

# CDC SAVING LIVES. PROTECTING PEOPLE.



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



## *Letter from* **THE DIRECTOR**

There is no work quite like public health, and there is no agency quite like CDC. As America's health protection agency, we are unique in our ability to safeguard America's health security 24 hours a day, 7 days a week. Whether it's an infectious disease, emergency, chronic condition, or deliberate attack, CDC's expertise in preparedness, rapid disease detection, and response saves lives and protects communities from health threats.

Despite the critical nature of our work, CDC's ability to protect Americans has been challenged in recent years. We face new threats every day, including "nightmare bacteria" that can resist all known antibiotics. We need new technologies and methods, such as combining DNA sequencing and advanced computing, or America's public health system is in danger of becoming obsolete.

CDC's work helps millions of people across the U.S. and around the world. It can take decades to beat a disease or ensure global health threats don't cross borders—but it takes only a short time for a new health threat to gain the edge if a public health system isn't prepared. As a result, CDC is committed to achieving the greatest health benefit by focusing on three major priorities:

- Improving health security at home and around the world
- Better preventing the leading causes of illness, injury, disability, and death
- Strengthening collaboration between public health and healthcare providers

Each priority targets strategic areas where CDC plays a crucial public health role. We hope this report illustrates how a strong public health system is the most effective and cost-efficient way to keep America safe, secure, and healthy.

Sincerely,

A handwritten signature in black ink that reads "Thomas Frieden". The signature is fluid and cursive, written in a professional style.

Tom Frieden, MD, MPH





## **WE INVESTIGATE.**

24/7 operations center  
to track disease and  
respond to health crises

## **WE FIGURE OUT WHAT WORKS.**

The best solutions to fight  
disease and protect health

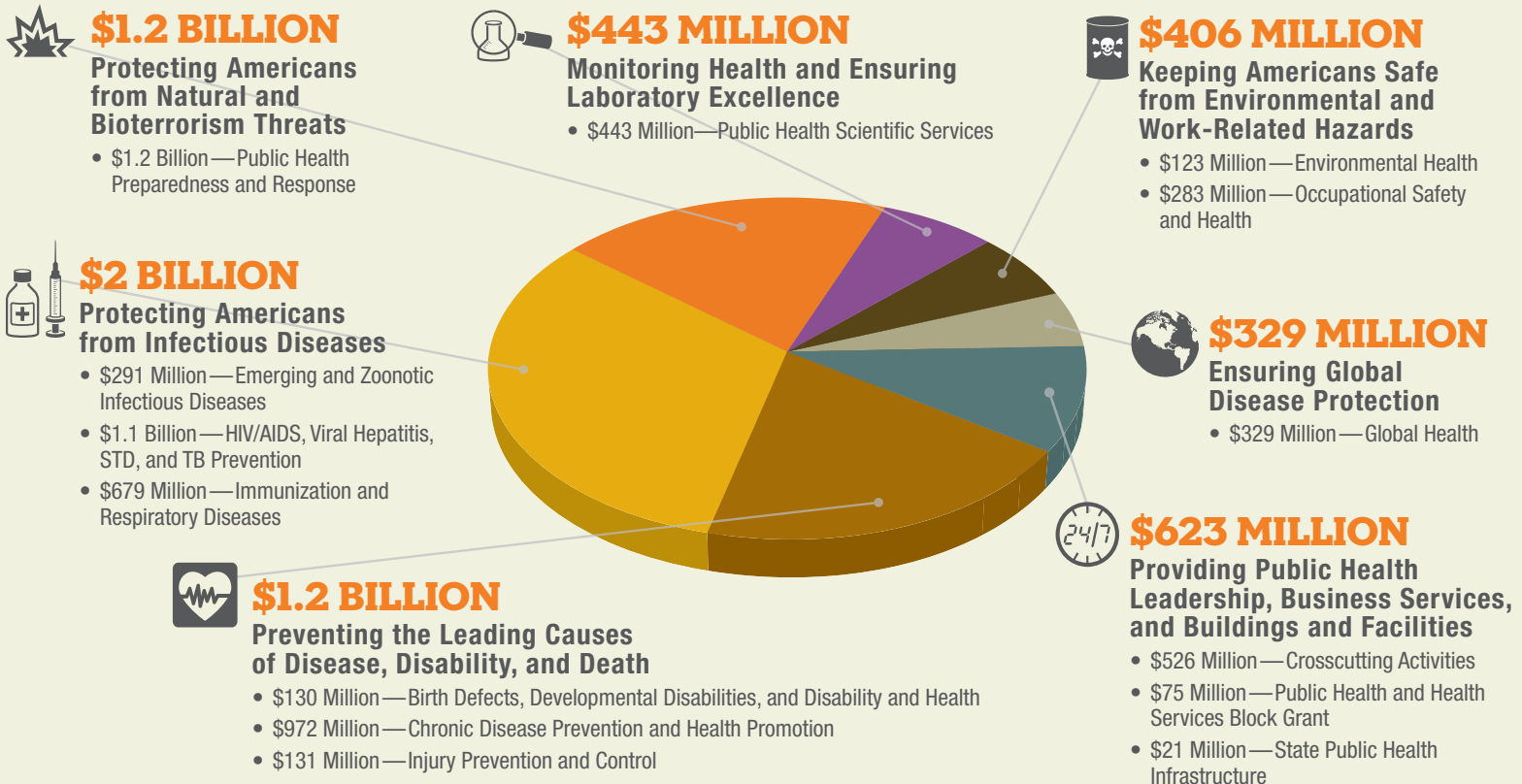
## **WE GET RESULTS.**

Proven, lifesaving ways to  
defend against health threats

## **WE WORK 24/7 TO KEEP YOU SAFE.**

# CDC'S FUNDING

## in FISCAL YEAR (FY) 2013: \$6.3 Billion



Totals have been rounded to nearest million

## PRESIDENT'S BUDGET REQUEST FOR CDC (FY 2014 and 2015)

Additional funding requests to fight new health threats that pose a serious risk to America's health security.



### DEVELOPING ADVANCED MOLECULAR DETECTION and RESPONSE to INFECTIOUS OUTBREAKS

Received \$30 million in FY 2014 to develop critically needed disease detection technologies to identify emerging health threats before existing methods become obsolete.



### RESPONDING to DISEASE THREATS AROUND the WORLD

Requested \$45 million in FY 2015 to improve tracking and response in other countries so new health threats are stopped before they reach the U.S.



### DETECTING and PROTECTING AGAINST ANTIBIOTIC RESISTANCE

Requested \$30 million in FY 2015 to better detect and track germs that resist existing antibiotics and threaten to return the U.S. to a time when simple infections were fatal.



### RESPONDING to the PRESCRIPTION PAINKILLER DRUG OVERDOSE EPIDEMIC

Requested \$15.6 million in FY 2015 to reduce an alarmingly growing epidemic of prescription drug abuse in the U.S.—with a special emphasis on states with the highest rates.

# CDC PRIORITIES



## **IMPROVE HEALTH SECURITY** *at HOME and AROUND the WORLD*

CDC has a unique role protecting America's health security. Our scientists and public health experts are world leaders at responding to large-scale health emergencies such as natural disasters, pandemics, deliberate attacks, environmental catastrophes, and other health threats.



## **BETTER PREVENT** *the LEADING CAUSES of ILLNESS, INJURY, DISABILITY, and DEATH*

CDC is dedicated to building a strong, efficient, and effective public health system in the U.S. that improves the health of Americans while lowering healthcare costs. This can be done by preventing heart disease, cancer, strokes, diabetes, and other leading health threats.



## **STRENGTHEN PUBLIC HEALTH-HEALTHCARE COLLABORATION**

A unique opportunity now exists to protect the health of Americans and empower people to live longer, more productive lives. CDC is leading the way to bring individual healthcare and community health together to save more lives and reduce costs.





# PUBLIC HEALTH PREPAREDNESS & RESPONSE

**A** health threat can appear at any moment, and the U.S. must be ready to respond. As America's health protection agency, CDC is on call 24/7 and able to rapidly deploy disease detectives, lifesaving vaccines and medicines, and other support during a health emergency. Whether natural disasters, disease outbreaks, or deliberate attacks, CDC provides critical data, funds, and training to improve state and local preparedness capabilities.



## 24/7

CDC's Emergency Operations Center can be activated at any time to combat outbreaks, pandemics, natural disasters, and many other threats.



## 12 HOURS

CDC can deliver lifesaving medicines from the Strategic National Stockpile to anywhere in the U.S. in 12 hours or less.



## 90%

90% of Americans live within 100 miles of a Laboratory Response Network facility.



CDC operates an Emergency Operations Center 24 hours a day, 7 days a week to ensure America's health security.

## KEY ACCOMPLISHMENTS

- Aided state responses to disasters through CDC's 24/7 Emergency Operations Center.
- Supported 5,000 frontline public health workers as first responders to help save lives and protect people during public health emergencies.
- Kept communities safe by overseeing and regulating dangerous biological agents and toxins.
- Advanced emergency preparedness through America's Strategic National Stockpile with faster, more efficient ways to deliver lifesaving medicines and supplies to all parts of the U.S. in the shortest amount of time (*see photo on right of Strategic National Stockpile*).



### Better Protection

CDC sent 20 health alert network notices in 2013 to clinicians with critical information about urgent health threats, the most since the network was created.

## READY FOR ANYTHING—24/7

What does it mean to be ready 24 hours a day, 7 days a week to keep America safe from health threats? If you work in CDC's Emergency Operations Center (EOC), it means exactly that—you always have to be ready for anything, at any time.

For example, when Hurricane Sandy pummeled the Atlantic seaboard, some local governments were overwhelmed. CDC's EOC worked to support state and local public health departments. CDC also deployed personnel from its Strategic National Stockpile and seven Federal Medical Stations in New Jersey and New York as part of a Rapid Deployment Force. This coordinated effort was part of the U.S. Department of Health and Human Services' response to a disaster that caused death, record flooding, and more than \$70 billion in damage.

The EOC is a state-of-the-art health security command center located at CDC's headquarters in Atlanta, Georgia. It manages responses to health threats using the Incident Management System, which is based on standardized emergency response systems used throughout the U.S. The EOC can be activated for health emergencies in the U.S. or globally. Recent activations include the Middle East Respiratory Syndrome (MERS CoV) outbreak, the H7N9 virus, the 2011 Japan earthquake and tsunami, the 2010 Haiti earthquake and cholera outbreak, and the H1N1 flu pandemic. The EOC monitors and forwards important information daily, fielding more than 1,500 calls a month from the public, healthcare providers, state and local governments, military bases, and international organizations.



# EMERGING & ZOOONOTIC INFECTIOUS DISEASES

**D**iseases can cross communities and borders, but CDC responds whenever and wherever there is an infectious disease threat. We quickly detect and stop foodborne outbreaks, track and eliminate dangerous infections in hospitals and clinics, investigate deadly viruses and bacteria, prevent germs from spreading to people from animals and insects, protect U.S. communities from communicable diseases from other countries, and discover new or mutated germs while fighting drug-resistant microbes.



## 1 IN 6

About 1 in 6 (48 million) people in the U.S. gets sick every year from contaminated food.



## 1 IN 20

Each year, about 1 in 20 patients in the U.S. gets a second potentially life-threatening infection while receiving medical care.



## \$77 BILLION

Foodborne diseases cause 48 million illnesses, 3,000 deaths, 128,000 hospitalizations, and up to \$77 billion in total economic costs each year in the U.S.



A CDC scientist examines microscopic slides showing *Exserohilum rostratum* (on screen) during the multistate meningitis outbreak.



## KEY ACCOMPLISHMENTS

- Improved diagnostic tests to more rapidly detect and protect people from dengue fever, plague, deadly fungal infections, rabies, and other infectious diseases.
- Continued work on new vaccines, including one for animals against Rift Valley fever and completed a phase 2 clinical trial of a vaccine against dengue fever (*see photo on right of Aedes aegypti mosquito, which can spread dengue and chikungunya viruses*).
- Released a national report providing the first snapshot of the threat antibiotic-resistant germs pose to humans.



### Infections Nearly Cut in Half

44% drop in all central line-associated bloodstream infections.

## STOPPING A KILLER FUNGUS IN ITS TRACKS

Imagine going to the doctor for a routine shot to relieve pain in your neck, and a few weeks later you have a headache, fever, and extreme sensitivity to bright light. That's what happened to a 56-year-old woman from Brentwood, Tennessee, who was healthy and active until she started receiving steroid injections. What she didn't know was the steroids were contaminated with a fungus that made her very sick. She died of her sickness within days.

A contaminated steroid from a pharmacy in New England sickened more than 750 people, including 64 who died, in a deadly 23-state outbreak in the fall of 2012. CDC and state and local health partners quickly determined the source and scope of the outbreak, contacted more than 14,000 patients at risk, and got experts to provide diagnostic and treatment guidance. Public health workers in Tennessee, Virginia, and Michigan rushed to save the lives of exposed patients. CDC's fungus laboratory operated 7 days a week to test hundreds of samples with a newly developed test for this unprecedented infection. Meanwhile, the agency's healthcare-associated infection laboratory worked with the Food and Drug Administration to identify other microorganisms from sealed medication vials.

When the public is exposed to outbreaks caused by poor practices in clinics and pharmacies, CDC and its state public health partners are the first responders. Most often, the outbreaks are caused because these facilities fail to understand or follow proven recommendations and professional standards created to protect the public's health.



# GLOBAL HEALTH

**D**iseases know no borders, so CDC is ready to protect the U.S. by rapidly detecting and containing emerging health threats—whether infectious or chronic—anywhere in the world. We support strong, effective public health systems, and we train health professionals to rapidly detect outbreaks in their own countries to prevent threats from crossing borders. We also work to make sure people have access to safe water and sanitation around the world, which is a critical step to preventing disease and other health threats.



## 148 CASES

Assisted partners to reduce the number of Guinea worm cases to a record low in 2013—148 cases in countries where the infection is common.



## 750

CDC-supported field programs conducted more than 750 investigations in the past 2 years in 35 countries.



## \$50 BILLION SAVED

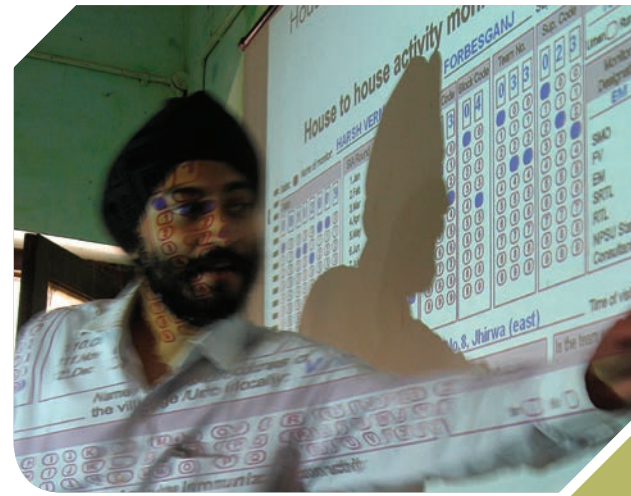
Polio eradication could save the world up to \$50 billion by 2035.



A boy with Nipah virus receives basic care. Currently, no drug or vaccine can treat Nipah virus infection.

## KEY ACCOMPLISHMENTS

- Responded to more than 288 global disease outbreaks through CDC's Global Disease Detection Centers.
- Strengthened public health systems in 47 countries through the Field Epidemiology Training Program (FETP), which has graduated more than 3,000 highly trained disease detectives since 1980, approximately 80% of whom remain in their countries.
- Collaborated with partners to eradicate polio from the world, now with a 99% decline. Since 1988, the number of countries reporting polio cases has declined from 125 countries with 350,000 cases to only 3 countries with 406 cases.
- Provided more than 1,800 CDC staff to more than 44 countries by 2013, through the President's Emergency Plan for AIDS Relief (PEPFAR), to identify, treat and prevent HIV infections. So far, the PEPFAR program has treated 6.7 million men, women, and children and prevented more than 1 million babies from being infected with HIV.



**Nearly 14 Million Lives Saved**  
The measles vaccine has saved 13.8 million lives from 2000–2012.

## THE HUMAN FACE OF DISEASE

I spent a year in Bangladesh with CDC's Global Disease Detection Center figuring out what puts people at risk for Nipah virus, which causes inflammation of the brain and severe respiratory problems. More than 75% of Bangladeshi patients with the virus die. Visiting a remote hospital, we found a boy unconscious in his mother's arms, whimpering in agony from inflammation of his brain. His test results for Nipah fever would take days, so I used the investigative tools I had to better understand his condition.

Experiences like this helped me see both the human face of the disease I was investigating and the value of scientific study in preventing human suffering. I looked at this boy not as research, but as a child in misery. To alleviate his pain is the greatest need in the world, and that is what we, the scientific community, are working to do.

—Sonia Hegde, MPH-ASPH Fellow, CDC



A child suffers from inflammation of the brain caused by Nipah virus.



# IMMUNIZATION & RESPIRATORY DISEASES

**C**DC protects all Americans from disease, disability, and death through immunization and by controlling respiratory and other preventable diseases. Vaccination is one of public health's most successful tools for saving lives and protecting people. CDC provides domestic and international leadership in seasonal and novel influenza control as well as laboratory and epidemiology expertise to respond to bacterial and viral disease threats.



**250,000**

Rotavirus vaccinations in children age 5 or younger prevented up to 250,000 hospitalizations during 2008-2012.



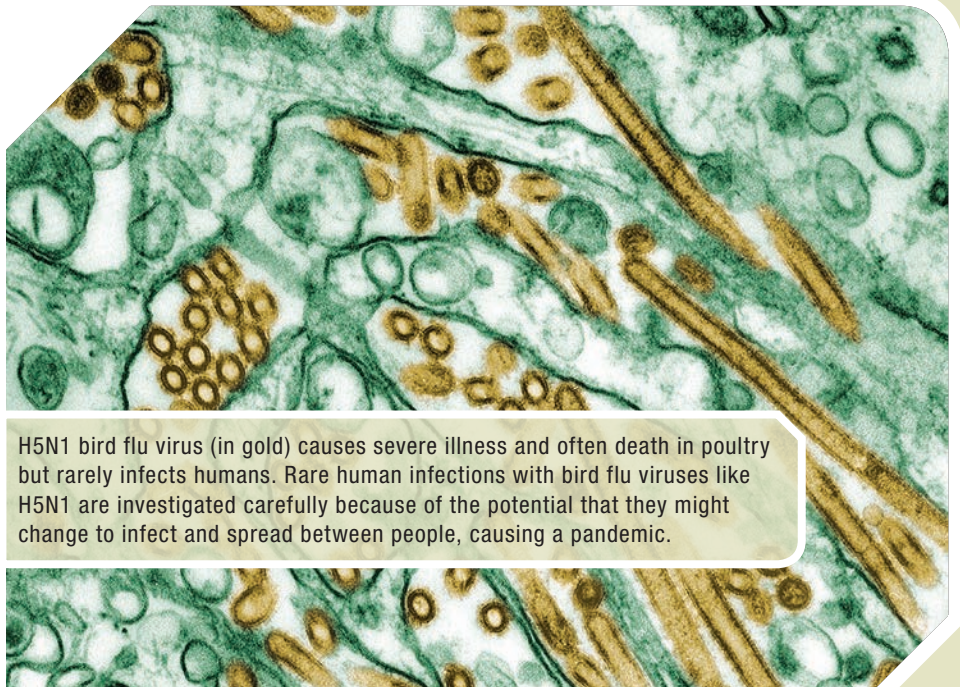
**79,000**

Flu vaccinations prevented 79,000 hospitalizations, 5.8 million doctor visits, and 13.6 million flu cases in the U.S.



**\$10 SAVED**

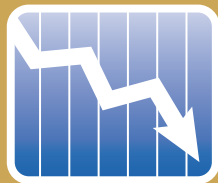
For every \$1 invested in vaccines, the U.S. saves an estimated \$10 in societal costs.



H5N1 bird flu virus (in gold) causes severe illness and often death in poultry but rarely infects humans. Rare human infections with bird flu viruses like H5N1 are investigated carefully because of the potential that they might change to infect and spread between people, causing a pandemic.

## KEY ACCOMPLISHMENTS

- Helped states and local communities protect people from public health threats, including whooping cough, hepatitis A, Legionnaires' disease, and measles outbreaks, while also handling an active influenza season.
- Helped partners respond to emerging global health threats, including H7N9 influenza A and Middle East Respiratory Syndrome (MERS CoV).
- Proved the effectiveness of the vaccine for pneumonia (PCV13), reducing the disease by 93% in children age 5 and younger and preventing 30,000 severe cases and 3,000 deaths between 2010 and 2013.
- Connected electronic health records and immunization information technologies for 34 states; Washington, D.C.; and two cities. This provided information for clinical and public health decisions so more children get only the vaccines they need, and get them on time.
- Established Vaccine-Preventable Diseases Centers to strengthen response to urgent health threats. These centers helped protect people by identifying, testing, and genotyping a 23-case outbreak of measles in North Carolina and a mumps outbreak at several colleges in Massachusetts.



**90% Decrease**  
Most vaccine-preventable  
diseases are at historic lows.

## PREPARING FOR A POSSIBLE H7N9 FLU PANDEMIC

In situations where people and birds are often in close contact, there are more opportunities for avian influenza viruses to jump species from birds to humans. This leap has happened several times in China, causing some human infections with both H5N1 and H7N9 strains.

CDC worked with China in the late 1980s to better identify and track human infections caused by bird flu viruses. China's response in 2013 to H7N9 demonstrated how well this partnership has worked. China detected the new H7N9 virus and fully mapped the gene within days. Working with CDC scientists, they conducted quick and effective outbreak field investigations and studies.

CDC not only supported China's response, but also worked domestically and with other international partners to prepare for the possibility that H7N9 might cause localized outbreaks and trigger a global pandemic based on genetic sequences of the new virus, which China made available promptly. CDC developed a potential vaccine virus to make the H7N9 vaccine, developed and distributed H7N9 diagnostic tests, and conducted studies to better understand how the virus spreads.



# ENVIRONMENTAL HEALTH & TOXIC SUBSTANCES

**C**DC protects people from environmental hazards found in the air we breathe, the water we drink, and the world that surrounds us. CDC safeguards the health of children, older adults, people with disabilities, and other populations vulnerable to certain environmental threats. CDC's researchers in the laboratory and field investigate the effects of the environment on health. We track and evaluate related health problems, and we help organizations in the U.S. and around the world respond to natural, technological, and terrorism-related environmental emergencies.



**7 MILLION**

About 7 million children in the U.S. have asthma.



**150**

Toxicologists use advanced diagnostic tests to identify exposure to more than 150 harmful chemical agents.



**\$5,600**

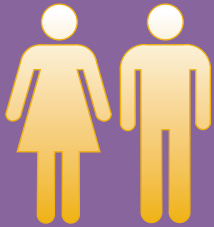
It costs on average more than \$5,600 in medical and special education costs when a child is severely poisoned from lead.



Environmental scientists help the food industry provide safer food by using CDC's Environmental Health Specialists Network to exchange research and new ideas.

## KEY ACCOMPLISHMENTS

- Helped New York City develop a system to track weather events. During Hurricane Sandy, the system immediately identified an increase in people exposed to extreme cold, which helped to protect people faster.
- Supported 23 states to improve food and drinking water safety and conduct health impact studies to prevent harmful exposure to biohazards.
- Protected children and pregnant women from the dangers of trichloroethylene (an industrial-use chemical) in indoor air at a daycare center, batting-cage complex, and many homes and businesses.
- Reported the growing threat of asthma, including deaths in the U.S., treatment issues, and education strategies. Health departments and policy makers used these data to improve decisions about how to manage asthma.



### 760,000 People Protected

The Agency for Toxic Substances and Disease Registry made site recommendations to states and communities that protected 760,000 people from toxic exposures.



## SAFER RESTAURANT FOOD—ONE STUDY AT A TIME

Half of all U.S. foodborne illness outbreaks involve restaurants. Some outbreaks can be deadly. To save lives and protect people, CDC's Environmental Health Specialists Network (EHS-Net) studies key factors behind restaurant outbreaks. This research includes how restaurants handle foods commonly associated with outbreaks (eggs, ground beef, chicken, tomatoes, leafy greens, etc.) and whether employees use good food safety practices (wash hands, avoid work when ill, and cook and cool food properly). Understanding these factors will improve the safety of restaurant food.

In one study, EHS-Net interviews with restaurant workers revealed that 20% had worked at least one shift sick—including while vomiting or experiencing diarrhea, which are common symptoms of a contagious foodborne illness. Another study found that 20% of the time, tomatoes were improperly washed and refrigerated, which led to contamination. This EHS-Net study resulted in recommendations that tomato temperatures be monitored at every stage of preparation.

“Data from our studies influence the training we provide to restaurant staff and our inspection process,” said Danny Ripley, a Nashville, Tennessee, EHS-Net data collector. Like Danny, EHS-Net staff are environmental public health and food safety professionals working at the state and local levels. CDC considers improving food safety to be an achievable public health victory, and EHS-Net's groundbreaking work will promote safer food practices throughout the U.S.



# HIV/AIDS, VIRAL HEPATITIS, STDs, & TUBERCULOSIS

**H**IV, viral hepatitis, and sexually transmitted diseases (STDs) share some common risk behaviors, risk factors, and modes of transmission—with tuberculosis (TB) being the leading killer of people living with HIV. CDC's approach to controlling and preventing these diseases addresses their overlapping epidemics and impact on health. We teach people how to avoid getting infected in the first place and how to keep from spreading STDs to others. We also work to prevent sexual risk behaviors in youth and to reduce health inequalities.



## 3 MILLION

About 3 million Americans are infected with the hepatitis C virus, which can cause liver disease. Most are baby boomers.



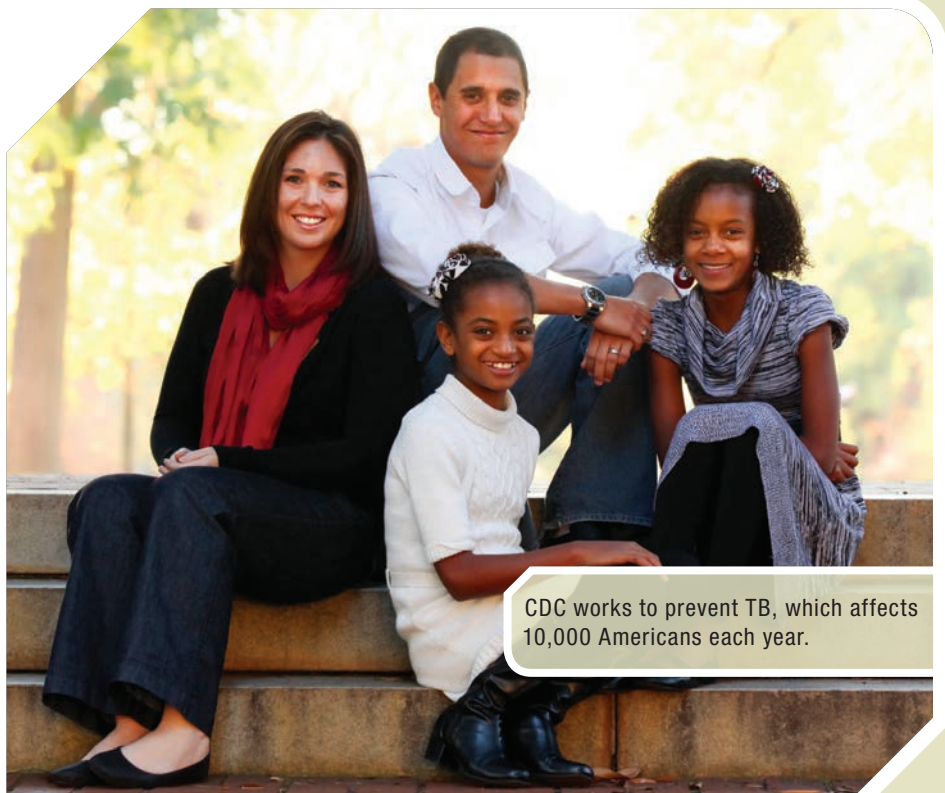
## 1 IN 4

About 1 in 4 new HIV infections occurs in youth, ages 13-24 years.



## \$16 BILLION

20 million new HIV and sexually transmitted infections cost the U.S. nearly \$16 billion in direct medical costs each year.



CDC works to prevent TB, which affects 10,000 Americans each year.



## KEY ACCOMPLISHMENTS

- Helped reduce cases of tuberculosis (TB) in the U.S. from 25,103 in 1993 to 9,945 in 2012 (see photo on right of TB bacteria).
- Determined that a medication used to treat HIV infection can also lower the risk of getting infected with HIV by nearly 50% among people who inject drugs.
- Launched the first national, multilingual hepatitis B campaign for Asian Americans, who represent more than half of the 1.2 million Americans living with chronic hepatitis B.
- Expanded routine HIV screening in healthcare facilities to reduce the number of infected people who spread the disease to their partners.



### Nearly 84% of HIV+ Americans Know Their Status

More Americans with HIV know their status than ever, but there is still much work to do.

## FIGHTING DRUG-RESISTANT TUBERCULOSIS

When Esteban and Danielle decided to adopt, the South Carolina couple was particularly interested in parenting an international child. After working with an adoption agency for two years, they finally received exciting news that two young Ethiopian girls were available.

However, their excitement turned to worry when they arrived in Ethiopia and were told that the older girl had tuberculosis (TB). After an evaluation found she could not infect anyone else, the child was cleared for travel. Back home in South Carolina, Esteban and Danielle followed up with their doctor. A chest x-ray of their child revealed a dark spot. More bad news came—it was multidrug-resistant tuberculosis (MDR TB), which requires a more difficult treatment of expensive drugs.

Fortunately, the family received valuable support from the South Carolina TB Control Program. A TB control nurse, connected them with a program that provides free treatment and arranged for a school nurse to manage the girl's treatment.

There are hundreds of thousands of cases of MDR TB around the world, with less than 25% of the existing cases worldwide detected. This lack of treatment represents a major threat to important gains in global TB prevention control. CDC works to protect Americans and the world from drug-resistant diseases.



# BIRTH DEFECTS & DEVELOPMENTAL DISABILITIES

**F**or the millions of Americans with birth defects, disabilities, and blood disorders, a happy, healthy life can be challenging to realize. CDC conducts research and prevention efforts to save babies, researches autism, prevents and manages complications from blood disorders, and makes sure health services and programs work for people with disabilities throughout their lives.



## 2 MILLION

More than 2 million children and adults have severe heart defects.



## 900,000

Up to 900,000 Americans develop blood clots each year.



## \$400 BILLION

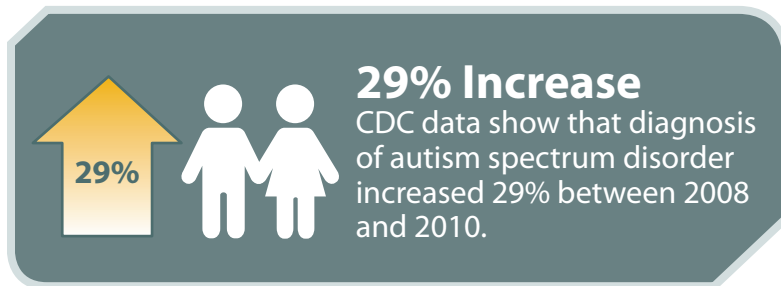
Healthcare associated with disabilities costs an estimated \$400 billion a year, or about 25% of all health expenses in the U.S.



Baby Cora could have been saved by pulse oximetry screening—a type of newborn screening that can identify congenital heart defects.

## KEY ACCOMPLISHMENTS

- Determined there is not enough evidence to guarantee that medications commonly used by pregnant women do not pose a risk to their unborn babies.
- Expanded the “Learn the Signs. Act Early” program to improve early identification of autism and other developmental disabilities, helping families get the services and support they need as soon as possible.
- Identified more than 2,000 gene mutations reported to cause hemophilia worldwide. The gene mutations can be used for genetic testing of family members of a person with hemophilia and may help predict who will develop a genetic inhibitor (antibody) to treatment.



## CORA'S STORY: FINDING A BROKEN HEART

After a healthy and normal pregnancy, I gave birth to my daughter, Cora, on November 30, 2009. Two days later we took her home after getting a clean bill of health at the hospital. The next 3 days were spent cuddling, getting to know each other, and waking every few hours to feed her.

One early morning my husband handed Cora to me because she seemed hungry. I started to feed her, and everything was going great. I looked up at my husband to tell him I loved him. When I looked back down, Cora was pale, gray, and not breathing. We raced to the hospital, which was no more than 5 minutes away, but we arrived too late. Cora was gone. We learned from the coroner that she had an undetected congenital heart defect. Neither of us had ever heard the term.

We later learned about a type of screening—pulse oximetry—that might have helped identify Cora's heart defect before it was too late. While we'll never know for sure if it would have made a difference for Cora, we sure wish she'd had the simple screening. Cora's story is extremely sad, but it's also full of hope. In Indiana, where we live, a new law requiring newborn heart screening with pulse oximetry is named after her and is known as Cora's Law.

Now I hope for a day when no mother finds out about her child's heart defect from a coroner. I hope that undetected congenital heart disease becomes a thing of the past. And, ultimately, I hope that one day congenital heart defects can be prevented and that no baby is born with a broken heart.

— Written by Cora's mother, Kristine



# CHRONIC DISEASE PREVENTION & HEALTH PROMOTION

**H**eat disease, stroke, cancer, diabetes, and other chronic diseases cause 7 in 10 deaths every year in the U.S. CDC works to prevent the risk factors that cause these diseases, such as tobacco use, obesity, physical inactivity, poor nutrition, and alcohol abuse. Chronic disease prevention saves lives, reduces disease and disability, and helps save billions in unnecessary healthcare costs.



## 1 IN 5

Nearly 1 in 5 adults (42 million) in the U.S. still smokes.



## ZERO

No state has an obesity rate less than 15%, the national goal.



## \$2 TRILLION

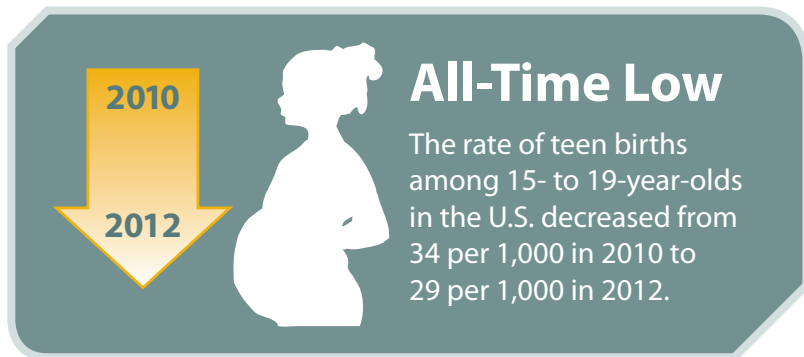
Chronic diseases account for \$2 trillion of the \$2.8 trillion the U.S. spends in annual medical costs.



CDC's Tobacco Lab measured 67 addictive, toxic, and enhancing substances in 50 major U.S. cigarette brands.

## KEY ACCOMPLISHMENTS

- Reported for the first time in a generation that obesity rates declined among low-income preschoolers in 19 states and U.S. territories, which could help prevent future health problems.
- Expanded the Diabetes Prevention Program to hundreds of organizations—a program that can cut in half the risk of developing diabetes.
- Helped millions of Americans reduce their exposure to cancer- and heart disease-causing chemicals in tobacco smoke through more smoke-free workplaces, restaurants, bars, and other public places.
- Provided more than 220,000 women with breast and cervical cancer screenings, resulting in early detection of about 4,000 breast and cervical cancers.



## HERE'S A "TIP"—DON'T SMOKE

CDC's unique *Tips From Former Smokers*, the nation's first paid tobacco education campaign, doesn't just tell viewers that using tobacco is harmful to their health—it shows them.

The hard-hitting campaign features real former smokers with disabling conditions (including throat surgeries, limb amputations, heart surgery scars, and immobility) and gives "tips" to deal with the consequences of smoking. CDC has expanded the campaign to cover more serious health conditions from smoking, including adult asthma, chronic obstructive pulmonary disease (COPD), and diabetes-related complications.

More than 8 million Americans live with a smoking-related disease, and every day more than 1,000 youth under the age of 18 become daily smokers. In its first year, the *Tips From Former Smokers* campaign helped more than 100,000 smokers quit for good and doubled the number of calls to tobacco quit lines—preventing tens of thousands of deaths and saving money.





# OCCUPATIONAL SAFETY & HEALTH

**T**he U.S. can be more competitive and productive with safer, healthier workplaces. CDC plays a critical role in this by helping prevent illness, injury, disability, and death caused by workplace exposures. Our research and practical tools help keep workers safe from work-related illnesses and injuries. And we work with states and industry to improve worker safety and health.



## 1 IN 3

1 in 3 deaths in the construction industry is from falls, the leading cause of work-related deaths.



## 4,600

More than 4,600 U.S. workers died of work-related injuries in 2011.



## \$263 BILLION

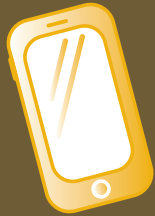
About \$263 billion is spent on work-related deaths and nonfatal injuries and illnesses (based on medical costs and productivity losses in 2007).



CDC research helps develop innovative tools that make workplaces safer, such as this LED cap lamp.

## KEY ACCOMPLISHMENTS

- Recommended occupational exposure limits and control practices for carbon nanotubes and nanofibers that can be inhaled. This supports safe, U.S.-led growth of the multibillion-dollar nanotechnology industry.
- Patented a technology for controlling exposure to silica dust and reducing risk of severe lung disease among workers in the hydraulic fracturing industry.
- Announced a free, online course to help nurses avoid being assaulted on the job—3,200 have already completed the course.



### 12,700 App Users

An innovative smart phone app helps workers position ladders securely to prevent painful or disabling falls.



## THE LIGHT AT THE END OF THE TUNNEL CDC DEVELOPS BETTER LAMP FOR MINERS

Underground mines are dark, crowded, physically demanding, and busy with miners and heavy equipment on the move. For years, miners have depended on incandescent lamps mounted on their safety caps to avoid potential dangers such as approaching heavy machinery and uneven, slippery surfaces. But traditional lamps have problems—they require heavy batteries, have limited bulb life, and their yellowish light can impair the ability of older workers to see hazards clearly.

So CDC's National Institute for Occupational Safety and Health (NIOSH) developed and tested a better product—a new light-emitting diode (LED) cap lamp that significantly improves the worker's ability to see mine hazards. The new lamp provides more flexibility in adjusting the direction and intensity of the light to better match the miner's visual needs. The LED cap lamp has a much longer life than the traditional incandescent bulb (up to 50,000 hours of use compared with about 1,000 hours from the traditional bulb). Because LEDs require only about 25% as much power as an incandescent bulb, the battery is smaller and lighter.

This CDC innovation resulted in a change to the technical standards for manufacturers and users by an international technical standards organization. One manufacturer updated its products using CDC research; other manufacturers are expected to follow to remain competitive.



# INJURY PREVENTION & CONTROL

**C**DC applies the same real-world, science-based approach to reducing injuries and violence as it does to preventing infectious and chronic diseases. We provide timely, accurate information and useful tools to keep people safe, healthy, and productive—where they live, play, and learn. And our research helps develop the best ways to prevent violence and injuries.



**49**

49 states have or are developing prescription drug monitoring programs to track abuse and misuse of prescription painkiller medicines.



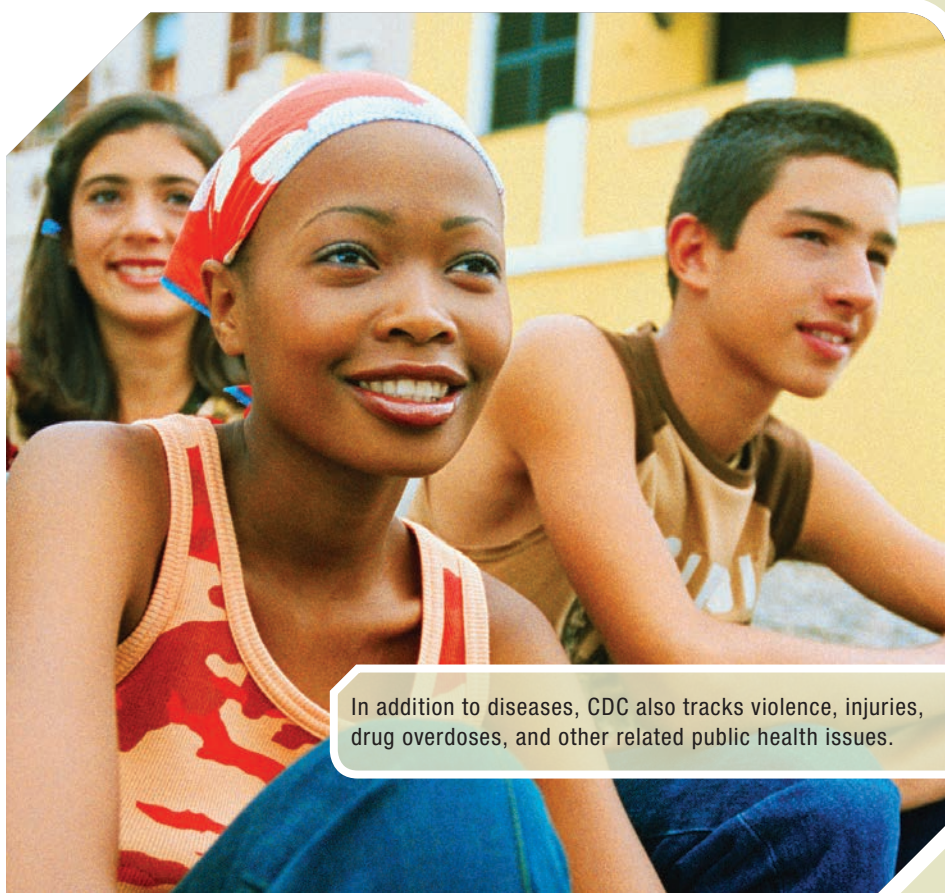
**4 SECONDS**

Every 4 seconds a child is treated in the U.S. for an injury in an emergency department.



**\$406 BILLION**

Injuries and violence cost the U.S. more than \$406 billion in medical costs and lost productivity each year.



In addition to diseases, CDC also tracks violence, injuries, drug overdoses, and other related public health issues.



## KEY ACCOMPLISHMENTS

- Monitored the U.S. epidemic of prescription drug overdoses and worked with states to target prevention programs.
- Tracked violent deaths in 18 states with the National Violent Death Reporting System to help inform violence prevention strategies at state and local levels, ultimately saving lives.
- Reported on motor vehicle deaths among children and what can be done to prevent them by healthcare providers, parents, and states and local communities.



### 30% Fewer Crashes

Graduated driver licensing programs (GDL) reduced motor vehicle deaths and injuries by about 30% among 16-year-old drivers.



## WHAT YOU DON'T KNOW CAN HURT YOU HOW CDC USES DATA TO REDUCE YOUTH VIOLENCE

The concerned residents of Richmond, Virginia, were looking for real, practical answers to stop violence in their community. The National Center of Excellence in Youth Violence Prevention at Virginia Commonwealth University (VCU YVPC), with a grant from CDC, partnered with community leaders to investigate the link between alcohol and youth violence.

The VCU YVPC tracked rates of violent crime and injuries in relation to how close they occurred to alcohol outlets. These data showed more youth violence and violence-related ambulance pickups near retail outlets that sold inexpensive, single-serve alcoholic beverages (known as “40s” or “22s”). The VCU YVPC shared the findings with community leaders who used them to develop policies that reduced the sale of single-serve alcoholic beverages. Once the new policies were in place, VCU YVPC evaluated the impact on violence.

The results were startling: while the new policies were in effect, the average rate of violence-related ambulance pickups involving youth (ages 15 to 24) declined from 13 per 1,000 to zero. As soon as the policy was not in place, the rate increased to 5.3 per 1,000.

The VCU YVPC's data were crucial to inform community action based on science. CDC works locally to help others use the best science available to help more communities reduce violence and injuries.



# STATE, TRIBAL, LOCAL, & TERRITORIAL SUPPORT

**A** core CDC responsibility is to help state, tribal, local, and territorial health departments prepare for emerging health threats. We provide public health agencies with tools, staff, and training. We support state and local actions to promote health and protect people from health threats in their communities. CDC makes sure that state and local public health departments get what they need to improve performance, share resources, and identify and respond to challenges in the public health system quickly.



**22,000**

Nearly 22,000 CDC partners subscribe to CDC's "Did You Know?" content, and more than 170 partners use CDC's content for their own websites.



**134**

There were 134 graduates of the 2013 Public Health Associate Program who are now equipped to help improve public health across the U.S.



**2/3**

About two-thirds of CDC's funding, including Vaccines for Children resources, support state and local health departments.



CDC helps state, tribal, local, and territorial public health departments save lives and protect people.

## KEY ACCOMPLISHMENTS

- Facilitated government-to-government consultation among tribes by convening a Tribal Advisory Committee and by fostering partnerships between the U.S. government and tribes.
- Helped state and local public health departments provide vaccines, reduce leading causes of death, reduce inequalities in the delivery of healthcare, and respond to disease outbreaks.
- Decreased early baby deliveries by parental choice in Oklahoma by 66% and also decreased clinic wait times in Alabama by 60%. Improved North Carolina's responsiveness to requests for birth and death statistics by 97%, streamlined the contract process in Texas, and helped South Carolina improve its payment system. These results were made possible by CDC's National Public Health Improvement Initiative.
- Established national public health accreditation standards and helped foster the next generation of public health leaders by offering entry-level, hands-on public health job experience through the Public Health Associate Program.



### 835 Staff in the Field

There are 835 CDC staff working in state, tribal, local, and territorial public health agencies as well as other organizations.

## STRONGER PUBLIC HEALTH DEPARTMENTS KEY TO AMERICA'S HEALTH SECURITY

America's health security depends on a strong public health system made up of effective public health departments in every state, tribe, territory, and city. With many states facing budget challenges, public health departments face many hurdles. That's why CDC's support to public health departments is critical to keep America safe from health threats.

For example, CDC provides nearly \$4 billion in support to state and local public health departments to provide vaccinations against childhood diseases and more than \$3 billion to fight health threats in their communities. America saves about \$10 in societal costs for every \$1 invested in vaccines. CDC funds programs that are proven to detect diseases early and link people to treatment.

A specific example is CDC's National Public Health Improvement Initiative (NPHII), which helped public health departments become more effective and make better decisions about how to best protect their communities. Public health departments enrolled in the program track and improve their performance and services, prepare for public health accreditation, and more. With NPHII, public health departments can evaluate themselves and find out what they are doing right and what they could do better. NPHII funds are a real investment in improving America's health security—one public health department at a time.



# PUBLIC HEALTH SCIENTIFIC SERVICES

**C**DC's scientific services promote health, prevent disease, and prepare for health threats. As a pioneer in collecting and using health data, CDC tracks the health of populations and provides timely data used by public health and civic officials to respond to the most urgent health issues. This vital information is depended upon for policymaking, biomedical and health services research, lab safety, and improved access to healthcare for everyone. In addition, CDC guides and supports safe, state-of-the-art laboratories across the U.S. as a key line of defense against health threats.



## 35 YEARS

CDC's *Health, United States* report has provided a snapshot of the nation's health for 35 years, including trends in disease, deaths, and what's harming Americans.



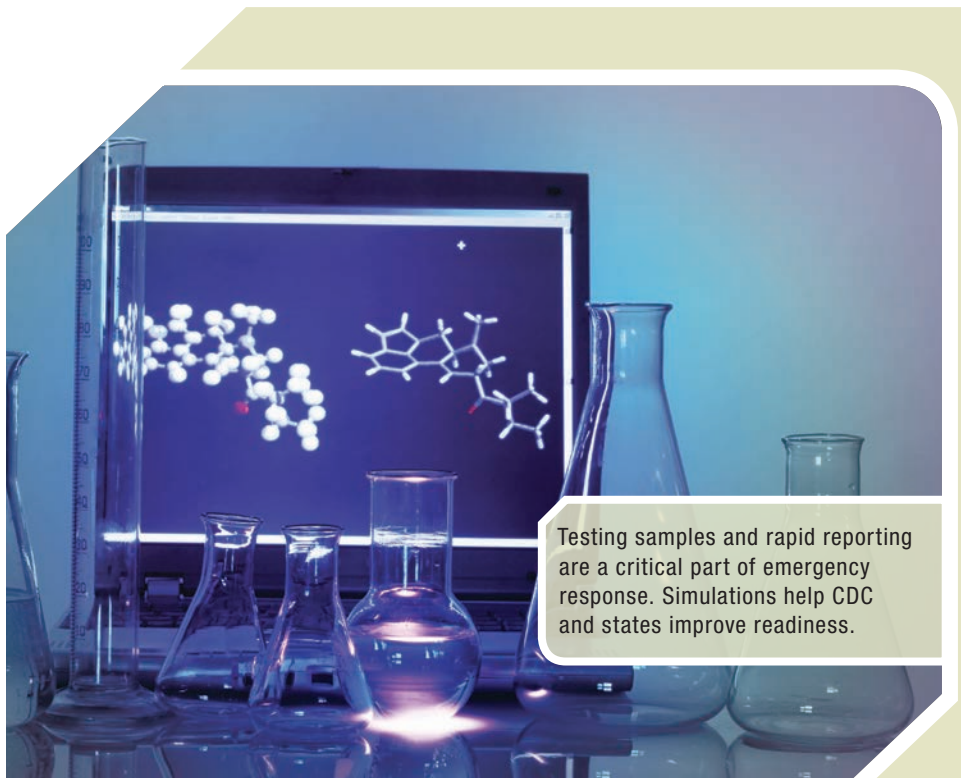
## 2.9 MILLION

CDC *Vital Signs* monthly report grew to reach 2.9 million electronic viewings in 2013, up from 250,000 in 2010.



## 401 TRAINEES

CDC increased the number of trainees in state, territorial, local, and tribal public health agencies from 119 in 2009 to 401 in 2013.



Testing samples and rapid reporting are a critical part of emergency response. Simulations help CDC and states improve readiness.

## KEY ACCOMPLISHMENTS

- Developed multistate testing and improved testing methods, systems that work together, and advanced management methods for U.S. disease-detecting laboratories.
- Used cloud technology to develop innovative information science tools and mobile applications for healthcare professionals and state and local public health departments.
- Provided data access services to quickly share information among state and local health departments and CDC.
- CDC's WONDER (Wide-ranging Online Data for Epidemiologic Research) increased from 30 to 67 online databases from 2010 to 2012.



### 35 Countries

CDC's Epi INFO™, a software network that helps to rapidly identify disease outbreaks, is used by public health professionals in more than 35 countries.



## MEASURING EMERGENCY RESPONSE TO CHEMICAL THREATS BY SIMULATIONS

Simulations are a critical part of testing the response between federal agencies and all 50 public health departments. CDC held a simulation of a mass chemical exposure to determine how rapidly deadly chemical agents could be identified.



In the simulation, a Category 3 hurricane caused flood damage that releases the nerve agent sarin and the pesticide aldicarb into flood waters and the drinking water supply. CDC used rapid toxicology screening, a process that can identify more than 150 chemicals in blood and urine, to help state public health departments respond. Participants in the exercise analyzed more than 8,000 test samples and reported to medical and public health personnel during the simulation.



# HEALTH STATISTICS

**P**rotecting the public's health involves making critical health decisions that can affect millions of people. So it is vital that decision makers have accurate, relevant health information. As America's health protection agency, CDC takes the health pulse of the American people. We track threats, the leading causes of death, health inequalities, and access to care according to race/ethnicity, socioeconomic status, region, and other population characteristics. CDC provides the essential information for policymaking, biomedical and health services research, and other public health applications. Information can change the world, and CDC is dedicated to providing the highest quality health information to the U.S. and our public health partners around the world.



**40%**

About 40% of the U.S. government's *Healthy People 2020* objectives are measured and tracked using data from CDC health statistics surveys.



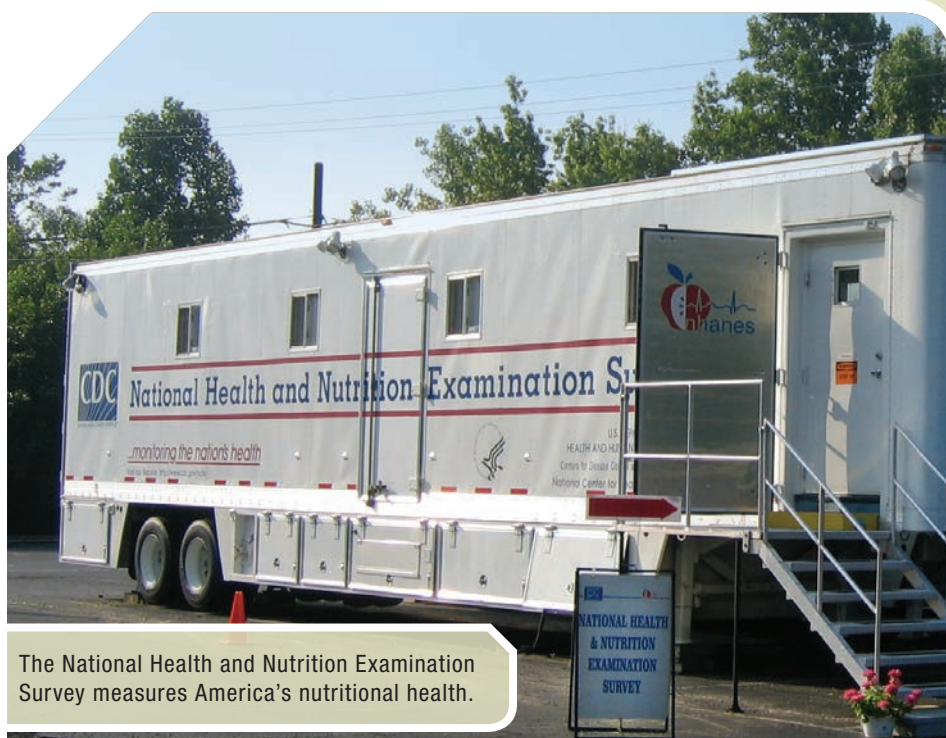
**66%**

More than 66% of Medicare patients have multiple chronic diseases (such as heart disease and diabetes) that require lifelong medicine or limit daily activities.



**5,000**

Each year, 5,000 participants provide information for CDC's National Health and Nutrition Examination Survey that public health professionals use to track health conditions.



The National Health and Nutrition Examination Survey measures America's nutritional health.

## KEY ACCOMPLISHMENTS

- Improved the major data systems that track U.S. health, including the National Health and Nutrition Examination Survey (NHANES), which measures nutritional health; the National Healthcare Surveys, which measure the medical sector; the National Health Interview Survey (NHIS), which is the largest household health survey in the U.S.; and the National Vital Statistics System (NVSS), which tracks births and deaths in the U.S.
- Provided researchers around the world with data access on biomedical and health information.
- Worked toward developing an electronic death registration system for 25 states that would report deaths within 5 days and cause of death within 10 days—greatly improving CDC’s ability to track leading causes of death.
- Monitored the introduction and use of electronic medical record systems in a variety of healthcare settings across the U.S.



**315% Increase**

Use of electronic health records by physicians increased 315% from 2003 to 2012.

## A SURVEY THAT PROTECTS YOUR HEALTH

As an analyst with CDC’s National Health and Nutrition Examination Survey (NHANES), Jill has long appreciated the value of the health information collected by one of the nation’s longest-running nutrition surveys. But she never expected NHANES could have such a dramatic effect on her own life. NHANES is a yearly look at the health and nutrition status of 5,000 Americans across the country and is widely used by state and local health departments.

One afternoon, Jill visited the survey’s Mobile Examination Center to participate in a quality control test of the equipment used for physical examinations. These dry-run exams are routinely conducted at each location that NHANES visits to prepare for the actual exams with real survey participants. Part of the exam involved Jill getting a blood test. When her results were examined, she was surprised to learn that her blood mercury level was exceedingly high.

It turned out that Jill had been eating a lot of fish—especially certain species known to have higher mercury levels. High blood mercury levels are known to harm a person’s nervous system and can later cause all kinds of long-term health and mental issues. Because blood mercury levels are not measured as part of the usual blood tests offered during routine physical exams, Jill would never have discovered this potentially dangerous health condition had it not been through her work with NHANES. She is certainly very grateful to have participated in the NHANES dry-run exam that day.



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