Key Findings

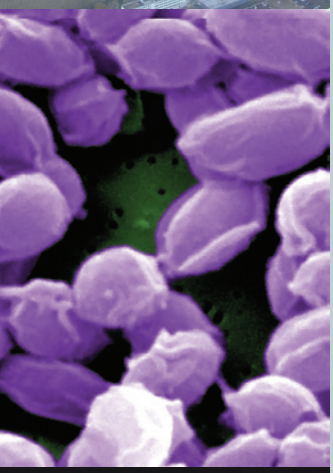
Public Health Preparedness:

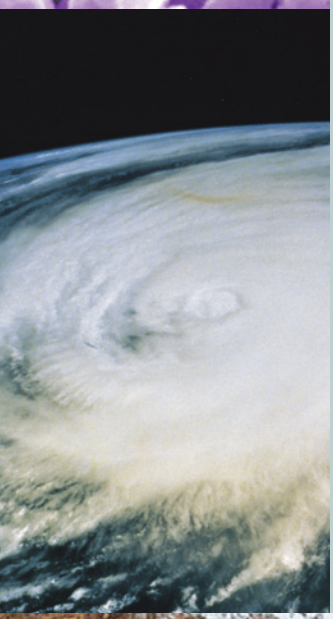
Strengthening the Nation's Emergency Response State by State

A Report on CDC-funded Preparedness and Response Activities in 50 States, 4 Cities, and 8 U.S. Insular Areas

September 2010

Centers for Disease Control and Prevention
Office of Public Health Preparedness and Response





Whether caused by natural, accidental, or intentional means, public health threats are always present.

Threats include biological incidents such as disease outbreaks, natural disasters including catastrophic hurricanes and severe ice storms, chemical and radiological releases, and explosions. Incidents such as the 2009 H1N1 influenza pandemic and the multiple disease outbreaks and natural disasters that occurred during that same period underscored the importance of communities being prepared for all types of hazards.

All response to public health emergencies begins at the local level. The Centers for Disease Control and Prevention (CDC) plays a pivotal role in preparing our nation to respond to these emergencies. Since 2002, Congress has supported these activities by appropriating approximately $1.5 billion per year to CDC as Terrorism Preparedness and Emergency Response funding. In 2009, Congress also provided emergency supplemental funding in response to the 2009 H1N1 influenza pandemic.

CDC's Office of Public Health Preparedness and Response[1] manages these funds, which support a wide variety of activities at CDC and at state and local public health departments. CDC also provides technical assistance and monitors performance in certain preparedness and response activities to ensure continuing improvement.

This brochure presents key findings from CDC's third preparedness report, *Public Health Preparedness: Strengthening the Nation's Emergency Response State by State.* The full report highlights progress in preparedness and presents national level and state-by-state data on a broad range of preparedness and response activities in the 50 states, 4 localities,[2] and 8 U.S. insular areas[3] funded by CDC's Public Health Emergency Preparedness cooperative agreement. The 54 fact sheets in the report cover activities occurring primarily from October 1, 2007 to September 30, 2008 (fiscal year 2008), with some data from 2009.

Data indicate that while much progress has been made to build and strengthen national public health preparedness and response capabilities, many challenges remain. Preparing adequately for public health emergencies requires continual and coordinated efforts that involve every level of government, the private sector, non-governmental organizations, and individuals.

---

[1] *Formerly the Coordinating Office for Terrorism Preparedness and Emergency Response*

[2] *Chicago, District of Columbia, Los Angeles County, and New York City*

[3] *The territories of American Samoa, Guam, and the U.S. Virgin Islands; the commonwealths of the Northern Mariana Islands and Puerto Rico; and the freely associated states of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau*

Strengthening Preparedness

Being prepared to prevent, respond to, and recover from all types of public health threats requires that states improve their capabilities in the core public health functions of surveillance and epidemiology, laboratories, and response readiness. A summary of progress in these areas follows.

Surveillance and Epidemiology: Monitoring and Investigating Health Threats

Surveillance and epidemiology activities are essential for detecting community health threats, investigating their sources and patterns of distribution, and monitoring their impacts. Surveillance data and epidemiological investigations during the 2009 H1N1 influenza pandemic, for example, revealed that certain health conditions increased the risk of being hospitalized for H1N1 influenza. Knowledge about these risks helped public health officials prioritize groups who would receive the first vaccines.

To better monitor state and local surveillance and epidemiology capabilities, CDC currently is developing performance measures on which PHEP-funded states, localities, and U.S. insular areas will be required to report. The intent of these new measures is to demonstrate an ability to turn data into actionable information that supports decision making in a public health emergency.

Measures will address the following:

- Timely recognition of a potential health emergency through disease reports submitted to public health agencies
- Ability to investigate an outbreak or exposure, summarize findings, and make improvements to the investigative process
- Timeliness of initiating interventions to limit the spread of disease

Laboratories: Identifying and Understanding Emerging Public Health Threats

Laboratories identify disease agents, toxins, and other health threats found in tissue, food, or other substances. Rapid detection and characterization of health threats is essential for implementing appropriate control measures. The ability to detect and characterize health threats relies on the availability of laboratory resources, accurate and consistent methods, and quick data exchange systems.

A scientist at a state public health laboratory tests a tomato sample during an investigation into a multistate *Salmonella* outbreak.

Photo source: New Mexico Department of Health

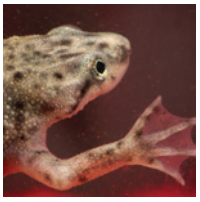
CDC manages the Laboratory Response Network (LRN), a group of local, state, federal, and international laboratories with unique testing capabilities for confirming high priority biological and chemical agents.

Accomplishments for LRN biological and chemical laboratories include the following:

- Biological laboratory capabilities and capacities were strong in most states and localities. Most LRN biological laboratories could be reached 24/7, rapidly identified certain disease-causing bacteria and sent reports to CDC, and passed proficiency tests for detecting other biological agents.
- A majority of LRN chemical laboratories demonstrated proficiency in core methods for detecting and measuring exposure to chemical agents, and some were proficient in one or more additional methods identified by CDC as important for responding to chemical emergencies.

Public Health in Action: Responding to Emergencies Across the Nation

Selected Biological Incidents



SALMONELLA

*December 2009, Multiple states – **Salmonella Typhimurium outbreak linked to frogs.*** Public health officials investigated infections and determined source of outbreak.

ANTHRAX

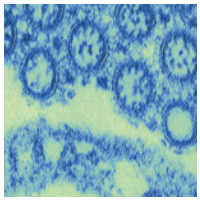
December 2009, New Hampshire – **Anthrax linked to animal hides.** State health departments determined that a case of gastrointestinal anthrax was linked to hides used in drum making and a drumming circle.

MUMPS

August 2009-Spring 2010, New Jersey and New York – **Mumps outbreak.** Investigations and testing led to identification of thousands of cases, most in religious communities.

E. COLI

*June-July 2009, Multiple states – **E.coli O157:H7 outbreaks linked to raw prepackaged cookie dough and to beef.*** Public health officials and federal agencies investigated outbreaks and identified associations with food sources.



H1N1

Spring 2009, Multiple states - **2009 H1N1 Influenza Pandemic.** In April 2009, states began to implement their pandemic plans. Activities included disease monitoring, ongoing communication updates, appropriate use of mitigation measures, implementation of H1N1 vaccination campaigns, and the coordination of response efforts with partners.

SALMONELLA

*February 2009, Nebraska – **Salmonella* Saintpaul outbreak linked to alfalfa sprouts.** 235 persons from 14 states were infected; initial investigation by Nebraska health department led to investigations in 13 additional states.

SALMONELLA

*January 2009, Multiple states – **Salmonella Typhimurium outbreak linked to peanut butter.*** Public health epidemiologists, sanitarians, and laboratorians led investigations for product recalls that stopped the spread of outbreaks.

While state and local agencies devoted a significant amount of their time, energy, and resources to respond to the 2009 H1N1 influenza pandemic, many other events also required their attention and expertise. Support from CDC's Public Health Emergency Preparedness cooperative agreement helped state and local public health departments build and strengthen their abilities to respond effectively. Below are examples of biological incidents and natural disasters – including H1N1 – to which state and local health departments responded.

Selected Natural Disasters

December 2009, Northeast U.S. – **Severe Winter Weather.** Public health officials issued guidance for staying safe and healthy during severe snow storms. Guidance included protection against hypothermia, carbon monoxide poisoning from indoor heaters, and preparations for extended periods of confinement.

SEVERE WINTER WEATHER

September 2009, American Samoa – **Tsunami Response.** A magnitude 8.0 earthquake generated three separate tsunami waves. Public health and partners worked together to ensure appropriate medical response.

TSUNAMI

September 2009, Multiple states – **Southeast U.S. Floods.** Public health officials provided guidance on sanitation, hygiene, and safety to protect against disease and injury to the thousands affected by floods.

FLOODS

April-May 2009, Multiple states – **Wildfires.** Public health officials issued guidance about air quality and care and services for evacuees, evacuation centers, at-risk populations, and responders. The health department also issued guidance that addressed exposures, clean up from fires, and subsequent response.

WILDFIRES

February 2009, Kentucky – **Ice Storm.** Severe storm caused 36 deaths and left 770,000 residents without power. State health department secured equipment for shelters, provided prescription medications to individuals in shelters, and issued guidance on food safety and other public health issues related to power outages.

ICE STORMS

March 2009, Alaska – **Volcano.** Mt. Redoubt eruption cloud estimated at 50,000 feet. Public health officials monitored ash plume and issued air quality assessments, evacuation recommendations, and instructions for at-risk persons.

VOLCANO

March 2009, North Dakota – **Floods.** Public health officials coordinated evacuations, temporary housing, healthcare for acute injuries and other long-term health risks including hypothermia, bacteria, and mold.

FLOODS

Note: Information on pages 4-5 is adapted from a fact sheet from the Association of State and Territorial Health Officials.

Response to public health emergencies begins at the local level. Pictured is an H1N1 vaccination clinic in Calistoga, California. Federal investments in pandemic planning helped states lessen the impact of the pandemic.

Photo source: California Department of Public Health

Response Readiness: Communicating, Planning, Exercising, and Evaluating

While all response to public health emergencies begins at the local level, preparing for a response requires a coordinated effort involving every level of government, the private sector, non-governmental organizations, and individuals. Responding to emergencies requires complex logistical planning and a clear understanding of expected roles and responsibilities.

State and local public health departments continue to improve their response to threats by developing, exercising, and improving emergency response plans and responding to real incidents. Strengthening response capabilities and capacities also entails improving situational awareness through monitoring and communicating emerging health information.

Accomplishments in response readiness include the following:

- All states and localities could receive urgent disease reports 24/7, and most states used rapid methods to communicate with other laboratories for outbreaks, routine updates, and other needs.
- All states received acceptable CDC review scores for their plans to receive, distribute, and dispense medical assets from CDC's Strategic National Stockpile and other sources.
- Most states and localities demonstrated the ability to activate and rapidly staff their emergency operations centers for drills, exercises, or real incidents, and developed after action reports and improvement plans following these activities.

Moving Forward

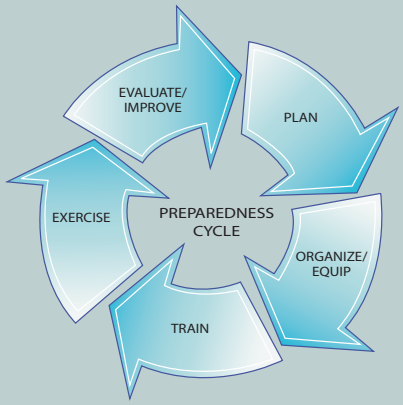
State and local health departments are first responders for public health emergencies and CDC remains committed to strengthening their preparedness. CDC has identified the areas listed below for improving state and local preparedness.

Maintain preparedness gains and resolve gaps. Important gains have been made since CDC's 2008 state preparedness report in the areas of laboratory and response readiness. Data presented in the 2010 report show improvement in rapid laboratory testing for biological agents and readiness to receive, distribute, and dispense assets from CDC's Strategic National Stockpile. CDC will continue to work with state and local health departments to maintain these improvements and to identify and resolve gaps in these and other core capabilities important for preparedness and response. Improvements are needed in continuity of operations plans for state public health laboratories.

Build on the successes and lessons learned from the response to the 2009 H1N1 influenza pandemic. The first influenza pandemic in 40 years provided a real world test of our response capabilities. CDC is working with all levels and sectors of the public health and medical communities toward systematically assessing this response, developing plans to address identified gaps and challenges, and incorporating needed changes.

Ensure continuous funding to build and maintain a skilled state and local public health workforce. The surge in effort needed to respond to the 2009 H1N1 influenza pandemic placed an increased strain on a system already weakened by workforce shortages and budget shortfalls. The response revealed that the combination of the continued erosion of the general all hazards preparedness capacities, infrastructure, and staffing, along with the fiscal issues facing state and local governments proved to be challenging for public health departments. Preparing adequately for future outbreaks – and other public health emergencies that are inevitable and may occur simultaneously – requires predictable and adequate long-term funding to improve infrastructure, staffing, and training in the areas of surveillance, epidemiology, laboratories, and response readiness.

Expand performance measurement to assess and monitor preparedness activities and to drive program improvement and accountability. CDC will continue to work with state and local partners to develop performance measures that are indicators of preparedness and response capabilities and align with the objectives of the National Health Security Strategy[4] as well as the Pandemic and All-Hazards Preparedness Act.[5] Major gaps exist for measuring preparedness in the areas of surveillance and epidemiology. New performance measures are being piloted for these areas as well as for laboratory activities.



Preparedness is a continuous cycle of planning, organizing, equipping, training, exercising, evaluating, and taking corrective action to ensure effective coordination during incident response.

Image source: Federal Emergency Management Agency

Promote health and prevent disease, injury, and disability in communities. Healthy populations are more resilient to new health threats. State and local health departments must continue to strengthen their collaboration with individuals, families, and communities as essential partners in building resilience to all types of public health hazards. Building healthier communities also helps provide greater protection to populations who are more vulnerable during emergencies and supports broader CDC health protection goals and national health reform efforts.

[4] *National Health Security Strategy (2009). Available at www.phe.gov/preparedness*

[5] *Pandemic and All-Hazards Preparedness Act (2006). Available at www.phe.gov/preparedness*

Measuring and Reporting on Public Health Preparedness

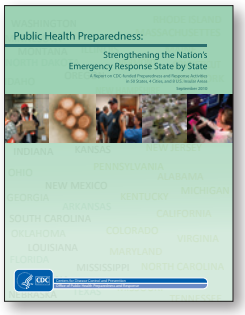
CDC is committed to publicly reporting on the progress that state and local health departments are making in public health preparedness and response. The report *Public Health Preparedness: Strengthening the Nation's Emergency Response State by State,* published in September 2010, presents data on CDC's performance measures for laboratory and response readiness activities that occurred in 2008 (the most current data available).

Additional performance measures are being implemented as well as pilot tested. Performance measures being implemented address the capabilities of crisis and emergency risk communication with the public, incident management, and laboratory services.

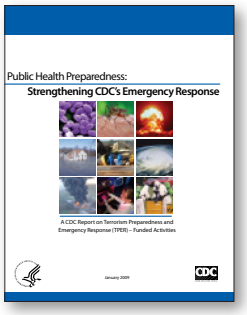
Performance measures for epidemiological investigation, environmental exposure investigations, surveillance, and additional laboratory services are currently being pilot tested and will be implemented in the near future.

CDC investments in preparedness and response have resulted in significant accomplishments at the federal, state, and local levels, but many challenges still remain. CDC preparedness reports demonstrate results, drive program improvements, and increase accountability for federal investments. For more details on CDC preparedness and response efforts and to view state- and locality-specific data, see the reports described below.

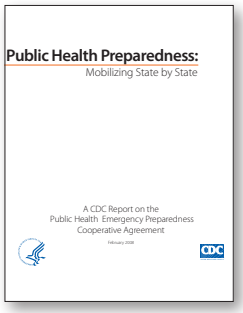
Reports



***Public Health Preparedness: Strengthening the Nation's Emergency Response State by State* (2010)** features national data as well as individual fact sheets for the 50 states and 4 localities supported by CDC's Public Health Emergency Preparedness (PHEP) cooperative agreement. An overview of preparedness activities and challenges in the U.S. territories, commonwealths, and freely associated states funded by PHEP are also included. The fact sheet data expand and update those presented in CDC's first state preparedness report (2008), and cover activities conducted in 2008 and 2009. The report also highlights snapshots of state and local response activities occurring during the 2009 H1N1 influenza pandemic.



***Public Health Preparedness: Strengthening CDC's Emergency Response* (2009)** explains CDC's role in preparing the public health infrastructure to respond effectively to all types of hazards. The report also describes CDC's significant preparedness accomplishments, the diversity of challenges that remain, and priorities for ongoing and future work in a climate of decreasing resources.



***Public Health Preparedness: Mobilizing State By State* (2008)** highlights preparedness progress and challenges at state and local public health departments and outlines CDC's efforts to address those challenges. The report presents national data as well as state-specific snapshots for the 50 states and 4 PHEP-funded localities.

All reports and companion Key Findings brochures are available at emergency.cdc.gov/cdcpreparedness/pubs-links/

For more information on CDC's preparedness and emergency response activities, visit the website of the Office of Public Health Preparedness and Response at emergency.cdc.gov/cdcpreparedness

CS216398B