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CDC's 60th Anniversary: Director's Perspective --- William L. Roper, M.D., M.P.H., 1990--1993

The years 1990--1993 saw tremendous change in public health. CDC expanded its effectiveness and capacity by building key partnerships with academia, public health agencies, and the private sector. The explosion of telecommunications greatly enhanced CDC's ability to communicate the results of studies and recommendations directly with the public, which increased the visibility of the agency and the public health community. The agency's priorities were clear: strengthening the public health infrastructure, improving the health of children, and making prevention a practical reality in the nation's health system.

As the 21st century approached, CDC faced challenges more complex than could have been foreseen by the public health visionaries who first spoke of the need for a "center of excellence" devoted to communicable diseases. Overarching these priorities was a new strategic planning process at CDC that served to articulate the vision and mission of the agency and to establish strategies for accomplishing these goals.

The need for a stronger public health system was described in numerous scientific reports by the Institute of Medicine (IOM) (1--4). In 1990, the U.S. Department of Health and Human Services issued a national framework for addressing these concerns in *Healthy People 2000: The National Health Promotion and Disease Prevention Objectives* (5). CDC provided national leadership for development of these objectives and served as the lead or co-lead agency for 12 of the 22 *Healthy People* priority areas.

Using strategic planning processes derived from leading management experts (6) against the backdrop of the *Healthy People* goals, CDC's vision for the world emerged as "Healthy People in a Healthy World." Later, this statement was refined to add "Through Prevention," adding greater emphasis to CDC's role as the nation's prevention agency. CDC's mission statement also was articulated: to promote health and quality of life by preventing and controlling disease, injury, and disability.

In crafting CDC's design for the future, five cross-cutting strategies emerged:

- Partnerships: strengthen relationships with public health partners while building new partnerships with community, national, and international organizations.
- Reinventing government: encourage integration and coordination of prevention programs.
- Health communications and social marketing: use consumer research to craft and strategically deliver health messages.
- Effectiveness: evaluate the efficacy, effectiveness, and cost-effectiveness of preventive services and public health programs.

- Workforce diversity: build a diverse workforce that reflects the populations that CDC serves.

The vision, mission, and strategy developed in the early 1990s laid the foundation for CDC's work. Key activities focused on the public health infrastructure, improving children's health in the United States and around the world, and the broader prevention agenda.

Strengthening the Public Health Infrastructure

In 1988, the IOM report *The Future of Public Health* had sounded the alarm that the public health infrastructure was inadequate to protect the nation's health and that dire consequences would result if the nation did not attend to infrastructure and leadership needs (1). CDC understood these needs and the associated challenges and quickly worked to shore up public health. The solutions developed and put in place invariably focused on empowering communities, community leaders, and community processes (7). The solutions also made use of the latest technological advances to reach out across the nation to build a human, information, and organizational infrastructure.

Distance-based learning. In the early 1990s, only 11% of public health departments surveyed reported having a trained epidemiologist or statistician on their staffs. At the same time, obtaining training for employees was becoming increasingly difficult because of budget cuts. As a result, distance-based learning became a priority and a focus for educational efforts developed and funded by CDC. The Public Health Training Network (PHTN) was developed by CDC and launched in 1993 (8), using a broad range of media (e.g., satellite, Internet, CD-ROM, and print) to reach the widest possible audience. To date, PHTN has provided training to approximately 5 million health professionals and, in some circumstances, has created and disseminated training products in less than 48 hours (e.g., in response to public health emergencies such as the multicountry outbreak of severe acute respiratory syndrome [SARS] in 2003).

Public Health Leadership Institute. A key point in the 1988 IOM report was that the public health field soon would have a significant lack of experienced leadership. In 1991, CDC established the National Public Health Leadership Institute, designed to strengthen the leadership competencies of senior public health officials and build interorganizational teams that could go back to their communities and take actions that would lead to improvements in health. Now, more than a decade later, the institute continues to prepare public health professionals to grow in leadership positions and to move public health forward as the challenges and opportunities become increasingly complex.

Information Network for Public Health Officials (INPHO) and Health Alert Network (HAN). Before the Internet became a household word, CDC created INPHO to give local and state public health officials access to what was then called "the information superhighway." As concerns regarding public health preparedness increased in later years, INPHO was expanded to include HAN, a computer-based network providing rapid and timely emergent health information to local and state public health agencies across the country.

National Profile of Local Public Health Departments and Essential Services of Public Health. CDC needed to know more about the organizational characteristics of public health, particularly the local health department, a cornerstone of the public health infrastructure. To that end, CDC created the National Profile of Local Public Health Departments, in partnership with the National Association of County & City Health Officials. In addition, the 10 Essential Services of Public Health were defined as a guide to building capacity in public health agencies. This delineation formed the basis for creation of the National Public Health Performance Standards, a national tool for assessing and building organizational infrastructure in the United States and globally (9).

Improving the Health of Children

Vaccine financing. Today, the life-saving and health-preserving impact of immunizations exceeds almost all other public health interventions, both in terms of effectiveness and cost-effectiveness. However, in the early 1990s, costs were a significant barrier to obtaining recommended vaccines for persons who were uninsured or underinsured (10). The necessity for achieving high vaccination coverage rates was made especially clear through a resurgence of measles in 1989 (11), which involved more than 55,000 cases and 123 deaths, with preschoolers disproportionately affected (10). In 1993, the challenge of addressing vaccine financing led to the Childhood Immunization Initiative, which set a goal of 90% vaccination coverage for preschool children and addressed vaccine financing to make this possible (11).

Many solutions were considered and supported by various perspectives, but the compromise approach involved passage in 1993 of the Vaccines for Children (VFC) Act, which ensures that children who are uninsured or on Medicaid, who are American Indians/Alaska Natives, or who are underinsured and seen in Federally Qualified Health Centers, all have a right to receive free of charge any vaccines recommended by the Advisory Committee on Immunization Practices. The innovation of this entitlement was provision of vaccines directly to clinical-care providers, who then administer them to children as needed, permitting children to remain in their primary medical homes without requiring referrals and without loss of continuity of care. This collaboration between public health and the private sector created a large network of VFC providers and within 3 years led to >75% vaccination coverage. Today, more than 40% of vaccinations for children are provided through VFC (10), and vaccination rates are at record or near-record highs. Measles vaccinations for preschoolers exceed 90%, and racial and ethnic disparities in vaccination have been reduced dramatically (12).

Polio eradication. In 1988, CDC had joined forces with the World Health Organization (WHO), UNICEF, and Rotary International to spearhead the Global Polio Eradication Initiative. Despite elimination from the Americas in 1991, polio remained at high rates in many countries in Asia and Africa. CDC's commitment to global eradication intensified in the early 1990s, when CDC began assigning epidemiologists to the Pan American Health Organization and WHO to help in the polio battle. These dedicated CDC workers traveled around the world helping other countries develop and implement plans of action to eradicate polio. At the same time, CDC began hosting global polio eradication meetings. With the technical aid of CDC's immunization, laboratory, and epidemiology experts, as well as substantial financial contributions, the number of children with paralytic polio has been reduced worldwide from 350,000 in 1988 to approximately 2,000 in 2006.*

Recommending folic acid to reduce neural tube defects. Neural tube defects (NTDs) are major birth defects that occur when the neural tube, from which the brain and spinal cord develop, does not form correctly. Because these defects occur very early in pregnancy, often before a woman even is aware that she is pregnant, identifying early preventive approaches was essential. Rigorous research conducted in the late 1980s demonstrated that if women at risk for becoming pregnant took a daily dose of folic acid (vitamin B9), the number of cases of NTDs could be reduced by 50%--70%. In 1992, the U.S. Public Health Service (USPHS) recommended that all women of childbearing age in the United States who are capable of becoming pregnant consume 0.4 mg of folic acid per day to reduce their risk for having a pregnancy affected with spina bifida or other NTDs (13). At the time, the recommendation listed three potential approaches to achieving this goal: 1) improvement of dietary habits, 2) fortification of the U.S. food supply, and 3) use of dietary supplements. The USPHS recommendation had both a national and an international impact. In the United States, the recommendation led directly to efforts by the Food and Drug Administration (FDA) to fortify cereal grain products, which became mandatory in 1998. Internationally, the recommendation has influenced more than 40 countries to adopt folic acid fortification of wheat flour for the prevention of NTDs.

Making Prevention a Practical Reality

The idea that prevention underscored the work of CDC was key to all of the efforts described. One reflection of this was the 1992 change of CDC's name to Centers for Disease Control and Prevention. This important symbolic change was reflected in the practical efforts of CDC.

In 1992, the National Center for Injury Prevention and Control was established, giving focus and energy to understanding and preventing both unintentional and intentional injuries. Injuries were and continue to be a leading cause of death. A cornerstone of this work was to prevent violence among young persons by scientifically determining the factors that put persons at risk for violence, disseminating information about violence-prevention programs, and evaluating potential violence-prevention interventions.

Preventing mortality from breast and cervical cancer. The 1990 Breast and Cervical Cancer Mortality Prevention Act authorized CDC to fund states for breast and cervical cancer follow-up. Through this program, CDC directed \$23 million to help eight states develop comprehensive programs for the early detection of breast and cervical cancer, primarily in low-income minority women. In 1992, the program was expanded to 12 states, and by 1997, all states were funded. In addition to outreach and screening of low-income, uninsured women, program activities included provider and public education, surveillance of screening outcomes, and quality assurance (in collaboration with FDA) (14). Since 1991, the program has served more than 2.9 million women, provided more than 6.9 million screening examinations, and diagnosed more than 29,000 breast cancers, 94,000 precursor cervical lesions, and 1,800 cervical cancers (14).

Expanding efforts to stop HIV/AIDS. CDC continued its leadership role in activities aimed at preventing human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS). Recognizing that the disease affected certain vulnerable populations disproportionately, CDC funded prevention programs directed toward minorities and initiated a program to evaluate these activities to make sure they were effective. In 1991, CDC also identified a sharp increase in cases of tuberculosis that were related to HIV infection and AIDS; in that same year, CDC reported that the number of reported AIDS cases in the United States had reached 200,000. Recognizing that prevention activities were needed at the community level, CDC funded five HIV/AIDS demonstration projects that extended prevention efforts to community sites and elicited the help of community residents and peer groups to motivate behavior change. The following year, the HIV classification system was revised, with an expanded AIDS surveillance case definition. In 1992, CDC also launched Business Responds to AIDS, a program designed to help large and small businesses and labor groups to meet the challenges of HIV infection and AIDS on the job and in the community.

Managing the effects of tobacco use. In 1990, the Surgeon General's report on smoking made clear the substantial benefits not only of preventing tobacco use altogether but also of quitting smoking (15). These benefits included decreased risks for lung and other cancers, heart attack, stroke, and chronic lung disease. To act upon the recommendations in the report and move forward quickly on mediating the effects of tobacco use, funding for the National Tobacco Prevention and Control Program was established to build capacity in all state health departments. In coordination with the National Cancer Institute, the CDC program moved tobacco-control strategies beyond the individual-based medical model into a broader and more effective public health approach, emphasizing environmental and policy change. The Office on Smoking and Health was integrated fully into the Atlanta-based offices of CDC, with expanded staffing and programs located within the National Center for Chronic Disease Prevention and Health Promotion.

Enhancing the role of health communication. The agency's commitment to prevention, the arrival of videoconferencing and e-mail, and a backdrop of 24-hour news cycles led CDC to identify health communications as a core strategy to achieve its mission (Figure). An intense review of health communications science led first to the development of partnerships with the private sector and then, in 1993, to establishment of the Office of Health Communications.

Prevention effectiveness program. If prevention was to be a practical reality, CDC needed to develop methods for assessing and establishing the effectiveness of prevention activities. New scientific skills were added to the CDC toolkit, including economic and policy analysis, which opened the door for the rapidly expanded use of other scientific modalities, such as social sciences and law. The commitment to prevention effectiveness led to products such as the influential *Guide to Community Preventive Services (16)* and the *MMWR* report *A Framework for Assessing the Effectiveness of Disease and Injury Prevention (17)*.

CDC Foundation. As public health threats continued to grow in number and complexity and the agency continued to have success in crossing public- and private-sector lines to address them, the benefit of establishing a new entity to assist CDC in forging partnerships became evident. In 1992, Congress passed legislation that authorized creation of an independent, nonprofit foundation to support CDC, and an organizing committee met 1 year later. Today, the CDC Foundation (<http://www.cdcfoundation.org>) has facilitated development of a diverse portfolio that includes the Management Academy for Public Health, an Emergency Preparedness and Response Fund, as well as the Knight Public Health Journalism Fellowship, which provides public health training for working journalists.

Stronger Role for Public Health

Overall, efforts at CDC during 1990--1993 were focused on strengthening the role of public health in the nation's health system and emphasizing the value of prevention as the essential path to good health. By strengthening relationships with public health partners, building new partnerships with the private sector, and increasing the diversity of CDC's workforce, CDC became better equipped to fulfill its role as the nation's prevention agency.

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* Additional information available at <http://www.polioeradication.org/casecount.asp>.

In commemoration of CDC's 60th Anniversary, MMWR is departing from its usual report format. This is the fourth in a series of occasional commentaries by directors of CDC. The directors were invited to give their personal perspectives on the key public health achievements and challenges that occurred during their tenures.

William L. Roper, M.D., M.P.H., led CDC from 1990 to 1993. He has also served as dean of the University of North Carolina's School of Public Health, president of the Prudential Center for Healthcare Research, and administrator of the Health Care Financing Administration (now known as the Centers for Medicare & Medicaid Services). Dr. Roper is currently the chief executive officer of the University of North Carolina Health Care System, where he also serves as dean of the School of Medicine and vice chancellor for medical affairs.

Figure

FIGURE. In 1991, Bill Roper (third from left) marks the 30th anniversary of *MMWR* at CDC (pictured also, from left to right, are Minnie Johnson, Steve Thacker, and Elliott Churchill)



Photo/CDC (reprinted from the March 1991 issue of *Dateline: CDC*)

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