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EDITORIAL

A Safer, Healthier U.S.: The Centers for Disease Control and Prevention, 2009–2016

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INTRODUCTION

The Centers for Disease Control and Prevention (CDC) has a unique mandate, reach, and breadth and depth of expertise. As CDC Director since 2009, the author has had the opportunity to work with and learn from public health partners at CDC, throughout the U.S., and globally. This article summarizes major initiatives, lessons, and remaining challenges. CDC has helped make Americans safer and healthier by strengthening public health systems, addressing health threats effectively, and protecting health both in our country and around the world (Table 1).

STRONGER PUBLIC HEALTH SYSTEMS

Surveillance and Laboratory Science

Surveillance is the basis for effective action. CDC has improved data timeliness, completeness, utility, and dissemination using new technologies, analytic tools, and sources. In 2015, PulseNet, a state health department laboratory network to find outbreaks of foodborne disease, began replacing pulsed-field gel electrophoresis with whole genome sequencing to enhance disease investigation. A pilot project on Listeria initiated in 2013 provided proof of principle and a foundation for PulseNet modernization, resulting in more timely and definitive identification of clusters of illness and improved source identification, reducing the size of outbreaks and preventing infections and deaths.

Dissemination of data was increased by CDC through publications, traditional and new media outlets, making data available online, and partner organizations. With more than 1 billion page views a year, the CDC website is one of the world's most visited health sites, and CDC is one of the most trusted federal agencies.[1]

Although surveillance has improved, survey participation rates are falling, costs are increasing, reporting is not standardized, and new tools including electronic health records are not adequately incorporated. More rapid data collection, analysis, and dissemination are needed. Data are now available in larger quantities, more quickly, and from more sources, but analytics (both machine learning and rigorous human analysis) and dissemination lag. CDC is working to make data available more promptly and in more-usable formats.

U.S. Public Health System

Many state and local health departments experienced large budget cuts during 2008 and 2009, and few had subsequent budget restorations. CDC increased the proportion and amount of funding to state, tribal, local, and territorial health departments and developed new tools to help health agencies enhance their capacity and increase impact. These include status reports on public health policies and practices addressing food safety, healthcare-associated infections, heart disease and stroke, tobacco and alcohol use, HIV prevention, motor vehicle injuries, nutrition and physical activity, prescription drug overdose, and teen pregnancy.

Since 2010, CDC has developed the Public Health Associate Program to train the next generation of public health leaders, assigning them to local and state health departments for 2 years of service learning. The nearly 400 current associates are drawn from more than 6,000 master's- or bachelor's-level applicants; about half are African American or Hispanic. Most graduates continue careers in public health.

PROTECTING AMERICANS FROM HEALTH THREATS

Response to Emergencies

Over the past 8 years, CDC has responded to an unprecedented series of domestic and global emergencies; these emergencies have required activation of CDC's Emergency Operations Center for more than 90% of this time. In addition to these large-scale responses, individual centers of CDC have also implemented incident

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Table 1. CDC Initiatives 2009-2016; Progress and Future Directions

Initiative	Progress	Future directions
Strengthen public health systems		
Data collection and dissemination more quickly and more widely to increase use of information for action	• Increased from <10% to 50% certificates submitted electronically to the National Center for Health Statistics (NCHS) within 10 days of death.	• Increase to ≥80% of deaths reported to NCHS within 10 days, with real-time analysis of trends.
	• Through the National Health Interview Survey (NHIS), number of states with accurate estimates increased from 32 in 2011 to all 50 states and Washington, DC, in 2014.	• Explore collection of biometric information (e.g., blood pressure) and measurements (e.g., cholesterol).
	• Modernized MMWR with faster review and publication of articles, summary box with implications, indexed with high metrics for impact, and new Vital Signs series of monthly reports on leading public health challenges and what can be done about them, each of which generates more than 650 news stories with an earned media value of about $1 million and average potential reach of over 1 billion audience impressions.	• Improve data visualization and use social media more effectively.
	• Established globally webcast Public Health Grand Rounds to foster discussion on major public health issues and encourage action based on latest scientific findings.	
	• Established strong social media presence on Twitter, with more than 1 million followers, Facebook, and other channels to communicate timely information to the public.	• Evaluate impact and optimize to foster healthier knowledge, attitudes, practices, and policies.
	• Developed or upgraded websites to increase data accessibility, including Sortable Stats, Community Health Status Indicators (CHSI 2015), Motor Vehicle Prioritizing Interventions and Cost Calculator for States (MV PICCS), Office of Smoking and Health's State Tobacco Activities Tracking and Evaluation (STATE) system, Alcohol-Related Disease Impact (ARDI) tool, Behavioral Risk Factor Surveillance System Web Enabled Analysis Tool (BRFSS WEAT) and Selected Metropolitan Area Risk Trends project (SMART BRFSS), Wide-ranging Online Data for Epidemiologic Research (WONDER) database, Web-based Injury Statistics Query and Reporting System (WISQARS), Youth Online, and others.	• Further improve data dissemination and use, both through social media and more geographically resolved data that is of use to affected communities.
	• Increased availability of CDC datasets in machine-readable formats for use by public health practitioners, researchers, and developers. Datasets are publically available via https://data.cdc.gov/, and CDC WONDER includes an API for machine-to-machine data transfer. The WONDER site has 7 million page views, and 4.5 million custom data reports are generated each year.	• While maintaining appropriate safeguards, continue to increase availability of data to expand data use and increase its impact.

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