

Chapter 12: Public Health

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What is public health? Public health is about keeping populations healthy. It is about disease prevention, health promotion and health protection. (Health care, by contrast, involves helping people recover from illness or injury.)

In the previous century, vast improvements in morbidity and mortality were gained through a focus on preventing the spread of communicable diseases. Immunization, disease screening, especially tuberculosis (TB) screening, clean water, hand washing, and other sanitation techniques we now take for granted reduced the spread of communicable diseases and were important factors in increasing life expectancy and improving the health of the population.

The modern public health agenda focuses on new challenges. It is no longer smallpox and polio epidemics plaguing our nation, but the obesity epidemic. (See chart, "Prevalence of Obesity Among U.S. Children and Adolescents.") TB no longer tops the list of causes of morbidity and mortality as it did in the early 1900s. The "new" public health directs its attention to chronic disease. It emphasizes prevention by promoting healthy

life styles, through programs such as smoking cessation, physical activity, and improved diets.

It is also concerned with emergency preparedness in case of a pandemic flu outbreak, bio-terrorism, or natural disaster occurrence. It has to deal with environmental health and climate change - global warming and other threats that were not on the radar screen when public health as a discipline and profession was in the developmental stages. The U.S. Surgeon General's Office lists four areas of focus in addressing public health concerns: disease prevention, eliminating health disparities, public health preparedness, and improving health literacy.¹

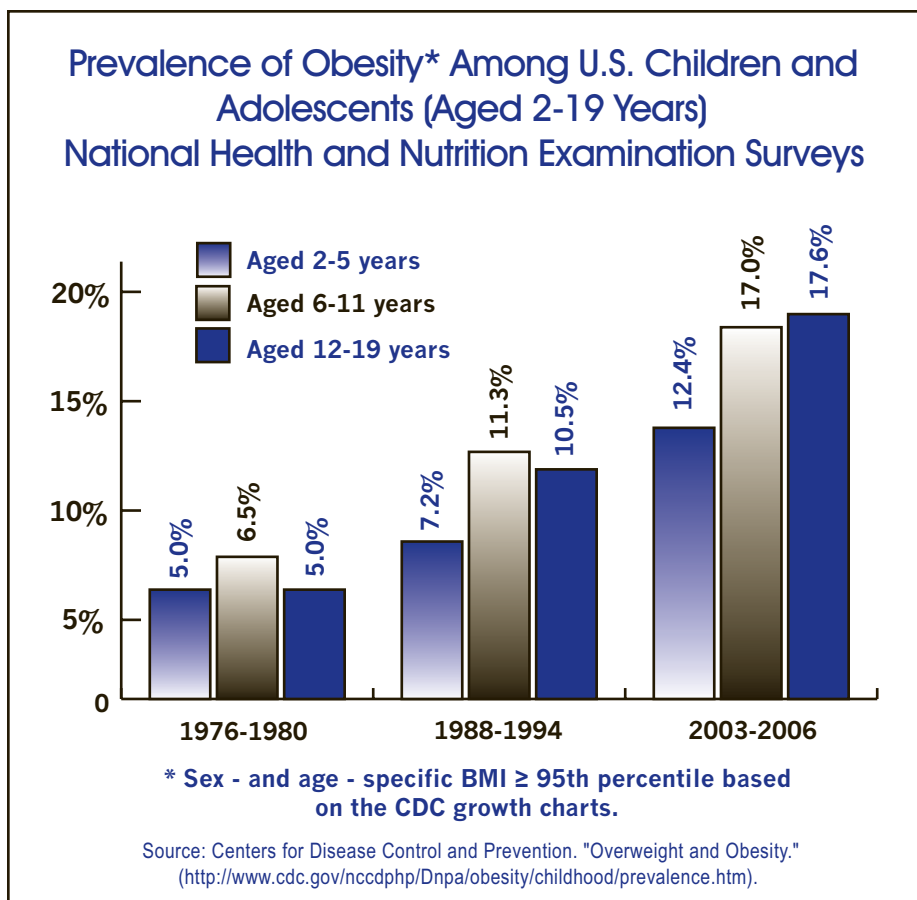
HEALTHY PEOPLE 2010

Healthy People 2010 is a comprehensive, national health promotion and disease prevention agenda developed and promoted by the U.S. Department of Health and Human Services (HHS).² It is a roadmap for improving the health of all people in the United States. It has two primary goals: to increase the quality and years of healthy life, and to eliminate disparities in health status among segments of the population. Latest reported

FAST FACTS

- More than \$2 trillion is spent nationally on health care. Of that, only \$59 billion or 3 percent is spent on governmental public health activities.^a
- 250,000 more public health workers will be needed by 2020.^b
- The U.S. public health system is not a single entity. It is a network that encompasses several federal agencies and local, state, and territorial health departments.
- Climate change could have dramatic public health consequences, causing heat waves, drought and flooding, and spreading infectious diseases.^c

For story ideas on public health, see page 136. A list of experts and websites also begins on page 136.



for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA) and the National Institutes of Health (NIH). Other agencies involved in health programs at the federal level are the Departments of Defense and Veterans Affairs, the Environmental Protection Agency, and the Indian Health Service which coordinates tribal health agencies. Other components of the public health infrastructure include public and private laboratories; hospitals and other healthcare providers; and volunteer organizations such as the American Red Cross and others.⁶

ROLE OF PUBLIC HEALTH

The job of maintaining population health through disease prevention, health promotion and protection is carried out in a number of ways. Some examples of the multiple roles that public health plays to accomplish its population health mission follow.

Public health agencies monitor immunization activities and distribute vaccines through local health departments. The Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) conduct environmental surveillance and research and assure the availability of healthy water, air and food. Research institutions and laboratories investigate outbreaks of food borne and water borne diseases and educate the populace about avoiding or seeking treatment for such diseases. These functions involve federal and local government entities, and require community cooperation.

CDC allocates funds to states and local communities for public health activities. Public health programs on the local level funded by CDC include chronic disease prevention and health promotion, diabetes

findings indicated that as of January 2005, significant gender, racial and ethnic disparities persisted, even though life expectancy continued to increase.³

One aspect of the new public health agenda is building public awareness of how to improve health, and providing guidelines on how to do so. In an effort to promote healthy lifestyles, HHS released "Physical Activity Guidelines for Americans" in October 2008. This is a comprehensive set of recommendations for people of all ages and physical conditions designed to encourage people to easily fit physical activity into their daily schedule.⁴

PUBLIC HEALTH INFRASTRUCTURE

Public health in the U.S. is not embodied in a single entity. Rather, it is a network that encompasses several federal agencies; county, city, state, territorial and tribal health departments; local boards of health; and other public and private entities.

The federal public health component rests primarily in the agencies of HHS.⁵ These include the Centers

Major Components of CDC's Public Health Information Network (PHIN)

The BioSense Initiative supports early detection activities associated with possible bioterrorist threats. This CDC initiative monitors regional health data-combined with clinical data from the Department of Defense and Department of Veteran Affairs-to identify trends related to a possible bioterrorist attack.

The National Electronic Disease Surveillance System (NEDSS) (www.cdc.gov/nedss/) promotes the use of data and information system standards to advance the development of efficient and integrated surveillance systems at the Federal, State, and local levels.

The Epidemic Information Exchange or Epi-X is the CDC's secure, Web-based communications network that serves as a communication exchange between CDC, State and local health departments, poison control centers, and other public health professionals.

The Health Alert Network (HAN) (www.phppo.cdc.gov/han/) ensures communications capacity at all local and State health departments to broadcast and receive public health alerts. The initiative also ensures local capacity to receive distance learning offerings from CDC.

Source: Agency for Healthcare Research and Quality (2005). The Role of Information Technology and Surveillance Systems in Bioterrorism Readiness. Department of Health and Human Services. (<http://www.ahrq.gov/news/ulp/btbriefs/btbrief5.htm>).

control, environmental health, HIV prevention, immunizations, infectious disease prevention and bioterrorism preparedness.

An example of such a project is the CDC Heart Disease and Stroke Prevention Program, which awards grants to states and conducts surveillance to improve cardiovascular health. In 2008, CDC's \$50 million appropriation for the project funded 14 states for basic program implementation and 27 states for program planning.⁷ The state cardiovascular disease prevention programs focused on controlling blood pressure and cholesterol, awareness of health disease and stroke signs and symptoms, calling 9-1-1, improving emergency response and quality of care, and eliminating health disparities.

HEALTH THREATS FROM DISASTER AND DISEASE

Some threats to our nation's health come from beyond our geographic boundaries. We have, by and large, licked the last century's communicable disease killers through antibiotics, immunizations and sanitation. But there are new threats on the horizon. With travel between countries and continents being easier and faster, so too can be the spread of disease.

It would not take long for an outbreak of Severe Acute Respiratory Syndrome (SARS) or another highly contagious disease to spread from Asia to the United States, for example. Would we be prepared for a pandemic? Acts of terrorism also threaten our

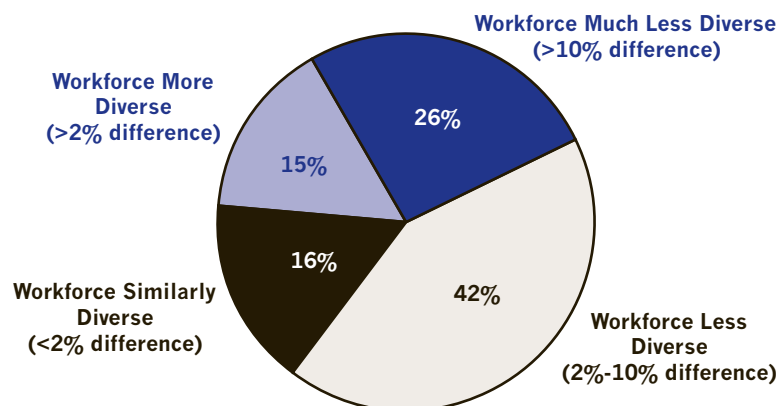
health security. Could our infrastructure, including hospitals, laboratories, information systems and public health workforce handle the expanded need? Would our surveillance systems provide sufficient warning to protect people from exposure and prevent the spread of disease? Would we have sufficient surge capacity to handle the results of bioterrorism? (See textbox, "Major Components of CDC's Public Health Information Network (PHIN)")

Emergency preparedness is not only for dealing with disease crises but with natural disasters as well. We learned several lessons from Hurricane Katrina about the usefulness of electronic information systems for retrieving health records, and for having sufficient resources to carry out evacuation plans. (See the Alliance issue brief on this topic at www.allhealth.org under "Resources.") Such events highlight the weaknesses in the complex public health network and the need for improvement in emergency preparedness.

FUNDING PUBLIC HEALTH

Though public health services are considered the first line of defense against disaster and disease, government public health expenditures amount to only 3 percent of national health care expenditures.⁸ Recent research has shown that community-based prevention programs are successful in lowering rates of disease related to physical activity, nutrition and smoking. Researchers have concluded that \$5.60 in health care expenditures could be saved for every dollar spent on programs to increase physical

Diversity: How Local Health Department Workforces Compare to the Population Served



Notes: Diversity measured as percentage of non-whites in health department workforce compared to local community; percentages do not sum to 100% due to rounding.

Source: NACCHO (2007). "The Local Health Department Workforce: Findings from the 2005 National Profile of Local Health Departments Study." (http://www.naccho.org/topics/workforce/upload/LHD_WorkforceFinal.pdf).

activity, improve nutrition and prevent smoking and other tobacco use. Such programs would reduce type 2 diabetes, high blood pressure, heart disease, kidney disease, stroke, and other chronic diseases.⁹

Nevertheless, of the more than \$2 trillion in national health expenditures in 2006, just \$59 billion was spent on public health activities. In a climate of health reform some advocates assert that more dollars for prevention would buy better value and save money in the long run on health care delivery.¹⁰

Public health programs are funded through a combination of federal, state and local dollars and private sector contributions. Local health departments, for example, receive 29 percent of their funding from local tax revenues. Another 23 percent comes from state revenue; and federal funds distributed through states account for 13 percent.¹¹ Direct funding from federal agencies, such as CDC, accounts for 7 percent.

PUBLIC HEALTH WORKFORCE

Estimates suggest that 250,000 more public health workers will be needed by 2020, and that 23 percent of the current workforce will be eligible to retire by 2012. Schools of public health estimate that three times the current number of graduates must be

trained over the next 12 years in order to keep up with the demand and avert a crisis.¹²

Factors working against recruitment in this field include budget constraints; uncompetitive salaries and benefits, especially in local health departments; and lack of enthusiasm for public health as a career choice.¹³ Among the public health workers in short supply are public health nurses, epidemiologists, microbiologists, other environmental health scientists, and information technology specialists.¹⁴

Diversity of the public health workforce is also an issue. The workforces of local public health departments are often less diverse than the populations they serve.¹⁵ (See chart, "Diversity: How Local Health Department Workforces Compare to the Population Served.") However, because of the overall concern about the workforce shortage and the already limited pool from which to hire, many communities have found it difficult to increase the diversity of their public health workforce.

ENVIRONMENTAL INFLUENCES ON PUBLIC HEALTH

A new field, spatial epidemiology,¹⁶ contributes to the understanding of environmental factors that pose health risks for the public. Practitioners in this field apply statistical and epidemiologic tools to identify the relationship between diseases and environmental hazards among demographic groups and across geographic areas. For example, studies have shown higher levels of cancer prevalence in certain geographic areas unrelated to individuals' risk factors.¹⁷ Might industrial waste, power lines, atomic energy, air and water pollution in a geographic area be contributing to cancer prevalence? Information gathered by spatial epidemiological tools can be used to guide and inform the design of prevention models for at-risk populations.

LIKELY POLICY DEBATES

Population health plays an important role in the health of the nation. Yet its importance is sometimes

overlooked in debates on health care reform. It is not well understood that public health is about avoiding illness and keeping people out of the health care delivery system. Many public health concerns, though focused on populations, not individuals, cannot be separated from health care delivery. For example, chronic disease prevention - a focus of health promotion public awareness campaigns - is being much discussed in health care delivery circles.

PUBLIC HEALTH AND HEALTH REFORM

Several issues likely to emerge in the debate on health reform would have an impact on public health. Among these are:

- Evidence-based research for decision/policy making. Along with decisions on effective treatment of disease on the individual level, comparative effectiveness research has a role to play in decisions about effectiveness of public health approaches. Examples include research on smoking cessation programs and effective approaches to controlling the obesity epidemic.
- Health information technology. Will the infrastructure support public health information needs? Will we be able to combine state-based population health information into a national database?

FINANCING PUBLIC HEALTH

The size of the public health budget is relatively small in comparison to overall health care spending, yet its funding is critical. The CDC and NIH will surely be looking for revenue increases. Where will the money for public health come from, and will it be part of a health reform package? Will return on investment be considered when discussing funding strategies for chronic care initiatives?

PUBLIC HEALTH WORKFORCE

Some solutions to the workforce crisis that have been suggested by analysts and policymakers and tried by some states and local health departments include:

- Increased support for education and training - Some states and localities have provided such support. Will other states copy this model and will funding be forthcoming on the federal level?
- Loan repayment and grant programs for those

pursuing degrees or training in public health preparedness or biodefense - Current legislation pending in Congress, "The Public Health Preparedness Workforce Development Act," would establish such programs.¹⁸

- Keeping salaries and benefits in line with the private sector.¹⁹
- Cultivating a positive perception of public health where and when people make career choices - For example, making high school and college visits, and providing internship and shadowing opportunities to reach potential hires²⁰ are possible solutions. At issue is, whose role is it to foster and implement such solutions?

CLIMATE CHANGE

Climate change can have dramatic public health consequences - increasing the likelihood of heat waves, drought and flooding, reducing potable water supplies, displacing populations and spreading infectious diseases.²¹ Though populations are affected, individuals become ill and interact with their health care providers, putting stress on the health care system. A public policy debate on climate change or global warming might be centered on energy issues but will also have a public health component. Is global warming the new public health challenge?

PRIORITIZING PUBLIC HEALTH PROGRAMS

Who should take the lead in a fractured public health system that involves government agencies and departments at all levels - federal, state and local government? Will programs filter from the top down, the bottom up, or both? Do the surgeon general's priorities now filter down to the local level? How can public health messages be best delivered to the public? What is the role of the private sector?

TIPS FOR REPORTERS

- Keep in mind that there is no one source for information about public health agencies. The US Department of Health and Human Services (HHS) is the lead agency. But information about this complex network requires digging deeper. In addition to HHS components such as CDC, NIH, FDA and HRSA, other federal agencies and departments such as FEMA and Homeland

Security all play a role.

- Be aware that on the local level, most public health functions are carried out through local health departments. Their budgets depend on federal, state and local budget allocations. They likely will be making tough budgetary choices in the next few years.
- The private sector plays a role in funding public health and delivering public health messages. Its role may be even more critical in an economic downturn.
- It's hard to separate public health issues and concerns from those of the health care delivery system. It is important to keep in mind that the role of public health is to prevent illness and avoid entry into the health care delivery system.

STORY IDEAS

- In a time of a declining economy, how are public health departments in your area faring? If cuts need to be made because of budget shortfalls, what programs will suffer - vaccination programs, health awareness campaigns, smoking cessation programs? Will the importance of private sector contributions increase?
- Are modern threats pushing out age-old public health programs that monitor the quality of the air we breathe and the water we drink? Are we still concerned about air quality, food contamination, and waterborne illness?
- How do your local and state public health officials feel about global warming as a public health threat? How real is the threat? How imminent? Can public health agencies and programs play a role in reducing the threat posed by high energy consumption and climate change?
- Where are public health workforce shortages the greatest - in the research labs, local public health departments, and hospitals? Compare the local workforce situation with that of federal agencies such as the CDC. What tough choices will agencies need to make in the coming budget year? Can the already diminished workforce afford to be diminished by further staffing cuts?
- How can new graduates be inspired to enter the public health workforce? How can students entering college be encouraged to study the public health sciences such as epidemiology, microbiology, biostatistics, etc?

EXPERTS AND WEBSITES

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Websites

American Academy of Pediatrics
www.aap.org

American Enterprise Institute
www.aei.org

American Public Health Association
www.apha.org

American Red Cross
www.redcross.org

Association of State and Territorial Health Officials
www.astho.org

Bloomberg School of Public Health, Johns Hopkins University
www.jhsph.edu

Bright Futures
<http://brightfutures.aap.org/web>

Campaign for Tobacco Free Kids
www.tobaccofreekids.org

CDC: Emergency Preparedness and Response
www.bt.cdc.gov

Center for Biosecurity, University of Pittsburgh
www.upmc-biosecurity.org

Center for Civilian Biodefense Studies, Johns Hopkins University
www.hopkins-biodefense.org

Center for Infectious Disease Research and Policy, University of Minnesota
www.cidrap.umn.edu

Centers for Disease Control and Prevention
www.cdc.gov

Centers for Law and the Public's Health, The
www.publichealthlaw.net

Chemical & Biological Weapons Nonproliferation, Stimson Ctr
www.stimson.org/cbw/programhome.cfm

Department of Health and Human Services
www.dhhs.gov

Federal Emergency Management Agency
www.fema.gov

George Washington University Institute for Crisis, Disaster and Risk Management
www.gwu.edu/~icdrm/index.html

Global Alliance for Vaccines and Immunization, The
www.gavialliance.org

Government Accountability Office
www.gao.gov

Health Affairs
www.healthaffairs.org

Institute for Biosecurity
www.bioterrorism.slu.edu

Institute of Medicine
www.iom.edu

Kaiser Family Foundation HIV/AIDS Policy Research, Analysis, Media, and Public Health Partnerships
www.kff.org/hivaids/index.cfm

National Academy of Sciences
www.nas.edu

National Association of County and City Health Officials
www.naccho.org

National Association of Public Hospitals
www.naph.org

National Cancer Institute Surveillance, Epidemiology, and End Results
<http://seer.cancer.gov>

National Center for Chronic Disease Prevention
and Health Promotion
www.cdc.gov/nccdphp

National Diabetes Education Program
www.ndep.nih.gov

National Disaster Medical System, DHS
www.oep-ndms.dhhs.gov

National Governors Association
www.nga.org

National Institute of Allergy and Infectious
Diseases, NIH
www3.niaid.nih.gov

National Vaccine Information Center
www.909shot.com

National Vaccine Program Office, DHHS
www.hhs.gov/nvpo

National Women's Health Information Center
www.4women.gov

Office of Homeland Security
www.whitehouse.gov/homeland

Office of the Surgeon General
www.surgeongeneral.gov

Pan American Health Organization
www.paho.org

Public Health Informatics Institute
www.phii.org

Robert W. Woodruff Health Sciences Center,
Emory University
www.whsc.emory.edu

Robert Wood Johnson Foundation
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SCAN Foundation, The
www.thescanfoundation.org

Substance Abuse and Mental Health Service
Administration
www.samhsa.gov

Trust for America's Health
www.healthyamericans.org

U.S. Army Medical Research Institute of
Infectious Diseases
www.usamriid.army.mil

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ENDNOTES

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