acute care • adenoviruses • adolescent and school health • AIDS/HIV • airbags • air pollution • alveolar hydatid disease (Echinococcosis) • anencephaly (neural tube birth defect) • anthrax • antimicrobial resistance • arbovira encephalitides • arenaviruses • arthritis • ascariasis (intestinal roundworms) • aspergillosis • assisted reproductive technology • asthma • autism • baby bottle tooth decay • back belts • bacterial diseases • behavioral risk factors • bicycle helmets • bicycle-related head injuries • bilharzia (schistosomiasis) • biomonitoring • biosafety • bioterrorism • birth defects • Blastocystis hominis infection • blindness • botulism (Clostridium botulinum) • bovine spongiform encephalopathy • brain injury • Buruli ulcer • breast cancer • brucellosis (undulant fever or Bang's disease) • Campylobacteriosis • carbon monoxide poisoning • cardiovascular disease • cerebral palsy • cervical cancer • Chagas disease (American trypanosomiasis) • chemical weapons • child abuse • child health • child safety seats • chickenpox (varicella) • chlamydia • cholera (Vibrio cholerae) • chronic diarrhea • chronic fatigue syndrome • coccidioidomycosis • cold sores • colorectal cancer • condyloma acuminata • construction safety • cruise ships • Creutzfeldt-Jakob disease • cryptosporidiosis (crypto) • Cyclospora cayetanensis • dating violence • dengue fever • diabetes • Dientamoeba fragilis infection • diphtheria • disabilities • dog bites • domestic violence • dracunculiasis (Guinea worm disease) • drowning • drunk driving • earthquake • Ebola (Ebola viral hemorrhagic fever) • ehrlichiosis • elderly injuries • emerging health threats • Entamoeba histolytica infection (amebiasis) • Enterobiasis (pinworm infection) • enterovirus infection (nonpolio) • environmental health • epilepsy • epidemiology • ergonomic interventions • Escherichia coli O157:H7 • extreme cold and heat • falls and hip fractures • fetal alcohol syndrome • filariasis (Bancroftian filariasis) • fire fighter deaths • floods • fluoridation • foodborne illnesses • gastroenteritis • genetics • genital herpes • giardiasis • global health • gonorrhea (Neisseria gonorrhoeae) • group B streptococcus • Haemophilus influenzae (Hib) • hand, foot, and mouth disease (coxsackievirus A16) • hantavirus pulmonary syndrome • head injury • head lice infestation (pediculosis) • health communications • health hazard evaluations • health and safety manuals • health promotion and education • Helicobacter pylori (peptic ulcer disease) • hearing loss and impairment • hemochromatosis (iron overload) • hepatitis • histoplasmosis (fungal disease) • hookworm infection • hospital infections • HIV/AIDS • hormones • hypertension • immunization • infants • influenza (flu) • injuries • intimate partner violence • intrauterine devices • job related allergies • Kaposi's sarcoma • laboratory standards • lead poisoning • leading causes of death • legionellosis • leishmaniasis • leptospirosis • listeriosis • lung cancer • Lyme disease • malaria • mammograms • managed care • maternal health • measles • meningitis • men's health • microsporidiosis • minority health • motor vehicle-related injuries • molecular • neurotoxicology • mumps • musculoskeletal diseases and disorders • multimedia communications • nonpathogenic intestinal amoeba infection • Norwalk-like viruses • nutrition • obesity • occupational health • onchocerciasis (river blindness) • oral health • osteoporosis • otitis media • Papanicolaou (Pap) tests • pertussis • Pfiesteria • physical activity and health • pinworm infection (Enterobius vermicularis) • plague • playground injuries • pneumococcal disease • pneumoconiosis • Pneumocystis carinii (Pneumocystis pneumonia) • polio vaccines • prevention research • prostate cancer • rabies • refugee health • rehabilitation • reproductive health • respiratory tract infections • Rift Valley fever (RVF virus) • ringworm • Rocky Mountain spotted fever • roseola • rotavirus • roundworms (ascarids and hookworms) • rubella • salmonellosis • Salmonella enteritidis (egg-associated salmonellosis) • SARS (severe acute respiratory syndrome) • scabies (Sarcoptes scabiei) • schistosomiasis (bilharzia) • sexual assault (rape) • sexually transmitted diseases • shigellosis (Shigella) • skin cancer • smallpox • smokeless tobacco • smoking • social marketing • spina bifida • sporotrichosis (fungal disease) • staphylococcus aureus (Vancomycin-resistant) • suicide • surveillance • syphilis (Treponema pallidum) • technology transfer • tetanus • thrush • tobacco control • tornado • toxocariasis (roundworms) • toxoplasmosis • traumatic brain injury • traveler's health • trichinosis (trichinellosis) • trypanosomiasis (sleeping sickness) • tuberculosis • typhoid fever • water sanitation • vaccine safety • vessel sanitation • Vibrio vulnificus • violence • viral hemorrhagic fever • vision loss and impairment • von Willebrand disease (bleeding disorder) • waterborne diseases • West Nile virus • western equine encephalitis • whipworm infection • women's health • yellow fever • Yersinia enterocolitica • youth violence • zoonotic diseases • zoster •

SARS, diabetes, monkeypox, obesity, West Nile virus, autism, HIV, environmental hazards, cancer, birth defects, injuries, and countless other reasons we exist.

THE STATE OF THE CDC, FISCAL YEAR 2003.

DEPARTMENT OF HEALTH & HUMAN SERVICES • USA

CDC

CENTERS FOR DISEASE CONTROL AND PREVENTION

There's a lot more to CDC than what makes the nightly news. We protect the health and safety of Americans and people around the world – not just from headline-making diseases like SARS and monkeypox, but from countless other diseases and health threats.

But CDC cannot – and does not – do it alone. We work in partnership with our sister agencies within the Department of Health and Human Services and across the U.S. government; with world, state, and municipal governments; with the private sector, health care organizations, academic institutions, and international and U.S.-based nongovernmental organizations to accomplish our mission. Learn more about CDC's partners and how prevention is working in the *Interactive Resource Guide*, a reference tool that accompanies this report.

Table of Contents

In fiscal year 2003, the management structures of CDC's sister agency, ATSDR (The Agency for Toxic Substances and Disease Registry) and CDC's National Center for Environmental Health consolidated, bringing together environmental health investigation and programmatic expertise. References to CDC's environmental health activities in this report include ATSDR.

Second Edition

Number of reported deaths, worldwide, from SARS, January–September 2003: **774** Number of SARS deaths in the United States, 2003: **0**
Number of domestic and international health investigations conducted by CDC's Epidemic Intelligence Service officers in FY 03: **77**
Number of EIS officers — the nation's disease detectives — deployed on those investigations: **116**
Americans affected by foodborne illness, annually: **76,000,000**
Estimated medical costs and lost wages due to salmonella contamination in food, yearly: **$1,000,000,000+**
Annual number of work-related fatalities in the United States: **5,500+**
Annual number of private-sector nonfatal work-related injuries and fatalities: **5,200,000+**
Estimated annual cost of occupational injuries in the United States: **$240,000,000,000+**
Annual number of alcohol-impaired driving incidents in the United States: **120,000,000**
Average frequency of injuries sustained in motor vehicle crashes involving alcohol: **every 2 minutes** Of deaths: **every 30 minutes**
Percentage decrease in fatal alcohol-related crash rates among drivers 16–20 years of age in the last 20 years: **–60%**
Top three causes of death for Americans ages 15–19, in order: **unintentional injuries, homicide, suicide**
Percentage of all deaths in this age range of each, in order: **50, 14, 12**
Americans who die each year from vaccine-preventable diseases: **48,000**
Estimated percentage of children worldwide not reached by vaccination programs: **30%**
Childhood deaths worldwide from vaccine-preventable diseases, annually: **2,400,000**
Estimated percentage of the world's 42 million people infected with HIV or living with AIDS who live in a country served by CDC's Global AIDS Program: **90%**
Proportion of the world's population infected with the bacterium that causes tuberculosis: **One-third**
Without prevention and treatment, predicted annual number of new TB infections, illnesses and deaths, worldwide, by 2020, respectively: **1,000,000,000; 200,000,000; 35,000,000**
Estimated annual percentage of U.S. health care costs attributable to chronic diseases: **75%+**
Rank of birth defects among leading causes of infant mortality in the United States: **1**
Estimated annual direct and indirect costs to the U.S. economy of the 17 most common birth defects: **$8,000,000,000+**
Percentage of American children with a developmental disability whose disability is not identified before they enter school: **50%+**
Number of Americans currently living with a disability: **54,000,000+**
Percentage decrease in the number of children attending physical education classes daily over the past 10 years: **–24%**
Percentage of overweight children and adolescents: **15%** Annual cost of diseases associated with obesity, U.S.: **$117,000,000,000**
Number of Americans who have diabetes: **18,000,000+** Direct and indirect annual costs of diabetes, United States: **$132,000,000,000**
Estimated number of individuals in the United States diagnosed with asthma during their lifetime: **31,000,000+**
Yearly hospitalizations, emergency room visits, missed school days, and days of restricted activity caused by asthma, respectively: **465,000; 1,800,000; 14,000,000; 100,000,000**
Estimated cost of asthma to the U.S. economy, per year: **$13,000,000,000+**
Rank of heart disease in leading causes of death for all Americans: **1**
Estimated cost of cardiovascular disease in the United States, 2003: **$351,000,000,000**
Percentage of deaths among women 40 years and older that could be prevented by timely mammography: **16%**
Number of Americans who die each day of some form of cancer: **1,500+**
Percentage of the American population covered by CDC's National Program of Cancer Registries, which collects information about cancer occurrence, types of cancers and their locations within the body, disease stage at diagnosis, and the kinds of treatment patients receive: **96%**
Registered voters in the United States who believe that the environment plays a significant role in their health: **90%**
Number of chemical agents in human blood and urine detected by CDC's Rapid Toxic Screen, giving medical and public health personnel rapid access to critical exposure information during chemical emergencies: **150**

Vital Statistics.

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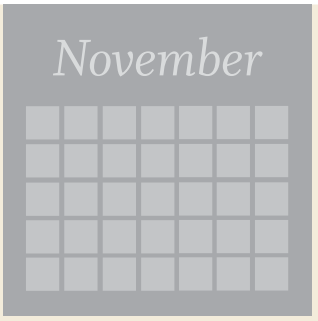
It's Been A Busy Year.



October 2002

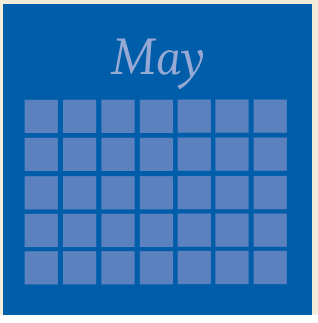
> CDC announces patent on new lead-detection method
> CDC awards funds for new environmental public health tracking
> CDC study of occupational lung disease yields prevention insights
> CDC and state health departments investigate listeriosis outbreak
> CDC staff mobilize to fight Norwalk virus outbreak on cruise ships

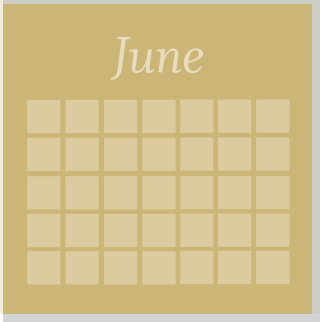
November 2002

> CDC promotes campaign to prevent antimicrobial resistance in dialysis patients
> CDC and other federal agencies team up with business to ease burden of diabetes at work
> CDC reports that overall syphilis rates rise for the first time since 1990
> CDC publishes 26th annual report on the health of Americans: **Health, United States, 2002, with Chartbook on Trends in the Health of Americans**

December 2002

> President Bush announces nation's smallpox preparedness plan
> CDC study identifies SIDS risk factors among American Indians
> HHS, USDA establish new regulations for use of select biological agents
> CDC reports that new state data show obesity and diabetes still on the rise in America





April 2003

> CDC lab completely sequences SARS genome
> CDC and WHO hold satellite broadcast on preventing SARS
> CDC dedicates new Marcus Emergency Operations Center
> CDC launches initiative directed to increase HIV testing and enhance prevention for people with HIV infection
> CDC reports health-related costs of intimate partner violence against women exceeds $5.8 billion annually
> CDC and partners release **Public Health Action Plan to Prevent Heart Disease and Stroke**

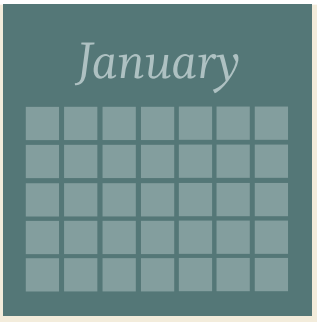
May 2003

> CDC's virtual reality lab advances job injury prevention
> CDC issues guidance on protecting building air filtration systems and occupants from terrorist attacks
> CDC awards state diabetes programs $27 million
> CDC holds two satellite broadcasts on SARS for clinicians and public health agencies

June 2003

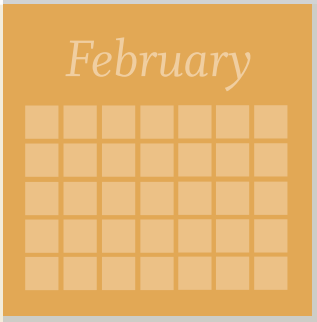
> Public health investigation uncovers first human monkeypox infection in Western Hemisphere
> CDC releases new edition of **The Yellow Book** – gold standard for international travel information
> CDC and partners report on new method for reducing back injuries among nursing home workers
> CDC announces expansion of the National Comprehensive Cancer Control Program

The Highlights of Fiscal Year 2003.



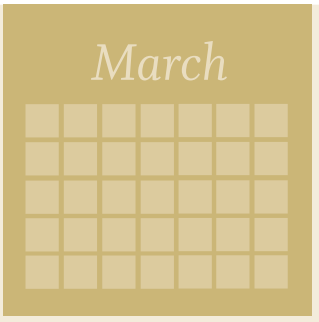
January 2003

> CDC begins shipping smallpox vaccine to states
> CDC releases most extensive assessment ever of Americans' exposure to environmental chemicals
> President Bush announces international Emergency Plan for AIDS Relief in The State of the Union
> CDC releases first-ever population-based estimates for autism in America



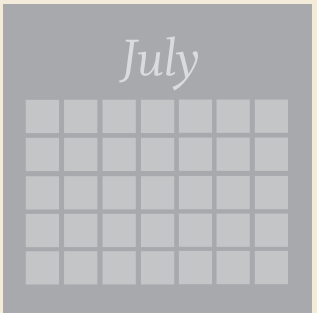
February 2003

> CDC funds initiative to prevent brain damage caused by untreated jaundice in infants
> CDC releases atlas of stroke mortality
> CDC reports pregnancy-related deaths still higher in black women than in white women
> CDC provides Spanish language tips for caring for children's teeth
> CDC lists approved respirators to protect emergency responders against chemical, biological, radiological, or nuclear agents



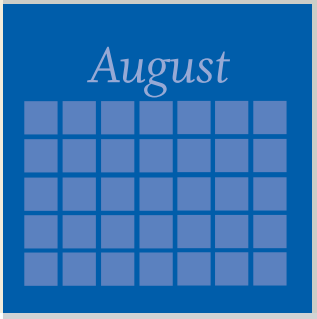
March 2003

> CDC issues health alert notice about atypical pneumonia (later named SARS)
> CDC lab analysis suggests new coronavirus may cause SARS
> CDC study finds colorectal cancer screening rates remain low
> CDC reports ten-year decline in tuberculosis cases and lowest-ever reported number in America



July 2003

> CDC and partners launch autism awareness initiative
> CDC confirms first human case of West Nile virus infection in 2003
> CDC reports an estimated 7 million Americans receive medical care for sports- and recreation-related injuries annually
> CDC issues new guidelines to help health care providers incorporate HIV prevention into ongoing care for people living with HIV
> CDC, FDA, and other partners report study findings showing children with cochlear implants at increased risk for bacterial meningitis



August 2003

> CDC and partners report investigational screening tests are effective in identifying West Nile virus in blood donations
> CDC analysis of hazards of compacting and baling equipment suggests ways to prevent injuries and deaths
> CDC announces influenza vaccine supply expected to meet demand
> CDC reports overall high vaccination coverage of children for the 2002-03 school year

September 2003

> CDC and partners unveil new campaign to promote proper antibiotic use
> CDC study shows state tobacco control programs cut cigarette sales
> CDC/ATSDR and New York City Department of Health and Mental Hygiene announce World Trade Center Health Registry
> HHS/CDC awards $13.7 million for community programs to prevent diabetes, asthma, and obesity
> CDC holds satellite broadcasts for clinicians and public health agencies on preparing for the possible return of SARS

Helping People Live Safer, Healthier, and Fuller Lives

Glenda Washington*, 62 years old, diagnosed with type 2 diabetes, January 2003, New York City, New York.

Glenda wanted to control her diabetes herself, rather than use medication. Her doctor recommended the educational programs offered by New York City's Downstate Regional Community Diabetes Coalition. The four-week educational series, held in a local church, included an overview of diabetes, nutrition, foot care, and preventing long-term diabetes. This was followed by a five-hour community program that included a session on how to modify traditional African-American cooking. Glenda changed her diet and began to exercise. Today, she walks three miles every other morning and has joined the twice-weekly senior strength training class offered by the local Office for the Aging. She has lost 23 pounds, and her cholesterol and blood sugar levels have decreased. Most important to her, she's controlling her diabetes without drugs. Glenda's story is being repeated nationwide thanks to CDC technical assistance and funding for science-based diabetes prevention and control programs.

Jose Gomez*, 7 years old, diagnosed with lead poisoning, August 2003, Portland, Oregon.

The frightening experience of one little boy in Oregon led to the national recall of more than a million potentially toxic toys. Jose was hospitalized after swallowing a small medallion necklace from a toy vending machine. The necklace turned out to be 39% lead, and tests showed Jose's blood lead level was extremely high. This incident led the U.S. Consumer Product Safety Commission to announce a voluntary recall of more than 1.4 million metal necklaces, each potentially toxic. CDC's childhood lead poisoning prevention program was responsible for identifying the cause of Jose's lead poisoning and preventing further harm. Although Jose's blood lead level has since dropped, he is still undergoing treatment.

Lilly Muwenda*, 23 years old, diagnosed with HIV, July 2003, Kampala, Uganda.

Preventing HIV transmission from mothers to babies is a high priority for CDC's Global AIDS Program, which is working to fulfill President Bush's commitment to reduce mother-baby HIV infections by 40% over the next five years in 14 countries in Africa and the Caribbean. At the Mulago Hospital in Kampala, Uganda, Lilly, pregnant with her first child, tested positive for HIV. But she'd attended group counseling sessions and was prepared. "I had already decided that if I tested positive, I would take medication and use infant formula to keep my baby alive," she explained. Lilly received nevirapine during labor and delivery, and her baby, Faith*, received nevirapine syrup for the first six weeks of her life. Lilly was given formula for Faith, to prevent infecting the baby with HIV through breastfeeding. She and her husband, who is HIV-free, receive counseling and support to learn how to live with her illness and to plan for Faith's future.

**not real name*

"CDC is a crucial national resource, and I commend to you this annual volume that highlights its important service to America."

A message from Secretary of Health and Human Services Tommy G. Thompson

The Department of Health and Human Services touches the life of every American. Since becoming Secretary, I've been proud to report to the President, to Congress, and to the American people the important work that all the HHS agencies do, the myriad large and small ways HHS employees make a real difference, day in and day out, in the health and well-being of people here in America and around the world. I'm especially proud of the leadership and staff of the Centers for Disease Control and Prevention. CDC is the lead federal agency for protecting the health and safety of people – at home and globally – providing credible information to enhance health decisions and promoting health through strong partnerships with state and local health departments, academia, health care organizations, the private sector, faith- and community-based organizations, and countless others striving to make a difference in people's well-being.

Over the years, CDC has earned a reputation for scientific excellence, top-level performance, and reliable reporting. CDC's customers – you and other Americans – trust the agency literally with their lives. And that trust is very well placed, as CDC proves time and again.

You hold in your hands the first annual *State of the CDC* report, covering fiscal year 2003. In it you will learn about some of CDC's investments in public health research, which will pay off in better health for all of us... investments to defend against health threats here and abroad, including deliberate threats and those that occur naturally... and investments to create and implement effective public health programs to reduce the burden of chronic conditions such as heart disease, diabetes, cancer, and obesity, as well as other health traumas that exact a high toll, such as suicide, violence, teen pregnancy, HIV, and workplace injuries.

When you've finished, I invite you to learn more about the vital work of the CDC by visiting their Web site at **www.cdc.gov.** As one of CDC's investors, your opinion is important. If you have questions, comments, or ideas you'd like to share, please contact CDC through the Internet or by calling 1-800-311-3435. Thank you.

Tommy G. Thompson
Secretary of Health and Human Services

" 'Safer, healthier people' is not an empty slogan at CDC. It is our most fundamental aspiration, our organizing principle, and our daily work, here in America and around the world."

Director s Message

This is the first annual *State of CDC* report, covering fiscal year 2003, the period from October 1, 2002, through September 30, 2003. Its purpose is to communicate our priorities, achievements, and challenges as CDC continues to evolve to meet the needs of 21st century public health and to sharpen our focus to meet the existing and emerging challenges in our portfolio.

As an agency within the Department of Health and Human Services, CDC plays a key role in promoting the safety and health of people in all of America's communities and around the world. We work with our sister agencies in HHS and across the U.S. government, and with a host of other partners – health care systems and providers... world, state, and municipal governments... universities... the private sector... and with international and U.S.-based nongovernmental, voluntary, and faith-based organizations – to accomplish our mission.

FY 03 was a time of tumult and enormous change for our world and our nation – and for CDC. Month-by-month, CDC aimed to provide a strong return on the American people's investment, acting swiftly and decisively to control infectious disease outbreaks, prevent infections and antimicrobial resistance, prevent illness and death from chronic conditions such as heart disease and diabetes, and protect children and adults from injuries and disabilities.

The signal events posted on the annual calendar illustrate the scope of our work, but they don't tell the entire story. Like headline news, they spotlight only some of our major events. Behind the scenes, there are many more stories to be told – stories of CDC scientists who labored around the clock to find the cause of SARS, of CDC health workers who risked their own lives immunizing children against measles in post-war Afghanistan, of CDC experts who painstakingly built effective partnerships with state and local health agencies, health care organizations, and many others throughout the health system to implement science-based programs that save lives.

It is my hope that this report will pique your interest and prompt you to learn more about the depth and breadth of CDC's scientific mission, our contributions to the broader mission of DHHS, and the vital services we provide to people everywhere. The best starting place is at **www.cdc.gov** or with the *Interactive Resource Guide*, the companion CD-ROM to this account of the past year.

The State of The CDC, Fiscal Year 2003 provides information about how CDC invested the funds entrusted to the agency by the American people in three critical areas:

> **Safeguarding Public Health In the 21st Century,** which includes investments in public health research, buildings and facilities, public health information networks, communication systems, and health assessment.

> **Protecting People: Preparing for Health Threats at Home and Abroad,** which includes investments in state-of-the art all-hazards terrorism and emerging infections preparedness and response capabilities.

> **Saving Lives: Transforming Knowledge into Impact,** which includes investments in translating scientific discoveries into cost-effective programs that improve the health and safety of people in all communities.

In the following pages, you will learn that the American people's trust and their money are well-placed. I hope you will be awed, as I am, by the skill, dedication, and altruism that characterize the men and women at CDC, inspired by the daily service they provide to America, and impressed by the impact they are having here at home and around the world. We have faced great challenges – and will face still more – in protecting the people's health and safety. It is my pledge to you that the CDC team stands ready to meet those challenges.

Julie Louise Gerberding, MD, MPH
Director
Centers for Disease Control and Prevention

Americans Trust CDC With Their Lives

A Gallup poll published on September 30, 2003, showed the high value Americans place on CDC. As the top performer, CDC was rated excellent or good by fully 66% of adults responding. CDC has earned this regard through its dedication to putting scientific evidence to work to improve the lives of people of all ages and backgrounds and in all communities. CDC's everyday responsibilities include health problems from adenovirus to zoonotic infections and everything in between. We touch the lives of everyone in America and extend that reach to people around the globe.

Meeting the Challenges *of* Today and the Future

Continuous Improvement of CDC For Better Service to America

During FY 03, CDC has taken major steps to ensure continuous improvement of our programs, systems, and business services to meet present and future public health challenges. CDC has changed its leadership structure and management oversight and is improving business systems and services to increase performance and ensure stewardship of the public's trust. The President's Management Agenda is guiding overarching improvements in CDC's management of human capital, competitive sourcing practices, financial performance, electronic government, and budget and performance integration.

Under the guidance of the President and the Secretary of Health and Human Services

> Management systems are evolving to foster a greater focus on results-oriented performance. In FY 03, an Executive Leadership Team was formed to oversee public health policy formulation, improve CDC's national and international programs, and increase internal and external collaboration. A Management Council was created to provide leadership in improving CDC's business services, practices, and systems – all geared toward creating efficiencies that can be transferred to improve public health programs.

> Business systems are being updated to ensure accuracy and accountability to decision-makers and the public. We have created a new position – Chief Operating Officer – to be the focal point for daily management and transformational business practices change at CDC, overseeing integration across the agency and instituting greater accountability.

> Outdated functional silos inside CDC are being razed and replaced with new structures that promote across-the-board collaboration within the agency and with new partners outside CDC – assuring that we address complicated public health problems from varied and multiple perspectives and constantly transform scientific knowledge into public health impact.

> Readiness teams and systems have been built to ensure that highly skilled staff from across CDC are ready to respond to any public health emergency anytime and anywhere. CDC staff have to be available at a moment's notice to address myriad health threats, at home or abroad.

> Human capital management systems are being improved to recruit, hire, develop, and retain highly skilled and dedicated staff, and to ensure those staff are working most effectively and efficiently. CDC's highly skilled workforce is its greatest asset. Our human capital policies and systems must ensure that workforce continues to be the best and the brightest.

All these changes have improved CDC's current performance. At the same time, The Futures Initiative is preparing CDC for challenges yet to come. Over the past year, we have engaged customers, stakeholders, partners, and employees in strategic planning to shape CDC's future and to serve as a catalyst for change in public health. Points of engagement include globalization... the changing health needs of America as our population diversifies and ages... CDC's role in the health system of the future... the need to ensure security from man-made and natural threats... targeting public health research to address persistent and emerging health problems... and the need to develop a workforce equipped and skilled to navigate a changing public health landscape.

In sum, during FY 03, CDC profoundly altered its internal landscape to reflect and amplify the profoundly altered public health environment. Over the coming year, change will continue, as the agency continues to evolve to better serve America and the world.

Globalization... connectivity... speed... adaptability

Beginning with the terrible events of September 11, 2001, CDC has stepped up to the front lines time and time again to respond to emerging health threats: the anthrax attacks, the expansion of West Nile virus infection across the United States in 2002 and 2003, the global SARS outbreak, monkeypox. Through these, CDC has learned that rapid local-to-global health threat detection and response capacity are of critical importance... that success is dependent on real-time connectivity among HHS partners and other federal agencies, among scientists across the globe, and among public health officials and clinicians across the entire health system... and that speed is imperative to translate emerging information into swift and coordinated public health action. In short, the agency has learned to work faster and more effectively than ever before, while still assuring that the highest quality science remains the foundation for all our actions. It has been a deliberate effort, operating across all parts of CDC, during fiscal year 2003.

1.

Key Priority One

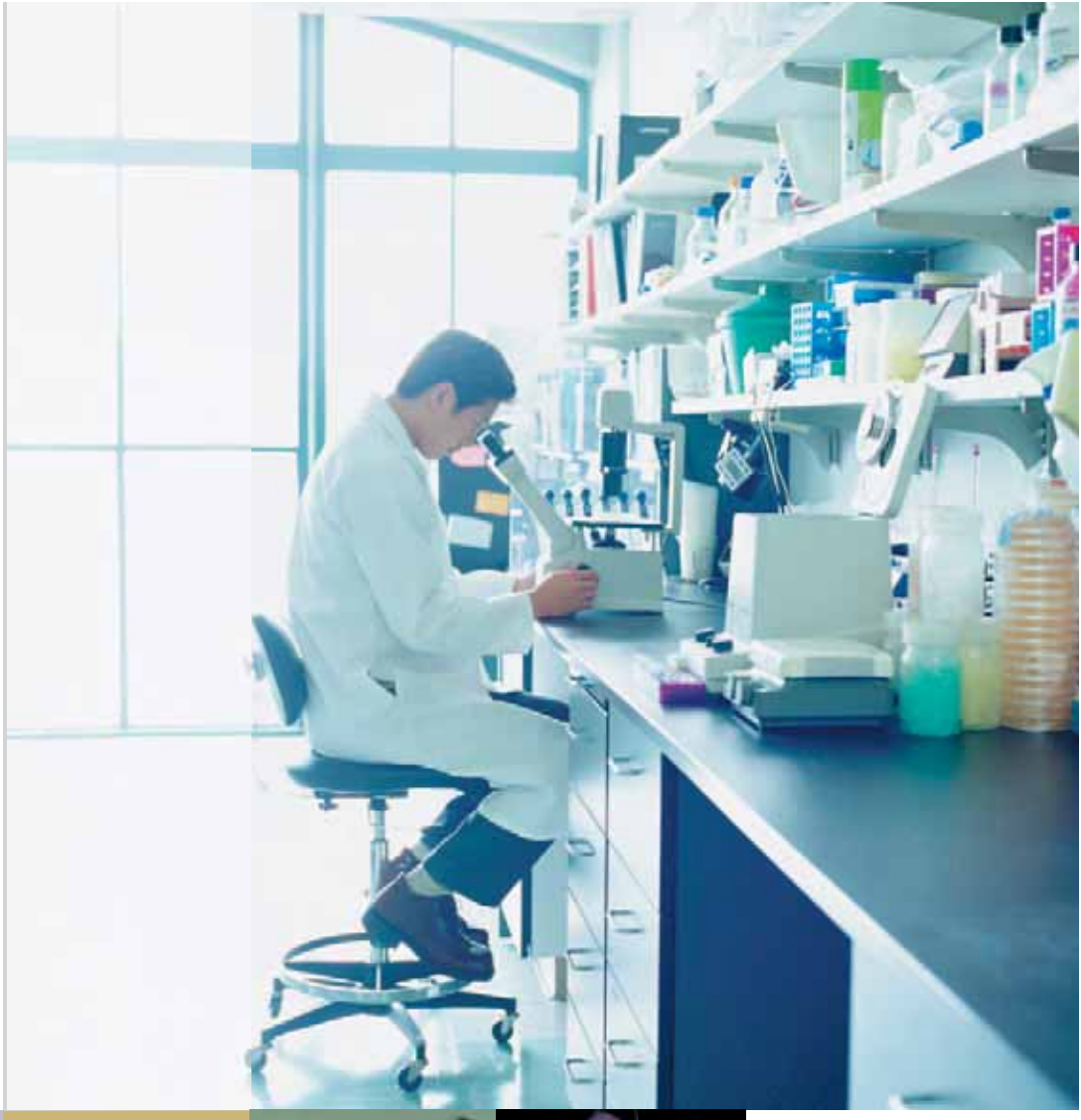
Safeguarding Public Health *in the 21st Century*

Staying Ahead of the Curve

Prevention is a proactive word, especially in today's world, where new health threats are appearing at an alarming pace. In fiscal year 2003, CDC took aggressive steps to meet future challenges to the nation's and world's health and safety. We made significant improvements to our physical, science, and information capabilities. In short, we are bringing them all into the 21st century.

Science — The Foundation of Strong Public Health

Public health research, innovations in information technology, and advanced communications offer unprecedented opportunities for CDC to improve health in America and around the world. The investments made in modernizing our science infrastructure guarantee CDC laboratories are efficient, safe, and secure from outside threat. They are the starting point for turning research into successful interventions that help people live better, healthier, safer lives. CDC funds have enabled similar improvements to be made to state and local laboratories – the first line of defense against a host of health hazards.



"In a world where public health threats range from AIDS and bioterrorism to an epidemic of obesity, the need for an effective public health system is as urgent as it has ever been."

— Who Will Keep The Public Healthy? The Institute Of Medicine, 2002

Already Delivering Return on Investment

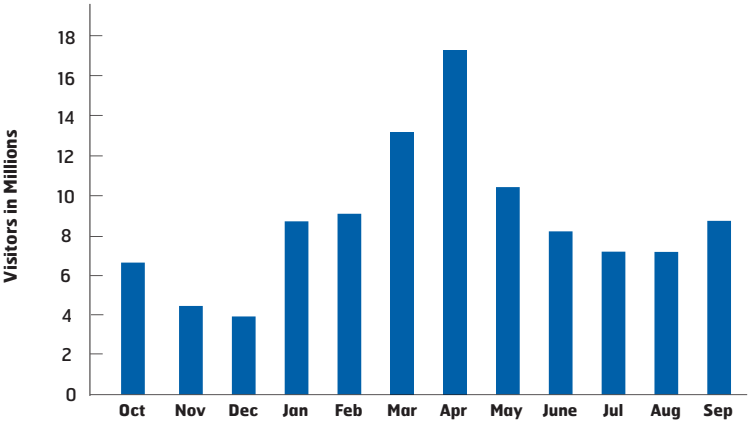
One of the first of CDC's new buildings, the environmental health lab, came on line in FY 03. This lab specializes in biomonitoring, and can directly measure more than 250 chemicals in people's bodies. In fiscal year 2003, lab staff developed a Rapid Toxic Screen to quickly analyze up to 150 chemicals likely to be used by terrorists, including nerve agents, mustard agents, lewisites, cyanide-based compounds, selected incapacitating agents, toxic metals, and selected toxic industrial chemicals. The Rapid Toxic Screen was put to use when CDC assisted the U.S. Army in measuring uranium in soldiers potentially exposed during Operation Iraqi Freedom.

The environmental health lab also has the unique capability within the U.S. government to measure toxic substances in tobacco and tobacco smoke and in people who smoke.

The laboratory analyzes compounds that make tobacco products addictive and that cause cancer and heart disease, giving us new insights into how to help people beat tobacco addiction and how to prevent the severe health consequences of smoking.

Communicating Vital Health Information

CDC Web site Visitors by Month in FY 03



Building Blocks *of* Better Public Health

FY 03 saw the completion of critical laboratory facility improvements and the beginning of essential communications facility improvements at CDC – all part of a decade-long process to modernize CDC's physical structure. Coming into the 21st century, CDC was hampered by antiquated and overcrowded facilities, some dating to CDC's founding in the mid-1940s. To address health and safety concerns and security deficiencies and to allow staff to work more efficiently and cost-effectively, CDC has embarked on a long-term facilities improvement project. The ten-year plan includes 13 new buildings, with a combined total of three million square feet – 47% dedicated to new laboratory facilities and 53% to research support – and housing more than 6,000 employees.

But high-tech scientific facilities are only part of the solution to better public health. An advanced communications network is also essential, enabling instantaneous, secure transfer of vital information, whether it's data on emergency room visits or a 3-D model of a novel virus.

In fiscal year 2003, CDC invested funds to modernize its information infrastructure and communications systems – making them work better, faster, and smarter – delivering real-time data and answers to decision-makers and real-time advice and counsel to the public.

CDC Then and Now.

1960 < CDC Main Campus > 2003

Networked information and communications systems to get the word out fast

CDC's Public Health Information Network, an advanced health surveillance and information-transfer system, supports local, state, and national efforts to address all public health threats. PHIN has five key functions:

- **detection and monitoring** – identifying threats rapidly;
- **analysis** – providing critical analytic tools to thoroughly understand threats;
- **knowledge management** – displaying information when and where it's needed to enable the best response decisions;
- **communication alerts** – disseminating accurate, timely, and complete information to multiple target audiences;
- **response** – supporting coordinated and informed actions by all parties involved in a public health threat.

PHIN includes the Health Alert Network, which communicates findings to the nation's public health programs, and Epi-X (Epidemic Information Exchange), which enables public health officials to share secure information rapidly. It also includes NEDSS, the National Electronic Disease Surveillance System. The CDC-developed NEDSS base system was deployed in eight states in FY 03, and more than 30 jurisdictions are expected to use the system in 2004. Remaining states are to follow. NEDSS enables faster, more thorough electronic monitoring, detection, reporting, tracking, control, and prevention of many diseases.

CDC provides critical laboratory support and analysis to the Biowatch program, conducted by the Department of Homeland Security. Biowatch is designed to detect terrorist agents in the environment. Specimens are collected from environmental monitors in selected cities across America, and then analyzed at CDC. We also work with state and local health departments on the necessary public health response, should Biowatch monitors record positive results.

In fiscal year 2003, CDC also established the Emergency Communication System to translate scientific findings into necessary action and deliver rapid, consistent messages about public health emergencies to policy makers, the public, clinicians, the public health workforce, and others. CDC's Web site, the Health Alert Network, news media outlets, public and clinician hotlines, public service announcements, and other communications channels compose the system.

At the heart of the emergency response system is the state-of-the-art Marcus Emergency Operations Center. Monitoring world events 24/7, it's prepared for immediate activation. When Space Shuttle Columbia broke apart, the center sprang into action to communicate possible health hazards from shuttle debris. And during the SARS epidemic, the center tracked and facilitated the movement of thousands of clinical laboratory specimens from around the world. Response teams were also mobilized during FY 03 for the monkeypox outbreak in the Midwest, the measles outbreak in the Marshall Islands, and Hurricane Isabel.

CDC s Epi-X in action — secure two-way communications to help detect and contain health threats

July 9, 2003, Colorado

An outbreak of Hepatitis A Virus (HAV) was reported at a live performance of The String Cheese Incident band. Via Epi-X, CDC requested reports of similar concert-related HAV cases. Ten cases were reported, all linked to the same band's concerts. Epi-X provided critical information so that other states could act preemptively. The band's itinerary was made available through links on Epi-X, allowing states to determine if a health risk to their citizens existed. Health departments were able to implement preventive measures and offer public education on HAV prevention. The band posted a notice on its Web site and invited CDC staff to their concerts to conduct an epidemiologic investigation. As of September 15, 2003, 26 HAV cases were identified in ten states: Colorado, Arizona, New Mexico, California, Indiana, Michigan, New York, Oregon, Tennessee, and Wisconsin.

ommunications ount

In FY 03 **105,058,344** people visited CDC's Web site and made **477,725,660** requests for information. **15,000** press calls requesting information on SARS, smallpox preparedness, West Nile virus, and other public health emergencies. **40,000** hotline calls concerning public health emergencies and about **2,000,000** calls to other CDC hotlines, which feature information on immunizations, AIDS and sexually transmitted diseases, hepatitis, international travel, and other public health issues. **6,000** clinician inquiries on CDC's Emergency Communication System since January 2003. **800,000** individual updates sent to the **40,000**-member CDC Clinician Registry since March 2003.

CDC Public Health Research Delivers a Substantial Return on Investment

Transforming knowledge into action

In FY 03, our most visible and time-critical public health research made headlines. CDC staff rapidly moved from researching the SARS virus genome to developing and deploying a diagnostic test. (Read more about SARS on page 28.) But while our other public health research is not as visible as our efforts on SARS, monkeypox, and other novel infectious diseases, it's just as essential for effective health promotion and disease prevention.

Our nation's investment in biomedical research is creating new knowledge about the causes of illness, helping us discover effective new treatment and prevention tools. For those discoveries to benefit people in all communities, they must be translated into effective public health programs. CDC's public health research portfolio addresses concrete, human needs identified by frontline public health programs. It includes research conducted by CDC staff (intramural research) and by investigators outside the agency who receive funding from CDC (peer-reviewed extramural research). Working with an array of partners, including colleagues at other government agencies like the National Institutes of Health, with academic researchers at premier universities, and with scientists in the private sector, CDC is a vital link in moving knowledge from laboratories and scientific journals into communities and clinics.

From Research to People – *CDC Programs at Work*

Health Problem: Adults with disabilities suffer additional health problems, often resulting in preventable life limitations and illness.

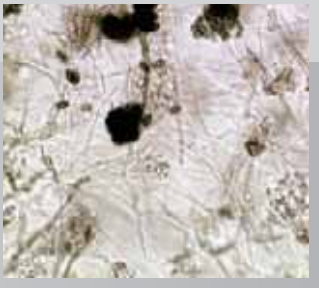
CDC Solution: Developed by the University of Montana with CDC funding, the Living Well with a Disability program is a community-based health program to promote the health and well-being of adults with disabilities. The Living Well program, which costs about $600 per person, helps people with disabilities take charge of their health and achieve individual health goals, such as better nutrition and increased exercise. Those who participated in the program reported better overall health and had a 37% reduction in limitations caused by secondary health conditions and a 45% reduction in doctor's visits associated with those conditions.

ROI: Cost-effectiveness research found that program costs were completely recovered within the first two to six months following completion due to savings in health care costs alone. The program saves an estimated $1.50-$2.50 for each dollar invested within one year of implementation. Analysis projected annual savings of $4 million-$30 million if the program were expanded nationwide.

Health Problem: Back injuries cost the United States an estimated $24 billion per year in medical care, workers' compensation, and related costs, and are the most common work-related health problem among U.S. health care workers.

CDC Solution: Through a unique partnership with BJC Health Systems, the BJC Occupational Health Nurse Council, lifting equipment manufacturers, West Virginia University, and Washington University, CDC developed and evaluated an injury prevention program for reducing incidence, severity, and cost of low back and other musculoskeletal injuries to nursing home workers.

ROI: Research showed the program paid for itself in less than three years, posting a 57% reduction in injury frequency, 61% reduction in injury rates, and 37% reduction in workers' compensation expenses. If all nursing homes in America implemented this program, the annual savings in workers' compensation costs alone would be approximately $117 million.



Health Problem: Molds are associated with asthma, allergies, infections, and respiratory illnesses. Unfortunately, mold often goes undetected until people get sick. Identifying mold exposures can be time consuming and costly, relying on laborious spore counts or growing samples in the lab.

CDC Solution: Our investigators developed and patented a monoclonal antibody specific for the mold *Stachybotrys chartarum*, which has been licensed for use in a rapid, on-site test to detect mold spores on surfaces.

ROI: Monoclonal antibody testing rapidly indicates whether the mold is present, making clean up and control quicker and reducing health effects.

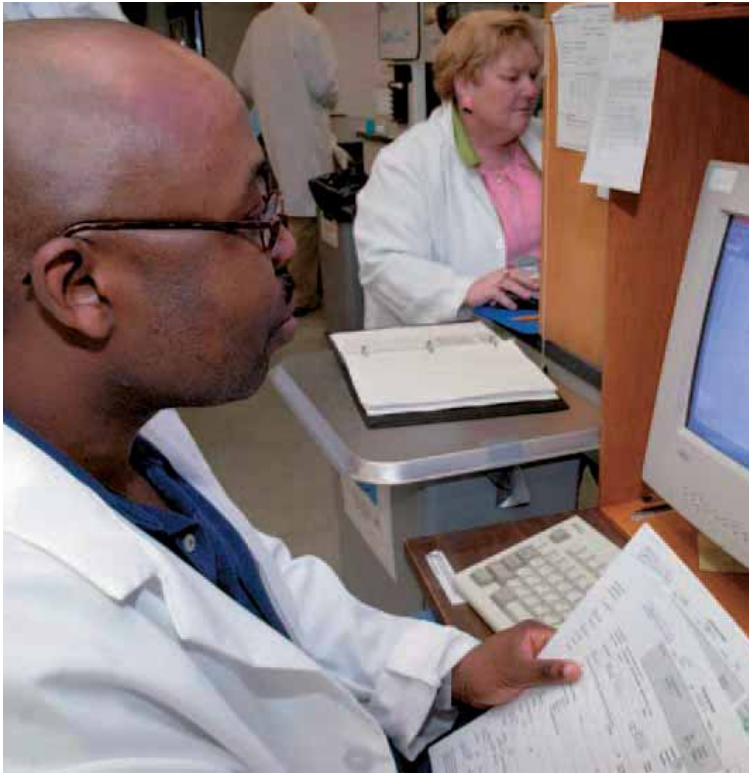
Prevention Research Centers link public health, academic researchers, and communities to address chronic health problems

In FY 03, CDC's collaboration with academic researchers and community partners expanded to 28 Prevention Research Centers in 25 states across the country, in areas as geographically distinct as Harlem, Appalachia, and the Southwest. Over the course of the year, these centers conducted nearly 500 applied research projects to address America's top health concerns, including diabetes control, teen pregnancy prevention, elder health, and cancer control. Each Prevention Research Center has at least one core project with an under-served group that has a disproportionately large burden of disease and disability, including American Indian, Hispanic, and African American communities. Learnings from these projects are applied to science-based interventions to reduce health disparities in America.

Centers of Excellence apply interdisciplinary expertise to diversify science-based prevention

Making good on explicit research agendas developed by distinct parts of CDC to guide our diverse public health programs, researchers and practitioners at Centers of Excellence nationwide are contributing practical solutions to persistent problems. Among the varied projects in FY 03:

- Working with schools of public health to develop effective, state-of-the-art environmental public health programs.
- Exploring the causes of autism and related developmental disabilities and effective interventions.
- Improving health surveillance systems.
- Controlling intentional and unintentional injuries and violence.
- Preventing health care-related infections.
- Improving Lyme disease diagnosis, prevention, and control.
- Addressing agricultural health and safety problems.



Real-world solutions

CDC's Technology Transfer Office helps turn research into effective, real-world solutions to public health problems. Through CRADAs (Cooperative Research and Development Agreements), CDC scientists work together with industry investigators to jointly develop new or improved products or processes. To date, more than 70 of these partnerships have been formed between CDC and industry. They have proven to be a very cost-effective way for companies, especially small businesses, to leverage their own R&D efforts. A glance at some of the outputs shows just how effective this joint public-private partnership is.

CRADA	What It Does
Method and Kit for Detecting Resistance to Antiviral Drugs	Allows health care providers to learn if a patient's HIV infection is resistant to AIDS drugs
Apparatus and Methods for Analyzing Particles Using Light-Scattering Sensors and Ionization Sensors	Measures harmful engine exhaust in dusty coal mines
DNA Expression Vectors and Methods of Use	Assists in treating and preventing HIV infection
Macroaggregated Albumin-Polyethyl-eneimine (MAA-PEI) Lung-Targeted Respiratory Syncytial Virus Infection DNA Vaccines	Helps keep babies safe from respiratory infections, a significant cause of illness and hospitalizations

Translating the science of genomics into better public health programs

Human genomics holds enormous promise to help people live healthier, longer lives. This science studies all our genes (the human genome) in relation to disease and health. In FY 03, CDC developed important new genomic tools to help unlock the answers to why some communities and populations have increased burdens of certain diseases and how to improve prevention.

CDC staff are working closely with colleagues at the National Institutes of Health and other government agencies to translate basic genomic research results into new opportunities for disease detection, prevention, and treatment. In April 2003, NIH announced that the full human genome had been sequenced, two years ahead of schedule. This remarkable achievement will have profound implications for health in the 21st century and beyond.

Genomic methods will help us track the effects of environmental hazards in communities and understand their complex effects on health. More than that, genetic information will help us better predict risk and provide personalized prevention against chronic diseases like cancer, heart disease, and diabetes. New screening tests for newborns will save lives.

In 2003, CDC took a giant step in helping our partners in state and local public health organizations begin to translate genomics into their programs:

> CDC developed an information system that allows public health investigators to identify genes relevant to population-based studies of diseases and risk factors.

> CDC developed an evaluation system for genomic tests to ensure their validity and usefulness to improve health and prevent disease.

> CDC developed a screening tool, now being tested in community settings, that uses family history to measure risk for common chronic diseases and to target interventions.

CDC Throughout Life.

Infants

Ensuring healthy beginnings:
CDC touches the lives of Americans and people around the world on its mission of preventing and controlling disease, injury, and disability. Promoting folic acid use for pregnant women contributed to the reduction of two disabling birth defects over the course of a decade: spina bifida by 32% and anencephaly by 17%. Other CDC initiatives include increasing car seat use in minority communities, improving newborn hearing screening and intervention to facilitate on-target language development, working with at-risk mothers to prevent fetal alcohol syndrome, preventing mother-to-child HIV transmission, and reducing racial and ethnic disparities in low birth weight, a leading cause of infant mortality.

Children

Fighting childhood illnesses and injuries:
CDC helps keep youngsters healthy and safe. Measles, rubella, tetanus, and polio have reached record lows, thanks to prevention with vaccines. For every dollar invested in measles-mumps-rubella vaccine, the United States saves more than $23 (or nearly $9 billion annually). For every dollar invested in diphtheria-pertussis-tetanus vaccine, we save more than $27.

CDC works to prevent lead poisoning, a leading cause of developmental delays in children, through partnerships with parents, schools, child care providers, and health care systems. At home, we're reducing injuries and deaths from fires by targeting prevention to families with children five and younger and to adults 65 and older. On the road, we promote car safety, by funding research on overcoming barriers to child booster seat use.

Adolescents & Teens

Providing a path to the future:
CDC is helping to reduce the growing number of teen suicides through a unique emergency room intervention program. We're also working to prevent teen violence. Our Families for Safe Dates pilot program targets adolescent dating violence, while our Crossing the Bridge program reduces school violence. We've made headway in reducing teen births. Since 1993, births to mothers 15-19 years old in the United States have declined 60%. In FY 03, we expanded *VERB*, our branded, integrated media campaign that encourages positive physical activity among tweens (ages nine to 13). *VERB* continues to gain momentum and awareness – in fact, 76% of tweens are now aware of the *VERB* brand. *VERB* is being rigorously evaluated, and complete evaluation results will be available in FY 04. Early indications are that tweens most aware of the campaign have become more active.

Young Adults

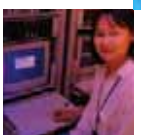
Keeping relationships healthy:
Intimate partner violence exacts a heavy toll on victims and society. CDC is focused on reducing the health-related costs associated with this violence. We're also focused on helping young people make responsible decisions, including decisions about sexual activity, using the A-B-C model: abstinence and delaying sexual activity; be faithful to your partner; use condoms. Our work to eliminate syphilis is showing encouraging results: In just five years, infectious syphilis in American women decreased 52% among white women and 63% among black women. And congenital syphilis cases (present when babies are born) dropped by 62%. CDC is advancing HIV prevention in America by making HIV testing a routine part of medical care, developing new strategies to diagnose HIV infections outside medical settings, preventing new infections by working with HIV+ people and their partners, and further decreasing mother-to-child HIV transmission by incorporating HIV testing in the routine battery of prenatal tests.

Middle-Age Adults

Focusing on the community:
CDC studies how our communities affect our health. We've learned that factors such as income, unemployment rates, poverty rates, the percentage of adults who have college degrees, and the occupational composition of the area's work force are important aspects of health decisions. We're working to understand how to help people make better health decisions and to seek needed care. CDC funds an innovative program to promote early detection of breast and cervical cancer among uninsured women. In America, tuberculosis continues to strike adults 25-64 more frequently than any other age group, with about twice as many cases occurring in men as in women. We're working with state and local health departments and public health partners worldwide to address the TB epidemic. Our collaborative efforts have paid off – from 2001 to 2002, reported cases of TB in the United States declined from 15,989 cases to 15,078. This is the tenth consecutive year of declining TB cases, and the lowest number ever reported in America.

Older Adults

Focusing on the community:
By 2030, the number of people 65 and older is predicted to double from our current 36 million to over 70 million. CDC is acting now to improve diabetes detection and care, and to reduce obesity, heart disease, and stroke, all common among seniors. We are striving to eliminate racial and ethnic disparities in older Americans protected by flu vaccine. We are preventing deaths and injuries from residential fires by targeting prevention to homes with children five and younger and to adults 65 and older. And we're working to prevent injuries from falls – about a quarter of seniors' falls cause moderate to severe injuries including hip fractures and head traumas, reducing mobility and independence and increasing risk for premature death.



2.

Key Priority Two

Protecting People: *Preparing for Health Threats at Home and Abroad*

Preparing States and Communities

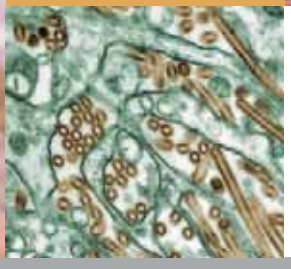
In scal year 2003, CDC allocated more than $1 billion to upgrade state and local public health agencies' readiness to respond to events such as bioterrorism, infectious disease outbreaks, and other public health emergencies. This program is the largest investment in public health infrastructure in CDC's history, and it is vital to the security of our country and to protecting the American people.

Improvements to rapid detection, investigation, response, containment, and recovery from a terrorist attack or other public health emergency are essential program outputs. To support those upgrades, program resources target seven critical areas:

1. Preparedness Planning and Readiness Assessment **2.** Surveillance and Epidemiology **3.** Laboratory Capacity – Biologic Agents **4.** Laboratory Capacity – Chemical Agents **5.** Health Alerting/Communications and Information Technology **6.** Communicating Health Risks and Health Information Dissemination **7.** Education and Training

Within and across states, response plans are being coordinated to avoid duplication, ll gaps, and most effectively deploy resources. And it's already paying off.

Here are a few highlights: Chicago implemented its emergency mass vaccination clinic plan to help avert a large-scale meningitis outbreak. When Hurricane Isabel hit, North Carolina was able to prepare and respond better, thanks to this program. In California, upgrades in health alert and risk communication systems improved response to public health concerns associated with wild res. And in Nebraska, a state-of-the-art database permits the state's health care workers to be contacted within minutes during a crisis.



"In fact, bioterrorism defense is intimately tied to emerging infectious disease preparedness... and it is illuminating many of the existing problems within the health care system about which we have become complacent."

Biological Threats and Terrorism: Assessing the Science and Response Capabilities, The Institute of Medicine, 2002

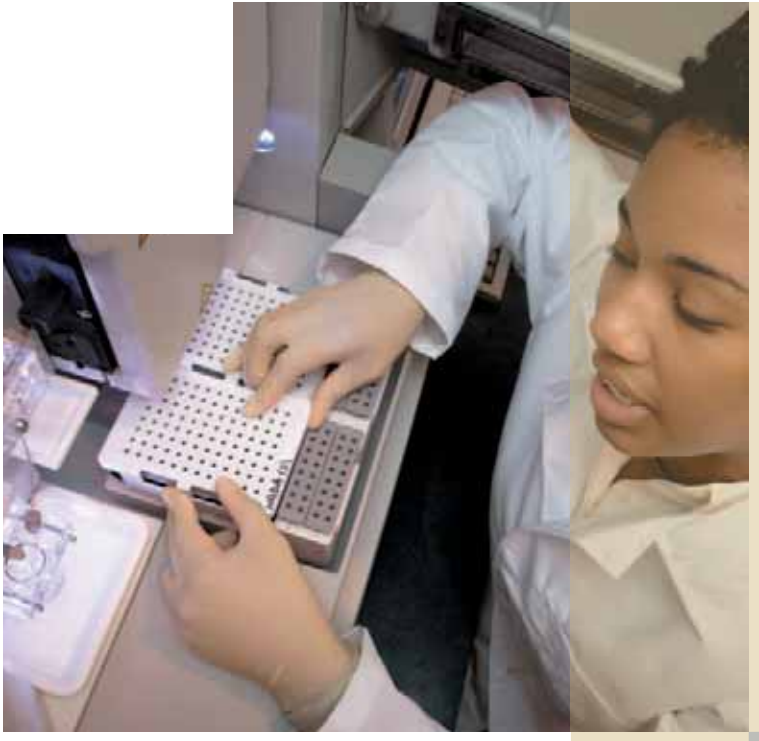
Increasing our detection, testing, and response capabilities

CDC is the nation's linchpin in mobilizing our public health system to anticipate and react instantly to health emergencies, be they chemical, biological, radiological, or nuclear terrorist events or natural disasters.

To rapidly identify potential biologic agents, CDC manages the Laboratory Response Network (LRN), which in fiscal year 2003 expanded America's biological security network. Today, there are 121 member LRN laboratories in all 50 states, the District of Columbia, and abroad. By the end of FY 03, 99% of LRN labs could confirm anthrax, 94% tularemia, and 63% smallpox. CDC has trained more than 8,000 clinical laboratorians to detect, diagnose, and report public health emergencies.

CDC also provided funding to state environmental health laboratories to develop surge capacity for the CDC chemical labs. State labs will soon be able to rapidly screen for a variety of warfare agents in people's blood or urine.

We also worked with state health departments to reinforce the distribution system for Strategic National Stockpile assets.

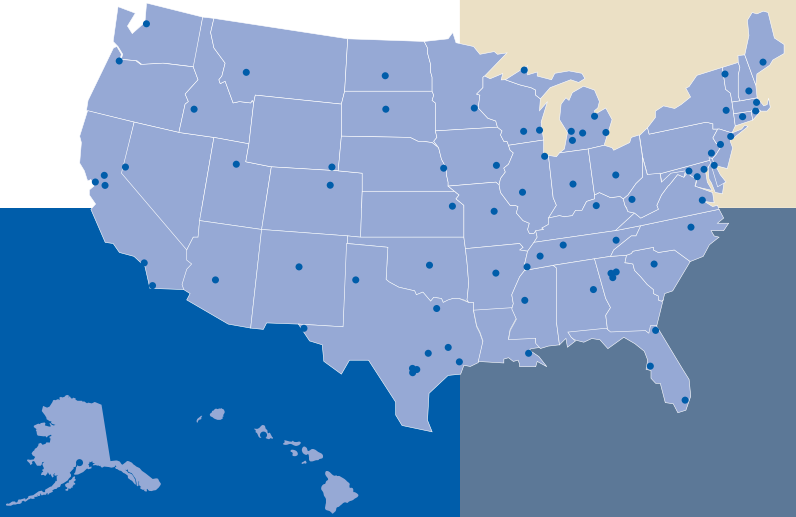


SNS – our national repository of antibiotics, chemical antidotes, antitoxins, life-support medications, IV administration, airway maintenance supplies, and medical/surgical items – is now ready for immediate deployment to any location in the United States or its territories. That means SNS can protect immediately in case of plague, tularemia, nerve agent, botulism, or anthrax events. SNS can protect 12 million people after anthrax exposure and provide 900,000 people full-course therapeutic treatment.

Then

Laboratory Response Network

September 2001



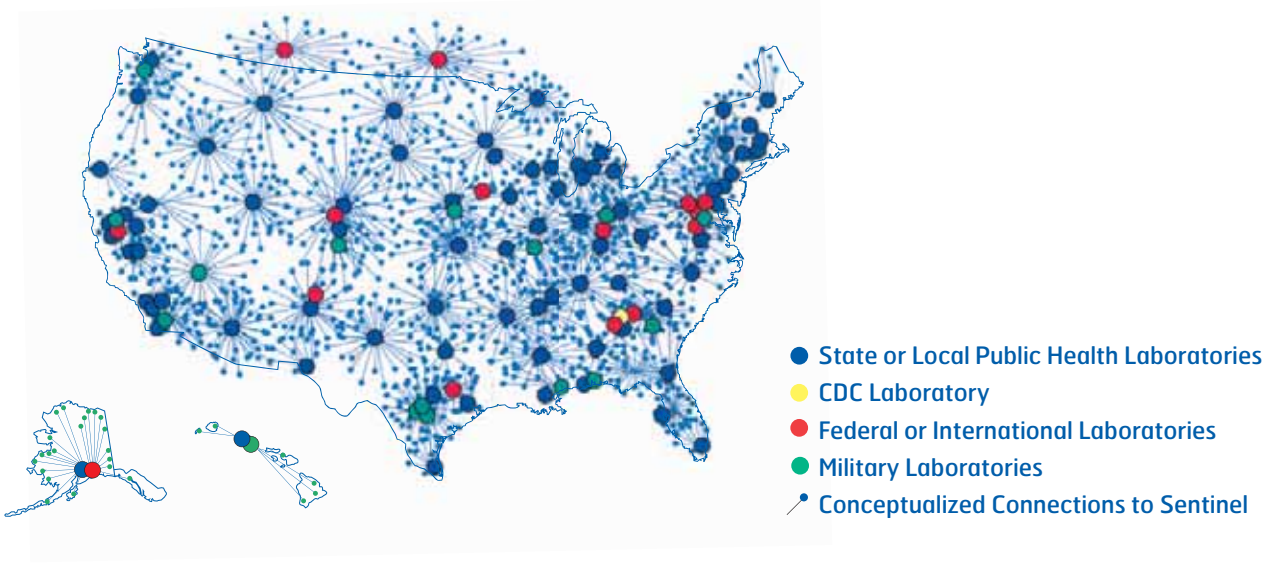
Centers for Public Health Preparedness are essential partners

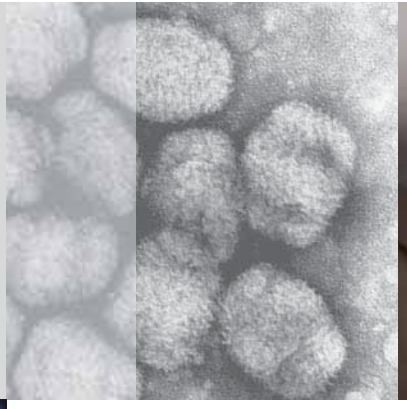
CDC funds 33 Centers for Public Health Preparedness across the United States to prepare frontline public health workers to deal with the special threats posed by terrorism, other emergency situations, and infectious diseases (both emerging infectious diseases, like SARS, and persistent dangers, such as HIV and other sexually transmitted diseases, influenza, and tuberculosis). Working closely with the Association of Schools of Public Health and the National Association of County and City Health Officials, CDC funds 22 premier academic partners – including Columbia University, Emory University, Johns Hopkins, Harvard, and the University of California-Los Angeles – and 11 community-based centers focusing on local readiness and specialty centers recognized as leaders in a particular field, such as laboratory sciences.

Now

Laboratory Response Network

September 2003





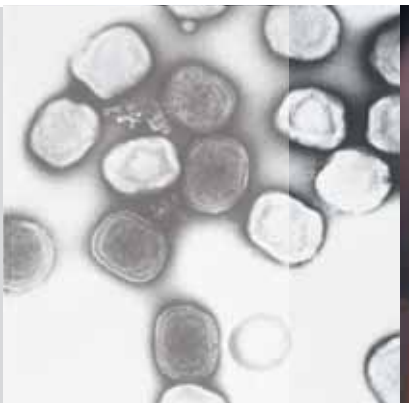
Zeroing in on smallpox

When a smallpox attack on America became a terrible possibility, President Bush marshaled the U.S. government to protect the American people. On December 13, 2002, the President announced the nation's smallpox preparedness plan. The Department of Health and Human Services had already stockpiled enough vaccine to vaccinate every man, woman, and child in America in the event of an emergency.

Not only did CDC work with the vaccine manufacturer to step up vaccine production safely, we also trained more than 15,000 individuals to administer the vaccine. To reduce complications among people vaccinated, we educated nearly 2 million health care professionals on vaccination techniques and screening. When a new complication – myopericarditis, inflammation of the muscular wall of the heart – emerged, CDC revised the vaccination guidelines to more successfully screen people who might be at risk for heart problems and to more effectively monitor people after vaccination, with the result that, overall, the smallpox vaccination program has a better than expected safety record.

To address ongoing concerns about adverse reactions to the vaccine, CDC scientists teamed with the New York City Department of Health and Mental Hygiene, conducting an exhaustive review of unexpected cardiac deaths following the mass smallpox vaccination in New York City in 1947. Their findings: Cardiac deaths did not increase following the vaccination of six million city residents.

As a direct result of investments by CDC and the whole of HHS, we now have more clinicians than ever trained to recognize and care for smallpox patients. We also have more hospitals prepared to receive patients, more laboratories with smallpox-diagnostic capabilities, and more trained public health workers to investigate cases and implement isolation procedures to prevent the spread of smallpox if there were an attack. Preparedness is a dynamic process – we are much better prepared now than two years ago, and CDC will work to ensure we are even better prepared in the future.



Forensic Epidemiology – practical training for effective joint response to terrorism

Surveillance and investigation don't mean the same thing to public health practitioners and law enforcement professionals. That's why CDC worked with the Federal Bureau of Investigation and other law enforcement partners to develop the Forensic Epidemiology course, which trains frontline public health and law enforcement staff to conduct effective joint investigations. With support from the Department of Justice and FBI involvement, the course has trained about 2,000 public health, law enforcement, and other first responders from state, local, and federal agencies. By the end of 2004, the course will have been presented in more than two-thirds of states. Key training outcomes are:

> Suspect specimens will be gathered more effectively for rapid laboratory testing – allowing more rapid responses to attacks and better public protection.
> Hoaxes will be identified more quickly – so officials can reassure the public, averting panic and unwarranted distress.
> Evidence critical to terrorist prosecution will be better recognized and preserved for use in prosecution.

Protecting workplaces

CDC protects workplace environments from potential chemical, biological, radiological, or nuclear (CBRN) attacks. Collaborating with the Office of Homeland Security and other federal agencies and building on previous CDC guidelines, CDC provided improved guidance for designing and maintaining air filtration components in ventilation systems to safeguard from CBRN attacks. Filtration systems can have a significant role in protecting buildings and, more importantly, their occupants.

In FY 03, CDC also helped develop new methods to provide earlier warning of biologic contamination and to gather and analyze environmental samples. CDC also studied the ways that bioterrorism agents may enter and spread through buildings. We worked with the U.S. Postal Service and others assessing new engineering controls on mail sorting machines to reduce the risk of future anthrax exposures.

CDC also protects those who protect the rest of us. In 2003, CDC issued criteria for testing and certifying air-purifying respirators for use against CBRN agents – the CBRN respirators fire fighters and other emergency responders told CDC they most wanted. And, for the general public, we developed new criteria for testing and certifying escape hood respirators. These are used in plants, factories, office buildings, and other workplaces to help employees escape life-threatening toxic exposures in terrorist attacks.

Emerging and Resurging Health Threats

Severe Acute Respiratory Syndrome

Globalization... Connectivity... Speed... Collaboration

In February 2003, severe atypical pneumonia was reported from several Asian countries. Called Severe Acute Respiratory Syndrome, or SARS, the new disease spread globally in a matter of weeks.

In mid-March, when the first clinical specimens from around the world arrived at CDC for analysis, our scientists began working around the clock to identify the infectious agent and to grow it in the lab. Less than two weeks later, CDC scientists isolated a virus and used electron microscopy to determine that it was a coronavirus, one that appeared to be different from any previously studied. CDC assembled a team, including ten scientists and numerous technicians, to determine the complete genetic sequence of the newly identified agent and find out what was unique about this particular virus. On April 14, just 12 days later, CDC announced we had sequenced the entire genome for the coronavirus believed responsible for SARS. Identifying the genetic sequence of a new virus is fundamental to efforts to treat or prevent it. This genetic information can be used to target antiviral drugs, to form the basis for developing vaccines, and to develop diagnostic tests. In sequencing the genome, CDC scientists worked closely with coronavirus experts across the United States and around the world. Without this unprecedented international collaboration, CDC's successes would not have been possible.

CDC used this collective knowledge to develop specific diagnostic tests for SARS – one to measure antibodies to the SARS coronavirus and another to directly detect the virus. Our scientists are currently working to refine the diagnostic tests for SARS and to distribute them to collaborating public health laboratories nationwide.

CDC's response to SARS was coordinated through the Marcus Emergency Operations Center. More than 800 CDC staff were mobilized, including 100 individuals deployed to assist World Health Organization global response teams. CDC provided information to the public on SARS prevention, diagnosis, treatment, and control. Using CDC's Web site, press conferences and live satellite broadcasts produced by CDC's Public Health Training Network, this information was distributed rapidly. Programs were broadcast throughout the world and distributed on CDs. Nearly 2 million health professionals in China alone received essential SARS information this way.

CDC quarantine inspectors and more than 140 other CDC volunteers worked tirelessly assisting local staff in assessing ill travelers. They also handed out Health Alert Notices to all passengers on flights arriving in the United States from SARS-affected areas. In total, they distributed almost 3 million notices to passengers on nearly 12,000 flights to the United States.

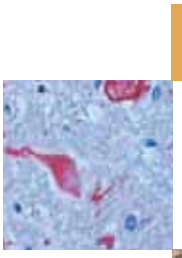
What did we learn from SARS? That global surveillance with prompt disease reporting linked to sophisticated diagnostic laboratory capacity is critical. That strong global public health systems, robust health service infrastructures, and expertise that can be mobilized quickly across national boundaries are essential investments. And that it is indeed a small and interdependent world.

Monkeypox: Collaboration contained the outbreak

Late in the spring of 2003, a mysterious rash illness appeared in America's Midwest. In early June, the Marshfield Clinic in Wisconsin identified a poxvirus in a patient's tissue samples. Doctors linked the rash illness to the patient's sick pet prairie dog. CDC laboratory tests confirmed that the cause of the rash was the monkeypox virus, a member of the same family of viruses as smallpox – the first-ever case of human monkeypox in the Western hemisphere.

Key public health messages were broadcast through CDC's Emergency Communication System and Public Health Information Network channels: *Be alert to the telltale signs of the illness – fever, rash, headache, muscle aches – and see a doctor if you develop them. Avoid contact with prairie dogs.*

CDC mounted a tremendous effort – about 10,000 staff hours – to determine the monkeypox-prairie dog link. Monkeypox is a virus found naturally only in certain regions of Africa. By tracing shipments of imported animals, CDC investigators discovered a shipment of animals from Ghana to the United States, and some of these animals were found to be ill or dead with monkeypox. CDC staff determined that housing Gambian giant rats and dormice with prairie dogs was the likely source of the prairie dogs' monkeypox infection – and from the prairie dogs to people. By June 11, CDC and FDA issued a joint order banning interstate commerce trade, sale, or movement of prairie dogs and importation of all rodents from Africa. In just over a month, CDC and our local, state, and federal partners succeeded in containing the outbreak. The last case of human monkeypox was June 20. In all, 37 people in Illinois, Indiana, Kansas, Missouri, and Wisconsin had laboratory-confirmed monkeypox, and two young children developed serious complications. All patients have now recovered.



Norwalk Virus: Prevention on the high seas

In early 2003, outbreaks of gastrointestinal illness struck passengers aboard several cruise ship lines. Some ships had multiple outbreaks on consecutive cruises. CDC's Vessel Sanitation Program, which is totally industry funded, worked to identify the cause and recommend infection control measures. Just months later, when the Regal Princess' cruise was marred by an outbreak of gastrointestinal illness among 19% of its passengers, CDC's staff, applying earlier lessons, audited the clean up and identified infection control measures for the ship's crew to take. Although CDC estimated there was a 70% chance of another outbreak on the next cruise, none occurred – a testament to the cooperation between the ship's crew and CDC staff, and to the effectiveness of prevention.

EIS: The next generation of public health leaders – already contributing

Established in 1951 as an early warning system against biological warfare and man-made epidemics, CDC's EIS – the Epidemic Intelligence Service – has expanded into a surveillance and response unit for all types of epidemics, serving as in-the-field training for our nation's disease detectives. In fiscal year 2003, 116 EIS officers were deployed to 77 domestic or international investigations. Dr. Martha Iwamoto is one. Less than a month after beginning her field EIS assignment, she took a lead role in the investigation of West Nile virus encephalitis in two people who had received transplanted organs. Two other patients also developed encephalitis shortly after receiving organs from the same donor. The timing of these illnesses suggested to Dr. Iwamoto that West Nile virus might be associated with organ transplants – a novel situation. Her investigation revealed the organ donor had recently received blood transfusions, one containing the virus. West Nile virus was transmitted from the blood to the organ donor, then transmitted through the organs to the four organ recipients.

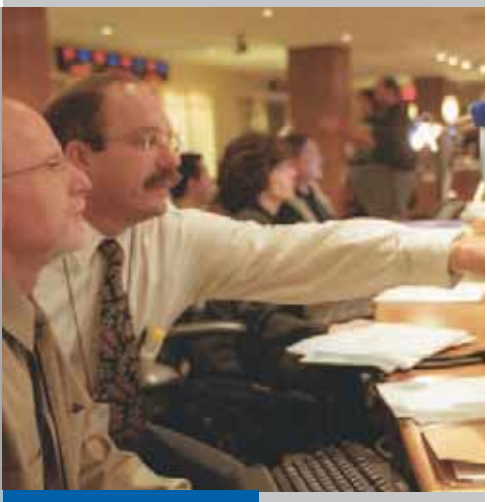
Dr. Iwamoto's swift and insightful work had tremendous impact. After her investigation, the Food and Drug Administration changed the way blood products are screened to reduce the risk of transmitting West Nile virus.

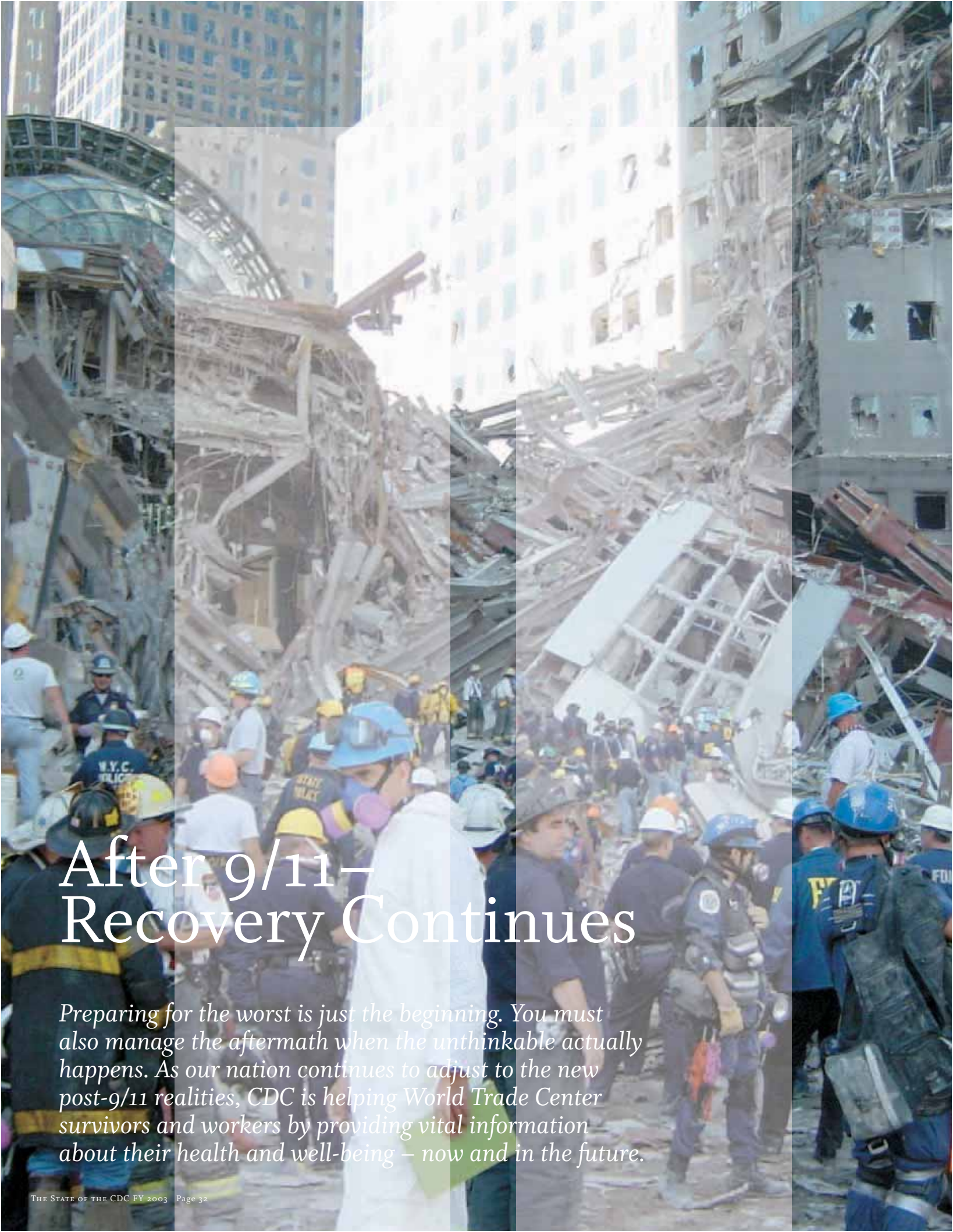
Challenges in preventing new and old threats

Whether preparing for terrorism or preparing for emerging and resurging infectious diseases, it's not always possible to know when and where an event may occur. The challenge is to be adequately prepared for the unimaginable at all times, in all places. Infectious diseases are a continuing danger to all people, no matter their age, gender, lifestyle, race or ethnicity, or economic status. They continue to be one of the most common causes of suffering and death, and they impose an enormous financial burden on society.

In the last century, profound advances were made in medicine and public health. Some diseases have been effectively controlled with the help of modern technology such as antibiotics and vaccines. Yet new diseases – such as SARS – are constantly appearing. Others, such as malaria, tuberculosis, and bacterial pneumonias, are now resistant to drug treatments.

As our world grows ever more connected, public health must change and adapt to meet new challenges. CDC's systems to detect and diminish harm are our nation's safety net. By preparing for the worst, we make America's response to ongoing health threats – infectious and chronic diseases, injuries, environmental exposure to toxics, and others – more comprehensive and effective.





After 9/11– Recovery Continues

Preparing for the worst is just the beginning. You must also manage the aftermath when the unthinkable actually happens. As our nation continues to adjust to the new post-9/11 realities, CDC is helping World Trade Center survivors and workers by providing vital information about their health and well-being – now and in the future.

"I was just across the street when the first building came down."

– John Graham, Carpenter and Emergency Medical Technician

John was on the scene before the second plane hit and lived through the collapse of both WTC buildings. Since then, he has developed chemical-induced asthma. "I feel like a 90-year-old man, with all the pills I take, the inhalers."

John's work and his family life have changed. "I have two daughters, nine and five," he says. "I'd always dreamed of being their soccer coach, and I just can't. Trying to teach the five-year-old to ride her bike, run along beside her, I just can't do that."

John recognized early that he needed help and sought care in October 2001. CDC staff, working with health care providers in New York City, are helping John and others get the care they need to deal with never-before-seen physical ailments and with the emotional fallout of WTC. "We're writing the book as we go," he says. "My doctor said he's never treated someone who was across the street when a 110-story building collapsed. There's no reference book where he can look this stuff up."

Working with John and others, CDC is gleaning insights that will help us reduce the health effects of other deliberate or inadvertent disasters.

Free medical screening for rescue and recovery workers

CDC is providing funding for free baseline medical examinations at Mount Sinai Hospital for WTC rescue and recovery workers and volunteers. In addition to helping determine the health risks these workers face from exposures at Ground Zero, this program will help protect other rescue and recovery workers in the future. To date, more than 7,000 people – utility workers, construction and transport workers, police officers and other public safety personnel – have had exams, and 3,000 to 5,000 more will be served by Spring 2004. Early findings show that about half of those examined have had significant mental health problems; nearly half reported persistent ear, nose, or throat symptoms; and almost a third have had persistent respiratory symptoms.

Monitoring the health of the fire fighters

Working with the New York City Fire Department, CDC tested 321 fire fighters responding to the World Trade Center fires for 110 chemicals. Blood and urine samples were collected three weeks after September 11, while fire fighters continued to work and fires were still burning at the site. Results published in fiscal year 2003 showed that, compared to others, special operations fire fighters – those involved in search and rescue – had higher levels of several potentially dangerous chemicals. But their exposure levels were typically low compared to the general population and to workplace chemical threshold levels. This finding is good news for the individual fire fighters and for our nation's emergency services, and underscores the importance of good protective equipment for first responders.

Studying the long-term effects

CDC/ATSDR and the New York City Department of Health and Mental Hygiene launched the WTC Health Registry on September 5, 2003. For the next 20 years, the WTC Health Registry will track the health of survivors who worked, attended school, or resided in the WTC vicinity on September 11, 2001, or who worked at the site in the months that followed. More than 200,000 people may be eligible for this exceptional undertaking. Monitoring their well-being will provide unique health data that will assist CDC in preparing adaptive public health disaster response systems and programs.

3.

Key Priority Three

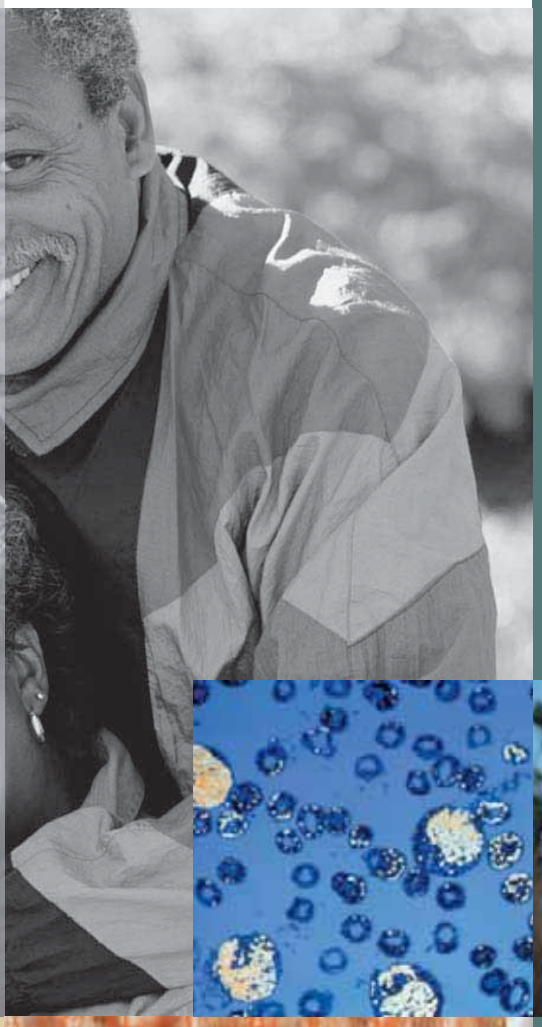
Saving Lives:
Transforming Knowledge into Impact

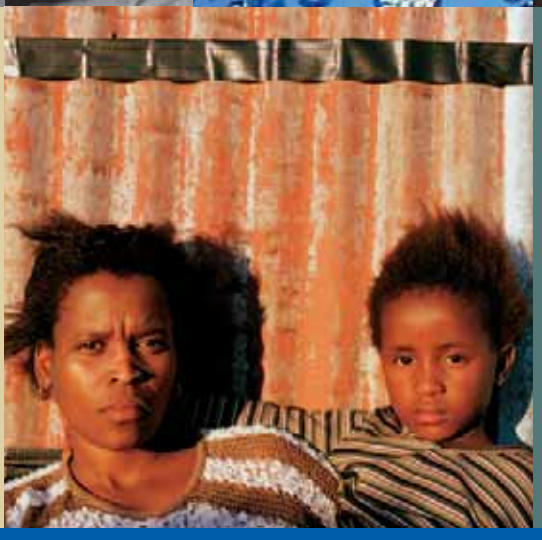
What we know about the future – Prevention is Primary

America's population is aging. Today, more than 36 million Americans are 65 years old or older. In 30 years, that number will nearly double. So, too, will annual health care expenditures for older Americans, rising from $300 billion now to roughly $750 billion by 2030, if current disease patterns continue.

Today's seniors are coping with substantial health and economic burdens from chronic diseases. For example, more than 70% of people age 65 or older have some form of cardiovascular disease. And one of every ve older adults has diabetes and is at risk for debilitating complications and signi cant life limitations. The U.S. workforce is also aging: By 2005, an estimated one-third of all U.S. workers will be 45 years or older. And research shows that's the age when fatality rates from work-related injuries begin to increase.

The good news is that while disease and disability risks increase with advancing age, poor health is not an inevitable consequence of aging. Prevention is the key to reducing disease, disability, and premature death among seniors – and among Americans of all ages. Partnering with health care providers nationwide, CDC is actively working to research, develop, implement, and evaluate prevention programs.





The vast majority of health care spending, as much as 95 percent by some estimates, is directed toward medical care and biomedical research. However, there is strong evidence that behavior and environment are responsible for over 70 percent of avoidable mortality, and health care is just one of several determinants of health."

– The Future of the Public's Health in the 21st Century, The Institute of Medicine, 2003

Domestic Health

Empowering Americans to Stop Chronic Killers

More than 1.7 million Americans die of a chronic disease each year, accounting for about 70% of all deaths in the United States. More than 125 million Americans live with chronic conditions, and millions of new cases are diagnosed each year. The underlying causes of these preventable deaths are often people's unhealthy lifestyles. CDC works to prevent chronic diseases by reducing or eliminating individual behavioral risk factors, by encouraging healthier lifestyles, and by detecting chronic disease early to maximize the bene ts of early treatment.

Heart Disease and Stroke

Nearly 62 million Americans live with cardiovascular disease. Heart disease and stroke are the first and third leading causes of death in the United States, accounting for nearly 40% of all deaths. About 950,000 Americans die of cardiovascular disease each year. The projected direct and indirect costs of heart disease and stroke in the United States in 2003 are $351 billion.

In FY03, 17 CDC-funded heart disease and stroke prevention programs provided critical support to health centers that were part of the Health Resources and Services Administraton's Health Disparities Collaboratives. These collaboratives focus on eliminating racial and gender health disparities. This cross-HHS partnership realized real benefits. Within nine months, participating health centers reported that:

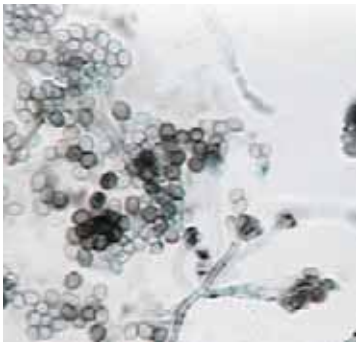
> 46% of patients had self-management goals (up from 20%).

>40% of people with high blood pressure had been able to reduce their blood pressure.

> 71% of patients had their blood pressure documented at least twice in the last 12 months (up from 40%).

> 17% of patients with coronary artery disease or diabetes had reduced their cholesterol level.

> 73% of patients with coronary artery disease were taking daily aspirin or another antithrombotic drug (up from 34%).



Diabetes

CDC estimates that, on average, one in three Americans will develop diabetes in their lifetime. Right now, more than 18 million Americans have diabetes, and far too many are undiagnosed. Diabetes is the leading cause of non-traumatic lower-extremity amputations, chronic irreversible kidney disease, and blindness among working-age adults. Type 2 diabetes, once considered an adult chronic disease, is now found in children and teenagers. Since 1990, the national prevalence among adults of diagnosed diabetes (including women with diabetes during pregnancy) increased 61% and, without effective prevention measures, is projected to increase 165% from 2000 to 2050. Diabetes costs America nearly $132 billion annually in direct and indirect costs. Early diabetes diagnosis and proper treatment can delay – and possibly prevent – serious diabetes-related health problems.

In FY 03, CDC funded diabetes prevention and control programs in 59 health and prevention departments. In support of Secretary Thompson's Steps to a HealthierUS program, CDC will be administering the Diabetes Detection Initiative and identifying undiagnosed diabetes to facilitate earlier intervention. DDI will initially distribute one million assessment tests to a high-risk community in each of ten states and expects to identify approximately 10,400 people with undiagnosed type 2 diabetes. By 2005, DDI expects to identify 100,000 people with undiagnosed diabetes.

Obesity

Obesity is epidemic in the United States. Nearly one-third of American adults – approximately 59 million people – are obese. And nearly 15% of our children and adolescents are overweight. The total estimated direct and indirect costs of obesity in the United States exceed $117 billion annually. CDC's surveillance and monitoring activities brought increased public awareness of obesity and its harmful consequences – the first step on the road to better health. To capitalize on that growing awareness, in FY 03, CDC funded programs in 20 states focusing on nutrition and physical activity to prevent obesity and other chronic diseases. CDC is also working with the Food and Drug Administration, the food industry, and other partners to promote healthier diets for all Americans.

Asthma

More than 31.3 million people in the United States have been diagnosed with asthma. At least 12 million people experienced an asthma attack in the previous year. Asthma triggered 1.8 million emergency visits to the hospital, 14 million missed school days, and 100 million days of restricted activity. Projected direct and indirect costs for asthma exceed $13 billion annually.

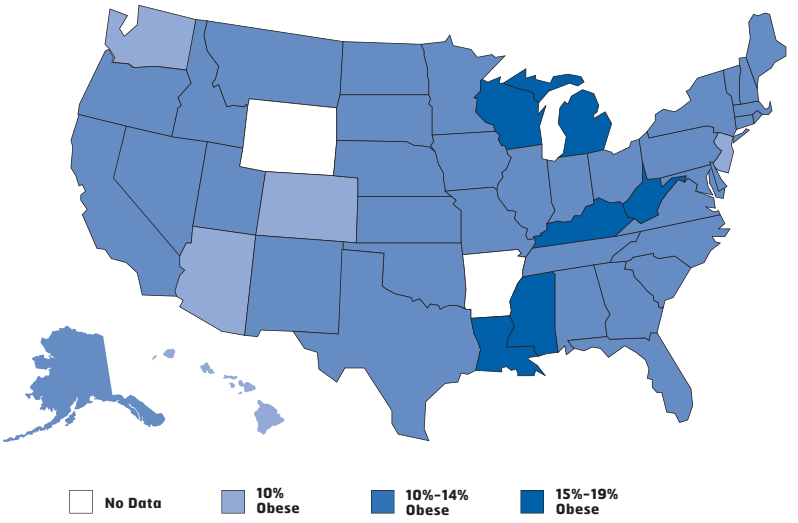
CDC's National Asthma Control Program funded 11 asthma tracking projects, 48 asthma interventions, and 33 asthma partnership projects for FY 03. And to better reach kids, CDC funded six urban school districts, one state education agency, and six national nongovernmental organizations to address asthma control within coordinated school health programs. One program, The Inner City Asthma Intervention, provides urban families with asthma education and individualized asthma control plans. This program is based on a successful NIH research study that resulted in significant decreases in both the number of days children had asthma symptoms as well as the number of times they were hospitalized.

HealthierUS

With leadership from the U.S. Department of Health and Human Services, CDC is supporting Steps to a HealthierUS. This new initiative supports President Bush's goal of helping Americans live longer, healthier lives. HealthierUS helps people take steps to improve personal health and fitness and encourages all Americans to be physically active every day, eat a nutritious diet, get preventive screenings, and make healthy lifestyle choices, such as avoiding cigarettes and illegal drugs.

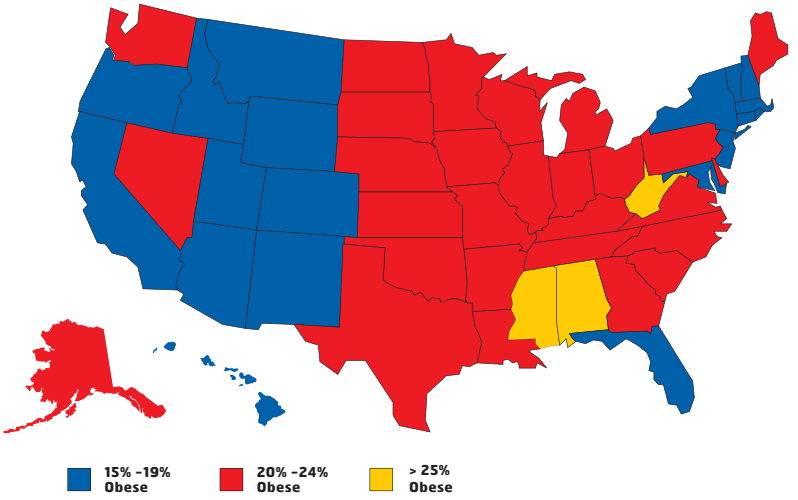
A Decade in the U.S. Obesity Epidemic

1992
Obesity Among Adults



Source: Behavioral Risk Factor Surveillance SystemCCDC

2002
Obesity Among Adults



Source: Behavioral Risk Factor Surveillance SystemCCDC

Science in Action

Preventing Childhood Cancer

Health Problem: In June 2000, four childhood leukemia cases were confirmed in the small town of Fallon, Nevada. That number would ultimately rise to 15.

CDC Study: CDC launched an investigation, taking blood, urine, and cheek-swab samples from scores of Fallon-area residents to study their exposure to environmental contaminants. Soil, water, and air samples were analyzed from the homes of affected families and from the homes of unaffected or "control" families. We examined exposures to chemicals known or suspected to cause cancer in humans, associated previously with clusters of childhood leukemia, or suspected of being present locally.

Outcome: In FY 03, the investigation identified arsenic in drinking water considerably above safe levels, and CDC recommended people use alternative water sources until the area's new water treatment facility is completed. Biologic testing found much higher levels of tungsten in study participants than in the general U.S. population. As a result, the National Institutes of Health is considering tungsten as a priority chemical for toxicologic research. CDC is conducting genetic research to determine whether genes affect the way people's bodies metabolize these chemicals. All participants have been given their personal results, as well as information about how to minimize their environmental exposures to arsenic, tungsten, and other chemicals. CDC's timely investigation and ongoing research not only helped the children of Fallon, but hold the promise of preventing other childhood leukemias.

Health Intel–The Critical Factor

Comprehensive health intelligence provides decision-makers with the information they need to determine priorities, take appropriate action, and evaluate program effectiveness. Surveillance – ongoing, systematic collection, analysis, and interpretation of health-related data – is critical to every aspect of public health. All-inclusive surveillance systems must be able to detect public health events from the mundane to the horri c, minute by minute, pulse beat by pulse beat. During FY 03, CDC continued to re ne and apply our nation's health intelligence in crucial ways.

NHANES surveillance

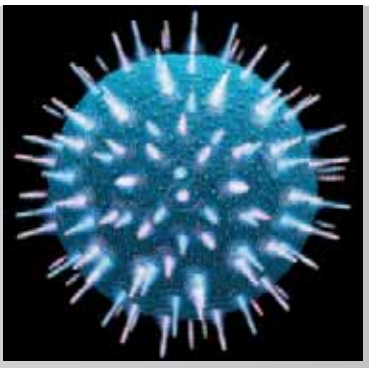
Knowledge about health problems is the first step toward correcting them. NHANES – the National Health and Nutrition Examination Survey – provides critical information about our nation's health by examining a sample of people who represent the American population. To do that, medical staff and other public health professionals travel across the United States in specially equipped mobile examination centers. In addition to producing data on our nation's health and nutrition status, the survey often benefits individual survey participants. Data published in fiscal year 2003 show that, during one survey period alone, CDC informed 486 previously undiagnosed adults that they had high blood pressure.

Human exposure to environmental chemicals

Using data gathered in NHANES, CDC published the *Second National Report on Human Exposure to Environmental Chemicals 200*" – the largest and most extensive assessment of the U.S. population's exposure to 116 environmental chemicals. Key CDC findings:

> Children's blood lead levels and serum levels of DDE, a breakdown product of the pesticide DDT, are declining. But serum DDE levels remain measurable in young people aged 12-19 years, even though they were born after DDT was banned in the United States – and levels are three times higher in Mexican-Americans than other populations.

> Public health efforts have reduced environmental tobacco smoke. Compared with 1991-1994 levels, the levels of cotinine (a tobacco smoke component) have dropped 58% for children, 55% for adolescents, and 75% for adults.



Autism surveillance program

In FY 03, CDC expanded our autism surveillance program to enhance risk-factor investigation. And CDC began efforts to focus on early identification and treatment for children with autism and other developmental disabilities. CDC's focus intensified in response to our customers' appeals for earlier detection, which provides more opportunities to intervene and reduce disability.

Telephone surveillance

CDC funds the world's longest-running and largest telephone survey to track health risks in the United States and improve the health of the American people. The Behavioral Risk Factor Surveillance System, or BRFSS, is conducted by all 50 state health departments, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam with assistance from CDC. It provides state-specific data on a wide range of health conditions, behaviors, and health care access and use. State and local health departments rely on data from the BRFSS to

- Determine high-priority health issues and identify populations at highest risk for illness, disability, and death.
- Develop strategic plans and targeted prevention programs.
- Examine trends in behaviors over time to monitor the effectiveness of public health programs and progress in meeting prevention goals.
- Support community policies that promote health and prevent disease – for example, by educating the public, the health community, and policy makers about disease prevention.

HIV/AIDS surveillance system

CDC's national surveillance system for HIV/AIDS is one of the world's best. Through it, CDC has documented notable successes in fighting the epidemic – such as the drop in perinatal AIDS cases from more than 800 a year in 1993 to about 90 in 2002, thanks to effective drug treatment to prevent mother-to-child HIV transmission, as well as dramatic reductions in the number of adult and adolescent AIDS cases. Data on AIDS cases tell us how many people are sick and need care; data on HIV infection tell us the number of people who need care to prevent life-threatening illness.

With CDC funding, 15 health departments across the country are creating a surveillance system to gather critical behavioral information on two groups at high risk: men who have sex with men and injecting drug users. And we introduced STARHS, an experimental dual test that reveals how recent HIV infection is. Identifying HIV infection early helps individuals and their health care providers determine the best treatment. It also helps public health agencies better target prevention services to populations at greatest risk. This new national system for measuring the rate of HIV infections in the United States is expected to provide the clearest picture yet of the magnitude and direction of the domestic HIV epidemic.

Injury Surveillance

A unique collaboration between CDC and the U.S. Consumer Product Safety Commission collects and analyzes data on about 500,000 nonfatal injuries yearly. The National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP) collects data from a sample of hospitals with emergency departments in the United States and its territories. These data are used to develop national estimates of all types and causes of nonfatal injuries treated in hospital EDs.

NEISS-AIP provides essential national data on the causes and circumstances of nonfatal injuries and who is at risk. National data are critical for monitoring trends over time and for designing and evaluating national, state, and community-based injury prevention programs.

Data collected through NEISS-AIP are available through WISQARS™ (Web-based Injury Statistics Query and Reporting System), an interactive database system that provides customized reports of injury related data. WISQARS is online at http://www.cdc.gov/ncipc/wisqars.

Advancing HIV Prevention: New Strategies for a Changing Epidemic

Health Problem: An estimated 40,000 new HIV infections occur in the United States each year. What's more, CDC estimates that of the 850,000-950,000 people who are HIV-infected in America, up to 250,000 do not know they're infected. The majority of HIV infections are thought to be transmitted by people who have not yet been diagnosed with HIV infection. Studies show that when people know they are HIV+, they are significantly more likely to protect their partners than when they were unaware of their HIV infection.

CDC Initiative: In FY 03, CDC announced a new initiative, Advancing HIV Prevention, aimed at reducing the number of new HIV infections in the United States.

Outcome: This new initiative applies the latest science to combating the spread of HIV. It builds on current proven HIV prevention strategies. To learn more about what works, CDC funded pilot programs, including making HIV testing a routine part of medical care, expanding HIV testing in community settings, enhancing partner notification services, and improving prevention and case management services for HIV+ people, to avert further HIV transmission and enhance care and treatment.

At full capacity, CDC's domestic HIV prevention programs could cut the number of new HIV infections in half to just 20,000 a year, ensure that 95% of those infected with HIV know their status, and link eight out of every ten HIV-infected people in America to appropriate treatment services.

Accomplishments in Syphilis Elimination Among African Americans and Women

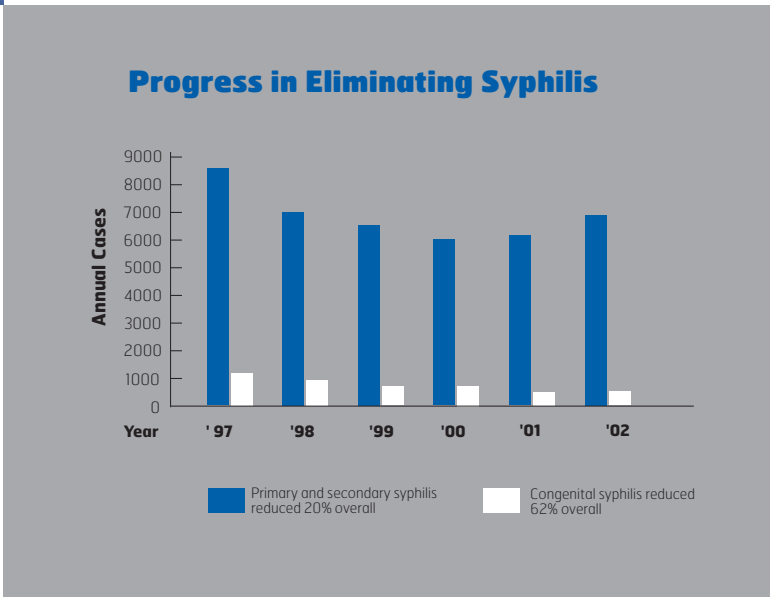
Health Problem: In 1998, the infectious syphilis rate for African Americans was 34 times greater than the rate for whites – making it one of the nation's most glaring health disparities. Syphilis facilitates the transmission of HIV and may be important in contributing to HIV transmission in communities where rates of both infections are high. Untreated early syphilis in pregnant women often results in fetal death, and if acquired during the four years preceding pregnancy, infects the fetus 70% of the time.

CDC Initiative: CDC's National Plan to Eliminate Syphilis is providing better access to high quality, culturally sensitive preventive and care services.

Outcome: CDC strengthened referral networks to increase access to primary care, prenatal care, and other services. Results from 1997 to the end of the first quarter of FY 03 revealed

- a 52% drop in primary and secondary syphilis among white women (from 453 cases annually to 217);
- a 63% drop in black women (from 3,255 annual cases to 1,195);
- a 62% drop in congenital syphilis (from 1,078 to 412).

Although CDC and our partners are encouraged about these positive gains among women and children, we remain concerned about increasing syphilis rates among men, connected to outbreaks among gay and bisexual men in several cities, and the risk for co-infection with HIV.



Supporting People with Special Needs: CDC Launches National Spina Bifida Program

Health Problem: Spina bifida is a complex and serious birth defect that affects nearly all major body systems. It causes paralysis, bladder and bowel control difficulties, and learning disabilities. CDC has been successful in reducing the occurrence of spina bifida by increasing women's folic acid intake. But nearly 3,000 pregnancies each year in the United States continue to be affected by this preventable birth defect. The direct and indirect cost for each\infant born with spina bifida is $823,000. The societal cost of spina bifida exceeds $1 billion per year.

CDC Program: In 2003, CDC created the National Spina Bifida Program, focused on preventing new cases of spina bifida and improving the overall quality of life for people living with the condition.

Outcome: To increase quality and years of life for people living with spina bifida, CDC is working with the Spina Bifida Association of America and other partners to develop comprehensive educational materials for pediatricians, parents, and other caregivers. CDC is also working with the National Center on Physical Activity and Disability at the University of Illinois at Chicago to develop exercise and physical activity conditioning material for individuals living with spina bifida. In the coming years, CDC will support research into the benefits of assisted technology and the outcomes of different models of care for adolescents and young adults living with spina bifida.

Pneumococcus – New Weapons for an Old Threat

Health Problem: The most common cause of pneumonia, meningitis, bacteremia (blood stream infections), and ear infections in the United States is a bacterium called pneumococcus *(Streptococcus pneumoniae)*. It is often resistant to antibiotics. Internationally, it causes the deaths of more than one million children each year. Domestically, this bacterium caused approximately 17,000 cases of invasive pneumococcal disease, including 700 cases of meningitis and 200 deaths each year in children under age five, before a vaccine was available.

CDC Initiative: In 2000, the FDA licensed a new vaccine designed to prevent serious pneumococcal infections in children. CDC began providing the vaccine to about half of all children in the United States through its Vaccines for Children program.

Outcome: Research shows the results are promising. In 2002, the vaccine prevented 13,400 cases of invasive pneumococcal disease, including 7,400 antibiotic-resistant infections, in children under five years old – a 76% decrease. Preliminary data from 2003 show cases are continuing to decline. Because the vaccine also reduces pneumococcal transmission, people who were not vaccinated are benefiting indirectly. For example, childhood vaccination likely prevented approximately 7,700 cases and 1,700 deaths among people 65 years and older in 2002 alone. CDC is also working with the World Health Organization, the Global Alliance on Vaccines and Immunization, Ministries of Health in other countries, and other U.S. agencies to help prevent pneumococcal disease worldwide.

Domestic Health Challenges

America is a nation of contrasts: We are the wealthiest nation on earth, and with that wealth our health has improved in profound ways. Mostly, we no longer die of vaccine-preventable diseases such as measles and rubella, or of illnesses associated with poverty, like malnutrition. Instead, we die of chronic diseases such as heart disease, cancer, stroke, and diabetes – diseases largely preventable by changing our behaviors. Tobacco use, lack of physical activity, and poor eating habits are responsible for approximately one-third of all deaths in the United States. Our health care costs are the highest in the world, yet our overall health is nowhere near the top. To be truly effective, we must change the way America thinks – and acts. A tall order. And one CDC won't succeed in lling alone.

Workplace Health

Protecting Coal Miners from Dust Exposure

Health Problem: Coal miners face many occupational hazards each day, from treacherous cave-ins to more insidious killers like "Black Lung," pneumoconiosis from long-term exposure to excessive levels of respirable (breathable) coal mine dust. A large number of the more than seven million miners worldwide – including 77,000 miners in the United States – are exposed to respirable coal mine dust. About 90% of all coal miners are employed in developing countries, and there are five million in China alone. Mines in developing countries have significant safety and health problems, largely resulting from outdated technology and a lack of knowledge of effective protections.

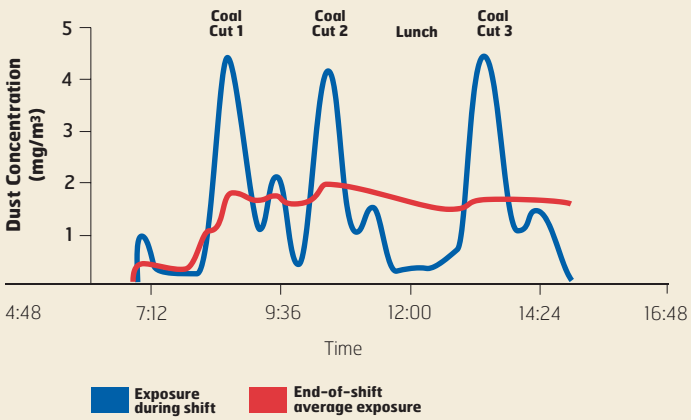
CDC Initiative: In collaboration with industry, labor, manufacturers, and other government agencies, CDC developed an improved personal dust monitor – the first monitoring advancement in over 30 years. Instead of taking weeks to determine how much dust workers were exposed to during a particular shift, the new CDC monitor provides real-time dust exposure data during and after each shift, allowing both the miner and mine management to take corrective action before overexposure to breathable dust occurs.

Outcome: Prototypes of the CDC monitor are being field-tested domestically with successful results. Ultimately, these prototypes will be transferred to the private sector for manufacture and use.

Globally, CDC has established close research relationships with other mining countries to address common mining safety and health issues, not only dust control and monitoring, but also diesel emissions, ground control, and hearing loss prevention.

CDC houses one of the world's premier mining research facilities, and the world looks to us for answers on mining safety and health issues. Requests for collaboration are received at our mining laboratories from around the globe. From those collaborations comes mining research that benefits the safety and health of every mining community in America and the rest of the world.

Instantaneous & Cumulative Average Dust Exposure for Mining Machine Operator



Detecting and Reducing Lead Exposure

Health Problem: In addition to being the No. 1 environmental health hazard to children in the United States, affecting approximately one million children, lead is also a persistent cause of workplace illness. Lead overexposure can damage blood-forming, nervous, urinary, and reproductive systems. High blood lead levels are associated with learning disabilities and behavior problems. Often, lead exposure goes undetected for too long, causing serious and sometimes permanent damage.

CDC Initiative: To better detect lead and reduce exposures, CDC researchers invented and obtained a patent for a new, inexpensive lead testing method. Called the Handwipe Disclosing Method for the Presence of Lead (U.S. Patent 6,248,593), the new method is as simple as wiping your hands with a pad or swiping a cloth over a surface. Highly accurate, the handwipe method can detect the presence of ten-millionths of a gram of lead.

Outcome: Workplace health and safety innovations often provide wider benefits for improving environmental and community health. Through this novel technology, more than 10,000 workers in the United States and more than 900,000 children can reduce their lead exposure. Other at-risk populations, such as people who fish with leaded sinkers, shoot firearms, and work with leaded stained glass, can also benefit from the handwipe method. During FY 03, CDC licensed the handwipe commercially and disseminated information about the new lead testing method.

Reducing Occupational Fatalities in Alaska

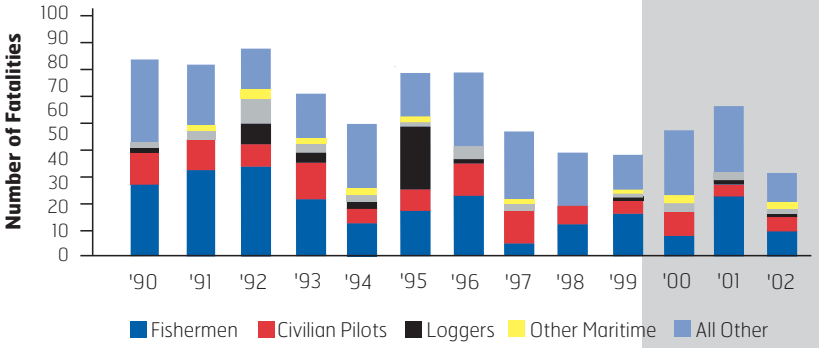
Health Problem: From January 1 to September 15, 2003, 20 people died from on-the-job injuries in Alaska. Although that number is significantly lower than in past years, it is still unacceptably high.

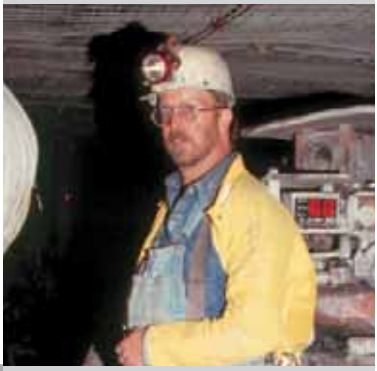
CDC Initiative: In the early 1990's, CDC identified Alaska as having the highest risk of traumatic occupational fatalities of all 50 states. To address the unique hazards and work environments facing employees and employers in Alaska, CDC established a field station in Anchorage in 1991, spearheading a broad-based partnership with other state and federal agencies, industry and labor organizations, communications media, health care providers, universities and community colleges, and others.

Outcome: During the period from 1990-2002, CDC helped Alaska post major declines in all work-related deaths, including deaths in the high-risk industries of commercial fishing and air transportation.

> Overall, the number of work-related deaths in Alaska declined 55%. The total of 34 deaths in 2002 was the lowest work-related mortality in Alaska since data have been collected.
> Occupational injury deaths in the commercial fishing industry declined by 59%.
> Occupational deaths from aviation-related crashes declined by 42%.

Occupational Fatalities:
Alaska, 1990-2002





Workplace Challenges

By any measure, work-related injuries and illnesses are a signi cant public health burden. Each day, on average, 9,000 men and women in America sustain disabling job-related injuries, 16 suffer fatal work-related injuries, and 137 die from work-related diseases. Direct and indirect costs of work-related injuries alone are estimated at more than $240 billion annually. Although great strides in controlling occupational hazards have been made in the past century, many traditional hazards persist. At the same time, rapid changes in the 21st century workplace and workforce create new safety and health concerns. Terrorism poses an ongoing threat of catastrophic attacks against the workplace. Great challenges remain. But by making workplaces safer and healthier, we improve individuals' quality of life, strengthen national preparedness, and bolster our economy. CDC and its partners work daily to effectively address those challenges and to accomplish those vital ambitions.

Global Health

At the end of scal year 2003, CDC had more than 140 staff assigned to 43 countries. Over the course of the year, CDC staff made short-term trips to 163 countries to strengthen public health programs. Their presence brings U.S. perspectives to multilateral settings – and, just as important, they bring the perspectives and insights of other countries and partners back to America.

Immunization Effort

The Latest Outbreak of Measles

Health Problem: On July 13, 2003, a large outbreak of measles hit the Republic of the Marshall Islands. By September 26, 2003, more than 700 clinically diagnosed cases of measles were reported, with 82 hospitalizations and three deaths. Isolated cases also occurred in California, Hawaii, and other locations.

CDC Responded: CDC collaborated with local health authorities to conduct door-to-door vaccinations, dispensing more than 30,000 doses of the measles-mumps-rubella (MMR) vaccine. At the program's peak, more than 800 doses of MMR vaccine were administered each day.

Outcome: At the end of FY 03, reported measles cases in the Marshall Islands had declined from a peak of more than 25 per day to fewer than one to two per day.

Eradicating Polio Worldwide

Health Problem: Once the leading cause of permanent disability in the United States, polio remains a substantial cause of disability in polio-endemic countries. Until polio is eradicated in every country, it remains a threat to children in polio-free countries.

CDC Initiative: During FY 03, CDC continued efforts as a key partner in the Global Polio Eradication Initiative, the largest public health program in history. CDC collaborates with the World Health Organization, Rotary International, UNICEF, and other international organizations to vaccinate children worldwide against polio.

Outcome : From 1988 to 2002, the number of polio cases worldwide dropped by more than 99%. At the end of FY 03, surveillance shows fewer than 500 polio cases occurred globally over the course of the year.

- Only seven countries in the world remain polio-endemic, three of which – India, Nigeria, and Pakistan – accounted for 99% of cases in 2002.
- Since 1988, an estimated 250,000 lives have been saved and four million cases of childhood paralysis have been prevented.

Fighting Polio in Northern India

Health Problem: A large outbreak of polio in northern India in 2002 paralyzed 1,600 children and threatened global progress towards polio eradication. Without rapid control of this outbreak, polio might have reestablished in neighboring countries.

CDC Responded: CDC, in collaboration with WHO, Rotary International, UNICEF, and the India Ministry of Health, provided intensive technical, communications, and operational assistance to overcome barriers and help ensure all children were reached with polio vaccine.

Outcome: During FY 03, despite the challenges of extreme poverty, poor sanitation, and dense populations, the polio vaccination program has successfully reached the highest number of children in India's history. Polio transmission in India declined to record low levels (approximately 135 cases at the end of FY 03), setting the stage for the interruption of polio transmission throughout India in 2004. With stringent surveillance, none of the previously polio-free countries adjacent to India reported any imported cases.

"To meet a severe and urgent crisis abroad, tonight I propose the Emergency Plan for AIDS Relief – a work of mercy beyond all current international efforts... to turn the tide against AIDS in the most afflicted nations of Africa and the Caribbean."

– President George W. Bush
The State of the Union Address, January 28, 2003

The Global HIV/AIDS Pandemic

Implementing President Bush's International Mother and Child HIV Prevention Initiative

Health Problem: Worldwide, about 10,000 women and children are infected with HIV, the virus that causes AIDS, every day. Another 5,500 die, day in and day out.

CDC Initiative: In FY 03, CDC and other U.S. government agencies began implementing President Bush's International Mother and Child HIV Prevention Initiative. This initiative focuses on building health care delivery systems to increase the availability of preventive care, including AIDS treatment, for HIV-infected pregnant women and their children in 12 African countries and two Caribbean nations.

Outcome: This five-year initiative is expected to reach up to one million women annually, reducing mother-to-child transmission by 40% among women and children treated.

The initiative is part of the President's broader Emergency Plan for AIDS Relief, announced in The State of the Union, January 2003. The Emergency Plan's objectives are to prevent seven million new HIV infections, provide anti-AIDS treatment to two million patients, and deliver care to ten million others, including AIDS orphans, in the same 14 countries.

HIV Care and Treatment in Civil War-Torn Côte d'Ivoire

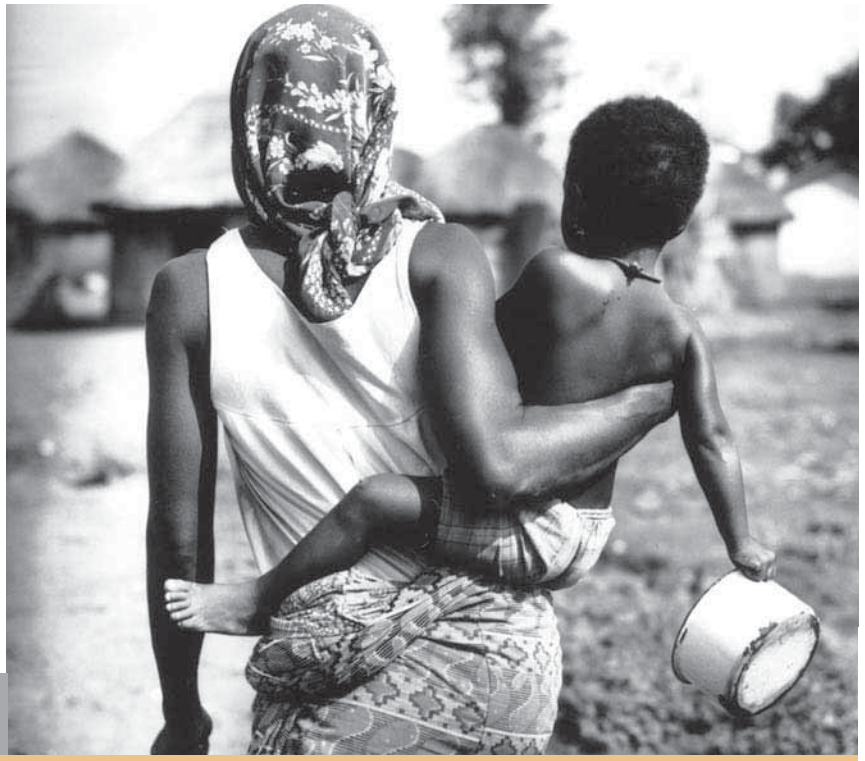
Health Problem: Civil war in Côte d'Ivoire has divided the country in half. Hundreds of people have been killed, and more than a million displaced. Undaunted, the UNAIDS HIV Drug Access Initiative in Abidjan, Côte d'Ivoire, continues to treat most of the 2,500 AIDS patients enrolled in the program.

CDC Initiative: *Projet RETRO-CI*, a collaboration of CDC and the Ministry of Health, performs the laboratory testing critical to this life-saving program, as it has every day since 1998.

Outcome: Despite the war, *RETRO-CI* staff continue working, providing HIV care, training providers, collecting data, providing logistic support, and conducting operational research. *RETRO-CI* and its collaborative partners set up an emergency committee to locate patients living in refugee camps, assess their social and medical needs, and mobilize resources to maintain their care. Asked about the future, given the civil war, one staff member spoke for all: "Giving up is not an option!"

Aiding Post-Conflict Countries in Crisis

According to the UN's High Commissioner for Refugees, 35 million people worldwide have fled their homes because of persecution or war. Crowded refugee settlements are prone to outbreaks of cholera, measles, meningitis, and other rapidly spread diseases. Outbreaks may be explosive, causing many deaths in a relatively short period of time. Within six weeks of their arrival in Goma, Zaire, almost all the Rwandan refugees were infected with cholera, and more than 40,000 died. Public health measures, guided by epidemiologic data, are critical, and CDC is often called to help.



Afghanistan

During the war in Afghanistan, CDC staff were on the ground right behind the U.S. military and the State Department. Our staff conducted regional nutritional assessments and a national injury, disability, mortality, and mental health survey. Working with UNICEF and the Afghan Ministry of Health, we established the Post-Emergency Public Health Center in Afghanistan, a center of excellence for public health, epidemiology, and survey methods. Because many Afghanis fled to Pakistan, CDC health coordinators directed activities in the refugee camps in and around Quetta, Pakistan.

During fiscal years 2002 and 2003, we helped conduct a national measles immunization campaign. In FY 02, approximately 11 million Afghan children were vaccinated, averting at least 25,000 measles deaths. A follow-up campaign in FY 03 vaccinated approximately five million more children. Working with the United Nation's High Commissioner for Refugees and the International Rescue Committee, CDC is field-testing a health information system that enables authorities to intervene sooner to avert health disasters for Afghan refugees in Pakistan.

On the ground in Iraq

CDC sent staff to Iraq as part of the largest Disaster Assistance Response Team (DART) in U.S. history. Captain Joe Hughart provided essential training in chemical, biological, radiation, nuclear, and explosion hazards. At great personal risk, he also surveyed all potential DART operating areas for hazards ahead of the arrival of other team members and created an environmental and hazards database to inform the team and others about risks at various locations.

Captain Hughart was joined by Dr. Eric Noji, who helped run the health and medical unit responsible for assessing and addressing water safety, communicable diseases, sanitation, immunization coverage, nutrition, epidemic investigation, and the serviceability of local medical facilities. Dr. Noji also assessed the impact of landmine and unexploded ordnance injuries, and monitored the status of medical personnel, medicines, supplies, and equipment moving into the area.

Liberia

In war-torn Liberia, CDC assessed the general health of the displaced population in Monrovia and outlying areas and determined that Liberian children would be vulnerable to a devastating measles outbreak that, because of poor conditions, would kill many outright. CDC recommended a nutrition assessment survey, disease surveillance, and a mass measles immunization campaign to target U.S. government funds more efficiently and effectively.

Global Health Challenges

Numerous health risk factors are associated with poverty – contaminated food, unsafe water, inadequate sanitation, poor education, substandard medical care, and exposure to hazardous environments. But a healthy population is critical for economic development and political stability. To end this interdependent cycle of poverty and sickness, public health must be extended worldwide – and to do that, leaders of individual nations must be willing to head up the effort.

CDC at a Glance: Our Workforce and Where We Are

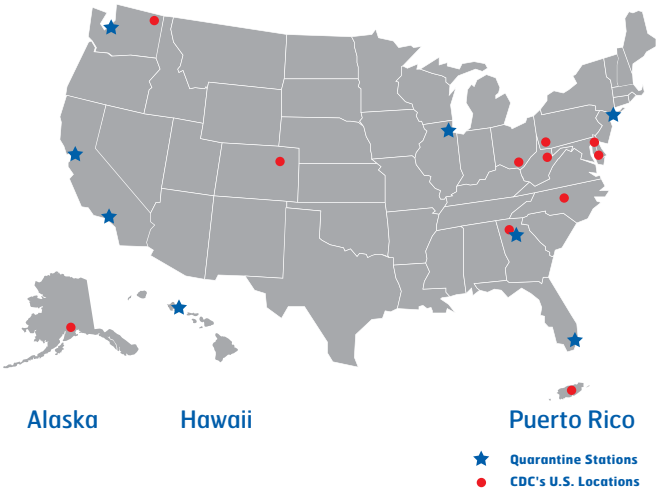
CDC s Workforce

> CDC is among Georgia's top 25 employers, with 9,400 employees in 170 occupations and more than 5,000 contractors
> CDC hired more than 800 new employees in fiscal year 2003
> Women account for nearly 60% of CDC's workforce
> More than one-third of CDC's employees are members of a racial/ethnic minority group
> Nearly 75% of CDC employees have a college degree; of those, more than 55% hold an advanced degree

CDC Locations

> CDC employees are located in state and local health agencies and in quarantine offices around the country, and internationally in almost 50 countries
> CDC is headquartered in Atlanta, Georgia, and has ten other locations in the United States and Puerto Rico
> CDC's ten-year Atlanta-area facilities plan, launched in 2000, was funded at 45% through FY 03
> About 1.2 million square feet of space is under construction, with an additional 1.5 million planned over the decade
> During the last two years, CDC has completed laboratories for environmental health, parasitology, and infectious diseases – totaling about 450,000 square feet
> CDC programs currently occupy 1.6 million square feet of laboratory and laboratory support space

CDC s U.S. Locations



"CDC's ten-year facilities plan will ensure that we continue to provide improved service to the United States and the world. Modernized labs, updated communications and information infrastructures, and integrated support space enable CDC staff to work even better and faster – critical to protecting the public's health in a transforming world."

– William H. Gimson, Chief Operating Officer, CDC

CDC is part of the U.S. Department of Health and Human Services and includes 12 operating components:

National Center on Birth Defects and Developmental Disabilities
National Center for Chronic Disease Prevention and Health Promotion
National Center for Environmental Health
National Center for Health Statistics
National Center for HIV, STD, and TB Prevention
National Center for Infectious Diseases
National Center for Injury Prevention and Control
National Immunization Program
Epidemiology Program Office
Public Health Practice Program Office
National Institute for Occupational Safety and Health
CDC Office of the Director, which includes offices focusing on Genomics, Global Health, Minority Health, Women's Health, Program Planning and Evaluation, Vaccines, and Terrorism Preparedness and Emergency Response

**CDC performs administrative functions for the Agency for Toxic Substances and Disease Registry (ATSDR), a sister agency within the Department of Health and Human Services. The Director of CDC also serves as the Administrator of ATSDR. In FY 03, management of ATSDR and CDC's National Center for Environmental Health consolidated.*

"CDC's staff prove, time and time again, their value to the people of America. I'm proud to work with each and every CDC employee."

– William H. Gimson, Chief Operating Officer, CDC

For more information about CDC, please visit our Web site at www.cdc.gov.
For more information about HHS and its agencies and activities, go to www.hhs.gov.

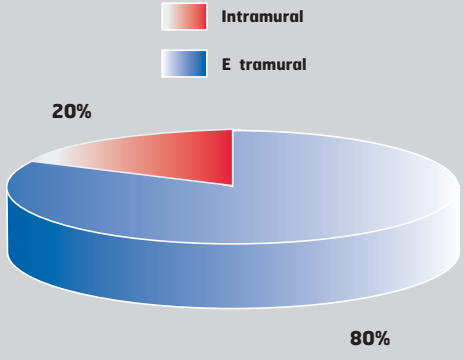
CDC FY 2003 Appropriation by Activity

Total Budget– $7.0 Billion

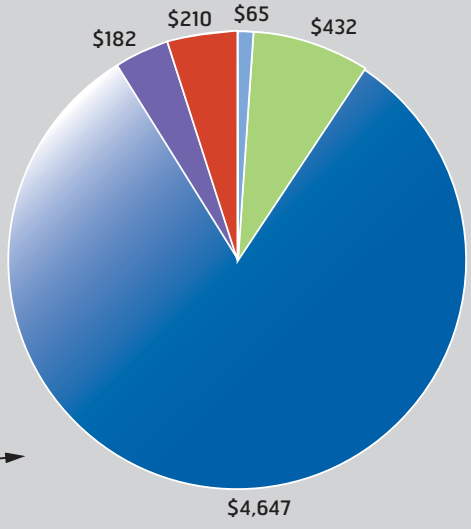
- I u ization/Vaccines for Children **$1.811 billion**
- HIV/AIDS, STD ξ TB **$1.186 billion**
- Infectious Diseases **$359 million**
- Buildings ξ Facilities **$266 million**
- Public Health Improvement **$153 million**
- Block Grant **$134 million**
- Birth Defects and Disabilities **$98 million**
- Epidemic Services **$78 million**
- Terrorism **$1.235 billion**
- Chronic Diseases **$790 million**
- Occupational Safety **$273 million**
- Environmental Health **$183 million**
- Injury Prevention **$148 million**
- Health Statistics **$126 million**
- ATSDR **$82 million**
- Office of the Director/Other **$51 million**

CDC FY 2003 Appropriation

Intramural–Extramural Funding



Extramural Funding



Dollars in millions

- Program Development Contracts
- Grants ξ Cooperative Agreements
- Agreements with Other Federal Agencies
- Service Contracts
- Other Contractual Service

> CDC's annual budget for fiscal year 2003 totaled $7 billion
> If CDC were a public company, it would rank about midway in the Fortune 500, and it would be among the top 15 companies in Georgia
> In FY 03, CDC provided about $5 billion to state and local health organizations, academic institutions, and other public health partners
> CDC awarded 2,700 public health grants to more than 1,800 different external organizations in FY 03

CDC Contributions to Progress on Ten Leading Health Indicators in Fiscal Year 2003

1. Physical Activity

Expanded *VERB*, an integrated awareness campaign to encourage positive physical activity among tweens, youth ages 9-13.

www.cdc.gov/youthcampaign/

2. Overweight and Obesity

Advanced the President's HealthierUS initiative through programs to reduce overweight, obesity, heart disease, stroke, diabetes, and other chronic diseases.

www.cdc.gov/nccdphp/dnpa/obesity/index.htm

3. Tobacco Use

Provided financial and technical assistance to health departments of all 50 states, the District of Columbia, and 7 territories; 6 tribal support centers; and 9 national networks of organizations to reduce tobacco use.

www.cdc.gov/nccdphp/bb_tobacco/index.htm

4. Substance Abuse

Evaluated the effectiveness of mandatory substance abuse assessment on repeat arrests for driving under the influence.

www.cdc.gov/ncipc/res-opps/subabu.htm

5. Responsible Sexual Behavior

Launched the Advancing HIV Prevention initiative, with new prevention strategies focusing on HIV+ individuals and their sexual partners.

www.cdc.gov/hiv/partners/ahp.htm

6. Mental Health

Supported groundbreaking research on suicide causes and innovative prevention strategies.

www.cdc.gov/ncipc/factsheets/suifacts.htm

7. Injury and Violence

Funded programs to prevent adolescent dating violence – psychological, physical, and sexual – through Families for Safe Dates, and school violence through Crossing the Bridge.

www.cdc.gov/ncipc/dvp/fivp/page3.htm

8. Environmental Quality

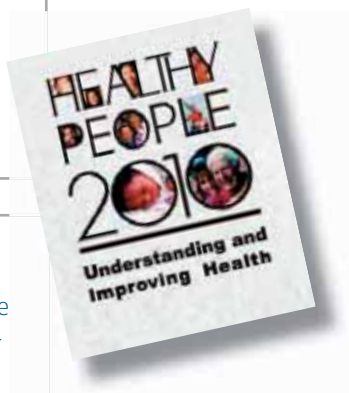
Published the largest and most extensive assessment of the U.S. public's exposure to environmental chemicals.

www.cdc.gov/exposurereport/

9. Immunization

Posted record lows in childhood illnesses prevented by four vaccines: measles, rubella, tetanus, and polio.

www.cdc.gov/nip/



10. Access to Health Care

Sponsored WISEWOMAN, a program to provide uninsured women comprehensive services for breast and cervical cancer detection and interventions for obesity, sedentary behavior, poor dietary habits, high blood pressure, and high cholesterol.

www.cdc.gov/nccdphp/bb_wisewoman/index.htm

"Increasing Americans' years of healthy, quality life and eliminating persistent health disparities in our nation–the two overarching goals of Healthy People 2010–are integral to CDC's core values and to every activity we undertake. These are top priorities for CDC, and all of HHS. With our partners, we are making real progress on them, and on the ten leading health indicators for our country."

Julie L. Gerberding, MD, MPH, CDC Director