PROTECTION...LEADERSHIP...EXCELLENCE

THE STATE OF CDC: 2007

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PROTECTION...LEADERSHIP...EXCELLENCE

Welcome to The State of CDC, Fiscal Year 2007, our annual health protection impact report. The activities and successes covered in this report provide a rich slice of the broad, ever-growing spectrum of CDC activities that are shaping and strengthening the foundations of health for the 21st century.

In many ways, The State of CDC reflects the state of our nation's well-being by reporting on successes from the last year in disease prevention and control. This report also focuses on the outstanding men and women who are making real differences in people's lives and those people who are touched by the work of public health. Inside we have the large and small miracles of science-based, networked activities—some complex, some simple, all urgently necessary in securing a healthy future for our nation and the world.

CDC's four overarching Health Protection Goals provide a strategic framework for achieving health protection and health equity. They foster collaborations throughout our organization and with our partners. Our four goals—Healthy People in Every Stage of Life; Healthy People in Healthy Places; People Prepared for Emerging Health Threats; and Healthy People in a Healthy World—reinforce the priorities of HHS' Secretary of Health Michael Leavitt's and our nation's Healthy People Goals. The stories in this report exemplify CDC successes in these four goals and well as progress on creating a more synergistic and collaborative CDC.

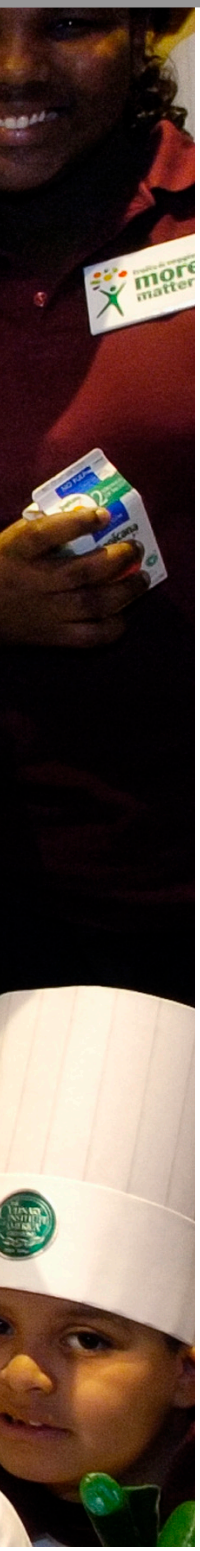
A Vision for the Future

We are at a point where the debate about healthcare reform needs to be enriched by including the public health system and the concepts of health protection and health equity. I believe that CDC and the entire public health system have never had a better opportunity to be part of that conversation. We must do more than improve our ability to safely and cost-effectively treat diseases; we must create a true health system that measures, values, and rewards health promotion and disease prevention as much or even more than disease care. We need a fair and equitable system that protects the health of people who are fortunate enough to enjoy good health while also empowering and motivating those whose lifestyles, environment, or socioeconomic circumstances create heath vulnerabilities.

This concept of health equity—fairness in the opportunity to achieve optimal health status—is one that we at CDC use as an implicit part of our value system when we're thinking about our work. It's what drives our passion. It's what motivates us to go anywhere, anytime, to do anything that needs to be done to help protect people's health. CDC and the public health system have never had a better opportunity to achieve the common objective of optimal health value and equity for all.

– Julie Louise Gerberding, MD, MPH, Director, CDC; Administrator, ATSDR

CDC's launch of the next generation of the 15-year-old "5 A Day for Better Health" program, "Fruits & Veggies – More Matters," is critical to ensure consistency with the 2005 Dietary Guidelines for Americans and especially for children, says CDC nutrition expert, William Dietz, MD, PhD. This new program has received extensive industry and organizational support from more than 170 produce companies and 21,000 retailers.



States Gain Ground in School Health

Childhood obesity rates have risen sharply over the last three decades, but data from CDC's School Health Policies and Programs Study show that more schools are heeding CDC's recommendations for improving our children's health and are starting to make a difference in the nation's schools. Through CDC's goals process, the agency has placed a significant amount of resources into improving the health and safety of students by implementing comprehensive and coordinated instruction, programs, policies, and services that involve families, schools, and the community.

Less junk food, more exercise, and better tobacco policies are some of the major improvements CDC identified in the largest and most comprehensive study of health policies and programs in the nation's schools. State accomplishments include:

Arkansas has kept childhood obesity rates stable for the past two years by implementing a comprehensive initiative that includes improvements in school nutrition and increased physical activity. A key to its success is the creation of the Arkansas Center for Health Improvement (ACHI), a nonpartisan independent health policy center. Now in its fourth year, ACHI has collected data on the annual body/mass index (BMI) assessments for half a million students in 1,100 schools. ACHI also provides progress reports to all key stakeholders on the annual BMI assessment, and CDC has been pivotal in advising ACHI in interpreting the data and ensuring accurate results. Its next steps are to analyze the data to determine which population groups have more of an obesity burden and to provide resources to help those groups reduce their risks.

Colorado's Physical Activity and Nutrition Program is in eight rural communities to develop multisector obesity prevention work plans based on community assessments and formative research. The program has received support from CDC and numerous partners and is successfully continuing partnerships to support comprehensive community approaches. In Commerce City, for example, approaches include:

- Eat Smart, Be Smart: A nutrition, cooking, and literacy program for low-income preschool students and their parents.
- Helping Hands Youth: A community gardening program for youth.
- Mobile Market: A small-business pilot program to deliver fresh, affordable fruits and vegetables to various locations in the community.

The **Texas** state legislature mandated in 2001 that all elementary schools have a coordinated school health program for both nutrition and physical activity by 2007. The Coordinated Approach to Child Health (CATCH) program is an elementary school program that provides guidance on school curriculum, physical education, school lunch, and family involvement. It is proven to be effective in producing diet and physical activity change persisting into early adolescence and to prevent increases in overweight from grades 3 to 5. This program also sparked Texas state legislation requiring a coordinated school health program.

CATCH has been adopted by more than 1,500 schools in Texas, approximately one third of the state's elementary schools. Funding from CDC's Prevention Research Centers Program boosted CATCH's research base, allowing local officials to refine and test different strategies.

I see this as a form of divine intervention—I was at the right place at the right time. I have been blessed that my cancer was caught early. Colorectal cancer is curable and preventable with screening. If people don't know where to go, thanks to the CDC's grant, they now have options.

—Reverend Vaughn Profit-Breaux, Seattle, Washington

Prevention Works Miracles

Colorectal Cancer Screening Program
In March 2007, after a series of fecal occult blood tests (FOBTs) had come back negative despite having a diagnosis of anemia, a nurse told Reverend Vaughn Profit-Breaux about a new program offered through Public Health - Seattle & King County for prevention screening.

Thanks to funds from a cooperative agreement with CDC, a colorectal cancer screening (CRC) demonstration program had been established in his community to increase screenings among people aged 50 years and older. The program is designed to provide screening and follow up tests for low-income persons aged 50 to 64 years who are underinsured or uninsured for CRC screening. In the Washington program, there is an emphasis on reaching American Indian, Alaska Native, and African American populations.

"The program was so new, I was the first patient to be referred to the screening," said Rev. Profit-Breaux. "After that FOBT came back positive, I had a colonoscopy scheduled and by the time I woke up from it, they had a clear photo of the mass in my colon. I didn't have any insurance, yet within a week or two of my diagnosis, everything was rolling for my treatment."

CDC supports five pilot sites for the colorectal cancer screening program: in Baltimore, Maryland; St. Louis, Missouri; the state of Nebraska; Suffolk County, New York; and Seattle and King County, Washington. Programs like this are an integral part of CDC's goal to ensure health at all stages of life. For older adults the goal is to increase the number of who live longer, high-quality, productive, and independent lives.

A Hero in Our Midst
"At one time in my life, I was 60 pounds overweight. I never exercised. I lived on junk food, and soft drinks pumped through my veins," says Marcella Morton… but not today. Now, Morton is a regular marathon runner and even qualified to run the Boston Marathon. Her inspiration was a promise she made years ago to a friend dying of cancer. She promised her that she would exercise and eat right and try to live a healthy life.

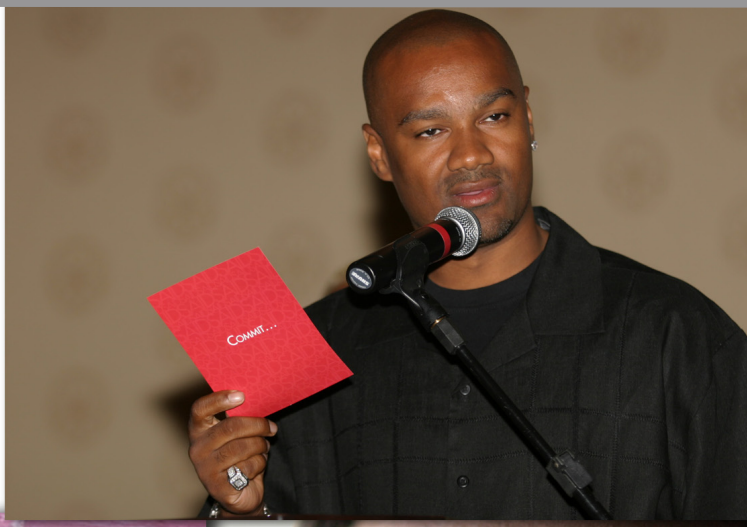
Morton began a walking program with just 15 minutes a day—that progressed to a running program and a goal to run a marathon. She also replaced her snack cakes with veggies.

And in 2002, Morton became a member of the CDC-funded Steps Wings Program, actively volunteering her time, talents, and skills to the program that is dedicated to helping and encouraging others to live longer, healthier lives.

In spring 2007, Morton, a member of the Cherokee Nation, was honored as one of the first recipients of the Steps Community Heroes Awards Program for her outstanding contributions to improve the health and well-being of others in her community. Steps Heroes are making significant and sustainable contributions in local schools, work sites, health care, and community settings by making their communities a healthier place to live.

CDC provides grants to Steps communities to implement chronic disease prevention and health promotion activities to address obesity, diabetes, and asthma, as well as their related risk behaviors: physical inactivity, poor nutrition, and tobacco use. CDC supports 40 Steps communities nurturing more health heroes throughout the country.

BIG TIGGER'S
HIV/AIDS
RIDE FOR LIFE


Commit...

CDC Heightens Its Response to HIV in African Americans

African Americans account for approximately half of the estimated one million Americans living with HIV, yet make up only 13 percent of the U.S. population. As well, one quarter of Americans living with HIV—more than 250,000—do not realize they are infected. Targeted funding, increased testing, and greater collaboration with African American leaders are part of CDC's multipronged approach to address this public health crisis.

An enhanced collaborative approach was the driving force behind the March 2007 launch of the "Heightened National Response to the HIV/AIDS Crisis among African Americans." More than 80 influential African American leaders met with CDC leadership in Atlanta to hear about the impact of the epidemic, discuss how their sectors could contribute to the effort, and make leadership commitments. Their commitment to combat HIV among African Americans has lead to several unique initiatives, such as the one with TV and radio host Big Tigger.

Big Tigger (top right), TV and radio show host, pledged to serve as an ambassador for the Heightened National Response to the HIV/AIDS Crisis in the African American Community. He is using his celebrity to support efforts to increase HIV awareness and testing among African Americans.

The Heightened Response to HIV has been bolstered by CDC's $35 million that was awarded in 2007 to state and local health departments to increase HIV testing opportunities among populations disproportionately affected by HIV, primarily African Americans. Supporting CDC's Health Protection Goal of better preparing people for emerging health threats, especially those at greatest risk of health disparities, 23 states and major metropolitan areas received awards ranging from $690,000 to $5.4 million. The increased funds are providing testing for more than one million persons and increasing early diagnosis of HIV for as many as 20,000 people who are unaware that they are infected.

The availability of HIV testing primarily in clinical settings, such as emergency departments, community health centers, clinics, and correctional health facilities, ensures that more persons know their HIV status. HIV testing activities are also being integrated with screening and prevention activities for other infections, such as viral hepatitis, sexually transmitted diseases, and tuberculosis. Integrating these services can significantly improve the health of populations disproportionately affected by HIV and at higher risk for these infections.

CDC's 2006 Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings make voluntary HIV screening a part of routine medical care for all patients aged 13 to 64 years. The recommendations complement the efforts to ensure people know their status.

For more information on HIV prevention, visit www.cdc.gov/hiv.

No family should have to choose between affordable and healthy housing. Creating healthier housing promotes the healthy growth and development of children and has the potential to save billions in health care costs."

– National Healthy Homes Training Center and Clearinghouse.

Leading Health Homeward Bound

Environmental Health Initiatives Focus Inside—and Outside—the Home is synonymous with security and comfort, yet also dwelling within millions of houses is a host of potential health hazards. Childhood lead poisoning, injuries, and respiratory diseases such as asthma have been linked to the more than 6 million substandard housing units nationwide. Residents of these units are also at increased risk for fire, electrical injuries, falls, rodent bites, and other illnesses and injuries.

With most Americans spending an average of 90% of their time indoors, taking a good look inside makes good public health sense. CDC's Healthy Homes Initiative is a coordinated, comprehensive, and holistic approach to preventing diseases and injuries that result from housing-related hazards. The initiative's goal is to identify health, safety, and quality-of-life issues in the home environment and to systematically eliminate or mitigate problems.

New products from the initiative include the ***Healthy Housing Reference Manual,*** written by staff from CDC and the Department of Housing and Urban Development. The manual helps public health and housing professionals ensure that housing stock is safe, decent, affordable, and healthy for our citizens, particularly children and the elderly, who are often most vulnerable and spend more time in the home. The initiative also includes the development of the Healthy Homes Clearinghouse, which will include six regional academic centers. (See www.healthyhouses.org.)

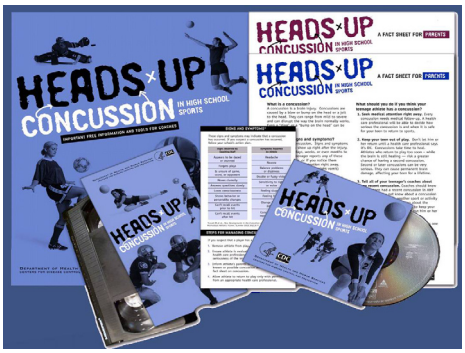
The environment outside our homes also has a large influence on our health. The air we breathe. The water we drink. The roads we share. From home to workplace to community, CDC is looking at an increasing range of ways in which the built environment impacts health. Recent contributions include a national satellite broadcast at the University of North Carolina looking at "place-specific" health issues and grants funding research on obesity and the built environment. Studies of mixed use neighborhoods that have homes, businesses, schools in one location will assess physical activity and travel behaviors before and after individuals move in.

CDC continues to provide leadership in its own community through sustainable building, water conservation, and workplace wellness. In 2006, HHS selected CDC's Arlen Specter Headquarters and Emergency Operations Center on the Roybal campus and Building 110 on the Chamblee campus to be featured in its Energy Leadership poster as a model for other federal agencies to adopt similar building practices.

Recognizing that drought is a worldwide issue with major health consequences, CDC also exerts leadership in water conservation. During Georgia's current drought, CDC facilities benefited from having been engineered to collect and recycle water through green designs – steps that lead to significantly reduced water consumption.

At the same time, CDC's Healthier Worksite Initiative is developing projects and implementing plans for green activities and health promotion activities, including recycling, campus garden markets, employee van pools, new E-health tools, and green teams to address various environmental issues.

CDC's "Heads Up: Concussion in High School Sports" tool kit is a success!



- 50% of coaches reported viewing concussions more seriously after using the tool kit.
- 68% of coaches reported using the tool kit to educate others about concussion, including athletes, athlete's parents, and other coaches.
- 34% of coaches reported that the tool kit increased their knowledge about how to prevent and manage concussions.
- 38% of coaches reported making changes in how they dealt with concussion including placing more emphasis on training techniques and safety equipment that minimize the risk of concussion.

A life-saving response to concussions is spreading across the country as an estimated 6 million people receive information about CDC's educational tool kit for preventing head injuries.

Keeping Athletes Safe from Concussion

When a Texas high school football player sustained two concussions within 18 days, his coach told him to "shake it off." Fortunately, the boy's mother knew better, thanks to CDC's multimedia educational tool kit, "Heads Up: Concussion in High School Sports."

Not only did she make sure her son received the medical attention he needed, she also shared the information in the kit with her son's coach to educate him on the seriousness of concussions. The coach is now using the materials, and her son has recovered and is planning to present the kit information as part of a classroom project.

Although stories like these are important in conveying the impact of CDC programs on individuals and its goal to increase the number of adolescents who are prepared to be healthy, safe, independent, and productive members of society, CDC uses more rigorous methods to evaluate its overall communication efforts. In 2006, it began a one-year evaluation study following the national launch of "Heads Up" in 2005. The tool kit demonstrated positive changes in high school coaches' knowledge, attitudes, behavior, and skills related to concussion prevention and management.

This study is the first to evaluate the concussion awareness campaign targeting high school coaches. The follow-up study has already helped to inform future initiatives, including the development of a multimedia educational tool kit for coaches and administrators of youth sports ("Heads Up: Concussion in Youth Sports), in partnership with the National Football League, YMCA of the USA, the American Academy of Pediatrics, and 23 other leading sports and medical organizations.

To learn more, visit www.cdc.gov/ncipc/concussion.htm

Hunting Down the Source of the Deadly Marburg Virus

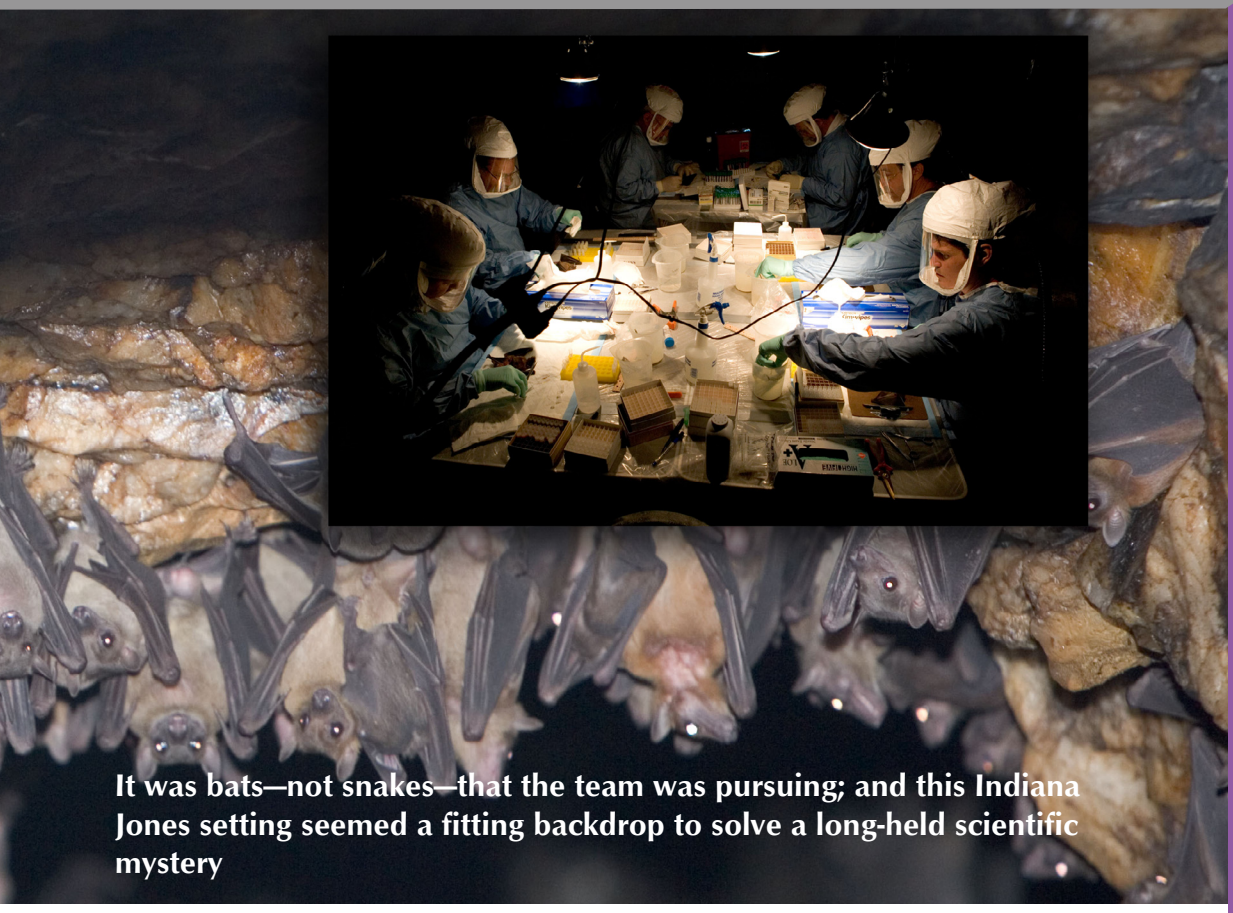
In In the summer of 2007, a team of CDC researchers entered a dark, hot mine in western Uganda, searching for something more valuable than precious metal. Forty years had passed since the first reported outbreak of the deadly Marburg virus in a German laboratory. Now, a world away, they were tracking down the source of one of the most deadly pathogens known to man.

When two miners fell ill at the Kitaka mine in Uganda from Marburg hemorrhagic fever in early August 2007, CDC staff quickly contained the outbreak and acted on a rare opportunity to trace the outbreak to its source.

"The public health response is first and foremost," says Jonathan Towner, PhD, a microbiologist with CDC. "But because the outbreak was limited, it allowed us to very quickly mount an ecological study where we could look for the Marburg virus reservoir."

By choosing to limit the focus of the investigation to the mine, the pool of potential natural hosts was narrowed to the bat species inhabiting the mine, two of which were already familiar to the CDC team: a small, insectivorous bat, and a larger fruit bat.

Earlier that year, the CDC team, with scientists from Gabon, had conducted an ecological investigation that showed evidence of Marburg virus infection in the fruit bat. This was the first study to definitively document evidence of the virus in wild nonprimates. It was also the first study to document evidence of Marburg virus in the Central African country of Gabon. The Ugandan mine provided a timely opportunity to continue the research efforts.



It was bats—not snakes—that the team was pursuing; and this Indiana Jones setting seemed a fitting backdrop to solve a long-held scientific mystery

Wearing full safety gear—masks, gloves, boots and gowns—the research team and collaborating South African scientists entered the Kitaka mine hoping to build upon the results from Gabon. At the mouth of the cave, the team set up nets that trapped the bats as they left the cave at night to forage for food. Thus began a nightly ritual that lasted for nearly three weeks. The bats caught in the traps were taken back to a lab for analysis.

By the time the CDC team left in early September, they had collected more than 1,000 bats and assisted the Ugandan Ministry of Health in tracing every known contact of the infected miners through the 21-day incubation period to ensure that the outbreak had been contained.

"The discovery of Marburg virus infection in fruit bats in Gabon helped guide our investigation in Uganda," said Towner. "We are still in the process of testing all of the bats that were trapped at the Ugandan mine. If infected bats are found in this collection, we could be a little closer to learning how the bats might have transmitted the Marburg virus to the miners." Discovering the mode of transmission could assist with implementing risk reduction measures and aid CDC's goal to protect Americans at home and abroad from health threats through a transnational prevention, detection and response network.

Marburg virus is a member of the same family of viruses as Ebola, i.e., Filoviridae. It was first recognized in 1967, after outbreaks of hemorrhagic fever occurred in laboratories in Marburg (hence the name) and Frankfurt, Germany, and in Belgrade, Yugoslavia (now Serbia). Marburg causes a severe and often fatal illness in humans and nonhuman primates. There is no vaccine to prevent the disease and no specific treatment. Humans become infected with Marburg virus by direct contact with blood or body fluids or with objects contaminated with body fluids from an infected animal or human. Reports of this disease are rare, but there have been recent occurrences in countries in sub-Saharan Africa.

Florence Nakamwa received the Basic Care Package when she was very sick. "I had severe malaria, but they gave me the mosquito net. I am telling you it's a miracle. The whole of last year, I stay without having malaria."

Basic Care Package Curbs Three Diseases

Sometimes, the simple things in health prevention are surprisingly effective. That certainly is true of an innovative intervention that is saving lives across Africa, one that contributes to CDC's goal to promote health around the globe by sharing knowledge and tools to protect health.

The Basic Care Package is being distributed in Uganda and other African countries through a collaborative effort among CDC, the Uganda Ministry of Health, the AIDS Support Organization, and other partners, and through support from the President's Emergency Plan for AIDS Relief (PEPFAR). Research conducted in rural Uganda and elsewhere in Africa demonstrated that the Basic Care Package is a low-cost, evidence-based way to reduce deaths, hospital visits, and illnesses, including malaria and diarrhea, among HIV-positive persons and their families.

The package includes two insecticide-treated mosquito nets; a water vessel, filter cloth, and bleach solution to disinfect water; information on HIV prevention and care (including cotrimoxazole, an antibiotic used to reduce opportunistic infections in persons who are positive for HIV); information on how to use the package components; and condoms when requested. Studies conducted by CDC and its partners show that the daily use of cotrimoxazole has reduced mortality by 46%; bed nets have reduced malaria incidence by 50%; and the simple home based safe water system has reduced diarrheal disease by 25%. In the last two and a half years, 120,000 Basic Care Packages have been distributed to HIV-positive families in Uganda alone.

Safe Water System to Save 500 Children per Day

"Unsafe water is a key health risk." That simple statement drives a health intervention that is making a difference in the lives of people across the globe and is now receiving national recognition.

Through implementation of its Safe Water System Initiative, CDC is delivering a simple solution to some of the world's most complex health problems. Over 1.1 billion people worldwide do not have access to safe drinking water. As a result, diarrhea and other preventable waterborne diseases claim the lives of an estimated 2 million children each year.

The initiative helps people store their water safely and treat it with a chlorine solution before use. It is economically self-sustaining through local entrepreneurship; and each year the initiative shows increased progress and promise. The system has been proven to reduce diarrheal disease in users by 22%–84%. Additionally, the chlorine treatment costs 25 cents for a 4-to-6 week supply, making it an affordable option in some of the world's poorest communities.

In collaboration with CDC's Partner, Population Services International (PSI), approximately 12 million bottles of chlorine solution were sold in 19 countries between 2006 and 2007. This amount is sufficient to treat more than 12 billion liters of water—enough drinking water for 16.5 million people in FY2007.

Point-of-use water treatment is relatively new to the scene but is gaining recognition as indicated by the recent creation of the International Network for the Promotion of Household Water Treatment and Safe Storage. This network includes dozens of organizations and a secretariat based at the World Health Organization.

Clean drinking water is especially critical for HIV-infected persons, whose weakened immune systems make them vulnerable to opportunistic infection, some of which are spread through unclean water. In western Kenya, nearly one in five adults is infected with HIV and nearly 20% of children are orphaned. A "Basic Care Package" developed by CDC includes the Safe Water System (water vessel, filter cloth, and bleach solution) as well as instructions for household water treatment methods.

The Safe Water System alone has been documented to reduce diarrhea among HIV-infected persons by 25%–35%, at a cost of only $10 per family per year. When combined with the powerful antibiotic cotrimoxazole (Bactrim), the system has reduced diarrhea episodes by 77%.

This low-cost and effective intervention is being scaled up under the President's Emergency Plan for AIDS Relief, and supports CDC's goal to promote health around the globe by sharing knowledge and tools to protect health. Over the past year, the Safe Water System Initiative has grown to a total of 19 countries, and new programs were launched in Ethiopia, Burundi, Guinea, and Cameroon, with Haiti and Angola not long behind. CDC estimates that expansion of the program could save the lives of up to 500 children every day.

"Infectious diseases are not only spreading faster, they ap¬pear to be emerging more quickly than ever before. Since the 1970s, newly emerging diseases have been identified at the unprecedent-ed rate of one or more per year. There are now nearly 40 diseases that were unknown a genera¬tion ago. In addition, during the last five years, WHO has verified more than 1,100 epidemic events worldwide."

– WHO Annual Report, 2007

CDC Scientists Contain Ebola Outbreaks in Congo and Uganda

When reports of unexplained deaths trickled in from a remote section of the Democratic Republic of Congo in August 2007, CDC scientists knew what they might be up against. Twelve years earlier but only 185 miles away from the location of the current report, a group of CDC scientists had battled an outbreak of Ebola hemorrhagic fever.

Reports from the region included descriptions of varied symptoms, making accurate clinical diagnosis impossible. Still, CDC scientists wondered whether the highly fatal, highly contagious Ebola virus might have struck again, this time in the murky context of other endemic diseases.

After receiving samples from the affected area, CDC scientists were able to diagnose Ebola virus infection in some patients. Evidence of Shigella dysenteriae and Salmonella typhi infection was also observed. The scientists alerted the World Health Organization and a CDC physician was deployed to assess the situation as part of CDC's Global Diplomacy goal to be a trusted and effective resource for health development and health protection around the globe.
On September 10, CDC's Special Pathogens laboratory and a lab in Gabon confirmed the outbreak as Ebola. CDC and its partners were able to contain the outbreak in a few weeks through intensive contact tracing, patient management and laboratory testing of samples on site. CDC lab staff also trained Congolese scientists at the National laboratory in Kinshasa in diagnostic methods for Ebola hemorrhagic fever.

A short eight weeks later, in neighboring Uganda, Ebola struck again in the western district of Bundibugyo. This time, however, the virus was different. CDC scientists noticed that the virus was not behaving as would have been expected of some of the known Ebola strains. They realized that this was probably a novel or new strain of Ebola.

Further analysis confirmed suspicions – a novel fifth strain of Ebola virus was causing the outbreak. The team worked quickly to develop and deploy a laboratory assay for the new strain. CDC assembled two field teams to help contain the Ugandan outbreak. Recent upgrades to the laboratory in Entebbe allowed for same-day testing and reporting of results, accelerating efforts to bring the outbreak to an end.

Ebola hemorrhagic fever is caused by a virus from the same family as the one that causes Marburg hemorrhagic fever. Both diseases are rare, but can cause dramatic outbreaks with human-to-human transmission and 50%-90% fatality rates. It is transmitted by contact with the blood, secretions, organs or other bodily fluids of infected persons. There is currently no specific treatment or vaccine. To learn more about Ebola virus please visit:

To learn more about Ebola virus please visit: http://www.cdc.gov/ebola

Cardiovascular Health in Women

Well-Integrated Screening and Evaluation for Women across the Nation (WISEWOMAN) provides screening and lifestyle interventions to low-income, underinsured, or uninsured women in an effort to reduce risks for heart disease and other chronic diseases. From its inception, WISEWOMAN has provided more than 100,000 lifestyle interventions, reaching the CDC goal of having healthier people in every stage of life. For women who entered the program from 2000–2005, cholesterol levels dropped after one year from 211 to 206 milligrams per deciliter, and their estimated risk of heart attack in the next five years decreased. In the past four years, WISEWOMAN has identified more than 3,000 cases of previously undiagnosed hypertension, 3,600 cases of undiagnosed cholesterol, and more than 500 cases of undiagnosed diabetes.

Coal-Mining Safety

CDC has collaborated with manufacturers, labor, and industry, developed a new personal dust monitor (PDM) for assessing coal miners' exposure to coal dust in underground coal mines. The PDM provides real-time exposure data during a work shift so that mine operators can reduce overexposures that might lead to the development of coal workers' pneumoconiosis or "black lung." This debilitating lung disease caused 14,000 deaths between 1991 and 2000. CDC and its partners received the prestigious R&D (Research and Development) 100 Award for development of the "Coal Dust Explosibility Meter—Model 100." This is the first device created to immediately determine if coal dust concentrations in active areas of underground coal mines have been sufficiently mixed with rock dust to prevent risk of explosion.

President's Malaria Initiative

The global toll of malaria is high: an estimated one million people die each year, most of them young children in Africa. The economic costs alone for malaria-related illness and mortality are estimated to cost Africa's economy $12 billion per year. Since President Bush announced the $1.2-billion President's Malaria Initiative (PMI) in 2005, CDC has been at the forefront of efforts to cut malaria deaths in half in targeted African countries. CDC worked closely with USAID not only to design the initiative, but to conceive and implement evaluation of PMI's impact in achieving its goal. To date, PMI has provided life-saving interventions to more than six million people, and estimate that approximately 11 million people were reached with life-saving interventions by the end of 2007. An additional eight countries also will be added to initiative in FY2008.

Measles Initiative

Measles deaths have fallen by 60% worldwide, from an estimated 873,000 deaths in 1999 to 345,000 in 2005—a major public health success. This decline exceeds the United Nation's goal to halve measles deaths by 2005. In Africa alone, deaths from measles have declined by 75% since the initiative started. This unprecedented decline is attributed to the collaborative work of the Measles Initiative with the American Red Cross, CDC,

the United Nations Foundation, UNICEF, and the World Health Organization. CDC's technical assistance supports the implementation of this high-quality measles campaign to strengthen field and laboratory surveillance for measles virus detection and for efforts to strengthen national routine immunization systems in priority countries. Since 2001, the agency has contributed more than $50 million to the UN Foundation for the purchase of bundled measles vaccine (more than 280 million doses). This contribution has generated additional funds of more than $16 million to reduce measles mortality and morbidity in priority countries supported by the partnership.

A Health Mystery in Panama

In October 2006, after dozens of Panamanians suddenly fell ill from unexplained renal failure, the country's minister of health turned to CDC. Twelve of 21 patients had already died when a team of CDC epidemiologists, medical toxicologists, and infectious diseases specialists landed in Panama. They quickly distributed supplies and equipment to gather medical data and diagnostic samples from patients—and sent them back using CDC's leased airplane.With assistance from the FDA and international partners, the CDC team identified the source of the mysterious illness in just nine days—cough syrup contaminated by diethylene glycol, which is commonly found in brake fluid and antifreeze. This rapid response allowed Panamanian health authorities to quickly withdraw the contaminated medications from clinics, and begin a national public health prevention and risk communication program. Although more than a hundred people were sickened by the poison, the rapid response saved many lives.

Links Between Birth Defects and Depression Treatment

For the last decade, CDC has been working on the largest study ever undertaken in the United States on the causes of birth defects. Researchers have gathered information from more than 25,000 participants and are using this information to look at key questions on potential causes. Recently, scientists have examined the use of certain antidepressants— selective serotonin-reuptake inhibitors most commonly known as SSRIs—during pregnancy and have found that they do not significantly increase the risk for most birth defects. As well, the study found no significant increase in the risks for the majority of birth defects assessed when all SSRIs were studied together. This finding includes the risk for congenital heart defects, which were associated with SSRI use in previous studies. Researchers, did, however, find associations between SSRI use and three specific birth defects: a defect of the brain, one type of abnormal skull development, and a gastrointestinal abnormality.

Vehicle Crash Response Study

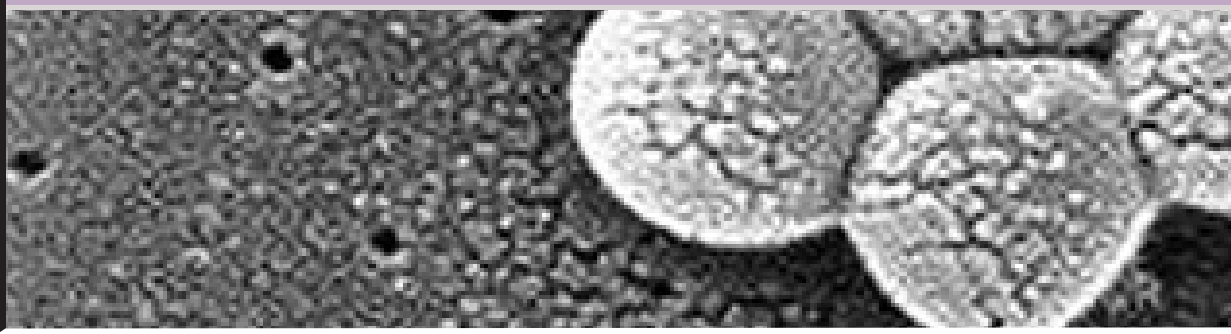
The decision of whether a victim of a vehicle crash requires care at a trauma center is a matter of life or death. Recent CDC-supported research showed that care at a Level-1 trauma center lowers the risk of death by 25% for severely injured patients compared with treatment received at a hospital without trauma care services. CDC and the CDC Foundation recently partnered with On Star and the GM Foundation to develop procedures to help emergency responders quickly make treatment decisions. Through this partnership, OnStar and the GM Foundation also awarded the CDC Foundation a $250,000 grant that enables CDC to develop protocols that allow the emergency medical community to reduce injury or death through faster identification, diagnosis, and treatment of patients.

Road Safety

Native Americans are killed in motor vehicle crashes at about twice the rate of all Americans. To address this disparity, CDC began funding four tribes in the fall of 2004 to design, implement, and evaluate evidenced-based strategies to reduce alcohol-impaired driving and increase seat belt use. This effort is paying off with life-saving results:
Ho-Chunk Indian Nation in Wisconsin—A partnership with local county police departments and the airing of a media campaign resulted in an 18% increase in driver safety belt use and a 64% increase in passenger safety belt use from 2005 to 2006.
San Carlos Apache Reservation in Arizona—In 2004, the driving under the influence (DUI) sobriety checkpoints on reservation roads program began, publicizing the checkpoints through TV, radio, local newspaper ads, and local community events. Since 2004, total DUI arrests have increased 33%, and motor vehicle crashes have decreased 27%.
Tohono O'odham Indian Nation in Arizona—The passage of a primary safety belt law and strengthening of the impaired driving law resulted in overall seatbelt use increase of 47% between 2005 and 2006.

Quit Now!

In In 2007, CDC worked with the National Cancer Institute, North American Quitline Consortium, and all 50 states and five U.S. territories to establish the National Network of Quitlines, which provides smokers in the United States easy access to support and information to help them quit. Research shows that telephone counseling can significantly increase long-term quit rates compared with the effectiveness of self-help materials alone. By calling 1-800-QUIT-NOW, smokers can receive the resources they need to stop smoking. As of October 2007, more than 927,000 calls had been made to 1-800-QUIT-NOW. A Web site, www.smokefree.gov, provides complementary information and cessation support as well.



E.coli and Food Safety

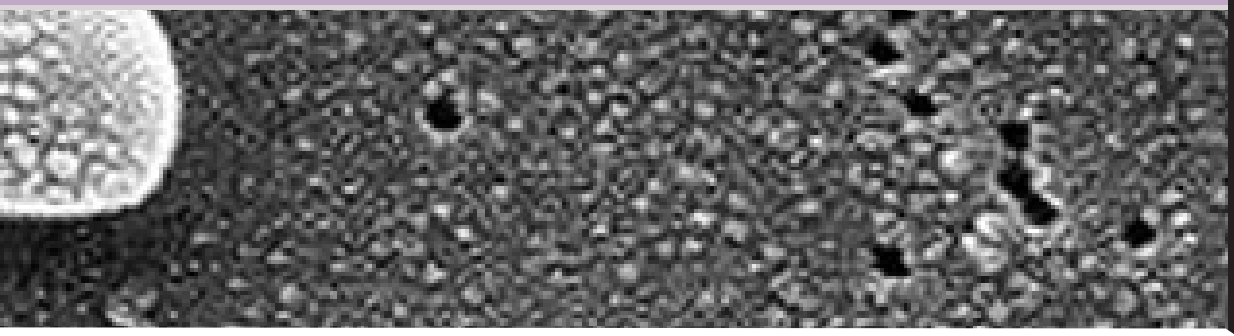
The nationwide spinach scare of 2006 still resonates across the country as government regulators and vegetables growers hash out proposed guidelines that will alter the way fresh greens are handled in this country. This multistage Escherichia coli *(E. coli)* outbreak linked to fresh spinach grown in California's Salinas Valley was the largest ever for leafy green products. By the time it was over, 200 persons in 26 states were infected with the outbreak strain of *E. coli* O157:H7, and three confirmed deaths were associated with the outbreak. Multiple federal agencies, including CDC, identified the food production area as the source of the E. coli contamination. The produce industry responded quickly to the recall in an effort to rebuild consumer confidence and minimize the risk of future outbreaks. The U.S. Department of Agriculture led the push to add new safeguards for how leafy greens are handled and processed.

World Rabies Day

There were special reasons to celebrate this year's work to control rabies. Not only was the United States declared free of canine rabies, but it also witnessed the first successful treatment of human rabies. Since she contracted rabies two years ago, Jeanna Giese, has fought this disease; today, she is cured and set to attend college. Her successful recovery has energized CDC efforts to better understand rabies as a disease process that can be treated. CDC is working with infectious disease physicians around the world on new strategies for future research and on the treatment of rabies. Jeanne Giese's recovery from rabies is proof that the potential for finding a treatment for this historically fatal disease is within reach

Vaccine Protection Campaign

In FY07, CDC launched a campaign to encourage parents to vaccinate their preteens against serious, sometimes life-threatening diseases. The CDC's Preteen Vaccine campaign is designed to inform parents, caregivers, family physicians and pediatricians about CDC's new vaccination recommendations for 11- and 12-year-olds. The three preteen vaccines are MCV4, which protects against meningitis and its complications; Tdap, a booster against tetanus, diphtheria, and pertussis or "whooping cough"; and Gardasil®, a newly approved human papillomavirus (HPV) vaccine for females that protects against the types of HPV which most commonly cause cervical cancer. CDC recommends the use of HPV for girls and women to help prevent cervical cancers and other diseases caused by certain types of genital HPV. Gardasil® protects against four HPV types, which together cause 70% of cervical cancers and 90% of genital warts. Information on CDC's Web site features easy-to-understand, downloadable educational materials in English and Spanish. See www.cdc.gov/vaccines/preteen.



2 LEADERSHIP AND TRANSFORMATION

Healthy People in a Healthy World

Health Protection Goals Transform CDC

Over the last year, CDC centers, institute, and offices worked collaboratively and with CDC's partners to develop the full vision of CDC's four Health Protection Goals to promote and protect health in every stage of life, in every place, for emerging health threats, and around the world.

CDC's goals guide our work and have resulted in many new proposals that incorporate collaborative and holistic approaches to addressing health protection.

An example of the projects coming specifically from the goal objectives and coordinated across CDC centers is a one-year Healthy Parenting Fellowship supported by the Healthy Children Goal. This fellowship will bring a visiting scientist to CDC to help increase the agency's knowledge base on the role healthy parenting plays in improving health from birth through adolescence and will focus on the middle childhood population (ages 4–11 years). This enhanced knowledge will, in turn, enable CDC to develop more efective parent-targeted programs and initiatives.

The development of other goals and objectives are resulting in similar cross-cutting recommendations to unite CDC internally and externally with its partners to improve health impact. A Green Healthcare proposal backed by the Healthy Healthcare Goal proposes the investigation of how a hospital's design, function, and indoor environment affect patient recovery and outcomes and healthcare worker safety, health, and productivity. The project involves wide collaboration that brings together multiple centers and offices at CDC as well as other government partners, including the Environmental Protection Agency and the Agency for Healthcare Research and Quality, as well as private partner, Kaiser Permanente.

Developing the home-focused messages draws from the current work in CDC programs, such as lead poisoning; injury; indoor air, including secondhand smoke; food safety; nutrition and physical activity; emergency preparedness; pest control; and infectious disease. This project also coordinates with other federal agencies and professional and nongovernmental organizations.

CDC's four overarching health protection goals and the goal plans continue to transform the way CDC does the business of health protection by ensuring that our work is even more targeted and result/outcome oriented; our approach, action, and method are strategic and evidence based; that our course of action is specific and advances underlying strategies; and that we can measure our progress and promote accountability for the work we do.

Since Hurricane Katrina, more faith-based organizations are increasing their involvement in emergency-preparedness efforts, and CDC has taken the lead in training them.

CDC Emphasizes Faith-Based Solutions

CDC's outreach to faith-based organizations has never before had such strong linkages. As the agency expands its reach toward diverse populations—from emergency planning and preparedness to essential service support—people of faith are increasingly working side by side with public health workers.

One only has to look at the mobilization of volunteers from churches and other groups after Hurricane Katrina to recognize how faith-based and other local organizations provide critical support for communities. One lesson learned from that experience was that these groups were not adequately integrated into the government's response.

Since Katrina, more faith-based organizations are increasing their involvement in emergency-preparedness efforts, and CDC has been taking the lead in training them. For example, a Web-based training course on pandemic flu planning recently reached several hundred Jewish leaders and has now trickled down to social services, hospitals, and daycares around the country.

"No other federal agency has taken such a proactive role," says Paul Goldenberg, national director for the Secure Community Network, which provides information sharing and best-practice resources to the Jewish community for security and preparedness.

The primary role of these partnerships involves translating health information and interventions in ways that communities can understand and use, with CDC providing the best science and proven interventions. Years after CDC leaders offered pioneering work in this area, through programs such as Reach 2010, HIV/AIDS, and tobacco control, partnerships with faith-based organizations in FY07 included 26 workshops in which 75 faith-based organizations received pandemic influenza preparedness training; four Webinars on preparedness, one of which involved more than 130 Jewish federations; conference sessions on AIDS and the church.

A third large outbreak—Salmonella Tennessee—was linked to a peanut butter plant in Georgia. A total of 425 persons were infected in 44 states, with 20% requiring hospitalization.

CDC Detection Networks Stop Salmonella Outbreaks in their Tracks

With more than 40,000 cases of Salmonellosis reported in the United States each year, CDC searches for ways to improve its ability to detect, report, and contain foodborne outbreaks. Last year brought many successes in these areas, including a new molecular typing system that provides a faster, easier, and more reliable method of identifying Salmonella species.

Two powerful information tools—PulseNet and OutbreakNet—worked hand-in-hand to stop several serious outbreaks of food poisoning in FY07. OutbreakNet is a network of public health epidemiologists at the local, state and federal levels who investigate foodborne and diarrheal disease outbreaks. PulseNet is the revolutionary national surveillance system coordinated by CDC that allows public health laboratories to exchange information on foodborne bacteria "DNA fingerprint" patterns.

Like detectives searching for invisible clues, the networks used DNA sampling to identify several diarrheal illnesses caused by a rare strain of Salmonella in several states and strongly linked to a puffed rice and corn snack food with a vegetable coating. CDC reported that these illnesses were caused by Salmonella Wandsworth, a strain that had never before caused an outbreak of illness in the United States. After being informed about the outbreak investigation, the company that markets the product issued a voluntary recall.

A similar multistate outbreak—this time a Salmonella serotype called Schwarzengrund—was linked to dry pet food at a single manufacturing facility in Pennsylvania. As of September 2007, 62 persons in 18 states became ill after contact with the pet food, and one quarter of them required hospitalization. The company recalled the pet food, and CDC investigators are still studying why human illness, especially among infants, is associated with dry pet food.

A third large outbreak—Salmonella Tennessee—was linked to a peanut butter plant in Georgia. A total of 425 persons were infected in 44 states, with 20% requiring hospitalization.

Critical to the success in controlling Salmonella outbreaks is fast, reliable detection. CDC scientists made a breakthrough in FY07 by developing and validating a new molecular typing system. The new system is not only faster and more reliable than classical serotyping for Salmonella species, it also is easier to use. The system is poised to replace existing technology in state public health laboratories in the near future.

Salmonellosis is an infection with bacteria called Salmonella. Most persons infected with Salmonella develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts 4 to 7 days, and most persons recover without treatment. However, some persons have such severe diarrhea that they need to be hospitalized.

Infectious diseases can spread at the speed of air travel, underscoring the growing need to monitor and protect our borders

Securing Ports in a Global Age

Protecting our borders from the spread of infectious diseases is an ever-increasing challenge in a global economy, where a measles outbreak in Kenya can show up at a U.S. airport in less than a day. Two years ago, this exact scenario was played out at Newark International Airport, underscoring the critical role that CDC's quarantine stations play in keeping these microbial invaders at bay.

Two major events—the 2001 anthrax scare and the 2003 Severe Acute Respiratory Syndrome outbreak—created intense apprehension about bioterrorism and the need to prepair for an influenza pandemic. In response to these incidents, CDC increased the number of quarantine stations from 8 to 20 during the past three years.

CDC Quarantine stations are located at ports of entry where the majority of international travelers arrive in this country. Stations are staffed with quarantine medical officers and public health officers who work closely with partners to respond to ill passengers and identify items that risk human health. They also implement measures to prevent the spread of communicable diseases. CDC has the legal authority to detain any person who may have an infectious disease, including cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, and viral hemorrhagic fevers. More recently, SARS and new types of influenza that could cause a pandemic have been added to this list.

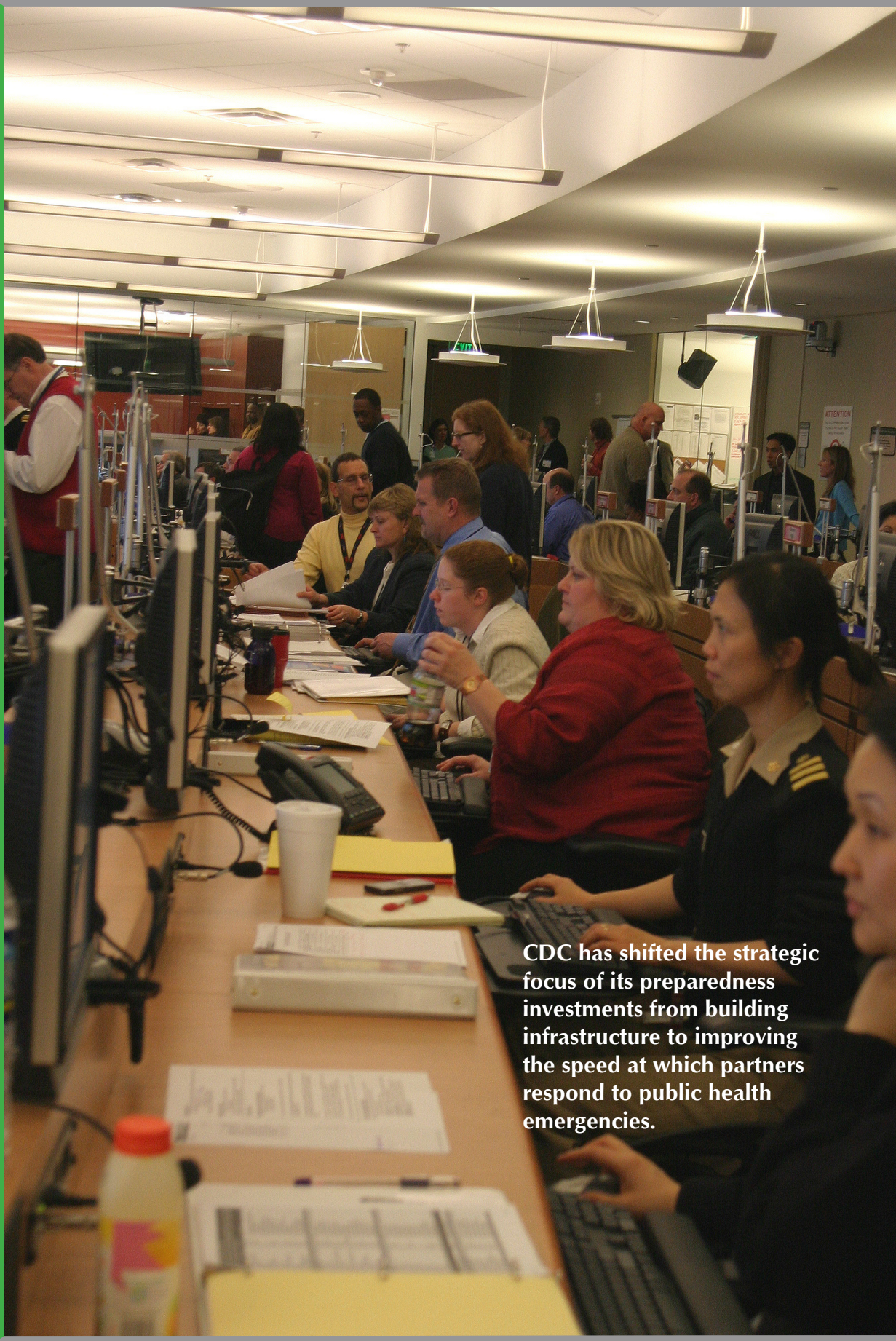
All these safeguards were in place when the newly opened Philadelphia Quarantine Station was notified this summer about a group of students who had traveled abroad and were exposed to a probable case of bacterial meningitis. Meningitis is a serious infection that requires quick diagnosis. The quarantine officer notified local health officials and helped contact the students' parents, met the arriving flight with prescriptions for prophylaxis, and provided educational materials about meningitis. Quarantine stations work closely important partners like this one to prevent the spread of communicable diseases, which support CDC's goal of preparing people for emerging health threats.

CDC's Strategic National Stockpile Helps Save Lives

CDC's Strategic National Stockpile (SNS) is designed to move life-saving medicines and supplies on a large scale in a short amount of time during public health emergencies. Its expertise in rapid deployment proved to be critical on a much smaller scale, when a family contracted an infection from smallpox vaccination.

On March 8, 2007, a doctor from the University of Chicago Comer Children's Hospital contacted CDC to request Vaccinia Immune Globulin (VIG) for a 2-year old child who had developed Eczema Vaccinatum (EV) after coming into contact with the site of an open smallpox vaccination on his father's arm. The father had received the smallpox vaccination several weeks earlier as part of military deployment preparation. The toddler's case was the first instance of EV in the United States in more than 19 years. The child's mother also developed EV in the same manner.

CDC's SNS provided logistical support that enabled rapid movement of VIG, which is stored as part of the SNS to treat persons who react adversely to a smallpox vaccination. CDC delivered the initial vials of VIG to staff at the hospital less than five hours after the request. SNS coordinated six trips and delivered 69 vials of VIG for this critical life-saving mission. By the end of April, both mother and child had been released from the hospital and CDC's mission was officially closed.



CDC has shifted the strategic focus of its preparedness investments from building infrastructure to improving the speed at which partners respond to public health emergencies.

Planning, Training and Exercising—Public Health Prepares for Emergency Health Threats

The strategic focus of CDC's preparedness investments involve improving the speed at which CDC and its partners respond to public health emergencies. CDC's preparedness goals are designed to directly measure how quickly we prevent, detect, investigate, and control public health emergencies.

Protecting the nation's health from emerging health threats, such as the threat of an influenza pandemic, is one of CDC's most important responsibilities. While a pandemic has not occurred in more than 40 years, it is important that the United States and the world remain vigilant and be ready to respond despite having little knowledge of when or where the threat may appear. Mostly occurring in Indonesia, the current circulation of the highly pathogenic strain of avian influenza A (H5N1) in poultry, wild birds, and, to a much smaller extent, in humans is not expected to decline greatly in the near future.

To help prepare for a possible pandemic, CDC's work begins internationally with its Global Disease Detection Centers to carefully monitor changes in the virus that might allow it to evolve into a strain that could result in a pandemic. Under the leadership of the State Department, CDC's collaboration with the World Health Organization and national ministries of health have proven to be effective and important not only in the early identification of suspected cases of avian flu, but in improving influenza surveillance, laboratory testing, and rapid response.

Preparedness at home is equally important and in 2007, CDC's motto for pandemic preparedness has been EXERCISE! EXERCISE! EXERCISE!

In 2007, CDC has conducted one 24-hour exercise in January and two 48-hour functional exercises in April and August; each building on the successes and information gained from the previously conducted exercise. CDC staff from across the agency manned their posts in CDC's Emergency Operations Center, referred to as the DEOC, to practice what they would do in response to a real emergency situation. Staff played out their roles in specific scenarios that might take place in an emergency event. National media covered the exercises including coverage from such outlets as MSNBC, *The New York Times, The Washington Post*, and even members from the Canadian press.

In January, the exercise focused on a single identified case of avian influenza in a young college student who had just returned from a trip to Indonesia to visit his family. In April, the practice grew in complexity affecting more people in more places, and, in August, the most frightening scenario of all was played out, with people around the world dying of H5N1, and with a pandemic seemingly imminent.

These exercises are designed to reach out to other federal agencies, as well as state, local, territorial, and tribal partners and to exercise coordination and response efforts before a real event occurs. These exercises have brought together representatives from the Department of Health and Human Services, the Food and Drug Administration, the American Red Cross, state representatives, the private sector, and others to learn how to enhance networking and improve coordination.

CDC is now better prepared to respond to a possible pandemic and to other events such as hurricanes, food-borne outbreaks, and terrorist attacks.

Health Preparedness Readies for Climate Change

With the earth's climate projected to undergo significant changes, CDC is pioneering new ways to understand, measure, and respond to the impact of environmental hazards on human health to help ensure healthy places for us to live, work, and play. These efforts include new tracking systems, better modeling, increased surveillance, and innovative research.

CDC also is developing the first-ever conceptual framework for public health actions in response to global climate change. Many of its existing programs and scientific expertise provide a solid foundation for responding to climate-related environmental hazards. Here are several areas where CDC is investing in climate change preparedness.

Environmental Public Health Tracking: CDC's National Environmental Public Health Tracking Program has funded several states to build a health surveillance system that integrates environmental exposures and human health outcomes. Beginning in 2008, the Tracking Network will provide information on how health is affected by environmental hazards. The Network will contain critical data on the incidence, trends, and potential outbreaks of diseases, particularly those impacted by climate change.

Disease Surveillance: Preparing for climate change also involves working closely with state and local partners to document whether potential changes in climate have an impact on diseases transmitted through water, food, insects and animals. One such development is ArboNet, the national arthropod-borne viral disease tracking system. Currently, this system supports the nationwide West Nile virus surveillance system that maps cases in humans and animals, and would detect changes in real-time in the distribution and

prevalence of cases. CDC's PulseNet tracking system also is uniquely designed to identify climate-related changes in the incidence of food- and water-borne diseases.

Geographic Information System (GIS): CDC is applying GIS technology in unique and powerful ways, including public health responses to environmental hazards. It has been used in data collection, mapping, and communication to respond to issues as wide-ranging and varied as the World Trade Center collapse, avian flu, SARS, and Rift Valley fever. In addition, GIS technology was used to map issues of importance during the CDC response t Hurricane Katrina.

Modeling: Model projections of future climate change can be used as inputs for models that assess the impact of climate change on public health. For example, CDC has conducted heat stroke modeling for Philadelphia to predict the most vulnerable populations at risk for hyperthermia.

Health Protection Research: CDC promotes research to further study the specific relationships between climate change and health outcomes, including predictive models and evaluations of interventions.

As an emerging industry, nanotechnology promises revolutionary advancements in medicine, energy conservation, and other vital social needs

CDC Checks for Dangers from Emerging Technologies

Nanotechnology is a rapidly expanding and highly diverse field that includes in general terms engineered structures, devices and systems that have an extremely small length scale of 1 – 100 nanometers; a nanometer is a metric unit of length equal to one billionth of a meter. At these length scales, materials begin to exhibit unique properties that affect physical, chemical and biological behavior. Researching, developing and utilizing these properties are at the heart of the new technology.

Nanoparticles, which are one of the building blocks of nanotechnology, are one reason that CDC is taking a closer look at this new industry. Because of concerns that workers exposed to engineered nanoparticles could be at an increased risk for adverse health affects, CDC is conducting research and providing guidance on the occupational safety and health implications and applications of nanotechnology.

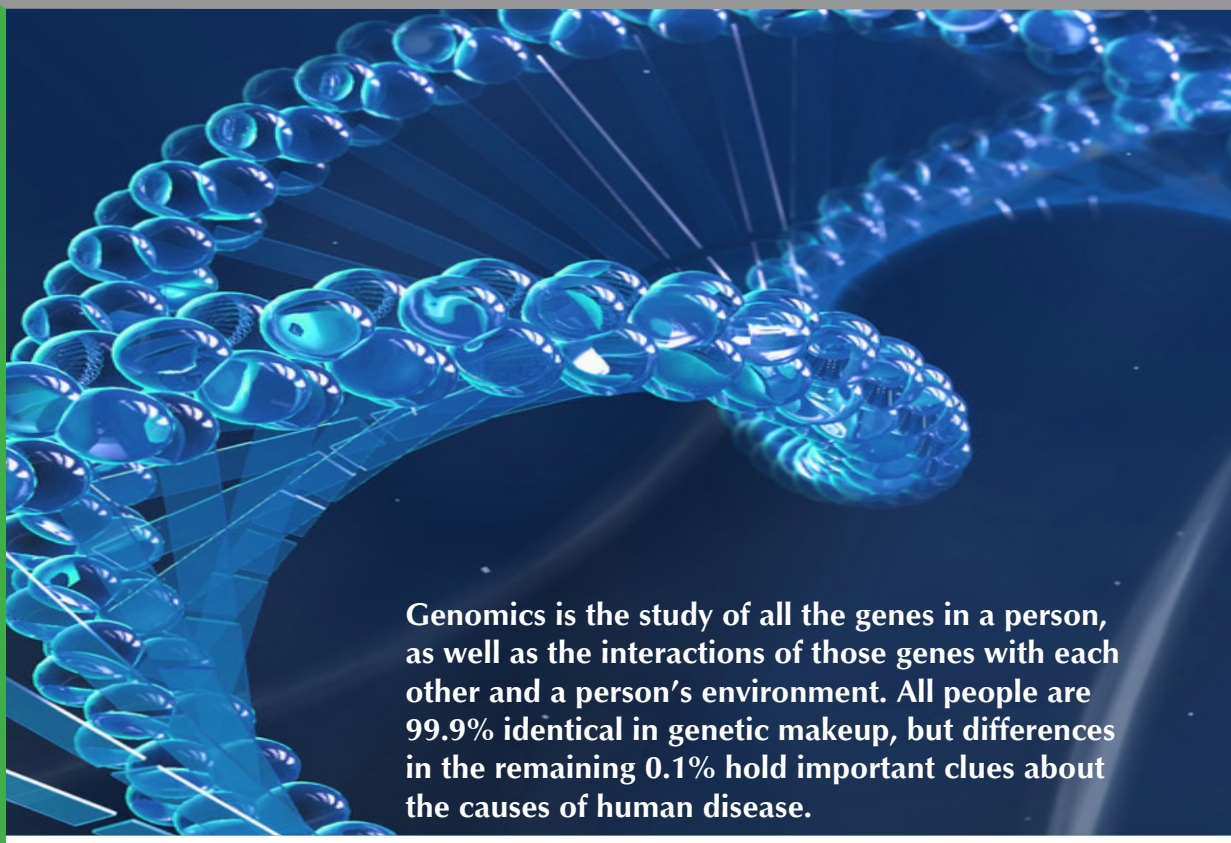
This research is on the cutting edge of science and health. Over the last year, CDC has provided interim guidance for controlling exposures while needed research progresses and offered informational resources and technical assistance not available elsewhere. CDC is a model for excellent science and scientific partnership on this emerging technology.

Over the last fiscal year, CDC

- Issued draft interim guidance, "NIOSH Current Intelligence Bulletin," on medical screening of workers potentially exposed to nanoparticles in the production and industrial use of nanomaterials to ensure early detection of workplace exposures and conditions that may pose occupational health risks.
- Conducted 10 intensive on-site scientific evaluations of actual nanotechnology processses in partnership with eight industrial, academic, military, and research organizations. At the sites, CDC scientists and engineers assessed potential exposures and operational experiences, control technologies, personal protective equipment, and work practices.
- Published the first progress report on the strategic research program since it began in 2003.

These and other efforts under the strategic research program are being conducted to

- Determine whether nanoparticles and nanomaterials pose risks of injuries and illnesses for workers.
- Learn how to apply nanotechnology to the prevention of work-related injuries and illnesses.
- Promote healthy workplaces through interventions, recommendations, and capacity-building.
- Enhance global workplace safety and health through national and international collaborations on nanotechnology research and guidance.



Genomics is the study of all the genes in a person, as well as the interactions of those genes with each other and a person's environment. All people are 99.9% identical in genetic makeup, but differences in the remaining 0.1% hold important clues about the causes of human disease.

Breaking New Ground in Genomics

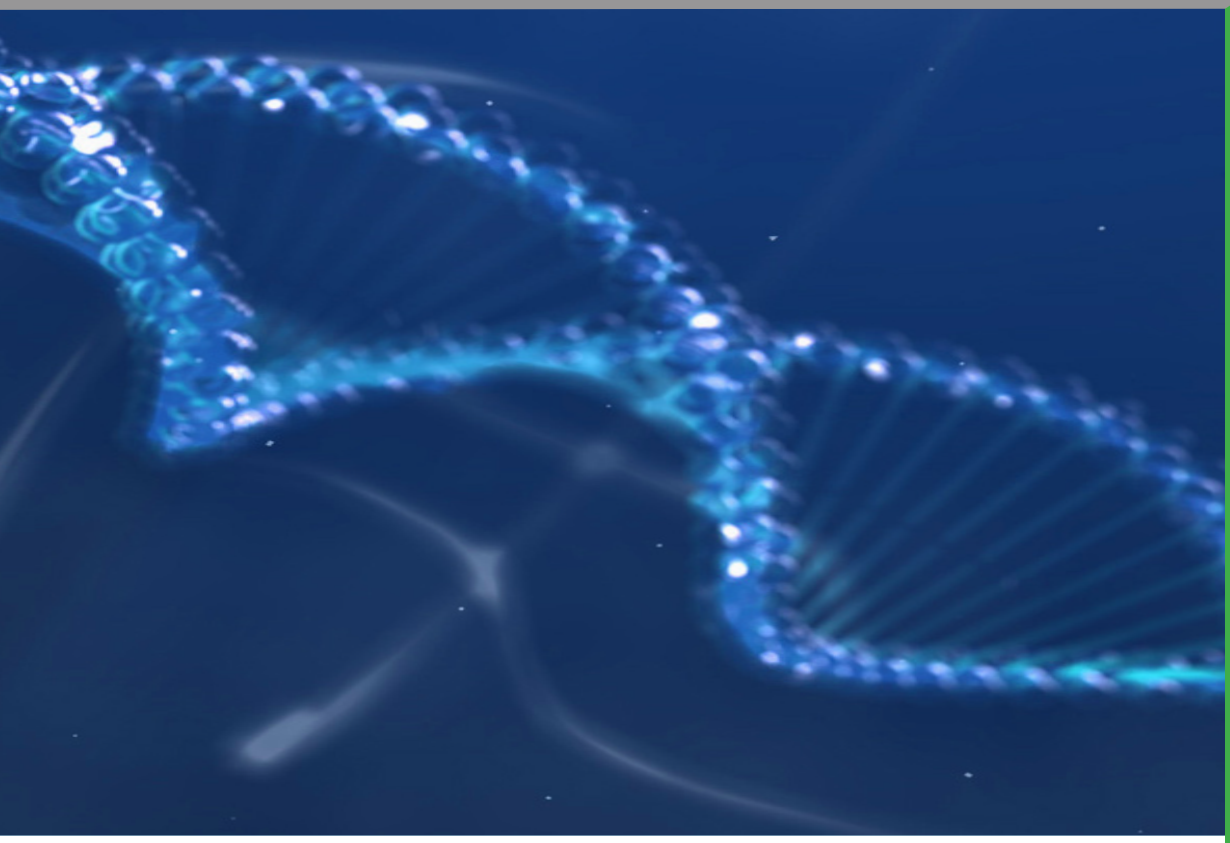
Genomics is cutting edge science that provides a more comprehensive understanding of the risks for diseases and helps to strengthen disease prevention activities. During the past decade, CDC has helped establish public health genomics as a multidisciplinary field aimed to ensure effective and responsible translation of scientific discoveries in genetics and genomic applications into health practices for improving the public's health.

CDC and its partners are integrating genomics into public health research, programs, and policy to help improve interventions that are designed to prevent and control the country's leading chronic, infectious, environmental, and occupational diseases. CDC efforts include conducting population-based genomic research, assessing the role of family history in disease risk and prevention, and evaluating genetic tests.

CDC established the independent, nonfederal Evaluation of Genomic Applications in Practice and Prevention (EGAPP) Working Group in 2005 to support the development of a systematic process for evaluating genetic tests in clinical practice. Reliable, evidence-based information is needed to help determine which genetic tests are safe and effective and to provide guidance on their appropriate use.

In 2007, the EGAPP completed four CDC-funded reports through an interagency agreement with the Agency for Healthcare Research and Quality:

- Genomic Tests for Ovarian Cancer Detection and Management;
- Testing for Cytochrome P450 (CYP450) Polymorphisms in Adults With Non-Psychotic Depression Treated With Selective Serotonin Reuptake Inhibitors;
- Hereditary Nonpolyposis Colorectal Cancer: Diagnostic Strategies and Their Implications; and
- Impact of Gene Expression Profiling Tests on Breast Cancer Outcomes.



In December 2007, the EGAPP Working Group released the first in a series of recommendation statements that address the use of cytochrome P450 testing in adults with depression who are beginning treatment with a widely prescribed class of antidepressants.

CDC also completed an analysis of data collected through CDC's National Health and Nutrition Examination Survey to assess the risk of common chronic diseases and conditions in the U.S. population that can be attributed to family health history. CDC found that family history of diabetes has a significant, independent, and graded association with the prevalence of diabetes. People with a family history that puts them in the moderate- or high-risk categories for diabetes were, respectively, 2.3 and 5.5 times more likely to have diabetes than were people in the average risk category. This risk was independent of a person's gender, race/ethnicity, age, body mass index, hypertension, income, or education.

The study of genomics at CDC is critical to the future of health protection and care through its potential to lead to new and better ways to improve health and prevent diseases for individuals and populations.

REACH (Racial and Ethnic Approaches to Community Health)

Recent evaluations of REACH have shown that this program supports CDC's goal of having healthier people in every stage of life by eliminating health disparities in key areas, while making significant reductions in others, including:

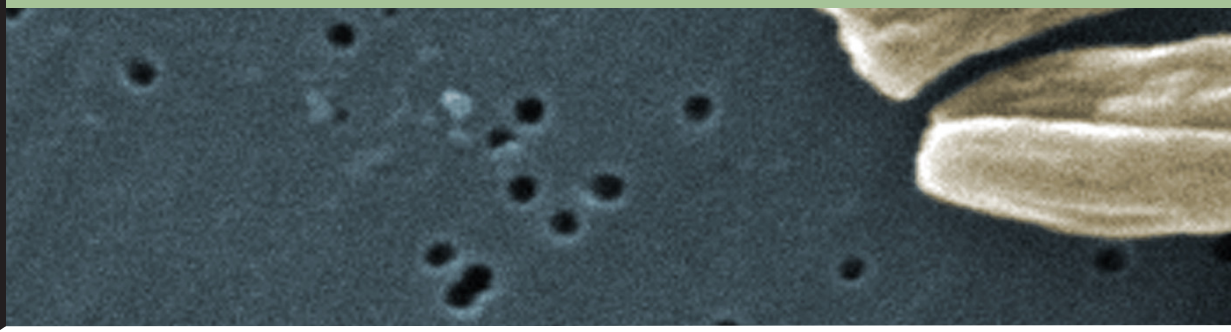
- The proportion of African Americans getting screened for cholesterol was below the national average for all population groups in 2002, and now exceeds the national level. Among Hispanics, a large 2002 gap has diminished, and is now nearing the national average.
- More American Indians in REACH communities who have high blood pressure are now taking medications to control their conditions.
- A sizeable 2002 gap between the number of Asian American men who smoke and the national average was eliminated in 2005.

REACHing African Americans in Los Angeles

In Los Angeles County, African Americans have higher rates of death from coronary heart disease, stroke and diabetes than any other racial or ethnic group in the United States. Further inhibiting healthy habits, South Los Angeles residents have little or no access to resources such as healthy food options and safe places for exercise compared with residents of similar cities.

To address these inequalities and promote healthy communities, Community Health Councils (CHC) of Los Angeles brought together a cross-section of groups and key stakeholders to form the African Americans Building a Legacy of Health coalition. Through a grant from CDC's Racial and Ethnic Approaches to Community Health (REACH) program, the coalition is improving food and physical activity options in South Los Angeles through community development, awareness, and advocacy. These efforts recently resulted in the Los Angeles County Board of Supervisors adopting a policy to improve the quality of food offered in county-sponsored programs. The coalition also has helped develop wellness programs and policies in nearly 50 local workplaces.

"The wellness program created enough buzz around the office—people interested in walking more, drinking more water, avoiding processed foods—that a second eight-week set of classes was set up for people who missed the opportunity the first time around," says Emile Gardner, assistant general manager of First Transit in Los Angeles. "The program is a great way to improve health and quality of life, and it pays dividends to participants and the community as a whole."



Project DIRECT

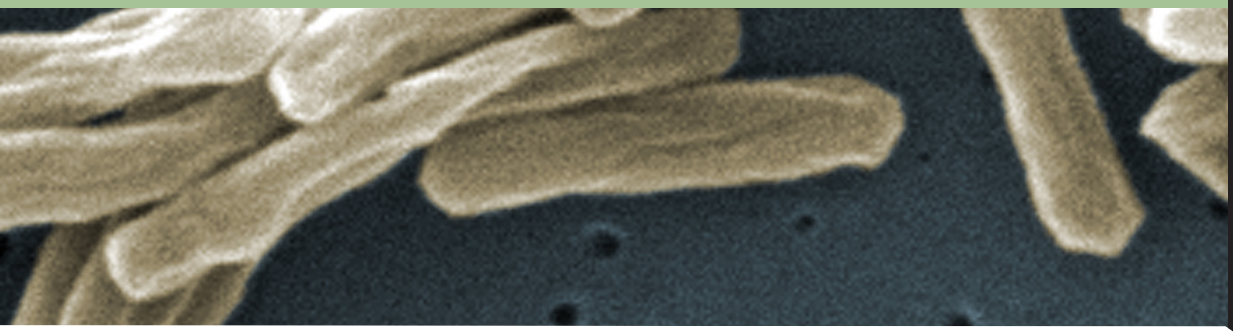
Project DIRECT is a community participatory diabetes intervention project designed to test a comprehensive approach (health promotion, outreach and diabetes care) to diabetes prevention and care. The intervention was conducted among a predominantly African-American community of North Carolina. Preliminary results show that sedentary behavior was reduced over the 7-year period in the intervention community compared to the control community. As well, although the total diabetes prevalence increased in both communities, the rate of increase was 40% less in the intervention community.

Health Protection Challenges

In FY07 CDC established the Federal Collaboration on Health Disparities Research as part of its ongoing strategies to eliminate health disparities. The collaboration brings together 15 federal agencies and focuses on translating and disseminating those research strategies and results. CDC also is initiating entrepreneurial research to meet health protection challenges by creating innovation teams charged with identifying and rewarding innovation; convening leader-to-leader meetings with retail health partners; developing grand rounds for health proprotection goals; and examining best practices in innovation in public and private sectors.

Data-driven Interventions and Reduction of Global Tobacco Use

In 2007, the Bloomberg Family Foundation contributed $125 million to launch the Bloomberg Global Initiative to Reduce Tobacco Use. A significant portion of these resources is being used to better understand adult tobacco use by building on the successful youth tobacco surveys and to optimize the reach and results of the ongoing Global Tobacco Surveillance System. CDC played an instrumental role in designing the new standard Global Adult Tobacco Survey instrument to measure adult tobacco use and testing it in India and the Philippines. CDC also developed training materials for staff and provided technical assistance to the Ministries of Health and other partners in focus countries. The new survey will be implemented next in 15 low- and middle-income countries that are home to more than half of the world's smokers—Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Pakistan, Philippines, Poland, the Russian Federation, Thailand, Turkey, Ukraine, and Vietnam—and bear the highest burden of tobacco use.



CDC's Laboratory Response Network (LRN)

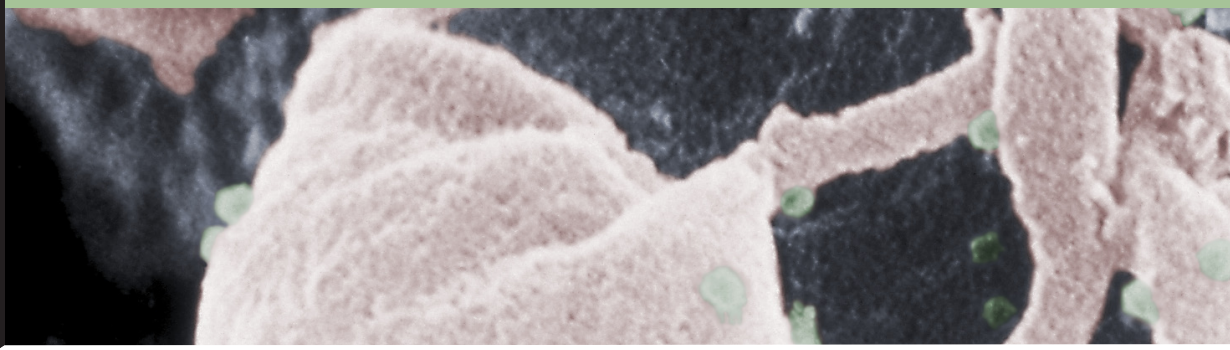
For the detection of biological threat agents, CDC has increased the number of LRN reference laboratories to 163. This number includes public health, military, environmental, water, food, and veterinary labs. These labs are now located in all 50 states and several installations abroad. Of the 54 domestic labs that are affiliated with grantees of the Public Health Emergency Preparedness cooperative agreement, 100% can confirm the agents that cause anthrax, tularemia, and plague. For the entire network, more than 90% can test for melioidosis, ricin, SEB, orthopoxviruses, or influenza A/H5. In addition, 62 public health laboratories can either detect chemical agents in human specimens, ship samples, or both. CDC has trained more than 8,800 clinical laboratorians to play a role in detecting, diagnosing, and reporting public health emergencies.

Preparedness for Vulnerable Populations

"Chronic Disease and Vulnerable Populations in Times of Natural Disasters" is an action guide developed recently for U.S. public health practitioners—especially at local and state levels. It offers practical, easy-to-use advice that is specific to chronic disease, reproductive health, and other vulnerable/at-risk population needs for disaster planning and response. The guide covers basic principles of disaster planning and response and addresses the need for plan development before a disaster occurs, the immediate impact and postimpact phases of disaster response, and the long-term follow-up and evaluation of the response.

NHANES Collaborative Genomics Project

Since 2002, CDC and NIH's National Cancer Institute (NCI) have been measuring population variation in selected genes by using stored DNA samples collected during the third National Health and Nutrition Examination Survey (NHANES). NHANES is a nationally representative, weighted sample survey, with over sampling of youth, elderly, non-Hispanic blacks, and Mexican Americans to improve representation of these groups, and encompasses a large segment of the U.S. population. In FY2007, NCI and CDC laboratories completed the genotyping of 90 variants in 50 genes. CDC staff are conducting a statistical analysis for each of the approximately 35 genotype-phenotype correlation studies. One finding from the study shows that family history of diabetes has a significant, independent, and graded association with the prevalence of diabetes in the U.S. population. People with a family history of diabetes were 2.3 to 5.5 times more likely to have diabetes.



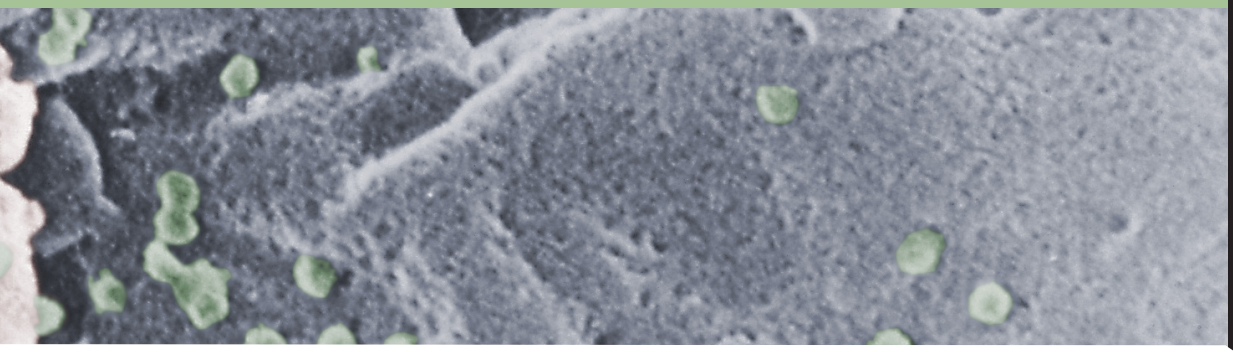
Genomics and Education

Since 2003, CDC has supported genomics programs in four state health departments (Michigan, Minnesota, Oregon, and Utah) to integrate genomics knowledge (e.g., genetic risk factors) and tools (e.g., family history assessments) into chronic disease prevention programs and core public health functions. The Minnesota health department has now collaborated with the University of Minnesota's School of Public Health to organize three new courses and a roundtable session on public health genomics as part of the 6th annual Summer Public Health Institute. This collaboration builds genomics capacity by educating the workforce on the importance and application of genomics principles in research, practice, and policy development.

The Power of New Media

Across the spectrum, CDC is taking to the airwaves through tools that are anything but conventional. Over the last year, CDC launched a Whyville influenza vaccination campaign where the citizens of this tween's virtual community were encouraged to get vaccinated against Whyville's own virtual "Why-Flu." And the virtual community Second Life was not left behind. There were new updates to CDC's Second Life site, providing this 6-million-plus cyber community with the opportunity to download CDC materials, visit CDC's award-winning Websites, listen to podcasts, and learn about the latest health concerns and disease outbreaks.

Health e-Cards were also launched as a product line in February 2007. In the first 24 hours, almost 3,000 e-cards were sent for Valentine's Day with messages for loved ones on ways to stay healthy or get healthier in the coming year. From blogging and surfing, to chat rooms and emergency notification systems, a new information age is upon us. For CDC, this new media is making health information more personal, more participatory, and more powerful. Find out more from the video on the CD-ROM in this report or by visiting www.cdc.gov/Features/VirtualTour



CDC AT A GLANCE

CDC and Agency for Toxic Substances and Disease Registry (ATSDR) are two of the 13 major operating components of the Department of Health and Human Services. Since its inception in 1946, when CDC was charged with controlling malaria in the United States, the Agency has emerged as and remains today the most reputable source of public health information in the world.

As the scope and breadth of CDC activities have grown, so has the workforce. Today, CDC and ATSDR have more than 8,000 full-time, permanent staff; 118 part-time staff; and approximately 5,000 contract employees. The majority of employees work out of the Atlanta headquarters, but the Agency also has a major presence in diverse geographical areas such as Cincinnati, Ohio; Morgantown, West Virginia; Hyattsville, Maryland; Pittsburgh, Pennsylvania; Puerto Rico; Washington, DC; Spokane, Washington; Durham, North Carolina; and, Fort Collins, Colorado; and in 46 countries around the world.

- **Women make up 58% of CDC's workforce**
- **Staff are from a variety of backgrounds and locations throughout the country and across the globe, with 33% of a minority race/national origin**
- **Disabled employees constitute 6% of our workforce**
- **More than 80% holds a bachelors degree or higher**

Fiscal Year 2007 Budget

In an era of limited fiscal resources and many competing priorities, CDC is committed to leveraging resources to achieve maximum health results and reduce health disparities. Prioritizing the agency's activities within the four overarching Health Protection Goals ensures that we are focused on optimizing health impact in every laboratory on our campus, in every program we fund, in all our health protection research, and in every outbreak we contain.

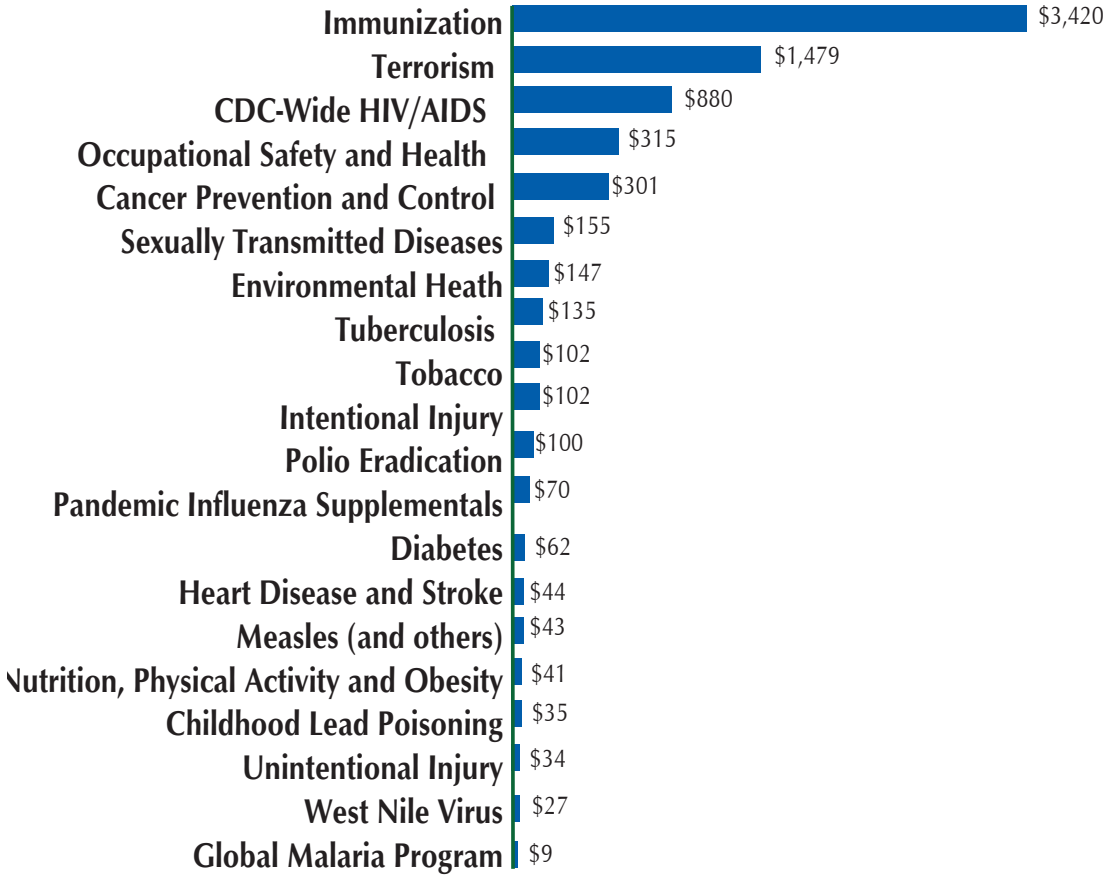
Our focus on strategic excellence and innovation is illustrated by the incredible progress we have made in 2007 on "Health Impact Planning" for CDC. CDC now has available a robust Web-based tool that pulls together much of the agency's strategy information, including alignment to the Health Protection Goals, budget, and procurement information at the project level. We are also taking on some tough policy issues, including looking at the future of our role in immunizations and exploring how we can better leverage external spending to create societal change around some of our best science (e.g., health associated with tobacco). We have started work on founding a new virtual "Policy Academy" to help mentor and support CDC's commitment to health policy analysis. We are especially excited about the work we have done in the past year to achieve organizational excellence, as showcased by the following:

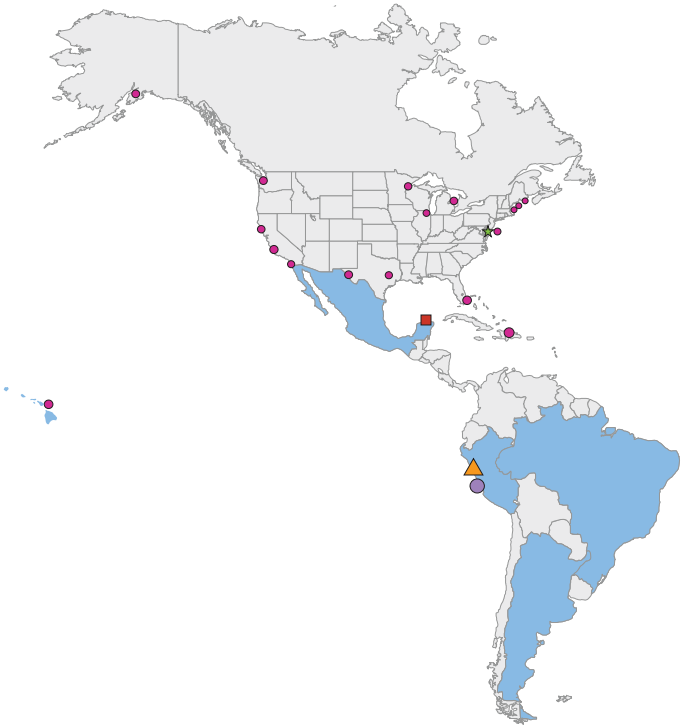
- **Received the highest rating on Improved Financial Performance as part of the President's Management Agenda**
- **Implemented the Vaccine Management Business Improvement Project that will lead to more efficient distribution of vaccine directly to providers and clinics**

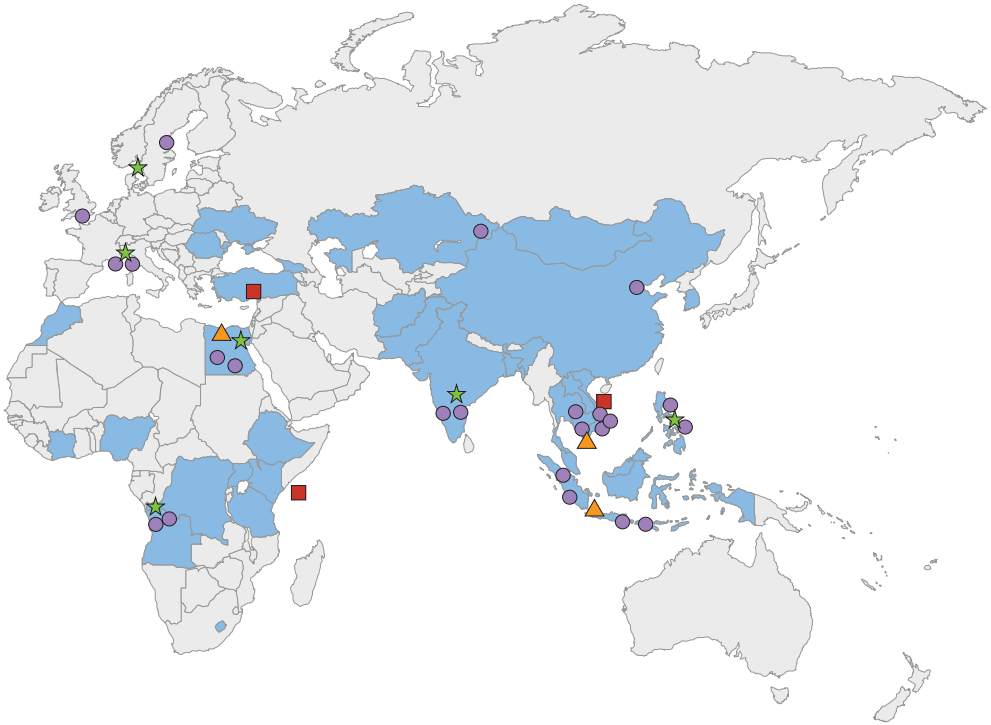
- **Enhanced financial reporting system to speed up our reporting capability and provide us with tools to better determine fiscal needs for the next year**
- **Created a business services improvement office to increase the effectiveness of business activities at CDC**
- **Targeted communication and media activities to successfully raise awareness about such health concerns as chronic fatigue syndrome, multidrug resistant Staphylococcus, foodborne illnesses, and multidrug resistant tuberculosis**

In the coming fiscal year, CDC will continue to lead in promoting health among young people and adults, across all life stages, and in schools and communities around the country. With sustained focus and continued investment, we will continue to be prepared for the next public health emergency, we will begin to roll back the impact of a sedentary lifestyle and stop the spread of HIV/AIDS, and we will work with partners at home and abroad to ensure a healthy national and international community.

Funding by Selected Disease
FY 2007 Actual (Dollars in Millions)







CDC Locations

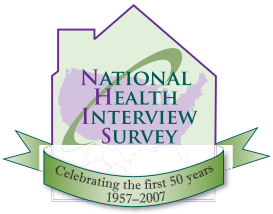
CDC Quarantine Stations:

Anchorage	Los Angeles
Atlanta	Miami
Boston	Minneapolis
Chicago	Newark
Dallas	New York
Detroit	Philadelphia
El Paso	San Diego
Honolulu	San Francisco
Houston	San Juan

- WHO Cooperative Agreement
- DoD Collaborations
- Global Disease Detection Center
- Proposed CDC Influenza International
- CDC Funded Sites
- CDC Quarantine / Border Health Stations

CDC by Numbers in 2007

SURVEILLANCE



CDC's National Health Interview Survey turned 50 this year. Since 1957, the Survey has monitored trends in illness and disability. The numbers are used to track national health objectives. The public health research community also uses these data to help see a more detailed picture of myriad health problems, to identify access barriers to health protection and disease prevention tools, and to evaluate Federal health programs. Highlights from the 2006 survey include

- 61% of adults 18 years of age and over were in excellent or very good health, 27% were in good health, and 12% were in fair or poor health.
- 21% of adults 18 years of age and over were current cigarette smokers, 21% were former smokers, and 59% had never smoked at least 100 cigarettes in their lifetime.
- 62% of adults 18 years of age and over never engaged in any periods of vigorous leisure-time physical activity lasting 10 minutes or more per week; 24% engaged in such activity three or more times per week.
- 57% of men were current regular drinkers compared with 39% of women.
- 36% of adults 18 years of age and over had ever been tested for HIV.
- 8% of adults 18 years of age and over had ever been told by a doctor or other health professional that they had diabetes.

PREPAREDNESS

- The number of users for the Epidemic Information Exchange, a secure CDC-based communications system that helps track disease outbreaks, has increased from 890 people in 2001 to 4,885 people in 2007.
- All 50 states now have plans to receive, store, and distribute the Strategic National Stockpile, and CDC reviews these plans regularly to identify gaps in planning.
- CDC deployed more than 170 staff to 31 states to support health department investigations of urgent health problems, such as an unexplained cluster of patients with neurologic disease, a meningitis outbreak, and hurricane-related health threats.
- All 50 states have at least one public health laboratory that can perform rapid tests for anthrax and other bioterrorism agents, and 47 public health laboratories can test for a variety of chemical agents.

COMMUNICATION

- One millionth inquiry received to CDC INFO, with over 1,200 daily inquires
- 94,489 subscribers received CDC.gov email updates
- 2,941 e-cards sent out from CDC's Office of Women's Health for Valentines Day
- 250 podcasts, with more than 250,000 downloads

CD-ROM TABLE OF CONTENTS

CDC Prepares
Emergency preparedness meets a new century with new threats and new tools to combat those threats. Take a look at what CDC is doing to help ensure preparedness and health protection in the 21st century.

e-Health
CDC knows that new media can make health information more personal, more participatory, and more powerful. Over the last year, CDC stepped up its efforts to join the new technological age of information exchange, participating in virtual worlds and online social networks, as well as Podcasts, e-Cards, Blogs, Wikis, and eGames. Watch the video to find out more.

REACH 2010
CDC programs make a postive difference in the health of communities.

The State of CDC – 2003 – 2007
Access links to printable versions of the State of CDC reports for FY 2003 through 2007. An interactive Web sites to help you learn more about health!
http://www.cdc.gov/about/stateofcdc/

My Family Health Portrait
The online My Family Health Portrait software is easily installed on your home computer and provides an interactive question and answer so that you can learn more about how your family history can inform your own health protection plans. http://www.hhs.gov/familyhistory/download.html

The Global Cancer Atlas Online
The Online Global Cancer Atlas runs on a database that provides information in real time about current and comprehensive statistics and information on the cancer burden, risk behaviors and more, not just in the United States but international too.
http://apps.nccd.cdc.gov/dcpcglobalatlas/

Tour the New CDC.gov Home Page
Take another look at CDC's Internet site, with easier access to information, new features, and a new look. http://www.cdc.gov/Features/VirtualTour/

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