental Health Commission and other public health professionals to offer solutions to surveillance challenges cited in Pew's 2000 report, *America's Environmental Health Gap*.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

EXTRAMURAL PREVENTION RESEARCH PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- Many of the nation's leading causes of premature death, disease, disability, and injury—including cancer, heart disease, asthma, suicide, and motor vehicle crashes—are preventable. These conditions are strongly affected by behavior, lifestyle, and the environment.
- Much is known about behaviors that affect health. However, far less is understood about how best to assist individuals and communities to establish and maintain healthful lifestyles and environments.
- Practitioners, policymakers, and communities often question whether research results and guidelines developed in other locales, using populations different from their own, are appropriate and affordable for their community.

WHAT HAS CDC ACCOMPLISHED?

CDC is committed to funding high-quality public health research that makes the transition from basic research to practice. All research is initiated and proposed by researchers working in conjunction with communities to address local health priorities and concerns. All research projects also undergo peer review by expert researchers external to CDC to identify the highest quality proposals.

Through the first round of grants in 1999, CDC funded over 50 projects on topics such as asthma, traumatic brain injury, workplace safety, health disparities, heart disease, and violence. In 2002 and 2003, 26 more grants were funded from among 300 applications. This second round of grants was intended to stimulate investigator-initiated participatory research on community-based approaches to prevention. The participatory approach requires the researchers to engage practitioners, policymakers, and others in the community in defining the research questions of most importance to their community, as well as interpreting and applying the study findings in their own community.

Example of Program in Action

The University of Pennsylvania is evaluating the effects of a school-based nutrition policy initiative on the prevalence, incidence, and remission of overweight among mostly low-income, African-American middle school students. This community-based initiative seeks to change the school environment by supporting healthy eating, increasing physical activity, and decreasing the prevalence of overweight and diet-related diseases in children.

Community Health Workers (CHWs) are representing the Multnomah County Health Department in Portland, Oregon, and several community and academic partners in an effort to engage community members in a program to prevent priority health problems. The study will assess the role of CHWs and social capital in supporting the participatory process for community assessment and taking action on health concerns.

WHAT ARE THE NEXT STEPS?

CDC and other public health organization programs are typically disease-specific, yet many research needs are similar across diseases and conditions. For example, poor living conditions can lead to violence among youth, learning problems in children who come to school hungry, and drug and alcohol abuse. The prevention research program, in addition to supporting research grants to deal with such cross-cutting issues, is also creating opportunities for broad-based dialogue and community input so that results of importance to more than one health condition are shared among all who might benefit from them.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

GEOGRAPHIC INFORMATION SYSTEMS

WHAT IS THE PUBLIC HEALTH ISSUE?

- About 40,000 hazardous-waste sites have been reported to the federal government. Additionally, thousands of inadvertent environmental releases of toxins occur each year.
- More than 1,600 hazardous waste sites are included on the National Priorities List (NPL) and are targeted for clean up by the Environmental Protection Agency. About 15 million people live within 1 mile of NPL sites.
- There is a critical need to correlate the proximity of people to the geographic location of environmental hazards.

WHAT HAS ATSDR ACCOMPLISHED?

A geographic information system (GIS) is a computer-based system that allows the layering of health, demographic, environmental, imagery, and other traditional data sources to be analyzed by their location on the earth's surface. A critical component of GIS is its capability to conduct complex spatial analyses to assist in public health decision making.

The Agency for Toxic Substances and Disease Registry (ATSDR) uses GIS technology to analyze data on population and topography (including roads, streams, and land elevation), as well as information gathered from residents. The data is used to track the spread of environmental contamination through a community, identify geographic areas of particular health concern, and identify susceptible populations (e.g., children, childbearing-aged women, the elderly, minority populations).

The GIS technology was used extensively in response to the terroristic attacks on the World Trade Center Towers in Manhattan on September 11, 2001. Some examples of GIS being used included mapping products such as building use (e.g., schools, residences, and businesses), identifying locations of completed environmental sampling, and providing daily updates of asbestos sampling to address local health concerns. ATSDR staff also used GIS technology to plot locations where anthrax was found in anthrax-contaminated buildings.

WHAT ARE THE NEXT STEPS?

ATSDR is expanding the field applications for public health emergency preparedness and response. The agency is continuing to develop Internet-based applications linking public health professionals to large data warehouses for public health research and planning. Through collaborations with other federal, state, and local agencies, ATSDR is working to build the capacity for use of this tool in public health applications at all levels.

GUIDE TO COMMUNITY PREVENTIVE SERVICES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Science-based advice regarding effective intervention programs is lacking for many public health problems.
- Resources for public health programs are scarce, requiring that the most-effective interventions be implemented.
- With no gold-standard for effective public health interventions, the United States sometimes spends millions on interventions that do not work and fails to fund interventions that could save lives.

WHAT HAS CDC ACCOMPLISHED?

In response to the need for information concerning successful ways to improve public health, CDC convened the independent, nonfederal Task Force on Community Preventive Services to examine existing scientific studies and make recommendations. CDC provides scientific support to the Task Force by reviewing thousands of scientific papers to identify relevant studies; evaluating the quality of those studies and summarizing their results; translating evidence into practical recommendations; reporting the findings; and working with diverse partners to ensure implementation of recommended policies and programs. The Task Force findings and recommendations are published in the *Morbidity and Mortality Weekly Report Recommendations and Reports* series and the *American Journal of Preventive Medicine*; the recommendations are also posted on the Community Guide website. As of September 2003, over 80 published findings have been released, and the Community Guide is increasingly viewed as a population-based counterpart to the *Guide to Clinical Preventive Services* and recognized as the pre-eminent resource for effective information regarding population based-preventive services (e.g.; policies, programs, healthcare systems strategies). The first volume of completed topics will be published by Oxford Press as the *Guide to Community Preventive Services*.

Example of Program in Action

Since 1999, CDC has published findings and recommendations on seven substantial and diverse public health problems: improving vaccination rates, reducing use of tobacco products, reducing motor vehicle occupant injuries, improving the care of persons with diabetes, increasing physical activity, improving oral health, and promoting healthy social environments. The findings have been used by partners at the federal, state, and local levels to improve public health programs and policies. For example, Congress has used the findings and recommendations regarding motor vehicle occupant injuries in its deliberations over reducing allowable blood alcohol limits for drivers. In addition, Blue Cross/Blue Shield and other insurance carriers have used findings to support the addition of tobacco-cessation benefits. In addition, a Community Guide review showing that standing order protocols for influenza and pneumococcal vaccinations for adults are effective in improving vaccination rates led the Center for Medicare and Medicaid Services to promote this intervention in Medicare-qualified long-term care facilities.

WHAT ARE THE NEXT STEPS?

- CDC plans to broadly disseminate the *Community Guide* to ensure that information reaches a wide audience including public health professionals, students of public health, legislators, and other policymakers, who will take action to improve public health (e.g., implement public health policies, programs, laws, research, and funding).
- CDC will also conduct a national evaluation to examine the impact of the *Community Guide* and develop additional chapters in the *Community Guide* to address compelling needs for information.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT OF 1996 PRIVACY RULE

WHAT IS THE PUBLIC HEALTH ISSUE?

- The *Health Insurance Portability and Accountability Act (HIPAA) of 1996 Privacy Rule* (the rule) provides the first national standards for protecting the privacy of personal health information.
- The rule regulates how covered entities use and disclose certain individually identifiable health information, called protected health information (PHI).
- Public health practice and research, including traditional public health activities such as program operations, surveillance, evaluation, terrorism preparedness, outbreak investigations, direct health services, and public health research, use PHI to identify, monitor, and respond to disease, death, and disability among populations.
- Although the rule does permit disclosures of PHI for public health purposes, administrative requirements are associated with these disclosures that might hinder access to PHI by public health authorities.
- The complexity of the rule has resulted in differing interpretations of the regulation as it relates to public health; thus, coordination in the public health community is needed.

WHAT HAS CDC ACCOMPLISHED?

In July 2002, a Privacy Rule coordinator was hired to oversee CDC's internal and partner education efforts concerning the effect of the rule on public health. During 2002–2003, this effort has resulted in

- Publication of a *Morbidity and Mortality Weekly Report* supplement titled: *HIPAA Privacy Rule and Public Health: Guidance from CDC and the U.S. Department of Health and Human Services* as well as the publication of a manuscript titled *Statutory Basis for Public Health Reporting beyond Specific Diseases*.
- Development of a CDC Intranet and Internet website dedicated to the rule.
- Sponsorship of a national satellite broadcast on the rule through Public Health Grand Rounds program.
- Development and implementation of a series of four forums for CDC employees and partners.
- Sponsorship of a Privacy Rule session at the second Annual CDC Public Health Law Conference.
- Development of a draft FAQ document concerning the rule and public health.
- Offering technical assistance to state and local partners in various forums including conference presentations, meeting participation, and written guidance.

WHAT ARE THE NEXT STEPS?

These activities have placed CDC in a leadership position concerning the rule and public health. Next steps include documenting the effect of this regulation on public health, continued publication of journal articles addressing discreet issues related to the rule and public health, and establishing a privacy office at CDC to support and expand CDC's role in this area.

MEDICAL EXAMINER AND CORONER INFORMATION SHARING PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

The lack of uniformity in death investigation practices and the need for better distribution of death investigation data has hampered the availability, quality, and timeliness of death investigation information being used by the public health community and by other human resource programs. Medical examiners and coroners (ME/Cs) play critical roles in investigating sudden, unexplained, or violent deaths. These officials provide accurate, legally defensible determinations of cause of death in suspicious circumstances, which account for 20% of all deaths and include deaths that are of interest to public health personnel. The records of ME/Cs provide vital information regarding patterns and trends of mortality in the United States and other data important for public health studies and surveillance. To make this information more readily available, CDC established the Medical Examiner and Coroner Information Sharing Program (MECISP) in 1986.

WHAT HAS CDC ACCOMPLISHED?

MECISP promotes improving public health and safety through sharing and using data from death investigations by ME/Cs to increase the effectiveness of intervention activities. Examples of information sharing are seen in the heat index criteria warnings for the public on safe temperatures for certain outdoor activities and the installation of safety locks in car trunks. Collaborations between ME/Cs and public health systems on epidemiologic studies of deaths routinely investigated by ME/Cs have aided in establishing protocols for determining deaths most likely to be caused by terrorism agents.

Example of Program in Action

In 2000, the New Mexico Office of the Medical Investigator developed and implemented a protocol to enhance infectious disease surveillance, emphasizing the detection of deaths likely to be caused by a critical terrorism agent. Positive autopsy findings are immediately reported to the appropriate public health authorities for further action. In its first year, 76 deaths meeting their criteria yielded an organism-specific diagnosis. Of those identified, 47% were notifiable infectious disease conditions in New Mexico, including tuberculosis, botulism, and invasive *Streptococcus pneumoniae* disease. A notifiable infectious disease requires regular, frequent, and timely information concerning individual cases in order to prevent and control that disease.

WHAT ARE THE NEXT STEPS?

Partnerships between ME/Cs and state and local health departments hold great promise for reporting cases or clusters of unusual deaths, including those caused by biological or chemical terrorism. In the future, CDC plans to

- Publish and distribute a guidebook for state and local ME/Cs outlining their role in terrorism-associated surveillance and case management.
- Publish guidance on the assessment of ME/C-based information systems and mechanisms to support information exchange between ME/Cs and public health agencies.
- Implement and evaluate surveillance demonstration projects in selected ME/C sites to assess the added value of ME/C-based surveillance to enhance public health preparedness and response.

MINING RESEARCH

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, coal mining had a worker fatality rate that was more than seven times the national average.
- The median number of lost days per mining injury is nearly three times higher than that observed for all private industry nationally.
- From 1990 to 2000, black lung disease was an underlying or contributing cause of about 16,000 deaths in the United States, including 950 deaths in 2000.
- Nearly one quarter of all deaths from silicosis are attributed to mining.
- About 90% of miners are hearing-impaired by age 65.
- From 1995 to 2002, there were 142 ground support and 230 powered haulage-related fatalities in mining.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts a research program to address safety and health issues among miners that focuses on areas identified as critical by constituents and surveillance data, including hearing loss prevention, dust monitoring and control, injury prevention, and rock fall prevention.

Examples of Program in Action

- CDC is partnering with several surface and underground mines to assess ergonomic risk factors in mining. Ergonomic interventions are being developed, implemented, and evaluated to prevent slips and falls while mounting and dismounting vehicles and to prevent jolting and jarring injuries to mobile vehicle operators.
- To reduce worker exposure to coal mine dust, CDC in partnership with manufacturers, labor, and industry, developed a Personal Dust Monitor. It provides real-time exposure data during a shift and allows for corrective action before overexposures occur.
- CDC partnered with manufacturers, and developed five innovative roof support systems that, unlike the traditionally used heavy and bulky timber blocks, can be extended to different lengths to provide controlled, sustainable roof support at a range of operating heights, while also reducing material handling efforts.
- CDC developed a hearing-loss simulator that demonstrates the life-changing effects of noise-induced hearing loss and helps motivate workers to take simple preventive actions.

WHAT ARE THE NEXT STEPS?

Mining poses many occupational safety and health challenges for the future. Dust and noise exposures in mining remain unacceptably high and better controls in both areas must be developed. Mines are expected to become larger and deeper, intensifying the need for a better understanding of rock behavior in these new conditions. The mining workforce is approaching an average age of 50 years in many industry segments. The needs of older workers must be accommodated, and young replacement workers must be properly trained if injury rates are to be reduced. Effective surveillance, prevention, and control programs, carried out in collaboration with industry, labor, and other governmental agencies, are necessary to ensure the best possible safety and health outcomes for miners. CDC is working on all these fronts to continue to have a positive impact on the safety and health of the mining workforce.

MORBIDITY AND MORTALITY WEEKLY REPORT

WHAT IS THE PUBLIC HEALTH ISSUE?

Communicating to the public infectious disease surveillance data, public health recommendations, and information regarding terrorism preparedness has always been the province of CDC and the *Morbidity and Mortality Weekly Report (MMWR)*. Such reports, from a highly respected, trustworthy source, are of paramount importance to public health practitioners. Providing that information in the most expedient manner is critical. In today's world of rapid communications, providers must be able to access accurate, well-researched, and reliable information concerning disease trends. Public health officials have a compelling need for reliable recommendations that direct the response to disease outbreaks or other events, and that educate them regarding investigations and proven practices in the field of disease and injury prevention and control.

WHAT HAS CDC ACCOMPLISHED?

MMWR is the voice of CDC and is an internationally respected publication that is the cornerstone of public health reporting in the United States. Recognized as CDC's official method for recommending preventions and treatments, *MMWR* also provides clinicians and public health practitioners with guidance related to terrorism preparedness and response; infection control practices and investigations; and disease and injury surveillance and news. *MMWR* is available on the Internet (www.cdc.mmwr) and distributed in paper and electronic format through the Internet and the *MMWR* distribution network. *MMWR* reaches over 2 million readers annually through the *MMWR* website, 805,000 subscribers to major medical journals, and 5,000 hospitals. Of physicians who belong to medical specialty organizations, 95% receive *MMWR*, as do state and local health departments.

Example of Program in Action

As the United States was recovering from the anthrax attacks in 2001, *MMWR* recognized its own value in such situations, as well as the public's need for immediate information. In three critical public health events in 2002–2003 (West Nile virus, Severe Acute Respiratory Syndrome, and monkeypox), *MMWR* responded to the need for rapid dissemination by implementing the *MMWR Dispatch*. The *Dispatch* is an electronic rapid-release publication that can provide its audience with vital public health information in an expedited process, ensuring that *MMWR* could be published at any time in a public health emergency. In addition, *MMWR* has initiated a Web-based *MGuide*, which compiles weekly summaries on articles of current public health interest. In the past year, *MMWR* has also provided user-friendly Quick Guides (e.g., Childhood Immunization Schedule) for specific audiences.

WHAT ARE THE NEXT STEPS?

MMWR will maximize its ability to publish ahead of print and will expand its publishing capability to other sites. It will also expand its influence on the nation's health by launching an additional series of reports focusing on lesser-known CDC areas of interest. The publication will increase readership through other venues that have proven successful in the past (e.g., continuing education), and *MMWR* will continue to evaluate its effect on research and clinical and public health practice.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NATIONAL OCCUPATIONAL RESEARCH AGENDA

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, more than 5,500 workers were fatally injured at work, an average of 15 each day. In addition, over 4.7 million workers sustained nonfatal injuries and illnesses in the private sector alone.
- The direct costs of occupational injuries and illnesses were estimated to be \$45.8 billion in 2001 (2003 Liberty Mutual Workplace Safety Index). The indirect costs were estimated to be an additional \$137.4 to \$229 billion.

WHAT HAS CDC ACCOMPLISHED?

In 1996, CDC and its outside partners established the National Occupational Research Agenda (NORA), a framework to guide occupational safety and health research through the next decade. The NORA process resulted in a remarkable consensus about the top 21 occupational safety and health research priorities. NORA is an agenda not only for CDC, but for the nation as a whole. Through the impetus of NORA, CDC has energized occupational safety and health research, leveraged resources of other federal agencies to support NORA, pursued an active program of intramural and extramural research, and developed new research partnerships with stakeholders. NORA continues to be an innovative, multi-disciplinary national research agenda built on strong partnerships with public, private, and nonprofit organizations and continues to be modeled at the local, state, national, and international levels.

Examples of Program in Action

- As a result of NORA, CDC has increased its overall investment in extramural research and has leveraged funding from other federal agencies for occupational safety and health research. CDC has many effective partnerships including collaboration with a nursing home company, lift device manufacturers, universities, and employers to develop and evaluate an injury prevention program that reduced the incidence, severity, and cost of low-back and other musculoskeletal injuries to workers in nursing homes. Nursing homes have the highest overall injury rate of all health services industries, while nursing aides, orderlies, and attendants are the highest risk occupations for low-back pain among female workers, with almost 270,000 reported cases yearly. The partners received the NORA Partnering Award for Worker Safety and Health.
- The NORA Symposium, “Working Partnerships—Research to Practice” conference brought together nearly 250 researchers and stakeholders from the private and public sectors to discuss new findings and partnering opportunities related to the NORA target areas. Scientific presentations addressing NORA priorities were an important aspect of this conference, providing a unique forum for a broad cross-section of the occupational safety and health community to learn about the research conducted during 7 years of NORA.
- The *2003 NORA Update*, the latest in a series of bulletins under this title, provides the latest on NORA-related research efforts including a timeline of NORA events, newly published documents related to the NORA priority areas, upcoming NORA workshops, and special NORA research initiatives.
- The *NORA Compendium of Research* was released at the NORA 2003 Symposium and contains summaries of current research projects supported through NORA; 448 projects are classified by NORA priority area.

WHAT ARE THE NEXT STEPS?

The development of NORA was only the first step in an ongoing effort between CDC and its many partners to guide occupational safety and health research into the future. As the impact of NORA continues to grow, the nation is better positioned to address the toll of workplace injury and death. Through NORA, CDC will build on existing successes by broadening partnerships in occupational safety and health research; expanding efforts to collaborate with other federal agencies; and targeting new research initiatives to ensure that NORA continues to make a difference in protecting worker safety and health.

NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM

WHAT IS THE PUBLIC HEALTH ISSUE?

Effective infectious disease surveillance systems provide baseline information regarding the number of cases, trends, and geographic distribution of recognized diseases or conditions. For healthcare professionals to prevent and control the spread of certain diseases, notifiable disease surveillance systems that provide regular, frequent, and timely information regarding individual cases are necessary. Similarly, quick detection of new or re-emerging public health threats, whether naturally occurring or resulting from terrorism, is critical. All states have laws regarding collecting and reporting of certain infectious diseases. Since 1961, CDC has provided support for the tracking of notifiable diseases through the National Notifiable Disease Surveillance System (NNDSS). Working together, state agencies and CDC determine which diseases should be nationally notifiable. Diseases can be added to the list as new pathogens emerge or be deleted as incidence declines. Currently, over 60 infectious diseases and conditions are nationally notifiable.

WHAT HAS CDC ACCOMPLISHED?

NNDSS provides a critical framework for public health surveillance in the United States by supporting the development and dissemination of structured case definitions, reporting of core surveillance information describing disease cases, and developing standard surveillance protocols and policies. CDC publishes provisional nationally notifiable disease surveillance data every week in the *Morbidity and Mortality Weekly Report*. Recent accomplishments include

- Adding new diseases to NNDSS in 2003, including Severe Acute Respiratory Syndrome, coronavirus-associated disease, and smallpox vaccination adverse effects.
- Revising case definitions, which allow for standardized reporting throughout the United States of acute hepatitis C and Rocky Mountain spotted fever.
- Revising and implementing guidelines for determining the reporting jurisdiction for the disease case-patient.

Example of Program in Action

In 2003, to enhance CDC's ability to detect previously unrecognized disease outbreaks in multi state NNDSS data, CDC began to systematically apply statistical aberration-detection methods regarding disease occurrences that are unusual and warrant public health investigation. The methods proved to be effective and the results of weekly analyses are being made available to state and CDC epidemiologists.

WHAT ARE THE NEXT STEPS?

CDC plans to strengthen the ability of state and local public health departments to track and monitor national notifiable diseases by

- Using new information technologies, such as Internet reporting, to enhance CDC's ability to manage the increasing amount of health information.
- Exploring new computer-based technologies to help detect emerging public health threats.
- Improving the quality, completeness, and timeliness of national notifiable disease surveillance data through surveillance assessment and technical assistance.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NATIONAL HEALTH CARE SURVEY

WHAT IS THE PUBLIC HEALTH ISSUE?

The organization and financing of America's healthcare system have a profound effect on healthcare delivery and the ways patients access and receive health services. Data on trends in healthcare use are needed to inform policymakers and healthcare administrators about future demand for clinical and preventive services and the nation's need for healthcare providers. Information about what types of services are delivered and how they are delivered is critical for evaluating quality of care and appropriate use of clinical services, diffusion of new technologies, patient safety, and clinical outcomes. An understanding of how patients enter the healthcare system is necessary to shed light on healthcare disparities and the ability of the system to provide services to the most vulnerable populations through an effective healthcare safety net.

WHAT HAS CDC ACCOMPLISHED?

The National Health Care Survey (NHCS) is a family of surveys that collects data from healthcare establishments about the use of services across the major sectors of the U.S. healthcare system. These data may be used to profile changes in the use of healthcare resources, patterns of disease, and the impact of new medications and technologies. Information on the characteristics of providers, facilities, and patients allows researchers to study shifts in the delivery of care across the healthcare system, variations in treatment patterns, and patient outcomes.

Examples of Program in Action

- Between 1992 and 2002, visits to office-based physicians became more complex due to increases in patient age, more diagnoses per visit, and a rise in the number of patients with multiple medications to manage. Data from NHCS show that the total visit rate for patients age 45 and over increased 14% during this time period.
- In 2002, the visit rate to office-based physicians by white persons was significantly higher than for African-Americans persons or Asians (334.6 visits per 100 persons compared to 252.9 and 229.3 visits, respectively). In contrast, African Americans had a considerably higher rate of use for hospital emergency departments. NHCS data for 2002 shows the use rate of emergency departments for African Americans (70.3 per 100 persons) to be significantly higher than for whites (35.7 per 100 persons) and 2.5 times higher than that of Asians (18.9 per 100 persons).
- Average length of hospital stay has been declining steadily and was significantly shorter in 2002 than in 1970 (4.9 compared with 7.8 days). Data from NHCS show that declines are pronounced for older age groups. For example, while for 15 to 44 year olds the average stay in 2002 was 2 days shorter than in 1970, for 45 to 64 year olds the average declined 4.3 days. For those aged 65 and over, average length of stay for hospitalizations was less than half what it had been in 1970 (5.8 compared with 12.6 days).

WHAT ARE THE NEXT STEPS?

- Ensure that the component surveys of NHCS are conducted on a regular basis so that complete data on the healthcare system can be obtained to document shifts in the use of services between settings, the use of emerging healthcare settings, and services (such as ambulatory surgery centers, specialty hospitals and complementary and alternative medicine).
- Expand the sample sizes in various surveys to more accurately monitor disparities in healthcare among priority populations such as racial and ethnic minorities, women, people in rural communities, and children.
- Increase the usefulness of provider-based data to monitor and assess quality of care by providing national benchmark data for comparison with state and local performance. Data collection forms and sampling frames can be adapted to address quality of care issues and information can be linked to data on provider characteristics.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

NATIONAL HEALTH INTERVIEW SURVEY

WHAT IS THE PUBLIC HEALTH ISSUE?

Health policymakers, public health program managers, researchers, educators, the media, and the public need timely population health data to guide their decision making.

WHAT HAS CDC ACCOMPLISHED?

CDC's National Health Interview Survey (NHIS) is a major source of information on the health status of the nation. The information is collected through confidential household interviews including more than 100,000 persons each year. NHIS interviewers collect information on topics such as health status and disability; insurance coverage; access to care; use of health services; immunizations; health behaviors; injury; and ability to perform daily activities. Additional topics addressed in the 2002 NHIS include alternative medicine; arthritis; disability and secondary conditions; environmental health; vision; and hearing. The data are used by health agencies and organizations, government agencies, academic institutions, and individuals to plan and monitor health policies and programs.

The production cycle of NHIS has shortened substantially. In 2001, the Early Release Program began to publish NHIS estimates of selected key health measures on the Internet. Selected data estimates are based on full- or partial-year data and released quarterly in March, June, September, and December. NHIS also collects supplemental data on specific topics. For example, in 2002, the supplements to the survey collected information for *Healthy People 2010*, Complementary and Alternative Medicine, and children's mental health. In 2003, *Healthy People 2010* and children's mental health will be addressed again.

Example of Program in Action

NHIS data are used widely to characterize persons' health status and access to healthcare. In 2001, NHIS data showed an increasing number in American children having health insurance coverage. The percentage of children without insurance fell from 13.9% in 1977 to 10.8% in 2001. Health insurance coverage has increased generally as well; the percentage of Americans without health insurance fell from 15.4% in 1997 to 14.1% in 2001. Persons with health insurance are more likely to have access to care and be able to identify a regular source of care, which is key to receiving preventive services and timely treatment of illness and injury.

WHAT ARE THE NEXT STEPS?

- Increase the value of NHIS data to users by identifying the sample for household surveys for the period 2005–2014 to reflect changing demographics, and redesign the sample to allow for greater racial/ethnic detail.
- Improve the timeliness of data for users. NHIS will overhaul the systems through which data are collected, processed, and made available to users. This process includes conversion to an advanced computer-assisted personal interview system and use of relational databases.

NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

WHAT IS THE PUBLIC HEALTH ISSUE?

Public health professionals and policymakers require accurate and current statistical data. This information is used to account for illness and disability among populations in the United States. To be most effective, the data collected should monitor trends in medical conditions, risk behaviors, risk factors, health habits, environmental exposures, and emerging public health issues and technologies.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts the National Health and Nutrition Examination Survey (NHANES), the only national source of objectively measured health data capable of providing accurate estimates of both diagnosed and undiagnosed medical conditions in the population. NHANES represents a unique collaboration between CDC, the National Institutes of Health, and others to obtain data for biomedical research, public health, tracking health indicators, and policy development. Through physical examinations, clinical and laboratory tests, and interviews, NHANES assesses the health status of adults and children throughout the United States. Mobile examination centers travel across the nation, collecting data on chronic conditions, nutritional status, medical risk factors (e.g., high-cholesterol level, obesity, high blood pressure), dental health, vision, illicit drug use, blood lead levels, food safety, and other factors that are impossible to assess by use of interviews alone. Findings from this survey are essential for determining rates of major diseases and health conditions (e.g., cardiovascular disease, diabetes, obesity, infectious diseases) and developing public health policies and prevention interventions.

Example of Program in Action

NHANES data provided the first sign that the nation's effort to fortify foods with folic acid to prevent birth defects was succeeding. Data from the 1999–2000 NHANES showed a tripling of the average level of folic acid in the blood compared with previous surveys. Increased folate levels from food fortification have the potential to reduce a woman's risk of giving birth to a baby with a birth defect of the spine or brain (spina bifida or anencephaly).

WHAT ARE THE NEXT STEPS?

- Ensure that NHANES field operations are fully supported to maintain the overall sample size of NHANES.
- Implement the Community Health and Nutrition and Examination Survey to provide flexible and timely access to quality examination and laboratory data for defined populations that cannot be addressed by use of the standard NHANES framework.

NATIONAL VITAL STATISTICS SYSTEM

WHAT IS THE PUBLIC HEALTH ISSUE?

Policymakers and program managers need information from vital records such as birth and death statistics to develop policy and direct public health programs. The National Vital Statistics System (NVSS) is the primary source of this information, producing the nation's official vital statistics. The collection and registration of vital events are governed by the laws of 57 states and registration areas. Vital records and reports originate with hospitals, physicians, and funeral directors. Records are then compiled by the states and forwarded to CDC, which works with the states to ensure consistency in certificate content, data quality, and timeliness of reporting.

WHAT HAS CDC ACCOMPLISHED?

NVSS compiles data on issues of public health concern, such as the number of teen births, prenatal care and birth weight, risk factors for adverse pregnancy outcomes, infant mortality rates, leading causes of death, life expectancy, and firearm-related mortality. This information is then provided in a timely manner to public health officials at the national, state, and local levels, as well as to interested private sector groups.

Examples of Program in Action

NVSS has compiled the following data from national vital statistics:

- The teen birth rate declined by 30% over the past decade, from 61.8 births per 1,000 teens 15 to 19 years of age in 1991 to 43.0 in 2002.
- The data show a reduction in deaths due to heart disease (3.8%) and cancer (1.8%) from 2000 to 2001. These two diseases account for more than 1.2 million deaths, more than half of all deaths in 2001.
- Life expectancy at birth for white males was 75.0 years, and 68.6 for black males in 2001.
- The infant mortality rate for all races has declined from 9.2 infant deaths per 1,000 live births in 1990, to 6.8 in 2001.

WHAT ARE THE NEXT STEPS?

To address 21st century data-needs with 21st century technology, CDC plans to invest in fundamental improvements in the nation's vital statistics system. These improvements will include

- Implementing new national model certificates of birth, death, and fetal death events to improve data quality and update the content of these data sources to reflect new needs such as changing classification of race/ethnicity, and new and emerging concerns in maternal and infant health and public health.
- Developing, in partnership with states, the National Association of Public Health Statistics and Information Systems, and the Social Security Administration, standard specifications for a re-engineered vital statistics system that harmonizes with the Public Health Information Network. This process involves the initial recording of birth, death, and fetal death records via electronic systems in hospitals and funeral homes using standardized guidelines developed by CDC's National Center for Health Statistics (NCHS); transmission to state authorities and NCHS; and translation into information systems for statistical analyses and public health surveillance.

PREVENTION EFFECTIVENESS PROGRAM

WHAT IS THE PUBLIC HEALTH ISSUE?

- Prevention Effectiveness (PE) is the systematic assessment of the effect of public health policies, programs, and practices on health outcomes and costs.
- Policy and programmatic decisions are based on sound economic information. PE studies are able to supply this necessary information. PE directly contributes to fiscal accountability and stewardship of public funds by providing sound economic analysis.

WHAT HAS CDC ACCOMPLISHED?

The three cornerstones of the PE program include training, technical assistance, methods development, and the systematic review of economic evaluations. The program accomplishments relate to these cornerstones:

- In 1995, CDC established a PE Fellowship Program. This 2-year post-doctoral program for economists, health services researchers, industrial engineers, and other scientists, concentrates on applied studies in public health economics and decision-making.
- Each year, about 145 CDC staff and Epidemic Intelligence Service officers attend PE methods courses.
- CDC continues to conduct collaborative research on consumer demand for food safety with the University of Maine, Ohio State University, and the University of Maryland.
- The fellowship has allowed CDC to produce more than 200 studies on PE, economic evaluation, and program evaluation on the costs of West Nile virus outbreak and response to immunization of healthcare workers for smallpox.
- The program has completed Volume I of the Web-based Economic Evaluation Course.
- CDC published *Prevention Effectiveness: A Guide to Decision Analysis and Economic Evaluation* in 1996, and the second edition in 2003. This book is used as a primer in the CDC PE course and also has extensive appeal to the larger health and public health communities.
- About 40 reviews of economic evaluations of interventions recommended by the Task Force on Community Preventive Services have been completed by the program.

WHAT ARE THE NEXT STEPS?

Broadening the scope of economics at CDC will assist in

- Addressing the economics of information.
- Offering better support to the public health infrastructure.
- Improving standard setting and regulations.
- Establishing networks and system properties.
- Assisting the government in preparing and responding to infectious diseases or catastrophic risks, and applying what is learned to develop a new discipline: Public Health Economics.

PUBLIC HEALTH INFORMATICS

WHAT IS THE PUBLIC HEALTH ISSUE?

Dramatic changes in information technology motivated public health professionals to realize that technology is essential to public health practice. To design and use information technology effectively, the nation's public health workforce must have the skills necessary to meet this challenge. Training to improve public health capacity in the areas of information technology and infrastructure development is necessary to improve the health of the nation. There is a great need for professionals to bridge the information, computer, and public health sciences. Such training is critical to the development of processes and tools to improve the sharing of data, information, and knowledge. To meet this need, public health professionals require training in public health informatics, which is the systematic application of information and computer science and technology to public health practice, research, and learning. Public health informatics combines information and computer sciences, optimizing the use of information technology to achieve the mission and objectives of public health.

WHAT HAS CDC ACCOMPLISHED?

CDC's public health informaticians have played a critical role in enhancing public health's informatics, information technology, and information infrastructure capacity. In addition to providing informatics technical assistance for information technology infrastructure development, CDC has been at the forefront of training public health informatics professionals to respond to informatics-related challenges and initiatives. Since 1996, CDC has trained public health informaticians to fill the need for this category of very specialized public health worker. Extensive training in new and emerging technologies (computers, servers, internal working and programming of computers and other equipment), cutting-edge informatics issues (metadata and electronic data transfer), and public health programs (infectious and chronic diseases, prevention programs, HIV/AIDS) prepares these professionals for the future of public health. Continuing this leadership role, CDC has established a 2-year Public Health Informatics Fellowship Program (PHIFP) which provides training and experience for qualified fellows to effectively apply computer and information science and technology to real public health problems, including the ability to lead and manage all aspects of the design, development, and implementation of public health information systems.

WHAT ARE THE NEXT STEPS?

CDC seeks to further strengthen the training of public health professionals in informatics by

- Developing strong partnerships with universities and state, local, and other health agencies to train the current and future public health workforce in relevant informatics principles and methods.
- Continuing the evolution of informatics core curriculum and researching public health informatics competencies.
- Developing strong integrated public health information systems.
- Increasing the number of fellows in the PHIFP.
- Continuing to identify and address new and emerging issues in public health informatics.
- Improving dissemination of information about public health informatics and the role of informaticians in public health.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TOXICOLOGICAL PROFILES

WHAT IS THE PUBLIC HEALTH ISSUE?

- The American Chemistry Council estimates that more than 75,000 chemical substances are used in commerce.
- The Agency for Toxic Substances and Disease Registry (ATSDR) has produced about 160 toxicological profiles that cover about 800 substances.
- ATSDR focuses on 275 substances that are considered the most hazardous to human health. Thousands of potentially toxic mixtures can be derived from these chemicals.

WHAT HAS ATSDR ACCOMPLISHED?

ATSDR produces toxicological profiles for hazardous substances found at National Priorities List (NPL) sites (i.e., sites targeted for clean-up by the Environmental Protection Agency [EPA]). When deciding which substances to profile, ATSDR, EPA and the National Institute for Environment Health Sciences use criteria including the rank by frequency of occurrence at NPL sites or in emergency response situations, relative toxicity, likelihood of human exposure to the substance, and calculation of the number of people actually or potentially exposed.

Each profile succinctly characterizes the toxicologic and adverse health effects information for the hazardous substance it describes. In each toxicological profile document, ATSDR interprets all known information about the substance and reports on how these substances can affect the health of an exposed person. The profiles also identify substantial gaps in knowledge about a specific substance and serve to initiate further research when needed.

The profile is a detailed document, but is not designed to be exhaustive. Each profile includes references to more comprehensive sources of specialty information. In 2002, ATSDR released *ATSDR ToxProfiles 2002™*, which contained 159 toxicological profiles on CD-ROM. Toxicological profiles are also available on the ATSDR Internet website at www.atsdr.cdc.gov/toxpro2.html. ATSDR also produces ToxFAQs™ to provide easy-to-understand toxicologic information to the public. These are available in print (in English and Spanish) and on the Internet.

WHAT ARE THE NEXT STEPS?

New research, new interpretations of existing research, and filling of data gaps are among the events that lead to an update of a toxicological profile. New profiles also are developed as needed. Information about how exposure to toxins affects children is being added to the profiles. ATSDR is also developing interaction profiles, which contain information about common mixtures of hazardous substances.

URBAN RESEARCH CENTERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- The urban disadvantaged are predominantly minorities. They bear a disproportionate burden of the nation's health problems (e.g. HIV infection, tuberculosis, violence, drug use).
- Evidence demonstrates that health is substantially influenced by social factors (e.g. income, education, discrimination, community characteristics), especially at the community level.
- Research is needed to develop intervention models that involve the community to produce effective, sustainable improvements in urban health and quality of life.

WHAT HAS CDC ACCOMPLISHED?

The Urban Research Centers (URCs) have been funded since 1995 to assess and improve the health of urban communities. Located in Detroit, New York City, and Seattle, URCs use an approach called community-based participatory research to engage government, academic, private, and community organizations as partners in priority setting and designing, implementing, and evaluating community focused public health interventions. Accomplishments include the following:

- The Seattle URC conducted basic assessment research in the context of domestic violence (DV) in nine ethnic and cultural communities. The follow-up intervention project resulted in the development of a social support group intervention, and increased community-based agency capacity in intervention design, safety, and referral protocols, and evaluation. Preliminary findings indicate that support group participation is strongly associated with reduced DV incidence, DV frequency, and perceived stress. Increased social support increased knowledge regarding where to go for help, and participants' ability to perform daily living skills.
- In the Detroit URC, the East Side Village Health Worker Partnership implemented a neighborhood-level intervention by lay health workers to reduce specific environmental, economic, and social stressors in a poor African-American community. Lay health workers are trained to use local resources to achieve such community health goals as improving access to healthy foods, establishing better relationships with local police, and exerting greater influence on city government officials to eliminate environmental toxins.
- The New York URC developed a *Survival Guide* in response to the need for interventions to help substance users and their families deal with the problems and consequences of drug abuse, and to build community support for services. The *Survival Guide* includes health information and how to navigate the system to obtain services; a comprehensive list of service providers; and relevant hotline numbers. Dissemination and evaluation of the guide will continue to involve substance users, community service providers, and academics.

WHAT ARE THE NEXT STEPS?

In an effort to apply the URC model to a bi-national setting, a URC in El Paso was established in July 2002 through collaboration between the Paso Del Norte Health Foundation, the CDC Foundation, and CDC. An advisory board consisting of partners from both sides of the U.S.-Mexico border has been established and has identified environmental health and physical activity as priority health concerns.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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TRAINING

Since 1951, CDC's fellowship and training opportunities have prepared thousands of students and professionals through applied, hands-on training experience in epidemiology and public health. Many people in our programs have participated in activities such as the following:

- Complete epidemiologic analyses and research, public health interventions, and field investigations.
- Travel domestically and internationally to respond to requests for epidemiologic assistance within the United States and throughout the world.
- Conduct epidemiologic investigations, research, and public health surveillance.
- Serve the epidemiologic needs of state health departments.
- Present epidemiologic papers at scientific and medical conferences; publish their work in the scientific literature.
- Establish mentorships with recognized experts from CDC and other national and international health agencies.

At CDC, no matter where we find ourselves or in what role we operate, one common purpose links us all—we work on the frontlines in a collective effort to make people safer and healthier. This has been our charge since 1946. At CDC, our mission of preventing disease and injury and promoting healthy lifestyles incorporates the most fundamental and groundbreaking epidemiological approaches. The public depends on the results of our work behind the scenes: studying the incidences, distribution, and control of diseases in populations. We pride ourselves in educating and training students and public health professionals to serve the public.

CAREER EPIDEMIOLOGY FIELD OFFICERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- The nation has a growing need for trained epidemiologists to address current public health problems, as well as problems with emerging and re-emerging infectious diseases.
- As the events of fall 2001 have demonstrated, the nation needs “rapid response” capabilities to meet the real and ongoing threats of terrorism and bioterrorism.
- CDC needs an available cadre of trained epidemiologists to ensure frontline protection of the public’s health.

WHAT HAS CDC ACCOMPLISHED?

In response to the HHS Secretary’s conviction that CDC should assign an Epidemic Intelligence Service (EIS) officer or EIS graduate to every state, CDC created the Career Epidemiology Field Officer (CEFO) Program to compliment the EIS program. The goal of this program is to develop a national cadre of EIS-trained CEFOs who will work with states and large local health departments to build epidemiologic and emergency response capacity. Twelve CDC CEFOs are currently assigned to various locales across the country; these officers are on the ground, familiar with the local landscape, and ready to respond to any public health emergency, especially those relating to terrorism. The CEFOs’ activities include

- Giving epidemiologic expertise to state terrorism preparedness and emergency response planning and policy.
- Providing leadership, training, planning, and technical support for building local epidemiologic capacity.
- Building partnerships with state and local agencies responsible for terrorism preparedness and emergency response activities.
- Recruiting and supervising new epidemiologists, including EIS officers.

Examples of Program in Action

- During the West Nile virus epidemic in fall 2002, a CEFO led the development of virus surveillance of mosquitoes, dead birds, and humans.
- Several CEFOs have helped their health departments develop and write response plans for smallpox and other threats; several CEFOs are emergency response team members.
- One CEFO assigned to a county health department has partnered with a local school of public health to develop bioterrorism training for district health officers, hospital employees, and medical and public health educational institutions.

WHAT ARE THE NEXT STEPS?

Gaps in state and local epidemiologic and emergency response capacity will continue to be filled by the assignment of CEFOs. CEFOs will receive important training in terrorism preparedness and emergency response activities; syndromic and terrorism-related surveillance; and secure communications.

INTERNATIONAL TRAINING PROGRAMS FOR APPLIED EPIDEMIOLOGY AND GLOBAL HEALTH LEADERSHIP

WHAT IS THE PUBLIC HEALTH ISSUE?

Every day around the world, foreign ministries of health are making life and death decisions regarding health emergencies, disasters, disease outbreaks, and emerging health problems. The lack of informed decision-making has caused numerous inefficiencies in the management, evaluation, and delivery of health services that ultimately results in a lower quality of life for many of the world's citizens. To address complex public health issues quickly and efficiently, there must be central and frontline staff who are trained in both leadership skills and applied epidemiology (the use of quantitative methods to define, solve, and evaluate public health problems). Unlike the public health workforce in the United States, however, the majority of international public health staff rarely has access to public health training. Making programs that provide training in leadership and applied epidemiology available internationally is essential to building public health systems and improving global health.

WHAT HAS CDC ACCOMPLISHED?

Over the last 20 years, CDC has collaborated with international partners to build 27 long-term applied public health training programs outside of the United States. These Field Epidemiology Training Programs (FETPs) are modeled after CDC's Epidemic Intelligence Service. The 2-year training and service programs are intended to build national and regional capacity in applied epidemiology and to enhance public health practice. During their training and service assignments, participants conduct epidemiologic investigations and field surveys to strengthen their skills in conducting public health surveillance; evaluate disease control and prevention measures; and train other health workers.

- Seven programs are under development in Brazil, China, India, Jordan, and Central Asia.
- About 1,200 persons have graduated to date, and 600 are in training.
- Over 95% of the graduates still work in public health, managing surveillance and public health intervention programs.

To support the strengthening of health services, CDC has also implemented training for sub-national health staff and decision-makers. Major areas of emphasis are communication, management, and evidence-based public health. These programs enhance local level capacity to prevent and control health problems.

WHAT ARE THE NEXT STEPS?

In the past year, China and India, which together represent almost half of the world's population, have formally requested CDC's assistance in developing FETPs. In addition, CDC intends to continue providing assistance through TEPHINET, a network of International Training Programs. CDC will also continue to develop training programs and materials to support the strengthening of international health services.

PREVENTIVE MEDICINE RESIDENCY AND FELLOWSHIP PROGRAMS

WHAT IS THE PUBLIC HEALTH ISSUE?

Physicians have always ensured the public's health, whether focusing on the individual patient through the traditional practice of clinical medicine or by focusing on the larger community in the context of public health practice. To address the new challenges of emerging infectious diseases, worsening chronic diseases, terrorism, and advances in technology, ensuring a well-educated, competent public health workforce is of paramount importance. Preventive medicine-trained physicians combine clinical medicine skills with public health practice expertise (e.g., epidemiology, health services management, environmental health). Given their ability to bridge medicine and public health, they are poised to assume executive-level responsibilities and leadership roles in which they can influence programs and policies. Despite the critical role preventive medicine-trained practitioners can play in overcoming the public health challenges facing the nation, the Third Report of the Council on Graduate Medical Education, *Improving Access to Health Care through Physician Workforce Reform: Directions for the 21st Century*, found that shortages exist in the specialty of preventive medicine.

WHAT HAS CDC ACCOMPLISHED?

CDC sponsors one of the nation's largest Public Health and General Preventive Medicine Residencies (PMRs), training 10 to 12 residents a year. These residencies are each accredited for 1 year of practical, hands-on experience and didactic training for physicians. Training focuses on leadership, management, policy development, and program evaluation. Similar educational opportunities are provided for those with a veterinary medicine background through the Preventive Medicine Fellowship (PMF).

Residents/fellows who are admitted with experience at the state or local level are assigned to a CDC headquarters assignment during the PMR/PMF program. Those with headquarters experience are assigned to the field, thus guaranteeing that each graduate will have trained at least 1 year each in a state or local health department and at CDC headquarters. Participants are then able to maximize their public health practice experience and better prepare themselves to assume leadership roles at the local, state, or federal levels. Since 1972, CDC has trained about 390 general preventive medicine and public health practitioners who link skills in clinical medicine with population-based health. Graduates have assumed various leadership positions at CDC (including graduates serving as director and deputy director of the agency), as well as leadership roles at state or local health departments, universities, and in private settings.

Participants in the PMR/PMF programs have enjoyed various leadership opportunities. One resident served as chair of a state Severe Acute Respiratory Syndrome (SARS) Task Force, guiding the development of the preparedness plan, including the establishment of a SARS surveillance system, and updating the governor's advisory committee about SARS preparedness. Another participant managed the implementation and evaluation of the use of chlorhexidine soap to reduce endemic methicillin-resistant *Staphylococcus aureus* infections in a county jail.

WHAT ARE THE NEXT STEPS?

The PMR/PMF program will continue to support the public health workforce by educating high-quality graduates to meet new public health challenges. The training will include new or revised content areas for public health practitioners such as emergency response, genomics, and informatics. New training technologies and delivery methods will also be developed.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PUBLIC HEALTH LEADERSHIP AND MANAGEMENT DEVELOPMENT PROGRAMS

WHAT IS THE PUBLIC HEALTH ISSUE?

Leadership development for public health officials is important for several reasons:

- Public health leaders often lack formal academic preparation to deal with management and leadership challenges which occupy the majority of work time.
- Demographic trends, along with reduced resources and the lack of organizational succession plans, have increased the need for new skills for our leaders.
- Complex issues and problems confronting the public health system have increased the need for strong communication, collaboration, team building, and planning skills by public health leaders.

WHAT HAS CDC ACCOMPLISHED?

CDC supports several national, state, and international efforts to develop public health leaders. In partnership with academic institutions and national organizations, CDC supports the National Public Health Leadership Institute (PHLI), the Public Health Leadership Society, the Management Academy for Public Health (MAPH), the National Public Health Leadership Development Network, 18 state and regional leadership institutes, and the CDC/ATSDR Leadership and Management Institute. Our partners leverage CDC funds many times over with support from other sources.

Example of Program in Action

Since 1990, over 750 senior public health officials have participated in PHLI and over 1,550 have participated in one of the 18 state and regional leadership institutes. Additionally, over 600 state and local health officials have completed management training in the MAPH. Last year, state and local public health officials from Nevada and Utah met to begin developing a regional leadership development program that will provide advanced training to senior level officials in the Great Basin region, which stretches from the Rocky Mountains to the Sierra Nevada. In 2004, the Kansas Public Health Leadership Institute began the recruitment process for its first class of scholars.

WHAT ARE THE NEXT STEPS?

CDC will continue to support the existing network of leadership development programs at the national, state, and regional level. Additional state-based leadership programs are being developed in Nebraska and Minnesota. Through the development of new learning techniques and technologies, opportunities for leadership development will be offered to new audiences such as emerging leaders, workers in underserved rural and urban areas, and those whose work intersects with public health, such as representatives of faith based organizations, tribal communities, and community-based leaders.

PUBLIC HEALTH PREVENTION SERVICE

WHAT IS THE PUBLIC HEALTH ISSUE?

The expanding mission of public health requires a public health workforce capable of applying a range of disciplines and strategies to programs for the prevention of disease and injury and the promotion of health. Currently, there is a workforce gap in public health management positions at the federal, state, and local levels. This shortage is the result of the expansion of public health programs, competition for trained professionals, and the aging of the current workforce. Although there are accredited schools of public health across the United States, these programs provide their graduates with little practical public health experience. In response to this problem, CDC has developed and implemented a program designed to train and prepare tomorrow's public health program managers.

WHAT HAS CDC ACCOMPLISHED?

In 1997, CDC established the Public Health Prevention Service (PHPS), a 3-year training and service program for master's level public health professionals. About 25 prevention specialists enter the program annually. The program focuses on public health program management and provides prevention specialists with experience in program planning, implementation, and evaluation through specialized hands-on training and mentorship at CDC and at state and local health agencies. In addition to on-the-job training, the PHPS program provides formal instruction in program management, epidemiology, surveillance, emergency response, and project evaluation. Prevention specialists participate in various activities, including seminars, evaluation projects, Web-based training, temporary duty assignments, and conferences that are designed to provide them with essential public health program management skills.

- As of September 2003, 89 prevention specialists have completed the program. Half have returned to federal service and half are in other public health settings.
- Currently, there are 88 prevention specialists: 54 assigned to state and local health agencies; 25 to CDC Centers, Institutes, or Offices; and 9 to CDC's Global AIDS Program (GAP).

Example of Program in Action

As prevention specialists strengthen their skills in public health program management, they work in various public health program areas. Some of the management activities that prevention specialists perform include developing strategies for asthma prevention in collaboration with community partners; developing and implementing HIV/AIDS action plans for GAP in other countries; developing partnerships with faith-based communities to combat HIV/AIDS; planning and developing state Healthy Aging programs; conducting community health needs assessments for public health initiatives; and, evaluating programs, such as tobacco-free initiatives.

WHAT ARE THE NEXT STEPS?

The PHPS Program will continue to support the public health workforce by training public health program managers to meet new public health challenges. New training technologies and delivery methods will be developed to address these challenges.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TRAINING FOR PUBLIC HEALTH AND PRIVATE CLINICAL LABORATORY PROFESSIONALS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Public health and private clinical laboratories must be capable of responding effectively to various public health threats, including emerging infectious diseases, foodborne diseases, environmental hazards, bioterrorism, and chemical terrorism events.
- Laboratory personnel require training for increased rapid recognition and prevention of the spread of communicable disease and environmental threats.
- Laboratorians must be capable of using state-of-the-art testing systems and new technology to more effectively deal with significant public health threats.

WHAT HAS CDC ACCOMPLISHED?

CDC and the Association of Public Health Laboratories co-sponsored the National Laboratory Training Network (NLTN) which provides clinical, environmental, and public health laboratory training. NLTN conducts training exercises on topics of public health significance for laboratory professionals throughout the United States providing the nation's laboratory workforce with training in cutting-edge technology, such as that used to detect bioterrorism agents. The training includes hands-on training in state-of-the-art laboratory settings.

NLTN developed the “Newborn Screening Symposium—Collection, Reporting, and Follow-up,” training program, to address the high rejection rate of improperly collected heel stick specimens from newborns. In one case, an analysis of data collected 3 months prior to the training and 3 months following the training showed a 7% reduction in the heel stick rejection rate. As a result, more than 4,000 newborns were not subjected to additional painful heel sticks and their newborn screenings for genetic disorders were not delayed.

Examples of Program in Action

- In 2003, NLTN conducted 20 classes, which trained about 400 workers from publicly funded HIV testing and counseling sites to perform rapid HIV testing.
- CDC developed an interactive CD-ROM tutorial to assist laboratorians in selecting and using appropriate testing methods to detect antimicrobial-resistant strains of bacteria. This CD-ROM provides the most extensive information on antimicrobial resistance testing available to date.
- Training in newborn screening tests provided improved recognition, detection, diagnosis, and management of genetic disorders in newborns.
- A Bioterrorism Reference Guide was developed by CDC for use in clinical laboratories. The guide contains information on the isolation and identification of bioterrorism agents. In addition, CDC produced bioterrorism training videos, as well as the Bioterrorism “Job Aid,” which can be customized by individual states.

WHAT ARE THE NEXT STEPS?

CDC and NLTN will continue to provide updated training to the nation's laboratorians to ensure laboratory workforce competency as well as high-quality laboratory testing.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

TRAINING FOR PUBLIC HEALTH PROFESSIONALS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Public health professionals are responsible for protecting and maintaining the nation's health. Working in every kind of community with varied access to necessary resources, the public health professionals are called upon to deal with changes as new discoveries identify better methods for maintaining the public's health.
- The 2002 Institute of Medicine Report, *The Future of the Public's Health in the 21st Century*, finds the U.S. public health workforce "insufficient and inadequately trained." At state and local public health agencies, diminishing resources have led to smaller staffs responsible for expanding jobs, resulting in less time and money for training and professional development.

WHAT HAS CDC ACCOMPLISHED?

Over the last decade CDC has worked to develop a national distance learning system comprised of people, technology and funding to train public health workers in all disciplines. These systems include the National Laboratory Training Network (NLTN) and the Public Health Training Network (PHTN). NLTN provides clinical, environmental, and public health laboratory training exercises to laboratory professionals on over 20 topics of public health significance around the country, such as newborn screening, antimicrobial resistance, food safety, genetic testing, and quality assurance for laboratory testing.

PHTN is a public-private partnership dedicated to bringing high-quality adult learning opportunities to the learner anywhere at anytime. PHTN programs are marketed to clinicians and other public health populations and offered in multiple delivery formats, including satellite, Web-cast (live and Web-archive), phone bridge, CD-ROM, videotape, pdfs, and other downloadable print-based materials.

Example of Program in Action

Within days of recognizing Severe Acute Respiratory Syndrome (SARS) as a global threat, PHTN began a series of live satellite Web-based broadcasts presenting critical information about the diagnosis, treatment, control, and prevention of SARS. These programs were viewed by an estimated 400,000 health professionals. PHTN allows CDC to address global health issues at the point of origin as well as at home. For example, working through the Ministry of Health in Beijing, China, CDC delivered master video production tapes for rapid translation into Chinese. These programs were then rebroadcast within China and distributed as CD-ROMs to all health departments in China's 23 provinces. It is estimated that 1.8 million Chinese health professionals have received critical SARS information through translated CDC PHTN programs and CD-ROMs.

WHAT ARE THE NEXT STEPS?

CDC will continue to pursue the highest standards for laboratory training and distance learning in traditional and emerging technologies, and to identify and promote best practices in adult and technology supported learning.

TRAINING OCCUPATIONAL SAFETY AND HEALTH PROFESSIONALS

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, more than 4.7 million workers sustained work-related injuries and illnesses in the private sector alone, and an average of 15 workers died from work-related injuries each day.
- Efforts to prevent occupational illness and injury are hampered by the lack of trained safety and health professionals to meet the needs of a rapidly changing work environment and an increasingly diverse workforce.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts a competitive training grant program aimed at increasing the number of professionals trained to work in the occupational safety and health field. CDC supports a network of 16 Education and Research Centers (ERCs) and 42 separate Training Project Grants (TPGs) around the country. These training programs produce about 600 professionals each year with specialized training in disciplines that include occupational medicine, occupational health nursing, industrial hygiene, occupational safety, and injury prevention. Because ERCs are regional, they can respond to various trends in the workplace throughout the country. ERCs and TPGs produce professionals who can protect workers in virtually every industrial sector.

Example of Program in Action

CDC estimates that about half of all U.S. occupational safety and health professionals graduate from CDC-supported programs at the masters and doctoral levels. About 80% of the professionals graduating from CDC-funded programs pursue careers in occupational safety and health.

WHAT ARE THE NEXT STEPS?

- Train occupational safety and health professionals to protect a diverse workforce in the face of rapid advances in science, medicine, and technology while still addressing age-old concerns (e.g., farming injuries, lead poisoning).
- Work to strengthen occupational safety and health training to nontraditional occupations and disciplines.
- Find new and effective methods of delivering training materials to professionals outside of the academic environment.

WORKPLACE HEALTH AND SAFETY

The workplace, where most of us spend the bulk of our waking hours, can be a hazardous place. Despite improvements in workplace safety and health over the last several decades, more than 4.7 million workers sustained work-related injuries and illnesses in 2002 in the private sector alone. During the same year, an average of 15 workers died from work-related injuries each day. Work-related illness and injury take an enormous economic toll on the nation's employers, workers, their families, and society overall.

CDC conducts scientific research to identify, characterize, and evaluate workplace risk, designs engineering or other solutions to help prevent them, and communicates up-to-date information about work-related hazards and risks so research findings can be applied quickly and effectively. CDC also supports training and education programs for occupational safety and health professionals, as well as capacity building in the states.

The National Occupational Research Agenda was established through a multi-stakeholder, consensus-building process to provide a framework to target and foster occupational safety and health research. CDC conducts and sponsors research in priority areas, with a special focus on high-risk occupations—such as fire-fighting, construction, mining, and agriculture. Most importantly, we are committed to translating research results into practical applications that can be disseminated quickly to the workplace. For example, “Alerts” help employers and workers identify and respond to work-related health hazards, and “Workplace Solutions” provide practical advice on hazard control. Several publications—such as CDC’s “Pocket Guide to Chemical Hazards”—are best-sellers among government documents. Research also guides CDC’s efforts to strengthen worker health and safety in the area of emergency preparedness and response.

Through its efforts to target and foster research, develop effective partnerships, continuously monitor old and new hazards, and rapidly disseminate useful information, CDC has contributed to the nation’s progress in reducing workplace injuries and illnesses. These efforts will help the agency anticipate and respond to new challenges as they emerge in the future.

COMMUNICATING WORKPLACE SAFETY AND HEALTH IN SPANISH

WHAT IS THE PUBLIC HEALTH ISSUE?

- Since 1992, work-related fatalities among Hispanic workers in the United States have increased by more than 50%.
- In 2000 alone, work-related fatalities among Hispanic workers increased by 12% in all U.S. industries and by more than 24% in the construction industry.
- Few resources are available to help Spanish-speaking workers and their employers learn about occupational safety and health.

WHAT HAS CDC ACCOMPLISHED?

Each year, CDC communicates key occupational research findings to the public and decision-makers. Targeted efforts to reduce illness and injury among Hispanic workers include translating this information into Spanish and communicating it in ways that are culturally and socially relevant to them.

Examples of Program in Action

- CDC conducts a Health Hazard Evaluation program to evaluate workplace hazards and recommend solutions when requested by employers, workers, or state or federal agencies. In 2003, the program increased its capacity to conduct evaluations and disseminate results and recommendations in Spanish. CDC is further exploring communication strategies to improve Hispanic workers' accessibility to the program.
- CDC implemented a Spanish-language answering system for its toll-free number and a system for responding to e-mail requests in Spanish. In 2003, during their first year in operation, about 900 Spanish-language requests for occupational safety and health were answered by these new systems.
- In 2003, over 12,000 visitors per month accessed Spanish-language occupational safety and health information through CDC's all-Spanish-language website, *NIOSH en Español*.

WHAT ARE THE NEXT STEPS?

- Supplement and enhance the occupational safety and health information provided on the *NIOSH en Español* website.
- CDC and the Occupational Safety and Health Administration will co-sponsor a Hispanic Summit on Occupational Safety and Health focusing on communication, training, and outreach.
- Continue to work with partners to explore best practices for communicating occupational safety and health information to Hispanic-owned small businesses and businesses with a large Hispanic workforce.

ENERGY EMPLOYEES OCCUPATIONAL ILLNESS COMPENSATION PROGRAM ACT OF 2000

WHAT IS THE PUBLIC HEALTH ISSUE?

- After 600,000 nuclear weapons workers were evaluated, it was discovered that more than 100,000 of them were exposed to radiation.
- An undetermined number of nuclear weapons workers has been exposed to beryllium.
- Silica exposure to workers conducting weapons testing in underground mines has resulted in silicosis.
- Members of this workforce also have been exposed to other hazardous chemicals.
- More than 300 Department of Energy (DOE) sites located in 30 states have independent and differing compensation programs. Nuclear weapons workers have limited and varying access to compensation for wage losses and medical expenses arising from work-related illness.

WHAT HAS CDC ACCOMPLISHED?

The *Energy Employees Occupational Illness Compensation Program Act of 2000* establishes a compensation program for DOE workers and contractors who become ill as a result of exposure to beryllium, silica, or radiation in the course of their work. The Department of Health and Human Services (HHS), through CDC, is responsible under the act for developing guidelines to determine if a worker's cancer was likely to have been caused by occupational exposure to radiation; establishing radiation-dose estimation methods; estimating radiation doses of individual cancer claimants; considering the addition of employee groups to a "Special Exposure Cohort;" and administering and staffing a federal Advisory Board on Radiation and Worker Health.

In May 2002, CDC developed final rules on dose reconstruction and probability of causation under the act, incorporating review by the public, scientific experts, and the independent Advisory Board. These regulations establish CDC methods to estimate radiation doses and enable the U.S. Department of Labor to evaluate cancer causation based on these dose estimates. In 2003, CDC initiated 5,000 dose reconstructions and completed more than 1,500 of them. CDC completed site profiles for many leading nuclear weapons sites, collecting and analyzing extensive information on radiation exposures and monitoring at the sites to facilitate the completion of a high volume of dose reconstructions in 2004. CDC also revised and obtained public comment on proposed procedures for adding groups of workers to the Special Exposure Cohort.

WHAT ARE THE NEXT STEPS?

CDC will expand its radiation dose reconstruction program to meet an unprecedented level of demand, develop final regulations for considering additions to the Special Exposure Cohort, and assist the Secretary of HHS and the Advisory Board in considering Special Exposure Cohort petitions.

HEALTH AND SAFETY OF YOUNG AND AGING WORKERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Because of their biologic, social, and economic characteristics, both young and aging workers pose unique and substantial risks for work-related injuries and illnesses.
- Each year, nearly 70 workers aged 18 years and older die as a result of work-related injuries, and an estimated 84,000 are treated in hospital emergency rooms.
- By 2010, an estimated 40% of the U.S. workforce will be 45 years and older. Older workers are at increased risk for fatal work injuries; require more time to return to work following an injury or illness; and are less likely to receive training as their jobs change.

WHAT HAS CDC ACCOMPLISHED?

CDC has broadened knowledge; initiated promising research and intervention efforts; and developed productive partnerships to address the health and safety needs of both young and aging workers.

Examples of Program in Action

- Through the childhood agricultural injury prevention initiative established in 1997, CDC collected and disseminated previously unavailable data on childhood agricultural injuries. CDC has funded 24 research projects to advance knowledge about causes and prevention of childhood agricultural injuries. CDC also funds the National Children's Center for Agricultural Safety and Health to translate scientific findings into layman's terms and facilitate prevention efforts across the country.
- CDC funded young worker safety and health demonstration projects and published a guide for communities on local efforts to better protect working youth. A guide on how to organize state-based teams is being prepared for distribution nationally.
- Participant of an inter-agency workgroup representing 26 federal organizations was established in 2003 to optimize the impact of federal resources in addressing young worker injuries and illnesses. As an example of this work, safety and health curricula developed through CDC demonstration projects are now used by the federal Job Corps program and some U.S. Occupational Safety and Health Administration training centers.
- CDC collaborated with the National Institute on Aging to fund occupational safety and health research on aging workers. CDC also supports a study by the Institute of Medicine to identify research gaps in our understanding of health and safety issues affecting older workers.
- CDC analyzed data and developed a chartbook documenting the safety and health needs of older workers. In addition, CDC is partnering with "Experience Works," an organization dedicated to serving the needs of aging workers.

WHAT ARE THE NEXT STEPS?

Substantial advances in knowledge about work-related injuries among young and aging workers have occurred. However, increased efforts are still needed to communicate information to stakeholders who can improve workers health and safety. Additional research is needed to better understand unique risks for workers and to identify effective prevention measures.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HEALTH HAZARD EVALUATIONS

WHAT IS THE PUBLIC HEALTH ISSUE?

- More than 294,000 new cases of nonfatal occupational illnesses were reported in private industry in 2002.
- Some occupational diseases are caused by agents or working conditions in which there are no regulations or allowable exposure levels may not protect all workers.
- New occupational health problems have emerged and employees are not equipped with techniques for controlling and/or recognizing these hazards.

WHAT HAS CDC ACCOMPLISHED?

CDC's Health Hazard Evaluation (HHE) program is a congressionally mandated program that responds to requests for evaluations of workplace health hazards from employers; employees and their representatives; and government agencies. CDC conducts studies of workplaces in response to these requests to determine if workers are exposed to hazardous materials or harmful conditions. An HHE presents the opportunity to obtain information on occupational exposures where standards are lacking or do not protect all workers. Workplace exposures studied include chemicals, biological agents, work stress, noise, radiation, and ergonomic stressors. At no cost to the employer, CDC evaluates the workplace environment and the health of employees by reviewing records and/or conducting onsite testing. More than 12,000 HHEs have been completed since the inception of the program in 1971. Since 1999, CDC has been conducting follow-back surveys of HHE participants to assess their satisfaction with the process and to learn whether the recommendations provided led to workplace improvements.

Example of Program in Action

The HHE was an intricate source in defining a correlation between adverse health effects and occupational exposures. Follow-up activities were also performed to assist employers, employees, physicians, and others serving a critical role in reducing exposure and preventing disease. Examples of practices include an assessment and control of exposure to metalworking fluids, which have been associated with the development of hypersensitivity pneumonitis (a disabling lung disease); evaluation of exposure to ultraviolet light as a cause of skin and eye irritation; and recognition of the potential for overexposure to wood dust during furniture stripping and refinishing.

HHEs have been central to the public health response to terrorist attacks by providing state-of-the-art methods for assessing exposure, raising awareness of occupational health concerns among emergency responders, and developing strategies to improve preparedness for future events.

WHAT ARE THE NEXT STEPS?

Emerging occupational health hazards will continue to be a primary focus of the HHE program. CDC will work to inform employers and employees of the HHE program's availability as a unique resource to provide independent, science-based evaluations of a wide variety of occupational health hazards. Increasing efforts will be made to reach Spanish-speaking workers and their employers. Results from the follow-back surveys will be used for continuous improvements in the HHE program.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

HIGH-RISK INDUSTRIES (AGRICULTURE, CONSTRUCTION, HEALTHCARE, MINING)

WHAT IS THE PUBLIC HEALTH ISSUE?

- Mining, agriculture, and construction consistently lead the nation in occupational fatalities, with respective rates of 24, 23, and 12 fatalities per 100,000 workers compared with an average overall fatality rate of 4 per 100,000 in 2002. Nonfatal injury rates also are high for people working in these industries.
- Although people working in the healthcare sector have a lower risk for occupation-related fatalities than the above-mentioned industries, the nonfatal injury rate for healthcare workers is one of the highest in all sectors.

WHAT HAS CDC ACCOMPLISHED?

CDC has used industry-specific approaches and partnering to target research on the health of workers in these high-risk industries. The agriculture and construction industries have been targeted since 1990 and as a result are safer than they were a decade ago. CDC has 17 cooperative agreements, including 10 with regional centers for agricultural safety and health research. In addition, university-based researchers in 20 states address safety and health issues across various construction trades. An industry approach for mining began in 1996 with active projects now under way in 30 states. CDC's own intramural research, surveillance, and information dissemination activities also add an important dimension to improving conditions in these high-risk industries. For example, CDC is conducting a specific research program to prevent occupational illness and injury among nurses.

Examples of Program in Action

- CDC improved the safety of people working in the construction industry by identifying fatal falls during communication tower constructions as being an emerging hazard. CDC then worked closely with industry and government partners to identify safe practices.
- CDC sponsored studies to determine the use and effectiveness of Ultraviolet Germicidal Irradiation (UVGI). UVGI can be used to reduce exposure to biological agents that could potentially be released in a terrorism incident. In addition, when UVGI is used in indoor environments other than healthcare workplaces it has been shown to reduce the symptoms associated with indoor air quality.
- In the agriculture industry, CDC has supported research to prevent tractor rollovers, the leading cause of farm-related fatalities. This work has led to more effective educational efforts to increase farmers' use of tractor retrofit kits to protect against rollovers.
- CDC has taken a leadership role in conducting research and development studies at operating mine sites to assist the transfer of health and safety advancements in various areas. These include the development of new engineering designs and monitoring strategies for preventing and minimizing rock failures at underground and surface mines, improved training systems and approaches, and the expansion of the extramural mining program to address several high priority topics.

WHAT ARE THE NEXT STEPS?

Through surveillance, research, prevention, and control, CDC will continue to work to reduce fatality and injury rates in high-risk industries.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

MUSCULOSKELETAL DISORDERS IN WORKERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- More than 520,000 lost workdays caused by musculoskeletal disorders (MSDs) are reported each year—more than one third of all the lost workdays resulting from occupational injuries and illnesses.
- Employers with leading safety and health programs in numerous industries report that the number of MSDs can be reduced with appropriate design and management of work environments, equipment, tasks, and tools.
- The challenge is to assist all employers in developing, evaluating, and adopting effective practices to protect employees.

WHAT HAS CDC ACCOMPLISHED?

CDC has provided widely requested guidance on preventing work-related MSDs. In addition, CDC continues to conduct and fund research addressing many aspects of the relationship between MSDs and both work-related and non-work-related factors, including physical and psychological stressors. CDC supports about 50 projects in these areas.

Example of Program in Action

Nursing aides, orderlies, and attendants at nursing homes experience the largest number of reported cases of work-related back pain. CDC is collaborating with BJC Health System, EZ Way Inc., and ArjoCentury Inc. to develop and evaluate the effectiveness of a best practices back injury prevention program for reducing the incidence, severity, and cost of back and other musculoskeletal injuries among nursing home personnel. Use of state-of-the-art lifting equipment has been demonstrated to completely eliminate the exposure to low-back stress associated with manually helping residents to stand and sit. Data from six nursing homes indicate that with the use of such equipment, there was a 61% reduction in injury rates and a 37% reduction in worker's compensation expenses related to patient lifting and transferring. Results of this evaluation will be published in 2004 and have been presented to several groups interested in approaches to back-injury prevention.

WHAT ARE THE NEXT STEPS?

CDC has issued the National Occupational Research Agenda for Musculoskeletal Disorders. It provides a blueprint for advancing research on MSDs by identifying high-priority research problems. The agenda was developed with extensive involvement of industry, labor, academia, and government experts. CDC will work with partners in the public and private sectors to implement this research agenda, while continuing to provide information and assistance to workplaces.

OCCUPATIONAL FATALITY INVESTIGATION AND PREVENTION

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, more than 5,500 workers were fatally injured at work, an average of 15 a day.
- The direct costs of occupational injuries and illnesses were estimated to be \$45.8 billion in 2001 (2003 Liberty Mutual Workplace Safety Index). The indirect costs were estimated to be an additional \$137.4 to \$229 billion.
- Although data used to track work-related injury deaths are useful for identifying groups at high risk and the general causes of these events, more in-depth information is frequently required to understand the circumstances of and contributors to fatal injuries in order to develop effective preventive measures.

WHAT HAS CDC ACCOMPLISHED?

CDC operates the Fatality Assessment and Control Evaluation (FACE) program, which conducts in-depth investigations of work-related fatalities. Risk factors are identified and strategies to prevent similar deaths are developed and disseminated. FACE investigations are conducted by CDC staff in 6 states and by local investigators in 15 states funded by CDC through cooperative agreements. In 2003, 87 new investigations were conducted that focused on: deaths of youth less than 18 years of age, deaths in roadway construction work zones, deaths involving machinery, and deaths of Hispanic workers. State FACE programs target additional areas for investigation based on the region's pattern of work injury deaths.

In 1998, a program was developed to address firefighter line-of-duty deaths across the country. The results of these investigations were disseminated nationally throughout the fire service industry. Fire departments are using these results to improve work practices and procedures at fire scenes and to improve equipment to prevent injuries and deaths. In 2003, 43 new investigations were conducted in 22 states.

Example of Program in Action

In 2003, New York Governor George Pataki implemented a law prohibiting the use of live fires in firefighter drills. The law resulted from the 2001 death of a firefighter. CDC's investigation of this incident was cited in the justification for this new law.

WHAT ARE THE NEXT STEPS?

Fatality rates are decreasing in many industry sectors and occupational groups; however fatal injuries in the workplace still greatly affect the American workforce. FACE is a comprehensive worksite investigation providing strategies for more efficient worker injury prevention practices. FACE is now focusing on identifying risk factors and effective injury prevention strategies for high-risk occupational groups (e.g., adolescent workers, firefighters, Hispanic workers) and for persons working in unique hazardous environments (e.g., construction work zones).

OCCUPATIONAL SAFETY AND HEALTH INFORMATION

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, more than 4.7 million workers sustained work-related injuries and illnesses in the private sector; an average of 15 workers died from work-related injuries each day.
- The direct costs of occupational injuries and illnesses were estimated to be \$45.8 billion in 2001 (2003 Liberty Mutual Workplace Safety Index). The indirect costs were estimated to be an additional \$137.4 to \$229 billion.
- Policy-related, technical, and educational materials are critical in assisting both individuals and decision-makers in taking appropriate actions to prevent and reduce work-related illnesses and injuries.

WHAT HAS CDC ACCOMPLISHED?

Each year, CDC translates occupational research findings into various media to be used by public health policymakers and practitioners, employers, and workers. This information provides a scientific basis for policy development and is used to identify previously unrecognized threats to worker health and safety and to develop related prevention strategies and workplace solutions. Educational materials provide targeted populations (e.g., workers, employers, health practitioners) with practical information about risks and prevention. Each year, CDC distributes over 1 million copies of occupational safety and health documents through its publications clearinghouse. Occupational safety and health information also is available in both English and Spanish on CDC's website.

Examples of Program in Action

- Published *Filtration and Air-Cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks*, which provides specific recommendations to protect building air environments from a terrorist release of chemical, biological, or radiological contaminants.
- Developed the online *NIOSH Hearing Protector Device Compendium*, which contains information on hearing protectors sold in the United States. This new database is searchable by product type, manufacturer, and Noise Reduction Rating.
- Created the *Respirator Fact Sheet: What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work*, which provides basic information to assist employers, employees, and consumers who are considering purchasing escape hoods or other respirators.
- Published *Asphalt Fume Exposure During the Application of Hot Asphalt to Roofs*. Developed through a collaborative effort among NIOSH, the National Roofing Contractors Association, the Asphalt Roofing Manufacturers Association, the Asphalt Institute, and the United Union of Roofers, Waterproofers, and Allied Workers, the document identifies engineering controls and work practices that can reduce exposures to asphalt fumes.
- Published the *Work-Related Lung Disease Surveillance Report 2002*. The sixth in a series of documents on work-related respiratory diseases and associated exposures, the report includes information for 1997–1999, with new sections on malignant mesothelioma, lung cancer, other interstitial pulmonary disease, and smoking status by industry and occupation.

WHAT ARE THE NEXT STEPS?

- Continue to provide key information to individuals and decision-makers to help reduce work-related injuries and illnesses.
- Seek new and improved ways of reaching CDC stakeholders, such as expanding the use of Internet services to disseminate information.
- Regularly evaluate publications to assess their value and utility among primary users of this information.
- Improve communication practices for delivering occupational safety and health information to small businesses.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING NEEDLESTICK INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- In the United States, 384,000 needlestick and other sharps injuries occur each year among hospital-based healthcare workers.
- Needlestick injuries carry the risk of exposure to infectious bloodborne diseases (e.g., HIV, hepatitis B virus, and hepatitis C virus). Even when a serious infection is not transmitted, the emotional impact of a needlestick injury can be severe and long-lasting.
- A substantial proportion of needlestick and other sharps injuries could be prevented by incorporating safer medical practices and programs in the workforce.
- Recent federal and state legislation mandates the use of safer medical devices.

WHAT HAS CDC ACCOMPLISHED?

CDC is responsible for conducting research and making recommendations for the prevention of work-related illness and injury. For needlestick and other sharps injuries, this is accomplished through a comprehensive research agenda including surveillance of blood exposures, developing recommendations for exposure management, disseminating strategies for reducing these exposures through the use of engineering and administrative controls, and conducting various training and education programs. CDC has undertaken research and distributed scientific information and recommendations to help prevent needlestick injuries among healthcare and public safety workers and has funded research to estimate the risk of exposure to blood for correctional healthcare workers, operating room personnel, and healthcare workers employed in non-hospital settings.

Example of Program in Action

CDC developed a website that contains information on needlestick prevention. In addition, CDC has partnered with hospitals, home healthcare agencies, nursing homes, and dental offices to work through the process of identifying, selecting, evaluating, and implementing safer medical devices. These healthcare facilities share their lessons learned on a website that is visited by more than 1,500 visitors each month.

WHAT ARE THE NEXT STEPS?

CDC will continue to monitor needlestick injuries and other blood exposures among healthcare workers and provide information on the management of occupational exposures, including updating recommendations for post-exposure prophylaxis. In addition, CDC is investigating the risks of blood exposure among healthcare workers, including those who work in home settings. CDC also is investigating the risks of blood exposure among community workers such as body piercers, tattoo artists, waste handlers, and police officers.

PREVENTING OVEREXPOSURE TO HAZARDOUS SUBSTANCES THROUGH RESPIRATOR CERTIFICATION

WHAT IS THE PUBLIC HEALTH ISSUE?

- When engineering and other controls do not reduce exposures below hazardous levels, workers must rely on personal protective equipment. Industries that often require workers to use such equipment include mining, firefighting and other emergency response, healthcare, and agriculture.
- People who respond to hazardous incidents or terrorist activities need assurance that the protective equipment they use will perform to specifications and meet minimum performance standards.
- According to a recent study conducted jointly with the Bureau of Labor Statistics, about 3.3 million workers use CDC-certified respirators.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts a respirator certification program that ensures respiratory protective equipment will perform with established standards. The program assesses the ability of the equipment's design to meet regulatory performance and quality standards.

Since 1972, CDC has issued more than 8,200 respirator approvals. In 2003, CDC processed 399 certification applications for respirators produced by 90 manufacturers in 102 sites located in 18 countries. Forty-one product audits were completed; 11 respirator manufacturing sites were audited, including 2 foreign sites. Twenty-three reports of problems with CDC-approved respirators were received and 18 related investigations were completed; 7 of these investigations led to product recalls or field retrofit actions. Five new policies were developed and implemented to assess new and innovative respirator designs.

Examples of Program in Action

- In early 2002, CDC certified the first self-contained breathing apparatus (SCBA) for chemical, biological, radiological, or nuclear (CBRN) exposures, which is the type of respirator most likely to be used by first responders to potential terrorist incidents.
- In 2003, CDC provided criteria for testing and certifying CBRN air-purifying respirators used by emergency responders.
- CDC initiated a CBRN SCBA retrofit certification program that allows existing SCBA to be upgraded to CBRN performance requirements, using a CDC-approved retrofit kit. This will enable responders to obtain CBRN protection without purchasing new equipment. The first retrofit kit was approved in September 2003.
- CDC developed and implemented a CBRN research and development test program to increase respirator manufacturers' ability to conduct research and development. Manufacturers can test the effectiveness of their respirators against chemical warfare agents at a U.S. Army chemical test laboratory, before submitting them for CDC certification testing.
- CDC created a computer program that can be used to accurately predict when a respirator's cartridge filter will lose its ability to protect the wearer from toxic air contaminants.

WHAT ARE THE NEXT STEPS?

CDC is updating its existing quality assurance standard to promote improved respirator quality and reliability. CDC also is developing standards for certifying self-contained, closed-circuit escape breathing apparatus such as the self-contained self-rescuers that are used in the mining industry.

For additional information on this or other CDC programs, visit www.cdc.gov/program

January 2004

PREVENTING WORK-RELATED INJURIES

WHAT IS THE PUBLIC HEALTH ISSUE?

- Fifteen U.S. workers die as a result of injuries at work, 200 are hospitalized, and 11,000 are treated in hospital emergency departments each year. Additional injuries are treated in physicians' offices, clinics, and at worksites.
- The direct costs of occupational injuries and illnesses were estimated to be \$45.8 billion in 2001 (2003 Liberty Mutual Workplace Safety Index). The indirect costs were estimated to be an additional \$137.4 to \$229 billion.
- The leading causes of fatal occupational injuries are related to transportation, contact with objects and equipment (e.g., being struck by an object, striking against an object, being caught in equipment), and violence.
- Overexertion, contact with objects and equipment, and falls are the leading causes of nonfatal occupational injuries.
- Technological advances, the design and organization of work, and persistent hazards all create constant demands for new research and information to protect workers from injury.

WHAT HAS CDC ACCOMPLISHED?

CDC developed the nation's principal research program for the prevention of work-related injuries. CDC scientists, as well as researchers and professionals at universities and state agencies throughout the United States, engage in all aspects of injury prevention. For example,

- Injury surveillance is used to identify potential risk factors and monitor trends over time.
- Workplace protections have been improved because of various research initiatives (e.g., safety systems for machinery and protective equipment for workers).
- Intervention studies were created to evaluate the real-world effectiveness of protection strategies.
- Communication programs were developed to ensure that employers, managers, workers, and safety and health professionals have ready-access to the latest injury prevention information.
- The traumatic injury research program focuses on the leading causes of injury and death and on the highest risk industry sectors (i.e., agriculture, mining, construction). Since 1980, this program has helped reduce the rate of fatal occupational injuries nationwide by 46%.

Example of Program in Action

CDC developed and evaluated an injury prevention program for reducing the incidence, severity, and cost of back injuries, a persistent problem for nursing home workers. Research showed the program paid for itself in less than 3 years by reducing injury frequency by 57%, injury rates by 61%, and workers' compensation expenses by 37%.

WHAT ARE THE NEXT STEPS?

Although traumatic injury rates are decreasing in many industry sectors and occupational groups, workplace injury still takes a huge toll on the American workforce. Research is needed to address persistent hazards (e.g., falls in construction and tractor rollovers in agriculture) as well as emerging hazards (e.g., highway construction work zones).

PROTECTING THE SAFETY AND HEALTH OF IMMIGRANT WORKERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Foreign-born workers are more likely to be employed in the higher-risk and lower-wage sectors of the workforce, such as agriculture, construction, and service industries.
- There are about 17 million foreign-born workers in the United States.
- Latin America is the region of birth for over half of foreign-born workers.
- While the total number of occupational fatalities in the United States continues to decrease, the 840 fatal work injuries reported for Hispanic workers in 2002 accounted for the second highest annual total for that population since 1992.

WHAT HAS CDC ACCOMPLISHED?

CDC is working to address the health and safety needs of immigrant workers through targeted efforts to reduce illnesses, injuries, and fatalities in the most hazardous sectors of the immigrant workforce.

Examples of Program in Action

- To better understand issues faced by immigrant agricultural workers, CDC collaborated with the Department of Labor to collect data on hired crop farm workers, most of whom are foreign-born, through the National Agricultural Workers Survey (NAWS). NAWS is the only national study that has documented the living and working conditions of immigrant workers.
- In 2002, about 25% of fatal occupational injuries to foreign-born workers occurred to workers in construction trades. CDC is studying dry-wall work, the construction occupation that has the highest percentage of Hispanic workers, and has developed Spanish language survey and educational materials for preventing silicosis, a fatal disease affecting construction workers.
- In 2002, about 24% of fatal occupational injuries to foreign-born workers were due to homicides. CDC is evaluating the effectiveness of violence prevention strategies, such as panic buttons in taxi cabs, as well as various state-based approaches. CDC also is supporting studies on prevention of nonfatal injuries to immigrant workers, such as home healthcare aides and poultry workers.
- CDC has developed a Spanish-language website to better meet the needs of the growing Hispanic worker population, which is estimated to increase by more than one third over the next decade. The website, “NIOSH en Español,” provides resources in Spanish, including translations of selected CDC publications and links to other useful Spanish-language materials on occupational safety and health.

WHAT ARE THE NEXT STEPS?

CDC will continue to improve data collection, research, and communication methods to better address the language, cultural, social, and political challenges immigrant workers face. Increased understanding of the experiences and concerns of immigrant workers will help better tailor education and intervention programs to meet the needs of this diverse population.

TRACKING WORK-RELATED INJURIES, ILLNESSES, AND HAZARDS

WHAT IS THE PUBLIC HEALTH ISSUE?

- In 2002, more than 4.7 million workers sustained work-related injuries and illnesses in the private sector, and an average of 15 workers died from work-related injuries each day.
- Ongoing surveillance activities in occupational safety and health form the foundation for prevention activities needed to reduce the incidence of work-related injuries and illnesses.

WHAT HAS CDC ACCOMPLISHED?

CDC plays a key role in tracking occupational hazards, diseases, and injuries. CDC supports scientists and public health agencies across the country to conduct research and develop state-based occupational disease and injury surveillance programs. In addition, CDC maintains national databases of occupational injuries and fatalities. With broad stakeholder involvement, CDC has developed a strategic plan to address surveillance needs for the 21st century.

Examples of Program in Action

- CDC provided support to New York City following the World Trade Center (WTC) attacks to track injuries to emergency response workers. Because high numbers of eye injuries were noted, CDC quickly developed and distributed recommendations for prevention. CDC continues to track injuries and illnesses sustained by emergency response and recovery workers at the WTC disaster site. This information will be helpful in disaster preparedness efforts to ensure that emergency response and recovery workers have equipment and training to protect their health and safety.
- CDC's Adult Blood Lead Epidemiology Surveillance (ABLES) program is an ongoing effort to identify and track blood lead levels among U.S. adults. In 2002, an ABLES report showed a decline in the rate of adults with blood lead levels above 25 micrograms per deciliter from a mean of 15.2 adults per 100,000 employed in 1994–1997 to a mean of 13.4 adults per 100,000 employed in 1998–2001 (*MMWR* 2002;13[51][SS11]:1-10).
- With CDC support, the California Department of Health Services (CDHS) worked with community organizations to collect occupational injury and illness data from immigrant workers. CDHS identified a high incidence of carpal tunnel syndrome (CTS) among immigrant women working for garment manufacturers. CDHS worked with employers to identify cost-effective changes for work stations to reduce CTS. This work provided insights into the undercounting of immigrants in surveillance systems and identified cost-effective prevention measures that could be adopted elsewhere.
- CDC's Sentinel Event Notification System for Occupational Risks (SENSOR) program involves ongoing case-based tracking linked actively with intervention activities for selected work-related health events. The New Jersey SENSOR project for silicosis identified highway repair as a high-risk exposure setting for construction workers. As a result, the New Jersey Silica Partnership was established; members include the state Departments of Health and Transportation, the Occupational Safety and Health Administration area office, CDC, industry, and labor associations. This partnership led to the inclusion of silica health and safety language in all state contracts for highway repair projects, the establishment of an education and respiratory protection training program for highway repair workers, and the development of a water spray to reduce silica dust generation.

WHAT ARE THE NEXT STEPS?

CDC has made strides in implementing its strategic surveillance plan, including taking steps to make occupational safety and health data more accessible and user-friendly. The plan will continue to guide future surveillance activities.

WAR-RELATED INJURY PREVENTION

WHAT IS THE PUBLIC HEALTH ISSUE?

- In the 20th century, 72 million deaths (nearly half of which were civilians) occurred in 25 conflicts worldwide.
- From 1987 through 1997, 2 million children were killed and 4 to 5 million children were seriously injured during armed conflict.
- Each year in Afghanistan (one of the most heavily landmined countries in the world), 2,000 to 3,000 people are killed or injured by landmines and unexploded ordnance (UXO). About two people per 1,000 are permanently disabled.
- In recent years, frequency of rape and sexual violence has increased during and after conflicts. During the conflict in Bosnia, estimates of the number of women raped ranged from 10,000 to 25,000.

WHAT HAS CDC ACCOMPLISHED?

- CDC has provided support to the Landmine Survivors Network (LSN) for the past 4 years. LSN programs help people in war-affected countries to facilitate socioeconomic reintegration of landmine survivors and help survivors of traumatic limb-loss to recover from their injuries.
- CDC, the World Health Organization, and the Pan American Health Organization, have helped establish post conflict injury surveillance programs in Nicaragua, El Salvador, Honduras, Colombia, Sri Lanka, Ethiopia, and Mozambique. CDC established emergency room-based surveillance systems to track both fatal and nonfatal injuries to provide data so risk factors could be identified and injury intervention programs could be developed.
- CDC, in partnership with the United Nations Children's Fund (UNICEF), the Vietnam Veterans of America Foundation, the International Rescue Committee, and the Mine Clearance Planning Agency of Afghanistan, implemented the largest, nationwide war-related mortality, injury, disability, and mental health survey in Afghanistan. Data collected from more than 6,000 people have been used to establish national estimates of mortality, injury, disability, and mental health status.
- CDC organized a war-related injury and public health conference with the Sixth World Injury Conference. CDC sponsored 30 scholarship candidates from conflict settings to participate in this workshop about landmines, UXO, small arms, sexual violence, surveillance, and survey methodology.
- At the request of UNICEF, CDC organized and conducted an epidemiology training course to provide select mine-risk educators with the skills necessary to incorporate epidemiology and other public health practices into the development and evaluation of mine-risk education and other prevention programs.

WHAT ARE THE NEXT STEPS?

- CDC will help UNICEF evaluate several mine-risk education programs to determine their effectiveness in teaching people to identify and avoid landmine and UXO injuries.
- CDC will initiate efforts to measure the impact of sexual violence in the context of war through surveillance and surveys in conflict and post conflict settings; efforts are underway to develop a sexual violence survey in the Democratic Republic of Congo.
- CDC will continue to provide technical assistance to the United Nations and other nongovernmental organizations in their efforts to prevent war-related injuries.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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WORK-RELATED CANCERS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Statistics show that more than 20,000 cancer related deaths occur yearly in the United States due to occupational exposure to carcinogenic substances, chemicals, and sources of ionizing radiation.
- Millions of U.S. workers are exposed to substances that have been shown to be carcinogenic in animal studies.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts and funds research and public health activities to prevent and reduce the incidence of work-associated cancers. Accomplishments include

- The publication of studies and risk assessments leading to widespread recognition of the hazards of arsenic, asbestos, benzene, beryllium, cadmium, chromium diesel fumes, ethylene oxide, nickel, radon, silica, sulfuric acid, and vinyl chloride.
- Establishing scientific basis and protection strategies, which are used in accordance with the U.S. occupational health standards to control workplace exposures.
- Developed the scientific basis for compensating U.S. uranium miners under the *Radiation Exposure Compensation Act*.
- Participated in the nomination and review process for adding to the National Toxicology Program's 11th Report on Carcinogens (2003) 14 substances or exposures occurring in the workplace that are classified as "known" or "reasonably anticipated" to be human carcinogens.

WHAT ARE THE NEXT STEPS?

- CDC research programs are focused on issues of current public health concern (e.g., occupational causes of breast cancer among women, the biological mechanisms underlying occupational cancer).
- In partnership with other agencies in the National Toxicology Program, CDC researchers will continue to evaluate the scientific evidence for identifying carcinogens and develop priorities for testing potential occupational carcinogens. Specifically, testing of complex mixtures or exposures in the workplace is a priority; abrasive blasting materials, welding fumes, and metal working fluids are being targeted for such testing.
- CDC will collaborate with the National Cancer Institute and other organizations to develop improved occupational cancer research methods by using advances in the field of genetics and integrating human, animal, and mechanistic cancer research findings.
- CDC will initiate a new National Exposures at Work Survey, which will provide data on current workplace exposures to potential carcinogens.

WORK-RELATED CARDIOVASCULAR DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

- An estimated 59.7 million Americans have cardiovascular (heart) disease, which is the leading cause of death for both women and men in the United States.
- Cardiovascular disease rates vary substantially among occupational groups. Men have a 9-fold difference between high- and low-risk occupations, and women have a 5-fold difference.
- Prevalence of certain factors (e.g., job stress, shift work, persistently long work hours) may contribute to the development of heart disease. Environmental tobacco smoke also may contribute to heart disease, particularly in occupations with high exposure.
- More than 9 million Americans are exposed to high levels of noise at work, causing an elevated blood pressure for a short period of time. These individuals are at risk for developing chronically high blood pressure, which is one of the leading risk factors for cardiovascular diseases.

WHAT HAS CDC ACCOMPLISHED?

CDC has conducted preliminary research to evaluate the role of occupational factors in cardiovascular diseases and has inaugurated research and public health activities to improve employer protections for workers exposed to potential risk factors.

Examples of Program in Action

- Conducted a study of heart disease and job stress. The study found that increased job control, which can reduce job stress, was associated with lower incidence of ischemic heart disease.
- Performed a study of shift work and heart disease among blue-collar workers. The study found no relationship between non-rotating shift work and the risk of heart disease.
- Conducted an analysis of studies that examined the association between occupational exposure to environmental tobacco smoke and heart disease. These studies indicated an increased risk of heart disease of about 20% to 30% among exposed workers, resulting in 1,710 deaths annually among workers 35 to 69 years of age.

WHAT ARE THE NEXT STEPS?

CDC is conducting three studies to provide more definitive findings on the role of occupational factors in cardiovascular disease. CDC is conducting a 5-year prospective study of 20,000 men and women that will evaluate the relationship between job stress and both cardiovascular disease and hypertension while accounting for leading risk factors (e.g., smoking). CDC is also performing a 3-year prospective study of workers that will evaluate the relationship between noise and blood pressure. Finally, CDC is analyzing data from the third National Health and Nutrition Examination Survey and the O*NET system to examine relationships between specific occupational variables and symptoms of heart disease.

WORK-RELATED HEARING LOSS

WHAT IS THE PUBLIC HEALTH ISSUE?

- Millions of U.S. workers are exposed to potentially hazardous noise at work, and 9 million of them also are exposed to chemicals that can damage hearing.
- Of 28 million Americans with hearing impairment, half suffer from noise-induced hearing loss.
- Occupational hearing loss is irreversible, yet it is 100% preventable.
- Many employers lack resources and strategies to control damaging noise levels.
- The widespread reliance on personal hearing protection has not been effective in preventing occupational hearing loss.

WHAT HAS CDC ACCOMPLISHED?

CDC has conducted research and widely disseminated scientific guidance for the prevention of noise-induced hearing loss. CDC research and guidance has provided the scientific basis for U.S. national workplace standards to prevent noise-induced hearing loss among miners and employees of other industries.

Examples of Program in Action

- Recent CDC research identified that the laboratory rating method for personal hearing protection often overestimates the protection provided to workers. Based on those findings, the American National Standards Institute endorsed new test methods. As a result, ratings advertised on personal hearing protection will now reflect the level of protection the devices provide in real-world settings versus those in testing laboratories.
- CDC recently completed a cooperative research effort with the Nevada Mining Association to assess the effectiveness of engineering noise controls on operating mine equipment in several underground metal mines. The research study is the first of its kind. Findings are being used by industry and government to improve the working conditions of the mining workforce.
- Under a cooperative agreement, CDC is developing a computer-based system that will assist in tracking hearing conservation data among workers (e.g., noise exposure levels, use of hearing protection, medical histories). The completed electronic system will be usable in most occupational safety and health situations. Coalition partners for this initiative include automobile industry employers and workers, acoustic consultants, and computer software experts.

WHAT ARE THE NEXT STEPS?

CDC is working with the National Institutes of Health and other organizations to promote widespread use of improved protections against hearing loss. New efforts regarding noise control research will focus on workers at high risk in the construction and mining industries.

WORK-RELATED LUNG DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

- From 1968 through 2000, pneumoconiosis (lung disease caused by inhalation of dusts) was an underlying or contributing cause of nearly 125,000 deaths in the United States, including over 2,860 deaths in 2000.
- Among adults, 20% to 30% of asthma is caused or aggravated by work exposures.
- An estimated 15% of chronic obstructive pulmonary disease (COPD)—the nation's fourth leading cause of death—is work-related.
- The estimated annual cost of COPD is \$5 billion.

WHAT HAS CDC ACCOMPLISHED?

CDC conducts surveillance, research, and service aimed at preventing and eliminating occupational respiratory diseases. The prevention of COPD is an important public health issue in the United States. Drawing from a representative sample of the U.S. adult population, a CDC study estimated that nearly 20% of COPD among working adults is occupationally related and identified industries and occupations with a higher-than-expected prevalence of COPD. Increased risk for COPD was identified in the rubber, plastics, and leather manufacturing industries; the textile mill products manufacturing industry; the food products manufacturing industry; agriculture; and construction. COPD was substantially more prevalent in blue-collar industry sectors than in white-collar industry sectors. The study results also suggest an increased risk in other industries, such as utilities and office building services that have not previously been associated with a risk for COPD.

Example of Program in Action

CDC has initiated collaborative research studies with Tulane University and the University of California on the risk of COPD associated with dust exposures not otherwise regulated. The burden of COPD, particularly among the blue-collar industrial workforce, can be reduced or prevented through measures to reduce hazardous occupational exposures and through effective workplace pulmonary function screening for timely identification and treatment of COPD in its early stages. Reducing the burden of work-related COPD also would reduce significantly the overall burden of COPD in the U.S. adult population. COPD is included as a priority area under the National Occupational Research Agenda for research that will do the most to protect workers from job-related illnesses and injuries.

WHAT ARE THE NEXT STEPS?

CDC must continue to identify and promote control of workplace exposures that cause debilitating and deadly respiratory diseases. Epidemiologic research is needed to provide the scientific basis for preventing work-related COPD. CDC will evaluate the risks and potential preventive interventions for workers exposed to beryllium and for certain workers in the food processing industry (i.e., microwave popcorn production workers) who may be routinely exposed to substances causing bronchiolitis obliterans, a severe form of COPD. In addition, CDC recently began an aggressive program of research to prevent work-related asthma, including asthma related to nonindustrial building air quality.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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