ISSUE REPORT

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Ready or Not?

PROTECTING THE PUBLIC'S HEALTH FROM DISEASES, DISASTERS, AND BIOTERRORISM 2010

Trust for America's Health

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ACKNOWLEDGEMENTS

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Introduction

There is an emergency for emergency health preparedness in the United States. The severe budget cuts by federal, state, and local governments are leaving public health departments understaffed and without the basic capabilities required to respond to crises.

- **State cuts:** 33 states and Washington, D.C. cut funding for public health from fiscal year (FY) 2008-2009 to 2009-2010, 18 of these states cut funding for a second year in a row. According to the Center on Budget and Policy Priorities (CBPP), states have experienced overall budgetary shortfalls of $425 billion since FY 2009.[1]
- **Local cuts:** In January 2010, 53 percent of local health departments reported that their core funding had been cut from the previous year, and 47 percent anticipate cuts again in the coming year.[2] Approximately 23,000 jobs – totaling 15 percent of the local public health workforce – have been lost since January 2008.
- **Federal cuts:** Since FY 2005, federal support for public health preparedness has also been cut by 27 percent.[3]

Last year, one-time funding from the American Recovery and Reinvestment Act (ARRA) and response efforts related to the H1N1 pandemic meant that public health cuts were not as drastically felt as they otherwise would have been.

This year, the Great Recession is taking its toll on emergency health preparedness.

Nearly 10 years ago during the September 11, 2001 and anthrax tragedies, it became clear the public health system was out-of-date to face modern health threats – and an historic investment was made to help upgrade the system. Significant progress was made to improve how we prevent, identify, and contain new disease outbreaks and bioterrorism threats and respond to the aftermath of natural disasters.

Now — the economic situation is putting almost a decade of gains at serious risk.

For the past eight years in the annual *Ready or Not? Protecting the Public's Health from Diseases, Disasters, and Bioterrorism* report, the Trust for America's Health (TFAH) has documented the progress and ongoing vulnerabilities in the nation's ability to respond to health crises.

Significant progress has been made toward upgrading preparedness planning and coordination, public health laboratories, surveillance, communications, liability protections, vaccine manufacturing, the Strategic National Stockpile, pharmaceutical and medical equipment distribution, and increasing and upgrading staff. Because of this investment, the country was much better prepared over the last decade to respond to a range of public health emergencies – including *E.coli,* Salmonella and other foodborne illness outbreaks, the oil spill in the Gulf Coast, ice storms, mudslides, tornadoes, and floods, and assist in the response to international crises like the Indian Ocean earthquake and tsunami and the Haitian earthquake. The emergency supplemental funding and efforts to respond to the H1N1 flu pandemic built on the foundational work that had been accomplished over the past decade and helped take preparedness to the next level.

While the investment in preparedness was important and led to major improvements, it was not sufficient to backfill long-standing gaps in the public health infrastructure or update technologies to meet modern, state-of-the-art standards. Unfortunately, the latest budget cuts will clearly exacerbate the vulnerable areas in U.S. emergency health preparedness.

Some ongoing major gaps include:

- A Workforce Gap: There is already a major shortage of trained public health workers and funded positions. There are not enough workers, particularly experts, to effectively respond during public health emergencies. The United States has 50,000 fewer public health workers than it did 20 years ago, and one-third of public health workers will be eligible to retire within five years.[4, 5] As baby boomers begin to retire, there is not a new generation of workers being trained to fill the void. Also, in some cases under current policies, public health workers in one area are not allowed to be shifted to help in other areas, even during emergencies. The recent budget cuts are intensifying the problem, with a reduction of 15 percent of the local public health workforce in the past two years. At the same time, health departments around the country are experiencing furloughs or shortened work weeks.

- A Surge Capacity Gap: In the event of a major disease outbreak or attack, the health care system would be stretched beyond normal capabilities. Surge capacity, the ability of the medical system to care for a massive influx of patients, remains one of the most serious challenges for emergency preparedness. In addition to having enough staff, a large-scale disaster also requires having enough equipment and appropriate space to treat patients. There are numerous ongoing surge capacity issues in health care settings beyond just hospitals, including response, crisis care standards, alternative care sites, coordinating volunteers to help, adequate liability protection for volunteers and clinicians, and regional coordination.

- A Surveillance Gap: The United States still lacks an integrated, national approach to biosurveillance – which could significantly improve response capabilities for emergencies ranging from a bioterrorism attack to catastrophic disease outbreaks to contamination of the food supply. There is no system using up-to-date technology and standardized reporting, like systems major retail chains use to track inventory and customer patterns. Currently, there is substantial variation in how quickly states collect and report data, which hampers bioterrorism and disease outbreak identification and control efforts.

- A Gap in Community Resiliency Support: The ability to work with communities around ways to cope with and recover from a disaster or public health emergency is another major challenge for preparedness. It is particularly difficult to address the needs of at-risk, special needs, and vulnerable populations, such as children, the uninsured or underinsured, the elderly, people with underlying health conditions, and lower-income communities. The existing gaps in day-to-day public health departments make it challenging to build and maintain the relationships needed to identify and work with the most vulnerable Americans who need the most help during emergencies.

- Gaps in Vaccine and Pharmaceutical Research, Development, and Manufacturing: The research and development of medical countermeasures (MCM)– including diagnostics, antiviral medications and vaccines – is outdated in the United States, in large part because it is not a particularly profitable venture for pharmaceutical investors. Project BioShield and the Biomedical Advanced Research and Development Authority (BARDA) were developed to help spur innovation and investment in medical countermeasures, but, so far, the development of new, effective products has been limited and we have not developed new platforms for multi-use product development and manufacture. The investments made in vaccine research and development did help lead to the production of a vaccine for the H1N1 flu strain in record time, but manufacturers were only able to produce limited quantities by the beginning of the flu season because of limited capacity and reliance on an old and outdated egg-based production strategy.

Every American deserves basic health protections and to live in safe communities. It is impossible to be prepared for every possibility – but it is possible and essential to maintain a basic, core level of preparation and response capabilities.

TFAH issues the *Ready or Not?* report to provide the public and policymakers with an independent analysis about progress and ongoing vulnerabilities in the nation's public health preparedness. The report assesses the level of preparedness in states, evaluates the federal government's role and performance, and offers recommendations for improving emergency preparedness.

This report also aims to foster greater accountability for how effectively taxpayer dollars are used to improve the nation's readiness for health emergencies. Without transparency, it is hard for the American public to know how well the government is protecting them from the range of threats our nation faces.

The report:

- Informs the public and policymakers about the status of public health preparedness in the United States;
- Provides greater transparency for public health preparedness programs;
- Encourages greater accountability for the spending of preparedness funds; and
- Recommends ways to help the nation move toward a strategic, capabilities-based system able to respond effectively to health threats posed by diseases, disasters, and bioterrorism.

This 2010 edition of the *Ready or Not?* report focuses on reviewing state and federal public health emergency preparedness. The contents include:

- **Section 1:** An examination of state-by-state public health preparedness, in which states are evaluated on 10 key preparedness indicators, based on input and review from public health experts.
- **Section 2:** An examination of federal policy issues and recommendations for improving all-hazards and pandemic preparedness – including considerations for the reauthorization of the Pandemic and All-Hazards Preparedness Act (PAPHA), to incorporate funding and modernizing public health preparedness, improving the development of medical countermeasures, enhancing surge capacity for mass emergencies, increasing community resiliency, and ensuring enough trained public health workers.

READY OR NOT? 2010: MAJOR CONCLUSIONS

READY OR NOT? 2010: KEY FINDINGS

- 33 states and D.C. cut funding for public health from FY 2008-09 to FY 2009-10.
- Only 7 states can not currently share data electronically with health care providers.
- 10 states do not have an electronic syndromic surveillance system that can report and exchange information.
- Only six states reported that pre-identified staff were not able to acknowledge notification of emergency exercises or incidents within the target time of 60 minutes at least twice during 2007-08.
- Six states did not activate their emergency operations center (EOC) a minimum of two times in 2007-08.
- Only two states did not develop at least two After-Action Report/Improvement Plans (AAR/IPs) within 60 days of exercises or real incidents in 2007-08.
- 25 states do not mandate all licensed child care facilities to have a multi-hazard written evacuation and relocation plan.
- 21 states were not able to rapidly identify disease-causing *E.coli* O157:H7 and submit the lab results in 90 percent of cases within four days during 2007-08.
- Only three states and D.C. report not having enough staffing capacity to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1.
- Only one state decreased their Laboratory Response Network for Chemical Threats (LRN-C) chemical capability from August 10, 2009 to August 9, 2010.

Note: the most current available verifiable data is used for each indicator category. The data for indicators 4, 5, 6, and 8 are from the CDC's *Public Health Preparedness: Strengthening the Nation's Emergency Response State by State* report, published in 2010.[6]

ALL-HAZARDS APPROACH TO EMERGENCY PUBLIC HEALTH THREATS

The U.S. public health system is responsible for protecting the American people from a range of potential health threats.

EXAMPLES OF MAJOR EMERGENCY PUBLIC HEALTH THREATS

Agroterrorism: The "…deliberate introduction of an animal or plant disease with the goal of generating fear, causing economic losses, and/or undermining stability."[7] Agroterrorism can be considered a subcategory of "bioterrorism" and food-borne diseases.

Bioterrorism: The intentional or deliberate use of germs or biotoxins that cause disease or death in people, animals, or plants. Examples include Salmonella, and E. coli or other agents that cause anthrax, smallpox, or botulism.

Blast injuries: Explosions, whether deliberate or accidental, can cause multi-system, life threatening injuries among individuals and within crowds. In addition, blunt and penetrating injuries to multiple organ systems are likely when an explosion occurs and unique injuries to the lungs and central nervous system occur during explosions. Blast injuries present unique diagnostic, triage, and management challenges for civilian health care providers, the majority of whom are unfamiliar with these types of injuries and the treatment required.

Chemical terrorism: The deliberate use of manufactured chemicals, whether they were created intentionally as weapons or for industrial purposes in order to cause illness or death. Examples include sarin and chlorine.

Chemical incidents and accidents: The non-deliberate exposure of humans to harmful chemical agents, with similar outcomes to chemical terrorism.

Food-borne diseases: Food-borne illness is caused by ingestion of harmful microbes or the toxins they produce. The U.S. Centers for Disease Control and Prevention (CDC) estimates there are approximately 76 million pathogen-induced cases of food-borne diseases each year in the United States, causing approximately 325,000 hospitalizations and 5,000 deaths. Examples include botulism, Salmonella, *E.coli* 0157:H7, shigella, and norovirus.

Influenza pandemic: is an epidemic of a flu virus that spread on a worldwide scale and infects a large proportion of the human population. Influenza pandemics occur when a new strain of the flu virus is transmitted to humans from another animal species, like pigs, chickens, or ducks. Humans do not have natural immunity against these new strains. The H1N1 flu was the first pandemic flu of the 21st century. Historically, pandemic flu occurs two to three times every hundred years or so. In the 20th century the world experienced the 1918, 1957/58, and 1968 pandemic flu, although the severity of the disease varied greatly among them.

Natural disasters: Harm can be inflicted during and after natural disasters, which can lead to contaminated water, shortages of food and water, loss of shelter, and the disruption of regular health care. Examples include hurricanes, earthquakes, tornados, mudslides, fires, and tsunamis.

Radiological threats: Intentional or accidental exposure to radiological material. For example, a terrorist attack could involve the scattering of radioactive materials through the use of explosives ("dirty bomb"), the destruction of a nuclear facility, the introduction of radioactive material into a food or water supply, or the explosion of a nuclear device near a population center.

Vector-borne diseases: Diseases spread by vectors, such as insects and ticks. Examples include West Nile virus, Dengue fever, Chikungunya, Rocky Mountain spotted fever, Lyme disease, and malaria.

Water-borne diseases: Diseases spread by contaminated drinking water or recreational water, such as typhoid fever and cholera. According to CDC, more than 1,000 persons become ill from contaminated drinking water and more than 2,500 persons become ill from recreational water disease outbreaks annually in the United States.[8]

Zoonotic/Animal-borne diseases: Animal diseases that can spread to humans and, in some cases, become contagious from human to human. Examples include Avian flu, Ebola, and SARS. In 2000, the World Health Organization (WHO) identified more than 200 diseases occurring in humans that were known to be transmitted through animals.[9] Experts believe that the increased emergence of zoonotic diseases worldwide can be attributed to population displacement, urbanization and crowding, deforestation, and globalization of the food supply. HIV, the greatest pandemic of our time, was a zoonotic disease that became contagious from person-to-person.

WHAT DOES ALL-HAZARDS PREPAREDNESS LOOK LIKE?

The Goals of 24/7 Public Health Emergency Response Include:

- **Rapid detection** of and **response** to emergency disease threats, including those caused by bioterrorism.
- Intensive **investigative** capabilities to quickly diagnose an infectious disease outbreak or to identify the biological or chemical agent used in an attack.
- **Surge capacity** for mass events, including adequate facilities, equipment, supplies, and trained health professionals.
- **Mass containment strategies,** including medicines and vaccines to stop the spread of a disease and isolation and quarantine when necessary and feasible.
- Streamlined and effective **communication** channels so health workers can swiftly and accurately communicate with each other, other front line workers, and the public about 1) the nature of an emergency or attack, 2) the risk of exposure and how to seek treatment when needed, and 3) any actions they or their families should take to protect themselves.
- **Communications** must also be able to reach and take into consideration at-risk and hard-to-reach populations.
- Streamlined and effective response to address the needs of **at-risk populations** during emergencies, particularly those with special medical needs.
- **An informed and involved public** who can provide material and moral support to professional responders, and can render aid when necessary to friends, family, neighbors, and associates.

What it will take to achieve basic levels of preparedness:

- **Leadership, planning, and coordination:** An established chain-of-command and well defined roles and responsibilities for seamless operation across different medical and logistical functions and among federal, state, and local authorities during crisis situations, including police, public safety officials, and other first responders.
- **Well-funded core public health infrastructure:** Basic public health systems and equipment, including laboratory testing and communications equipment, which keep pace with advances in science and technology.
- **An expert and fully-staffed workforce:** Highly trained and adequate numbers of public health professionals, including epidemiologists, lab scientists, public health nurses and doctors, and other experts, in addition to back-up workers for surge capacity needs.
- **Modernized technology:** State-of-the-art laboratory equipment, information collection, and health tracking systems.
- **Rapid development and ability to manufacture vaccines and medications:** A streamlined, safe, effective system to ensure rapid research and production of MCM to protect people for emerging threats.
- **Pre-planned, safety-first rapid emergency response capabilities and precautions:** Tested plans and safety precautions to mitigate potential harm to communities, public health professionals, and first responders.
- **Immediate, streamlined communications capabilities:** Coordinated, integrated communications among all parts of the public health system, all frontline responders, and with the public. Must include back-up systems in the event of power loss or overloaded wireless channels.

FEDERAL, STATE, AND LOCAL PUBLIC HEALTH JURISDICTIONS

The federal role: Includes policymaking, funding programs, overseeing national disease prevention efforts, collecting and disseminating health information, building capacity, providing subject matter expertise and technical assistance, and directly managing some services, and supporting biomedical research and production capability.[10] Some public health capabilities, such as the Strategic National Stockpile (SNS), are federal assets managed by federal agencies that are available to supplement a state's and community's response to a public health emergency that overwhelms or may overwhelm their capabilities. Public health functions are widely diffused across eight federal agencies and two offices.

State and local roles: Under U.S. law, state governments have primary responsibility for the health of their citizens. Constitutional "police powers" give states the ability to enact laws and issue regulations to protect, preserve, and promote the health, safety, and welfare of their residents. In many states, state laws charge local governments with responsibility for the health of their citizens. State and local health departments and first responders are the front line in any public health emergency.

NATIONAL HEALTH SECURITY STRATEGY

> "PREVENTION IS A CORNERSTONE TO BOTH HEALTH SECURITY AND NATIONAL SECURITY."
>
> — NATIONAL HEALTH SECURITY STRATEGY[11]

In December 2009, U.S. Department of Health and Human Services released the first National Health Security Strategy (NHSS) outlining a national vision for a prepared country and population. The NHSS was one of the major deliverables outlined by the 2006 Pandemic and All-Hazards Preparedness Act (PAHPA) and it is to be updated every four years. According to the NHSS, "National health security is achieved when the Nation and its people are prepared for, protected from, respond effectively to, and able to recover from incidents with potentially negative health consequences."[12] Underscoring the entire document is an emphasis on public health, prevention, and community resilience. "Simply put," the strategy says, "the health of a nation's people has a direct impact on that nation's security."[13]

The NHSS recognizes the progress that has been made over the past nine years while highlighting some of the challenges that remain, including medical surge capacity, public health and medical workforce, medical countermeasures, and community resilience. However, the NHSS also highlights the "considerable variation [that] remains in the degree to which individual states, territories, tribes, and local jurisdictions are prepared to address large-scale health threats."[14] Additionally, the strategy notes that "few evidence-based performance measures and standards exist to gauge the effectiveness of national health security efforts and progress towards goals — that is, to assess the extent to which the Nation is prepared for the types of health incidents that we have experienced in the past and may have to confront in the future."

The NHSS also recognizes that in order for our public health and medical systems to be truly prepared, this requires the entire health care sector — not just emergency departments — to plan and be ready to help out in a mass casualty event.

To help the nation achieve this vision of health security, HHS followed up with the release of the draft Biennial Implementation Plan (BIP) for the NHSS.[15] The BIP outlines two overarching goals: 1) build community resilience; and 2) strengthen and sustain health and emergency response systems. These two goals are supported by 10 strategic objectives:

1. Foster informed, empowered individuals and communities.
2. Develop and maintain the workforce needed for national health security.
3. Ensure situational awareness.
4. Foster integrated, scalable health care delivery systems.
5. Ensure timely and effective communications.
6. Promote an effective countermeasures enterprise.
7. Ensure prevention or mitigation of environmental and other emerging threats to health.
8. Incorporate post-incident health recovery into planning and response.
9. Work with cross-border and global partners to enhance national, continental, and global health security.
10. Ensure that all systems that support national health security are based upon the best available science, evaluation and quality improvement methods.

HHS solicited and received thousands of comments on the draft BIP and continues to refine the plan. The BIP acknowledges that there are no significant new funds to implement the new national health security strategy so existing federal resources must be leveraged and used effectively and efficiently to accomplish the goals.

ECONOMICS AND PUBLIC HEALTH PREPAREDNESS

In addition to the health toll that diseases, disasters, and bioterrorism can take, they also have major economic implications. For example:

- **September 11, 2001** Tragedies: The total economic loss has been estimated at roughly $80 billion, of which $32.5 billion was insurable.[16] The insurance industry paid the $32.5 billion in insured losses from business interruption, property, workers' compensation, aviation liability, and other liability costs.[17] In addition, World Trade Center workers received a $625 million settlement for their exposure to toxic dust.[18]

- **Anthrax Attacks:** According to a report in the Washington Post and the U.S. Federal Bureau of Investigations (FBI), the clean up from the 2001 anthrax attacks exceeded $1 billion.[19] A reported $42 million was spent to decontaminate the Hart Senate Office Building and other Capitol Hill offices and it cost in excess of $200 million to decontaminate the Brentwood and Hamilton Township, New Jersey postal facilities.[20] This does not include the cost of the public health response and laboratory testing of specimens around the country.

  - According to a report in the *New York Times*, under a hypothetical scenario developed by the U.S. Department of Homeland Security (DHS) involving an anthrax attack, if terrorists were to spray aerosolized anthrax from a van in three cities initially, followed by two more cities shortly afterward, casualties could well exceed 13,000, and result in a loss of billions of dollars.[21] Other estimates are that anthrax could result in more than 13,000 deaths in a single city.

  - According to a study by Towers Perrin Consulting, one anthrax attack in New York City could lead to $90 billion in workers' compensation losses, which would be three times greater than the entire $30 billion workers' compensation industry.[22]

  - Risk Management Solutions (RMS), a leading risk consulting firm, believes an attack on downtown New York City could result in 173,000 casualties. In this scenario, anthrax is weaponized and dispersed in aerosol form, resulting in inhalation of anthrax by approximately one million people. Incredibly, RMS estimates economic losses of $91 billion from workers compensation alone.[23]

- **Nuclear, Biologic, or Chemical Attacks and the Insurance Industry:** In 2005, the CEO of Allstate Corp, a leading insurance company, stated that nuclear, biological or chemical terrorist attacks "could literally destroy the entire capital base of the insurance industry."[24] As a point of reference, the capital base for the insurance industry in 2003 was $347 billion.[25]

- **Foodborne Illness and Agroterrorism:** Agriculture represents 1.2 percent of the U.S. gross domestic product (GDP), or $173 billion a year.[26] Agriculture and the food sector employed approximately 12.5 million workers in 2008, or nearly nine percent of the total U.S. workforce.[27]

  - In 2001, a foot-and-mouth disease outbreak in Britain led to an estimated economic loss of $6 to $18 billion, and led to the destruction of four million animals.[28] A 1999 report estimated that an outbreak of foot-and-mouth in California would lead to economic losses of $6 billion.[29]

  - Over the last few decades, the United Kingdom has battled bovine spongiform encephalopathy (BSE), better known as "mad cow" disease. As of March 2005, 149 people who were infected with the disease have died, and nearly four million cows have been slaughtered.[30]

  - In 1978, the Arab Revolutionary Council engaged in bioterrorism, using mercury to poison Israeli oranges. A dozen children in Holland and West Germany were hospitalized as a result. Ultimately, this act helped sabotage the Israeli economy, resulting in a 40 percent reduction in orange exports.[31] At the time, oranges accounted for about a tenth of all Israeli exports.[32] The United States produces over 20 percent of the world's citrus, or approximately 15.6 million tons in 2004.[33] U.S. citrus exports are roughly $1 billion, while U.S. consumers spend more than $3 billion on citrus products (orange and grapefruit juice and fresh fruit).[34]

  - In 1982 in the United States, an unknown suspected tampered with Tylenol by putting cyanide into capsules and returning bottles to stores. The tampering resulted in 7 deaths in Chicago. A massive recall effort was undertaken, and Tylenol's market share dropped from 37 percent to seven percent.[35]

- **New Infectious Disease Outbreak:** In 2003, Severe Acute Respiratory Syndrome (SARS) swept through Southeast Asia, infecting over 8,000 people and leaving 774 dead.[36] Its reach demonstrates the tremendous speed in which disease can spread. Originating in China, the SARS outbreak eventually infected individuals from 29 nations around the world. Overall, the economic losses, due to deaths, quarantines, and lost tourism dollars, may have been $30 to $50 billion, according to some estimates.[37] In Toronto alone (many thousands of miles away from the initial outbreak), more than 27,000 people in and around the city were forced into quarantine during two outbreaks, which led to an estimated economic loss of nearly $1 billion.[38]

- **Severe Pandemic Flu Outbreak:** A severe pandemic flu similar to the 1918 could lead to a drop in the GDP of more than 5.5 percent — totaling around $683 billion in losses.[39]

- **Gulf Coast Oil Spill:** An estimated $1.2 billion in economic output and 17,000 jobs have been lost in 2010 according to an analysis from Moody's Analytics.[40]

SECTION 1

State-by-State Public Health Preparedness Indicators and Scores

All Americans have the right to expect fundamental health protections during public health emergencies, no matter where they live.

To help assess health emergency preparedness, this section of the *Ready or Not?* report examines a series of 10 indicators of preparedness across each state that, taken collectively, offer a composite snapshot of strengths and vulnerabilities.

While federal, state, and local health departments, and private health providers all have roles to play in public health preparedness, states have primary legal jurisdiction and responsibility for the health of their citizens.[41] Since the terrorist attacks of September 11, 2001, CDC has provided nearly $8 billion in preparedness funding to states, localities, and four major cities.

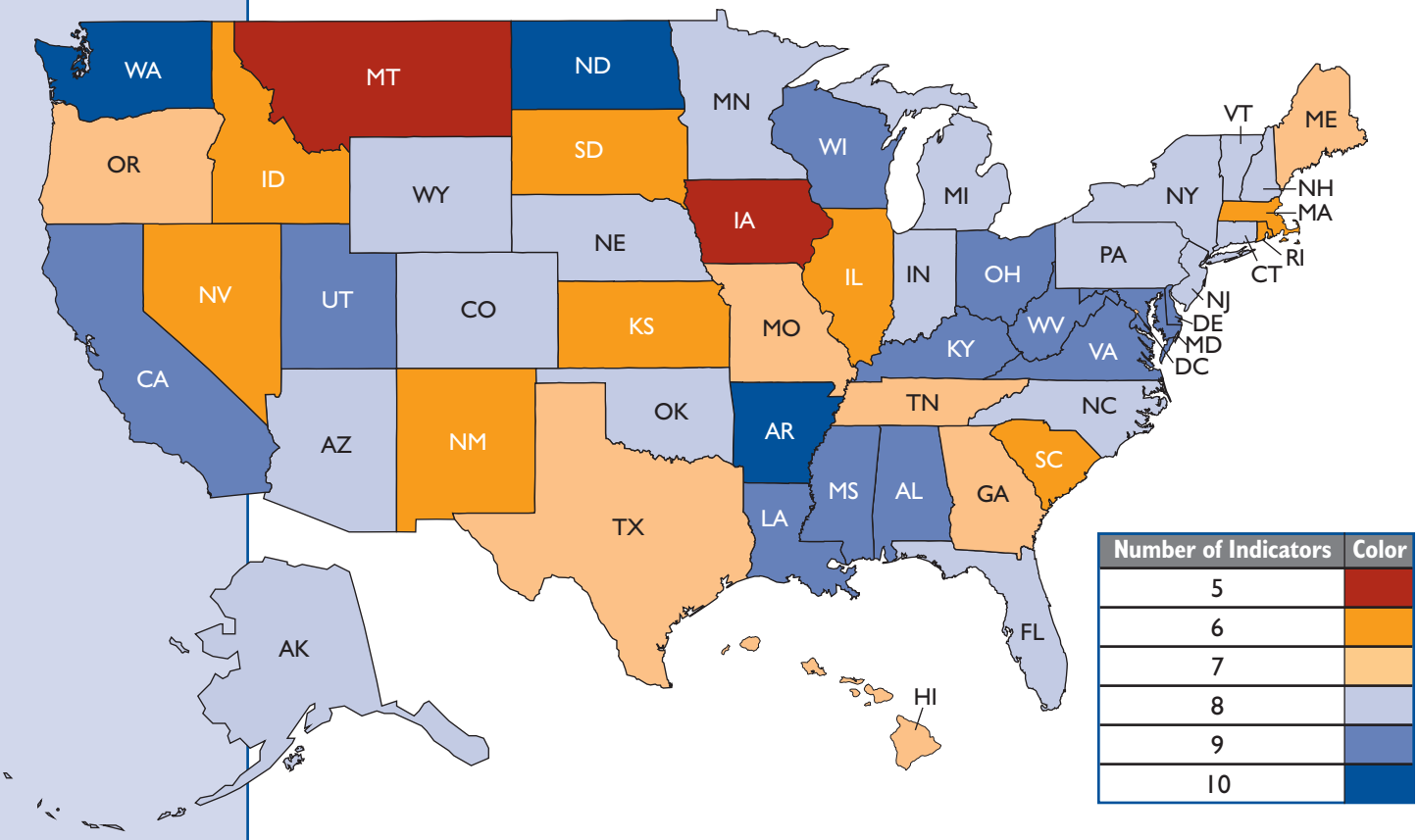
States differ in how they structure, deliver and fund public health services, and different states have different strengths and vulnerabilities in capabilities. States with multiple, high-density urban areas may function very differently than those with fewer residents spread across smaller cities and towns. However, all states should be able to meet basic preparedness goals as defined by federal health officials.

This report was developed to provide taxpayers and policymakers with information about how well-prepared their states and communities are for different types of health threats. The American people deserve to know how prepared their states and communities are for different types of health threats, particularly when their taxpayer dollars are being spent to support preparedness efforts. Currently, the American public is not equipped with enough information to monitor and hold public officials accountable for whether their communities are adequately prepared. The *Ready or Not?* report provides an independent review of progress and ongoing vulnerabilities to the public and policymakers.

A number of efforts are underway to provide increased transparency and accountability around preparedness. Post-September 11th preparedness is a new field and developing tools to assess and measure capabilities and progress is not a simple process. Currently, there is no standard set of performance measures to evaluate emergency preparedness.

A number of assessment studies and efforts have been undertaken. Limited data has been shared with the public from these projects. One of the most recent efforts was the September 2010 report *Public Health Preparedness: Strengthening the Nation's Emergency Response State by State* from the CDC, which was a follow up to a February 2008 report. The report represents a major step forward in improving accountability and transparency – following up on Congress's expressed desire for CDC to continue to report state-by-state data – allowing Americans to see how their tax dollars are being used to better protect their families and communities from a range of health threats. It differs from the *Ready or Not?* report in that it only reports on data collected from the 50 states and four cities from CDC's Public Health Emergency Preparedness Cooperative Agreement.

The *Ready or Not?* report compiles indicators based on the best publicly available data or data received from surveying states directly. Each state receives a score based on 10 key indicators. States receive one point for achieving an indicator or zero points if they do not achieve the indicator. Zero is the lowest possible overall score, and 10 is the highest. *(For more information, please see Appendix B: Data and Methodology for State Indicators.)*



SCORES BY STATE

10 (3 states)	9 (11 states)	8 (18 states)	7 (7 states & D.C.)	6 (9 states)	5 (2 states)
Arkansas	Alabama	Alaska	D.C.	Idaho	Iowa
North Dakota	California	Arizona	Georgia	Illinois	Montana
Washington	Kentucky	Colorado	Hawaii	Kansas	
	Louisiana	Connecticut	Maine	Massachusetts	
	Maryland	Delaware	Missouri	Nevada	
	Mississippi	Florida	Oregon	New Mexico	
	Ohio	Indiana	Tennessee	Rhode Island	
	Utah	Michigan	Texas	South Carolina	
	Virginia	Minnesota		South Dakota	
	West Virginia	Nebraska			
	Wisconsin	New Hampshire			
		New Jersey			
		New York			
		North Carolina			
		Oklahoma			
		Pennsylvania			
		Vermont			
		Wyoming			

STATE PREPAREDNESS SCORES

States	(1) State increased or maintained level of funding for public health services from FY 2008-09 to FY 2009-10.	(2) State currently sends and receives electronic health information to health care providers and community health centers.	(3) State health department has an electronic syndromic surveillance system that can report and exchange information.	(4) State health department has the ability to convene an emergency response team within 60 minutes. at least twice during 2007-08.	(5) State public health department activated its EOC as part of a drill, exercise, or real incident a minimum of two times in 2007-08.	(6) State developed at least two After-Action Report/ Improvement Plans (AAR/IPs) within 60 days of an exercise or real incident during 2007-08.	(7) State requires all licensed childcare facilities to have a multi-hazard written evacuation and relocation plan.	(8) State is able to rapidly identify disease-causing E.coli 0157:H7 and submit results by PulseNet within four working days 90% of the time during 2007-08.	(9) State has the necessary lab workforce staffing to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1.	(10) State increased Laboratory Response Network for Chemical Treat (LRN-C) capability.	**2010 Total Score**
Alabama	✓		✓	✓	✓	✓	✓	✓	✓	✓	9
Alaska	✓	✓		✓	✓	✓		✓	✓	✓	8
Arizona		✓	✓	✓	✓	✓		✓	✓	✓	8
Arkansas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
California		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Colorado		✓	✓	✓	✓	✓		✓	✓	✓	8
Connecticut		✓	✓	✓	✓	✓		✓	✓	✓	8
Delaware		✓	✓		✓	✓	✓	✓	✓	✓	8
DC		✓	✓	✓	✓	✓	✓			✓	7
Florida		✓	✓	✓	✓	✓		✓	✓	✓	8
Georgia		✓	✓	✓	✓	✓			✓	✓	7
Hawaii	✓	✓	✓	✓		✓	✓			✓	7
Idaho		✓		✓	✓	✓			✓	✓	6
Illinois		✓		✓	✓	✓		✓	✓		6
Indiana	✓	✓	✓	✓	✓	✓			✓	✓	8
Iowa		✓		✓	✓	✓				✓	5
Kansas		✓		✓	✓	✓			✓	✓	6
Kentucky	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
Louisiana	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
Maine	✓	✓	✓	✓	✓				✓	✓	7
Maryland		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Massachusetts		✓	✓			✓	✓		✓	✓	6
Michigan		✓	✓	✓	✓	✓		✓	✓	✓	8
Minnesota		✓	✓	✓	✓	✓		✓	✓	✓	8
Mississippi		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Missouri		✓	✓	✓	✓	✓			✓	✓	7
Montana	✓			✓	✓	✓				✓	5
Nebraska	✓	✓	✓	✓	✓	✓			✓	✓	8
Nevada				✓	✓	✓	✓		✓	✓	6
New Hampshire	✓		✓	✓	✓	✓	✓		✓	✓	8
New Jersey		✓	✓	✓	✓	✓		✓	✓	✓	8
New Mexico					✓	✓	✓	✓	✓	✓	6
New York		✓	✓	✓	✓	✓	✓		✓	✓	8
North Carolina		✓	✓	✓	✓	✓	✓		✓	✓	8
North Dakota	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Ohio	✓		✓	✓	✓	✓	✓	✓	✓	✓	9
Oklahoma		✓	✓		✓	✓	✓	✓	✓	✓	8
Oregon		✓		✓	✓	✓		✓	✓	✓	7
Pennsylvania		✓	✓	✓	✓	✓	✓		✓	✓	8
Rhode Island		✓	✓	✓	✓				✓	✓	6
South Carolina			✓	✓		✓	✓		✓	✓	6
South Dakota	✓	✓		✓		✓			✓	✓	6
Tennessee		✓	✓	✓		✓		✓	✓	✓	7
Texas	✓	✓	✓			✓	✓		✓	✓	7
Utah		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Vermont		✓	✓		✓	✓	✓	✓	✓	✓	8
Virginia		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Washington	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
West Virginia	✓	✓	✓	✓	✓	✓	✓		✓	✓	9
Wisconsin		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Wyoming		✓	✓	✓	✓	✓		✓	✓	✓	8
Total	17	43 + D.C.	40 + D.C.	44 + D.C.	44 + D.C.	48 + D.C.	25 + D.C.	29	47	49 + D.C.	

Low scores are not intended to be punitive – in fact, they point out areas where increased investments and resources are needed to fill gaps. This report is intended to help identify where sufficient resources have not been made available by federal or state governments to support adequate public health preparedness and where and how states could improve or overcome obstacles to an all-hazards approach to public health preparedness. In addition, providing information about which states have particular strengths allows others to know which states to turn to for best practices and models to guide their own preparedness efforts. The indicators are not a comprehensive study of preparedness, but provide a snapshot composite of strengths and vulnerabilities.

The indicators in this report were selected based on:

- Reflection of a fundamental, systemic public health need;
- Consultation with key experts about areas important to serving basic public health emergency needs; and
- The availability of state level data that were verified through independent means or in consultation with states.

TFAH is only able to assess states comparatively where there are data available for all 50 states and D.C. Many states have taken action in other areas of preparedness and developed strengths or may be in the process of increasing certain capabilities not reflected in this report.

Data from these indicators were drawn from a range of publicly available sources, including CDC, a survey conducted by the Association of Public Health Laboratories (APHL), the Office of the Civilian Medical Reserve Corps, the Association of State and Territorial Health Officials (ASTHO), states' public documents, and interviews with government officials.

READY OR NOT? DOCUMENTS PREPAREDNESS PROGRESS

The *Ready or Not?* report has documented the significant progress that states have made in preparing for public health emergencies.

The 10 indicators are adapted annually to reflect changing expectations for preparedness and changes in the state preparedness data that are made publicly available. Updating the indicators each year allows the report to reflect a range of preparedness issues, including emphasizing what is of the highest concern in any given year, but all of the issues are considered to be important and integral parts of overall public health emergency capabilities. The report does maintain some consistency between years to help balance measuring ongoing concerns with new, revised, or highlighted concerns.

This year, two important new data sets were available for the first time, and TFAH included data from both of these sources in this year's *Ready or Not?* report:

- New detailed, verified data about important preparedness areas were made publicly available for the first time in CDC's *Public Health Preparedness: Strengthening the Nation's Emergency Response State By State;* and
- Information from a survey of State Health Officers conducted by the Association of State and Territorial Health Officers.

The availability of new detailed data is an important step toward increased accountability and transparency.

TFAH used three indicators from last year's *Ready or Not?* report — state funding for public health; whether a state has the necessary lab workforce staffing to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N; and whether the state require all licensed child care facilities to have a multi-hazard written evacuation and relocation plan. Progress on some additional highlight past indicators is also included.

A. 2010 *READY OR NOT?* STATE-BY-STATE INDICATORS

Indicators
1. Funding Commitment — Did the state maintain or increase funding for public health programs from FY 2008-09 to FY 2009-2010?
2. Health Information Technology — Does the state currently send and receive electronic health information to health care providers and community health centers?
3. Electronic Syndromic Surveillance — Does the state health department have an electronic syndromic surveillance system that can report and exchange information?
4. Incident Response Capacity — Did the state acknowledge pre-identified staff of emergency exercises or incidents within the target time of 60 minutes at least twice during 2007-08.
5. Emergency Operations Center (EOC) — Did the state public health department activate its EOC as part of a drill, exercise, or real incident a minimum of two times in 2007-08?
6. After Action Reports — Did the state develop at least two After-Action Report/Improvement Plans (AAR/IPs) within 60 days of an exercise or real incident in 2007-08?
7. Community Resilience — Children and Preparedness — Does the state require all licensed child care facilities to have a multi-hazard written evacuation and relocation plan?
8. Foodborne disease detection and reporting — Is the state able to rapidly identify disease-causing E.coli O157:H7 and submit results by PulseNet within four working days 90% of the time?
9. Public Health Laboratories — Surge Workforce — Does the state have the necessary lab workforce staffing to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1?
10. Public Health Laboratories — Did the state increase or maintain Laboratory Response Network for Chemical Treat (LRN-C) capability?

1. Indicator: PUBLIC HEALTH FUNDING COMMITMENT -- STATE PUBLIC HEALTH BUDGETS

FINDING: 17 states increased or maintained funding for public health from FY 2008-09 to FY 2009-10.

17 states increased or maintained level funding for public health services from FY 2008-09 to FY 2009-10 (1 point)	**33 states DECREASED funding for public health services from FY 2008-09 to FY 2009-10 (0 points)**	
State and percent increase (adjusted for inflation)	**State and percent decrease (adjusted for inflation)**	
Alabama (5.5%)	Arizona (-23.3%)	Missouri (-15.4%)
Alaska (24.8%)[2]	California (-8.5%)[5]	Nevada (-3.6%)
Arkansas (4.6%)	Colorado (-7.5%)	New Jersey (-5.3%)[5]
Hawaii (4.2 %)[2, 5]	Connecticut (-11.3%)[2, 5]	New Mexico (-9.5%)
Indiana (1.4%)	Delaware (-18.7%)[2]	New York (-6.7%)
Kentucky (0.1%)	D.C. (-18.3%)[5]	North Carolina (-2.2%)[2]
Louisiana (7.5%)	Florida (-14.9)[2]	Oklahoma (-3.6%)[1]
Maine (14.7%)[2]	Georgia (-34.5%)	**Oregon (-3.9%)**
Montana (7.5%)[5]	Idaho (-4.7%)	Pennsylvania (-21.0%)[2]
Nebraska (0.6%)	Illinois (-2.6%)	Rhode Island (-4.0%)
New Hampshire (7.8%)	Iowa (-13.1%)	South Carolina (-14.6%)
North Dakota (25.5%)[4, 5]	Kansas (-10.1%)	Tennessee (-8.3%)
Ohio (7.5%)	Maryland (-17.2%)[2]	Utah (-3.7%)
South Dakota (4.4%)	Massachusetts (-15.7%)	Vermont (-2.5%)
Texas (17.4%)[5]	Michigan (-11.2%)[3]	**Virginia (-0.3%)**[3]
Washington (2.0%)[3]	Minnesota (-12.0%)[2]	Wisconsin (-15.7%)
West Virginia (1.5%)	Mississippi (-8.9%)[2]	**Wyoming (-2.8%)**

NOTES:
Biennium budgets are bolded.
1 May contain some social service programs, but not Medicaid or CHIP.
2 General funds only.
3 Budget data taken from appropriations legislation.
4 North Dakota's budget data for the 2009-2011 biennium taken from appropriations legislation.
5 State did not respond to the data check TFAH coordinated with ASTHO that was sent out November 4, 2010. States were given until December 1, 2010 to confirm or correct the information. The states that did not reply by that date were assumed to be in accordance with the findings.

Source: Research by TFAH of publicly available state budget documents and interviews with health and budget officials in the states.

This indicator, adjusted for inflation, illustrates a state's commitment to funding public health programs that support the infrastructure — including workforce — needed to adequately respond to emergencies.

Every state allocates and reports its budget in different ways. States also vary widely in the budget details they provide. This makes comparisons across states difficult. For this analysis, TFAH examined state budgets and appropriations bills for the agency, department, or division in charge of public health services for FY 2009-2010, using a definition as consistent as possible across the two years, based on how each state reports data. TFAH defined "public health services" broadly, including most state-level health funding. The analysis examines the totality of public health funding in a state, not just resources devoted to preparedness, since maintaining a core infrastructure is essential for any department to maintain basic functions in addition to being able to respond effectively during emergencies.

Based on this analysis, 33 states and D.C. made cuts in their public health budgets. Last year, 23 states and Washington, D.C. increased or maintained their public health budgets, while 27 states made cuts.

With the current recession, states are in severe economic distress and many states have tried to close shortfalls by increasing taxes and/or cutting spending. According to CBPP, 48 states are experiencing shortfalls in their budgets for FY 2010, and the shortfalls for FY 2010 total $168 billion, which is one-quarter of state budgets.[42] Future predictions are that the situation will get worse in FY 2011.[43] Public health funding is discretionary spending in most states and, therefore, is at high risk for significant cuts during economic downturns. While few states allocate funds directly for public health preparedness, state and local funding is essential for supporting public health infrastructure and core capacities of health departments. TFAH is deeply concerned about state budget cuts and the effect they will have on state and local governments' ability to be prepared for health emergencies over the next few years. Several states that received points for this indicator may not have actually increased their spending on public health programs. The ways some states report their budgets, for instance, by including federal funding in the totals or including public health dollars within health care spending totals, make it very difficult to determine "public health" as a separate item.

Few states allocate funds directly for bioterrorism and public health preparedness as part of their public health budgets. Instead, most rely on federal funds to support these activities. The infrastructure of other public health programs, however, also support their underlying preparedness capabilities.

While this indicator examines whether states' public health budgets increased or decreased, it does not assess if the funding is adequate to cover public health needs in the states. This also does not take into account ongoing hospital needs and funding.

For additional information on the methodology of the budget analysis, please see Appendix B: Methodology for Select State Indicators.

2. Indicator: BIOSURVEILLANCE — HEALTH INFORMATION TECHNOLOGY

FINDING: 43 states and D.C. can currently send and/or receive electronic health information to health care providers.

43 states and D.C. can currently send and/or receive electronic health information with health care providers. (1 point)		7 states can NOT currently share data electronically with health care providers. (0 points)
Alaska	Minnesota	Alabama
Arizona	Mississippi	Montana
Arkansas	Missouri	Nevada
California	Nebraska	New Hampshire
Colorado	New Jersey	New Mexico
Connecticut	New York	Ohio
Delaware	North Carolina	South Carolina
D.C.	North Dakota	
Florida	Oklahoma	
Georgia	Oregon	
Hawaii	Pennsylvania	
Idaho	Rhode Island	
Illinois	South Dakota	
Indiana	Tennessee	
Iowa	Texas	
Kansas	Utah	
Kentucky	Vermont	
Louisiana	Virginia	
Maine	Washington	
Maryland	West Virginia	
Massachusetts	Wisconsin	
Michigan	Wyoming	

Source: ASTHO 2010 Profile Survey

This indicator helps assess the state public health department's ability to communicate rapidly and quickly with health care providers, a crucial need during a public health emergency. As we saw during the H1N1 pandemic, this type of communication is crucial to ensure public health departments have an accurate picture of the on-ground events and that health care practitioners are given the most up-to-date, accurate information to correctly identify problems and provide effective treatment.

The data for this indicator were provided by ASTHO from their 2010 Profile Survey, which is a survey of health officers in each state. According to this survey, seven states cannot currently share data electronically with health care providers.

3. Indicator: BIOSURVEILLANCE — ELECTRONIC SYNDROMIC SURVEILLANCE

FINDING: 40 states and D.C. have an electronic syndromic surveillance system that can report and exchange information.

40 states and D.C. have an electronic syndromic surveillance system that can report and exchange information (1 point).		10 states do NOT have an electronic syndromic surveillance system that can report and exchange information (0 points).
Alabama	Nebraska	Alaska
Arizona	New Hampshire	Idaho
Arkansas	New Jersey	Illinois
California	New York	Iowa
Colorado	North Carolina	Kansas
Connecticut	North Dakota	Montana
Delaware	Ohio	Nevada
D.C.	Oklahoma	New Mexico
Florida	Pennsylvania	Oregon
Georgia	Rhode Island	South Dakota
Hawaii	South Carolina	
Indiana	Tennessee	
Kentucky	Texas	
Louisiana	Utah	
Maine	Vermont	
Maryland	Virginia	
Massachusetts	Washington	
Michigan	West Virginia	
Minnesota	Wisconsin	
Mississippi	Wyoming	
Missouri		

Source: ASTHO Profile Survey

Since the terror attacks of September 2001 and the subsequent anthrax mailings in October, state and local public health departments have worked to increase their ability to perform syndromic surveillance to rapidly detect public health threats. According to CDC, "the term 'syndromic surveillance' applies to surveillance using health-related data that precede diagnosis and signal a sufficient probability of a case or an outbreak to warrant further public health response."[44] Syndromic surveillance is often used to target investigations of disease outbreaks, and officials continue to explore how to also use it for detecting outbreaks associated with intentional acts of terrorism.

Delivering effective public health services depends on timely and reliable information. Health departments cannot protect people from existing or emerging health threats, such as a pandemic flu, or a bioterrorist attack, without correct and pertinent information. The lack of timely and comprehensive data can delay the identification of and response to serious and mass emergency health problems. In addition, federal, state and local health departments and private health care providers must all work together to effectively track information about and respond to health threats.

Fortunately, the United States has never experienced the type of bioterrorism or mass casualty events that syndromic surveillance was initially designed to help detect. However, states report that syndromic surveillance has been extremely useful for monitoring seasonal and H1N1 flu activity. In fact, according to the International Society for Disease Surveillance (ISDS), a growing body of evidence suggests that syndromic surveillance can "herald the onset of influenza seasons in advance of virus isolation by public health laboratories, provide more timely and geographically detailed information compared to information from networks of sentinel health care practices, and provide detailed, age-specific information that can characterize annual variations in the pattern of influenza morbidity."[45]

The data for this indicator were provided by ASTHO from the 2010 Profile Survey, which is a survey of health officers in each state. According to this survey, 40 states and Washington, D.C. report having an electronic syndromic surveillance system that can report and exchange information.

4. Indicator: — INCIDENT RESPONSE CAPACITY

FINDING: 44 States and D.C. reported that pre-identified staff were able to acknowledge notification of emergency exercises or incidents within the target time of 60 minutes at least twice during 2007-08.

44 states and D.C. reported that pre-identified staff were able to acknowledge notification of emergency exercises or incidents within the target time of 60 minutes at least twice during 2007-08. (1 point).		**6 states reported that pre-identified staff were NOT able to acknowledge notification of emergency exercises or incidents within the target time of 60 minutes at least twice during 2007-08. (0 points).**
Alabama	Missouri*	Delaware ^
Alaska	Montana	Massachusetts
Arizona	Nebraska	New Mexico
Arkansas*	Nevada	Oklahoma ^
California*	New Hampshire	Texas
Colorado	New Jersey	Vermont ^
Connecticut	New York	
D.C.	North Carolina	
Florida	North Dakota	
Georgia	Ohio	
Hawaii	Oregon*	
Idaho	Pennsylvania	
Illinois	Rhode Island	
Indiana ^	South Carolina	
Iowa	South Dakota ^	
Kansas	Tennessee ^	
Kentucky*	Utah	
Louisiana	Virginia	
Maine	Washington*	
Maryland	West Virginia	
Michigan	Wisconsin	
Minnesota	Wyoming	
Mississippi*		

Notes:

* Pre-identified staff acknowledged notification within the target time of 60 minutes at least 75 percent of the time.

^ Pre-identified staff acknowledged notification within the target time of 60 minutes at least 50 percent of the time.

° New Mexico failed to notify pre-identified staff a minimum of two times.

Source: CDC *Strengthening the Nation's Emergency Response State by State* report.

The indicator assesses the ability of pre-identified staff to acknowledge notification of a drill, exercise or real incident. It is essential for a state to then be able to convene team members to handle an emergency response. Timeliness is an essential component of any emergency response effort. If states are unable to bring the needed personnel together quickly, it slows response and containment strategies and can put the public at increased risk. It is based on the measure from the September 2010 CDC report *Public Health Preparedness: Strengthening the Nation's Emergency Response State by State* if pre-identified staff acknowledged notification to fill all eight Incident Command System (ICS) core functional roles due to a drill, exercise, or real incident within the target time of 60 minutes a minimum of two times from 2007-2008.

While every state but one notified pre-identified staff to fill all eight ICS core functional roles at least twice, only 34 states and D.C. were able to get the pre-identified staff to acknowledge their notification within the target time of 60 minutes for each drill, exercise, or real incident. Another seven states were able to get the pre-identified staff to acknowledge their notification within the target time of 60 minutes for at least 75 percent of the drills, exercises, or real incidents, while another six were able to do this at least 50 percent of the time.

5. Indicator: RESPONSE READINESS — EMERGENCY OPERATIONS CENTER

FINDING: 44 states and D.C. activated their Emergency Operations Center (EOC) a minimum of two times in 2007-08.

44 states and D.C. activated their emergency operations center (EOC) a minimum of two times in 2007-08 (1 point).		6 states did NOT activate their emergency operations center (EOC) a minimum of two times in 2007-08 (0 points).
Alabama	Missouri	Hawaii
Alaska	Montana	Massachusetts
Arizona	Nebraska	South Carolina
Arkansas	Nevada	South Dakota
California	New Hampshire	Tennessee
Colorado	New Jersey	Texas
Connecticut	New Mexico	
D.C.	New York	
Delaware	North Carolina	
Florida	North Dakota	
Georgia	Ohio	
Idaho	Oklahoma	
Illinois	Oregon	
Indiana	Pennsylvania	
Iowa	Rhode Island	
Kansas	Utah	
Kentucky	Vermont	
Louisiana	Virginia	
Maine	Washington	
Maryland	West Virginia	
Michigan	Wisconsin	
Minnesota	Wyoming	
Mississippi		

Source: CDC *Strengthening the Nation's Emergency Response State by State* report.

This indicator assesses whether the state activated its EOC at least twice during 2007-08. Activation is defined as "rapidly staffing all eight core Incident Command System (ICS) functional roles in the public health emergency operations center with one person per position."[46] Even though not every public health emergency will require the full staffing of the ICS, this capability is critical. EOCs help drive emergency response efforts, providing leadership, direction, communication, and coordination to personnel involved in the emergency response efforts.

CDC required each state to conduct at least two EOC activations, whether as part of a drill, exercise, or real incident. Of the 50 states and D.C., six states did not conduct the minimum of two activations.

6. Indicator: RESPONSE READINESS — AFTER ACTION REPORTS

FINDING: 48 states and D.C. developed at least two After-Action Reports/Improvement Plans within 60 days of an exercise or actual incident in 2007-08.

48 states and D.C. developed at least two After-Action Report/Improvement Plans (AAR/IPs) within 60 days of exercise or real incidents in 2007-08 (1 point).		2 states did NOT develop at least two After-Action Report/Improvement Plans (AAR/IPs) within 60 days of exercise or real incidents in 2007-08 (0 points).
Alabama	Montana	Maine
Alaska	Nebraska	Rhode Island
Arizona*	Nevada	
Arkansas ^	New Hampshire*	
California	New Mexico	
Colorado	New Jersey	
Connecticut	New York ^	
Delaware ^	North Carolina	
D.C.	North Dakota	
Florida	Ohio	
Georgia	Oklahoma	
Hawaii	Oregon	
Idaho	Pennsylvania	
Illinois*	South Carolina	
Indiana	South Dakota	
Iowa	Tennessee	
Kansas	Texas	
Kentucky*	Utah ^	
Louisiana	Vermont ^	
Maryland	Virginia	
Massachusetts*	Washington ^	
Michigan ^	West Virginia*	
Minnesota	Wisconsin	
Mississippi ^	Wyoming	
Missouri		

Note:
* The state developed 75 percent to 99 percent of all AAR/IPs within 60 days.
^ The state developed 50 percent to 74 percent of all AAR/IPs within 60 days.
Source: *CDC Strengthening the Nation's Emergency Response State By State* Report

This indicator demonstrates a state's capability to analyze response actions, describe needed improvements, and prepare a plan for making improvements in a timely manner.

AAR/IPs are used to assess what worked well during an exercise or real incident and what can be improved. By evaluating the state's response and identifying gaps and areas that need improvement, state health departments can improve their preparedness and response operations.

CDC required state and local grantees to develop a minimum of two AAR/IPs after an exercise or public health emergency operation. The target time for completion of AAR/IPs was 60 days. Of the 50 states and D.C, two failed to develop the minimum of two AAR/IPs.

ANTHRAX RESPONSE EXERCISE SERIES (ARES)

If terrorists deliberately released deadly anthrax spores in a densely populated, urban area, would your city, county, and state officials know how to respond? That's the scenario the Department of Homeland Security (DHS) has tested in each of the 10 Federal Emergency Management Agency (FEMA) regions, as well as conducting a Federal Interagency workshop in the nation's capitol. The Anthrax Response Exercise Series (ARES) scenario uses a local trigger, such as a BioWatch Actionable Report (BAR), which tips off local and state authorities to the attack and requires them to work together and with federal counterparts to mount a rapid response.

FEMA, together with the DHS Office of Health Affairs (OHA), coordinate with local, state, and regional stakeholders to develop the table-top exercises which help federal, state, and local officials analyze their response capabilities and potential gaps or barriers. Each exercise generally includes representatives from BioWatch, public health, emergency management, military, law enforcement, first responders, public affairs, and state and local leadership, as well as federal officials.

Each exercise attempts to address the following four objectives:

- **Emergency Public Safety and Security:** Determine the federal, state, and local officials' critical decisions and the execution of applicable response plans following the detection of anthrax.
- **Emergency Public Information and Warning:** Identify unified public information strategies, applicable plans, and messages to be utilized to communicate accurate and timely emergency information to the public.
- **Mass Prophylaxis:** Determine methods of identifying the at-risk population, the establishment of local distribution processes, the conduct of mass prophylaxis, and the employment of countermeasures to include national assets.
- **Critical Resource Logistics and Distribution:** Identify resource management requirements and expectations for the implementation of a unified response from federal, state, regional, and local authorities to protect and care for the public.

Each exercise is developed through multiple planning and coordination meetings in the host jurisdiction and followed up with an After Action Conference.

7. Indicator: COMMUNITY RESILIENCY — CHILDREN AND PREPAREDNESS

FINDING: 25 states and D.C. mandate all licensed child care facilities to have a multi-hazard written evacuation and relocation plan.

25 states and D.C. mandate all licensed child care facilities to have a multi-hazard written evacuation and relocation plan (1 point).		25 states do NOT mandate all licensed child care facilities to have a multi-hazard written evacuation and relocation plan (0 points).	
Alabama	North Carolina	Alaska	Maine
Arkansas	North Dakota	Arizona	Michigan
California	Ohio	Colorado	Minnesota
Delaware	Oklahoma	Connecticut	Missouri
D.C.	Pennsylvania	Florida	Montana
Hawaii	South Carolina	Georgia	Nebraska
Maryland	Texas	Idaho	New Jersey
Massachusetts	Utah	Illinois	Oregon
Mississippi	Vermont	Indiana	Rhode Island
Nevada	Virginia	Iowa	South Dakota
New Hampshire	Washington	Kansas	Tennessee
New Mexico	West Virginia	Kentucky	Wyoming
New York	Wisconsin	Louisiana	

Source: Save the Children[47]

Planning to care for 67 million children in American schools and child care settings during a public health emergency presents complex considerations and challenges. Children are not "small adults" and special consideration needs to be given to complicated issues ranging from child-appropriate doses of medications and vaccines, to caring for children if schools and child care facilities are closed for extended periods. Parents and other caregivers may also become sick or injured during a disaster, complicating their ability to care for children.

In 2010, Save the Children reviewed state laws and regulations to determine to what extent the needs of children were incorporated into preparedness planning. Save the Children examined four basic emergency preparedness standards for licensed child care facilities and K-12 schools:

- **Evacuation Plan:** A law or regulation requiring all licensed or regulated child care facilities to have a written multi-hazard plan for evacuating and safely moving children to an alternate relocation site. A multi-hazard plan must cover man-made and natural emergencies and address evacuation, shelter-in-place, and lock-down situations. A state may have more than one classification for licensed or regulated child care, but the standard must apply to all facilities equally;
- **Reunification Efforts:** A law or regulation requiring all licensed child care facilities to have a written plan to notify parents of an emergency and reunite them with their children;
- **Children with Special Needs:** A law or regulation that requires all licensed child care facilities to have a written plan that accounts for children with special needs; and
- **K-12 Disaster Planning:** A law or regulation requiring schools to have a multi-hazard disaster plan.

This indicator awards states a point if they meet the first standard: a law or regulation requiring all licensed child care facilities to have a multi-hazard written evacuation and relocation plan. In 2010, 25 states and D.C. met this standard, an improvement from 2009 when only 20 states and D.C. met this standard. The five states that improved over the past year are New Mexico, Virginia, Washington, West Virginia, and Wisconsin.

Failing to plan for these worst-case scenarios puts children and adolescents at increased risk of injury.

Twelve states meet all four basic emergency preparedness standards in the Save the Children analysis: Alabama, Arkansas, California, Hawaii, Maryland, Massachusetts, Mississippi, New Hampshire, New Mexico, Vermont, Washington and Wisconsin. In 2009, only seven states met all four standards. California, Mississippi, New Mexico, Washington, and Wisconsin all improved over the past year.

Almost two-thirds of states (33 states) do not require all licensed child care facilities to have a written plan that accounts for children with special needs. Only 10 states and D.C. do not require K-12 schools to have a multi-hazard disaster plan.

In the Report Card, a state is not judged to meet a particular standard unless (1) the substance of the state's policy meets the minimum requirements of the standard; (2) the policy is mandated; and (3) all licensed or regulated child care – or in the case of the 4th criteria – all K-12 schools are subjected to the policy. A rule is considered mandated if it is (1) in statute (2) in regulation or (3) is provided by the relevant agency as mandatory guidance. Mandatory guidance includes forms, templates, and technical assistance that are provided to all licensed or regulated child care facilities and are required to be completed or implemented.

For additional information on the methodology of the Save the Children report, please see Appendix B: Methodology for Select State Indicators.

8. Indicator: FOOD SAFETY — DISEASE DETECTION AND REPORTING

FINDING: 29 states were able to rapidly identify disease-causing *E.coli* O157:H7 and submit the lab results in 90 percent of cases within four days during 2007-08.

29 states were able to rapidly identify disease-causing *E.coli* O157:H7 and submit the lab results in 90 percent of cases within 4 days during 2007-08 (1 point).		**21 states were NOT able to rapidly identify disease-causing *E.coli* O157:H7 and submit the lab results in 90 percent of cases within 4 days during 2007-08 (0 points).**	
Alabama	Mississippi	Georgia	Nevada
Alaska	New Jersey	Hawaii	New Hampshire
Arizona	New Mexico	Idaho	New York
Arkansas	North Dakota	Indiana	North Carolina
California	Ohio	Iowa	Pennsylvania
Colorado	Oklahoma	Kansas	Rhode Island
Connecticut	Oregon	Maine	South Carolina
Delaware	Tennessee	Massachusetts	South Dakota
Florida	Utah	Missouri	Texas
Illinois	Vermont	Montana	West Virginia
Kentucky	Virginia	Nebraska	
Louisiana	Washington		
Maryland	Wisconsin		
Michigan	Wyoming		
Minnesota			

Note: As D.C. did not report receiving any *E.coli* samples, the city is not evaluated on this indicator.

Source: CDC *Strengthening the Nation's Emergency Response State by State* report.

The intent of this indicator is to determine if a laboratory can rapidly receive, test, and report disease-causing bacteria within a specified time-frame.

The ability to rapidly detect and determine the extent and scope of foodborne disease outbreaks — and other infectious disease outbreaks or bioterror attacks — is crucial to minimizing the impact of these outbreaks on the public's health. CDC requires state public health labs to be able to use CDC's pulsed-field gel electrophoresis (PFGE) protocols to rapidly identify specific strains of *E. coli*. In addition, labs must then be able to submit these results within four working days to the PulseNet database at least 90 percent of the time. The PulseNet database is used to determine whether the pathogen responsible for the outbreak is responsible for other outbreaks across the nation.

EXPERT PERSPECTIVE

Hidden Outbreaks and Inspection Gaps Pose Public Health Risks

*By Caroline Smith DeWaal**

When it comes to food safety, state and local public health departments — and the people who staff them — are vital to protecting the public. They serve as the front-line detectives in investigating disease outbreaks, many of which are traced to food. They conduct restaurant inspections, along with inspections of the food service for hospitals, day care centers and nursing homes. States also play a role in inspecting food plants that sell products both locally and nationally. Yet, as states face critical shortfalls in funding, many state and local public health departments may not have the staff or resources to do these critically important jobs.

Over the last 10 years, foodborne-illness outbreak reports to CDC have ranged from 1,400 to less than 1,000 annually, with dramatic year-to-year fluctuations. When controlled for population, nearly half of the states are reporting only one to three outbreaks per million population, significantly lower than benchmark states like Minnesota and Oregon that report 10 outbreaks per million. Many of the lowest-reporting states are in the southern area of the country where warm temperatures alone could lead to increased risks of foodborne illnesses and outbreaks. And several states with connecting borders that would seem quite similar with respect to climate or population showed wide differences in outbreak reporting. Equally troubling is the decline in the quality of their investigations: overall, states reported 33 percent fewer "solved" outbreaks to CDC in 2007 than in 2002 — meaning an outbreak where investigators identify both the pathogen and the food involved.

Outbreak investigations are vital to identifying contaminated food and removing it from the market. A prompt investigation that identifies a contaminated food can result in faster recalls and prevent many people from becoming ill. This on-the-spot information is highly valuable from a public health standpoint. Equally important, however, is that the information feeds into preventive controls systems — called "HACCP" for Hazard Analysis Critical Control Points — in use throughout the food industry. These systems begin with a hazard analysis which uses data from outbreaks to help identify key hazards linked to specific foods, leading to the development of facility-specific control plans to manage those hazards. Outbreak investigations provide highly reliable information for these systems.

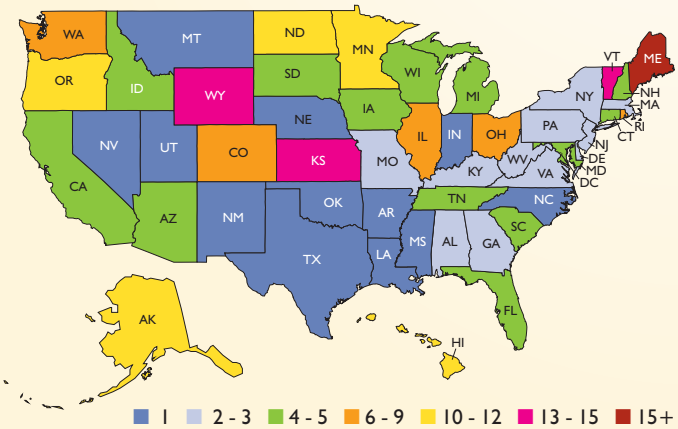
Public health programs in some states are so strapped for resources that when emerging concerns, like bioterrorism or swine flu, required large-scale training, the quality of outbreak investigations noticeably declined. That occurred in 2003, when bioterrorism concerns triggered Congressional spending on state training exercises. While this training was certainly useful, agencies must be staffed adequately to maintain their ongoing missions. After all, it would be unfortunate to miss a real outbreak while an investigator participates in an outbreak "table top" training exercise.

Restaurant inspections are another vital service performed at the state or local level that helps prevent outbreaks. Contrary to the common belief that most outbreaks happen at home, restaurant outbreaks are twice as frequent as and larger than those associated with home-prepared foods. Yet research conducted by the Center for Science in the Public Interest has shown that in many cities, infrequent restaurant inspections often disclose critical violations that could result in contaminated food. An inspector conducting simple checks of cooking and holding temperatures and proper storage can literally prevent tens or even hundreds of illnesses. Also important is the reality that even twice-a-year inspection, with the possibility of adverse publicity and closure, prompts many managers to prioritize food safety in their restaurant's operation.

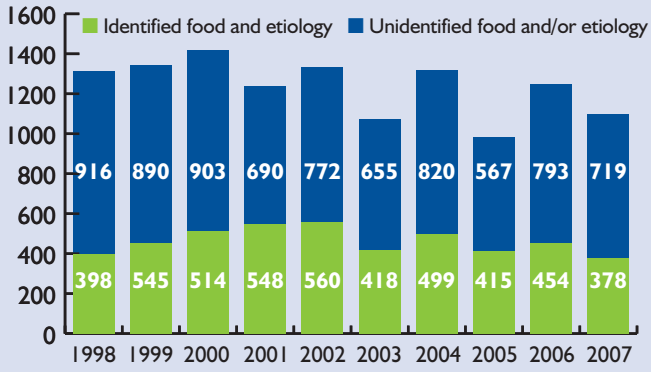
Pressures on state budgets are growing and these essential food safety functions are already facing significant cuts. As one response, some in the federal government have proposed turning more responsibility for inspecting food processors over to state inspection programs, along with some federal funding. Unfortunately these programs might start to compete for scarce food safety staff. With millions sickened each year from preventable foodborne illnesses and outbreaks, it is more important than ever for food safety programs to survive these challenging times.

** Caroline Smith DeWaal is director of food safety for the Center for Science in the Public Interest and co-author of "Is Our Food Safe?" (2002, Three Rivers Press)*

Reported Outbreaks per Million Population (2007)



Foodborne Illness Outbreaks Reported to CDC (1998 - 2007)



9. Indicator: PUBLIC HEALTH LABORATORIES — SURGE WORKFORCE

FINDING: 3 states and D.C. report not having enough staffing capacity to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1.

47 states report having enough staffing capacity to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1 (1 point).		**3 states and D.C. report NOT having enough staffing capacity to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1 (0 points).**
Alabama	Nevada	D.C.
Alaska	New Hampshire	Hawaii
Arizona	New Jersey	Iowa
Arkansas	New Mexico	Montana
California	New York	
Colorado	North Carolina	
Connecticut	North Dakota	
Delaware	Ohio	
Florida	Oklahoma	
Georgia	Oregon	
Idaho	Pennsylvania	
Illinois	Rhode Island	
Indiana	South Carolina	
Kansas	South Dakota	
Kentucky	Tennessee	
Louisiana	Texas	
Maine	Utah	
Maryland	Vermont	
Massachusetts	Virginia	
Michigan	Washington	
Minnesota	West Virginia	
Mississippi	Wisconsin	
Missouri	Wyoming	
Nebraska		

Source: APHL *2010 Survey of State Public Health Laboratories*

In the initial phases of an outbreak of a novel influenza virus, public health labs are on the front lines conducting diagnostic testing because other labs generally lack this capacity. Once a novel virus is established in the population, diagnostic testing is no longer as important and public health labs switch to surveillance testing. The surveillance testing allows public health officials to gather enough information to track the pandemic and monitor any genetic mutations or changes in the virus.

During a pandemic flu or other infectious disease outbreak, the demand on the public health lab workforce is great – and in some cases, exceeds supply. According to a survey APHL conducted of state public health laboratories in the fall of 2010, three states and Washington, D.C. reported not having enough staffing capacity to work five, 12-hour days for six to eight weeks in response to an infectious disease outbreak, such as novel influenza A H1N1.

Funding for public health laboratories is a major concern. Of the $600 million for pandemic preparedness that was distributed to states in FY 2006 and FY 2007, public health laboratories received little. Even the emergency supplemental signed June 24, 2009 provided very little for laboratory preparedness.

10. Indicator: PUBLIC HEALTH LABS -- CHEMICAL TERRORISM PREPAREDNESS

FINDING: 49 states and D.C. increased or maintained their Laboratory Response Network for Chemical Threats (LRN-C) chemical capability from August 10, 2009 to August 9, 2010.

49 states and D.C. increased or maintained their LRN-C chemical capability (1 point).		1 states DECREASED their LRN-C chemical capability (0 points).
Alabama	Nevada	Illinois
Alaska	New Hampshire	
Arizona	New Jersey	
Arkansas	New Mexico	
California	New York	
Colorado	North Carolina	
Connecticut	North Dakota	
Delaware	Ohio	
Florida	Oklahoma	
Georgia	Oregon	
Idaho	Pennsylvania	
Indiana	Rhode Island	
Kansas	South Carolina	
Kentucky	South Dakota	
Louisiana	Tennessee	
Maine	Texas	
Maryland	Utah	
Massachusetts	Vermont	
Michigan	Virginia	
Minnesota	Washington	
Mississippi	West Virginia	
Missouri	Wisconsin	
Nebraska	Wyoming	

Source: APHL *2010 Survey of State Public Health Laboratories*

Public health laboratories around the country participate in the Laboratory Response Network (LRN) to ensure an effective laboratory response to bioterrorism. The network helps improve the nation's public health laboratory infrastructure, which, once, had limited ability to respond to bioterrorism.

According to CDC, "the LRN is charged with the task of maintaining an integrated network of state and local public health, federal, military, and international laboratories that can respond to bioterrorism, chemical terrorism and other public health emergencies. The LRN is a unique asset in the nation's growing preparedness for biological and chemical terrorism. The linking of state and local public health laboratories, veterinary, agriculture, military, and water- and food-testing laboratories is unprecedented."[48]

Formed in 1999 by CDC, APHL and the FBI, the LRN is the nation's premier system for identifying, testing, and characterizing potential agents of biological and chemical terrorism, emerging infectious diseases, and other public health threats.[49]

State and local health laboratories comprise approximately 70 percent of the 169 LRN Biological Reference Laboratories and almost 100 percent of the LRN Chemical Laboratories. These laboratories produce high-confidence test results that are the basis for threat analysis and intervention by both public health and law enforcement authorities.

The LRN for Bioterrorism is organized as a three-tiered pyramid. At the base are thousands of sentinel clinical laboratories, which perform initial screening of potential pathogens. When sentinel clinical laboratories cannot rule out the presence of a bioterrorism agent, they refer specimens and isolates to the appropriate LRN reference laboratory. More than 160 state, local, and federal facilities provide reference testing. At the apex are the national laboratories, such as those at CDC and the U.S. Department of Defense. These laboratories test and characterize samples that pose challenges beyond the capabilities of reference laboratories, and provide support for other LRN members during a serious outbreak, public health emergency, or terrorist event. The most dangerous or perplexing pathogens are handled only at BSL-4 laborato-

ries at CDC and the U.S. Army Medical Research Institute of Infectious Diseases.

Fifty-three laboratories within U.S. states, territories, or metropolitan areas make up the chemical component of the LRN – and are responsible for collecting and detecting exposure to toxic chemical agents.

- Ten labs are "Level 3" laboratories – which maintain the basic functions that all of the LRN labs have – to be able to work with hospitals and other first responders within their jurisdiction to maintain competency in clinical specimen collection, storage, and shipment.
- Thirty-seven labs are "Level 2", meaning chemists who are trained to detect exposure to a number of toxic chemical agents are present. Analysis of cyanide, nerve agents, and toxic metals in human samples are examples of Level 2 activities.
- Ten labs are "Level 1." These laboratories can serve as surge capacity for CDC and also can detect exposure to an expanded number of chemical agents, including mustard agents, nerve agents, and other toxic industrial chemicals. These labs expand CDC's ability to analyze large number patient samples when responding to large-scale exposure incidents.

This indicator is based on a question from the APHL survey of states, asking whether their LRN chemical capability increased, decreased, or was maintained from August 10, 2009 to August 9, 2010.

Forty-nine states and Washington, D.C. reported they increased or maintained their LRN chemical capabilities, and only one reported a decrease. This is based on their status as part of the LRN.

LABORATORIES AND THE ABILITY TO TRANSMIT TEST AND RESULT DATA ELECTRONICALLY[50]

Labs provide the means to recognize and alert officials to outbreaks of newly-emergent and recurrent disease by serving as testing sites for private physicians, hospitals and clinics, as well as serving as a direct interface between state and federal epidemiologists. Public health laboratories safeguard entire communities. Without the ability to manage laboratory data themselves, labs cannot disseminate information timely and accurately to those responsible for managing, controlling and responding to an event. This cannot be achieved without sustained funding to ensure labs have access to technologically-advanced information systems in times of crisis.

Virtually every government agency has created an information network within the past five years to try and support web-based exchange of laboratory data. The problem is that these efforts have not been coordinated, nor adequately funded, resulting in a multitude of siloed, inefficient, often homegrown systems.

Electronic Laboratory Messaging would promote rapid information dissemination and mitigation of exposure. Test orders and results would no longer be inefficiently reported by telephone, fax and email. Improvements in health information technology must include the laboratories that perform testing of public health significance.

Modernizing these systems and enabling interoperability is a huge challenge. Public health scientists and IT experts from APHL member laboratories working with CDC on the Public Health Laboratory Interoperability Project (PHLIP) to define the necessary infrastructure and expertise that a public health laboratory must have to enable two-way electronic data transmission with public health and clinical partners in a recognized standard format. According to a recent report from Analytic Services, Inc., a panel of subject matter experts identified a funding level of $200 million annually would be needed to build and support this system.

B. PAST INDICATORS UPDATE

States have made significant progress in preparedness since September 11, 2001. The following are some key past indicators that demonstrate important advances.

1. Strategic National Stockpile (SNS)

Since the first edition of the Ready or Not? report in 2003, TFAH has tracked states plans to receive and distribute emergency vaccines, antidotes, pharmaceuticals, and medical supplies from the SNS. In 2003, only two states had adequate plans based on a CDC evaluation. Now, based on CDC's technical assistance review (TAR), all 50 states and D.C. have adequate plans to receive and distribute supplies from the SNS. It should be emphasized that the scoring system assesses **planning and management of the stockpile.** It does not reflect the actual capacity of the state to deploy countermeasures and other supplies from the SNS.

State and local health departments plan and train in order to: 1) receive SNS assets from the federal government; 2) distribute, or move, those assets from the storage facility to the point of dispensing (POD); and 3) dispense, or provide or administer, the medical countermeasure to the affected person(s).

It is worth noting that CDC has changed its evaluation system, and that scores still vary greatly based on this system, ranging from a high of 100 in eight states (California, Indiana, Louisiana, Michigan, New Jersey, New York, Texas, and Virginia) to a low of 70 in Alaska and Idaho. Between 2007-08 and 2008-09, the majority of states were able to increase or maintain their SNS TAR scores, although there were some exceptions. In seven states, SNS TAR scores fell between budget years (Alabama, Alaska, Idaho, Kentucky, Missouri, New Hampshire, and Ohio).

CDC set a goal for states to obtain a score of 69 or higher on the SNS TAR by December 31, 2008. Currently, all 50 states and D.C. meet this goal; however, moving forward states must score 79 or higher in order to meet grant requirements. Presently, only three states (Alaska, Idaho, and New Mexico) fail to meet this objective.

State	SNS TAR score (2008-09)	SNS TAR score (2007-08)	State	SNS TAR score (2008-09)	SNS TAR score (2007-08)
Alabama	86	92	Missouri	89	96
Alaska	70	80	Montana	96	91
Arizona	85	83	Nebraska	85	81
Arkansas	97	93	Nevada	89	55
California	100	100	New Hampshire	81	86
Colorado	96	94	New Jersey	100	98
Connecticut	94	84	New Mexico	78	71
Delaware	98	96	New York	100	97
DC	pending	94	North Carolina	98	93
Florida	98	95	North Dakota	83	77
Georgia	90	73	Ohio	89	90
Hawaii	84	74	Oklahoma	98	97
Idaho	70	90	Oregon	86	85
Illinois	99	96	Pennsylvania	82	60
Indiana	100	96	Rhode Island	99	93
Iowa	95	93	South Carolina	93	87
Kansas	94	93	South Dakota	91	87
Kentucky	83	86	Tennessee	89	89
Louisiana	100	94	Texas	100	97
Maine	90	51	Utah	88	85
Maryland	96	93	Vermont	98	93
Massachusetts	93	91	Virginia	100	100
Michigan	100	95	Washington	97	94
Minnesota	88	84	West Virginia	83	61
Mississippi	99	95	Wisconsin	92	86
			Wyoming	80	80

Source: CDC *Strengthening the Nation's Emergency Response State by State* report.

THE STRATEGIC NATIONAL STOCKPILE (SNS)

The SNS maintains a variety of critical pharmaceuticals and medical supplies including antibiotics such as ciprofloxacin and doxycycline, chemical nerve agent antidotes like atropine and pralidoxime, antiviral drugs such as Tamiflu® and Relenza®, pain management drugs such as morphine, vaccines for agents like smallpox, and radiological countermeasures such as Prussian blue and DTPA. In addition to pharmaceuticals, the SNS contains supportive care supplies like endotracheal tubes and IV supplies, burn and blast supplies such as sutures and bandages, ventilators, personnel protective equipment such as N-95 respirators and surgical gloves and other life-saving medical materiel. While this list is not comprehensive, it is representative of the items contained in the SNS.

The SNS is positioned in undisclosed locations throughout the United States and is configured to provide a flexible response strategy. Included in the stockpile are a dozen 12-hour Push Packages, which contain over 50 tons of pharmaceuticals and medical materiel. These assets are pre-configured in deployable containers and strategically located to enable rapid delivery to the site of a national emergency within 12 hours of the federal decision to deploy.

The majority of the SNS formulary is maintained in managed inventory. Like the 12-hour Push Packages, these assets are also strategically located around the nation. They provide the ability to configure and deliver significant quantities of pharmaceuticals and medical materiel as an initial response if the nature of the public health emergency is well defined, or as follow-on to a "push package" delivery. Delivery of assets from managed inventory are planned to begin arriving within 24 to 36 hours after the federal decision to deploy them. Quantities in the SNS change based on national planning guidance and prioritization, modeling scenarios, and standard inventory management procedures.

According to the Office of the Assistant Secretary for Preparedness and Response (ASPR), some of the contents of the national stockpile include:

- Enough smallpox vaccine to protect 300 million people, or every man, woman, and child in America;[51]
- Over 41 million regimens of countermeasures against anthrax;[52]
- Therapeutic anthrax antitoxins to treat symptomatic patients;[53]
- 17 million anthrax vaccine (AVA) doses;[54]
- Countermeasures to address radiation exposure including 475,000 combined doses of Calcium-DTPA (Diethylenetriamine pentaacetate) and Zinc-DTPA;[55] and
- 4.8 million bottles of pediatric formulation of potassium iodide (KI) for use in the event of a release of radioiodines.[56]

The SNS also has a supply of countermeasures that could be used during an influenza pandemic. In fact, during the 2009 H1N1 pandemic flu response, the U.S. government distributed both antivirals and supplies from the SNS to state and local health departments. As of June 17, 2010, the total quantity of antiviral drugs in the stockpile was 68 million treatment courses.[57] The pediatric formulations of antivirals had also been replenished and increased. It is unclear what plans CDC has to replenish the supplies, including N95 respirators and surgical masks, which were deployed during the H1N1 pandemic. HHS is conducting a review of all hazards requirements for these ancillary supplies which will result in recommendations that include replenishment plans.

2. Pandemic Flu Plans and Response Capabilities

Every state and D.C. developed pandemic flu plans that had been reviewed by HHS before the 2009 outbreak of the H1N1 pandemic. In 2003, only 13 states had developed pandemic plans.

In addition, in 2005, a National Strategy for Pandemic Influenza was issued, creating a strong, in-depth national response plan which defined and delegated roles and responsibilities for every federal agency and grants to support preparedness in states.

The response to the H1N1 outbreak showed the country was much better prepared to respond to a pandemic than it was a few short years ago. There was an unprecedented large-scale nationwide response that included surveillance, laboratory testing, public and practitioner education, medical countermeasure management, and the distribution and launch of a national vaccination campaign in a very short period of time.

3. Biosurveillance — Compatability with CDC's National Electronic Disease Surveillance System (NEDSS)

As of 2009, 44 states and Washington, D.C. reported using a disease surveillance system that is compatible with CDC's National Electronic Disease Surveillance System. In 2004, only 18 states reported having a disease surveillance system that was NEDSS-compliant. NEDSS promotes standards-based, electronic reporting of infectious diseases for more rapid, accurate, and integrated information.

4. Vaccinating Seniors for the Seasonal Flu

In 2009, 47 states and Washington, D.C. increased vaccination rates for seniors. In 2006, only 38 states had increased rates from the year before. The ability to mass vaccinate the population or segments of the population is a key preparedness benchmark. According to CDC, often five to 20 percent of Americans contract the seasonal flu each year. Seasonal flu is preventable with a vaccine, yet millions of Americans still needlessly get the flu each year. The flu is often seen as a nuisance, but it is actually very serious. Between 1976 and 2007, flu-related deaths in the United States have ranged from a low of 3,000 to a high of 49,000 Americans each year.[58] Even for people who get sick, they need to take sick leave from work, possibly costing them pay and costing employers in lost productivity. The flu contributes to more than $10 billion in lost productivity and direct medical expenses and another $16 billion in lost potential earnings each year.[59] Seniors are among the highest risk groups for complications from the flu, so there is extra focus each year to try to vaccinate all seniors.

Seniors are particularly vulnerable for developing pneumonia as a complication of the flu. HHS has set a goal of vaccinating 90 percent of seniors against pneumonia. As of 2009, only three states did not maintain rates of vaccinating seniors against pneumonia.

5. Medical Reserve Corps Readiness

The Medical Reserve Corps (MRC) is a national network of community-based groups which engage civilian volunteers to strengthen public health, emergency response and community resilience. MRC volunteers include professionals from fields such as public health, medicine, and nursing, as well as non-health professionals who work on administration, logistics, communications and other support tasks.

The MRC network is supported by the Office of the Civilian Volunteer Medical Reserve Corps (OCVMRC), which is run out of the Office of the U.S. Surgeon General in coordination with ASPR. As of October 4, 2010 there were 210,180 volunteers enrolled in 940 MRC units in all 50 states, D.C., Guam, Palau, Puerto Rico, and the U.S. Virgin Islands.

It is recognized that local governmental services may be quickly overtaxed in a major public health emergency, and that MRC volunteers could help deliver essential medical care and other services. For example, Homeland Security Presidential Directive 21 (HSPD-21), emphasizes the need for state and local jurisdictions to have a cadre of trained volunteers who can come to the aid of their fellow community members. This presidential directive envisions a country "where local civil leaders, citizens, and families are educated regarding threats and are empowered to mitigate their own risk, where they are practiced in responding to events, where they have social networks to fall back upon, and where they have familiarity with local public health and medical systems."[60] Groups such as MRC fulfill this vision and "will significantly attenuate the requirement for additional assistance."[61]

As of November 2010, every state now meets the following three criteria (in 2009, only 41 states and Washington, D.C. met these criteria):

- The presence of a state-level MRC Coordinator.
  - All states have been encouraged to appoint an MRC State Coordinator to provide recommendations to OCVMRC about new (and continued) MRC unit registrations, and to provide technical assistance and support to their local MRC units. The appointment of an MRC State Coordinator shows a level of commitment from the state to the MRC. In some states, the same individual serves a dual role as the MRC State Coordinator and coordinator for the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP).

- The majority of MRC units in a state are in compliance with the National Incident Management System (NIMS) guidelines, or working towards compliance.
  - NIMS provides a consistent nationwide mechanism for federal, state, tribal, and local governments, and private sector and nongovernmental organizations to effectively work together to prepare for, respond to, and recover from emergency incidents.
  - OCVMRC has provided the following guidance to MRC units regarding NIMS (available at http://www.medicalreservecorps.gov/NIMSGuidance): "all MRC units should adopt NIMS and an ICS response structure, and have a NIMS/ICS training plan that utilizes a tiered approach to meeting NIMS compliance requirements. All MRC leaders and members must be trained in ICS-100: An Introduction to ICS, or equivalent and IS-700: NIMS, An Introduction or equivalent, and have received certificates of completion for these courses."
- The majority of MRC units in a state are integrated with the state ESAR-VHP or working towards integration.
  - The MRC and ESAR-VHP are national initiatives of HHS created to improve the nation's ability to prepare for and respond to public health and medical emergencies. While MRC units are made up of individuals from local communities who support public health activities year-round, and are trained to respond in times of emergency, the ESAR-VHP system is primarily a means of registering and verifying the credentials of volunteer health professionals in advance of an emergency. HHS encourages integration so as to strengthen the local-state-federal coordination of volunteers in the event of a public health emergency.

The local MRC units are a crucial part of our nation's public health emergency response workforce. These men and women serve their communities throughout the year and are ready when needed if an emergency, such as H1N1 or a natural disaster, strikes. Ensuring a robust MRC capability provides communities with a local safety net that can be activated in times of need which increases public health resiliency and helps to further states, and our nation's national health security.

FUTURE MRC ANALYSIS

MRC units participate in local activities on a regular basis, and are encouraged to report on those activities at least once per quarter. Activities are classified into the following four categories: administrative, preparedness/training, public health, and emergency response.

Since nearly every state now has a coordinator in place, for future analyses, TFAH will work with OCVMRC to assess the MRC units within each state on their participation in and reporting of activities. This is an important mark of preparedness because ongoing activities are an indicator of a unit's overall engagement of volunteers and resilience. Since most jurisdictions will not have an emergency to respond to, an MRC unit's support of local public health activities as well as preparedness and training of their volunteers serves as an indicator that the community has engaged volunteers who support preparedness. State leaders can encourage, support, promote, and work with the local MRC units in their states on a variety of activities.

An assessment performed in Fall 2010 by OCVMRC showed that for FY 2010 (October 1, 2009 to September 30, 2010) only 33 percent of all MRC units reported on their MRC profile at least one activity per each quarter. Further, only 10 states reported that the majority of MRC units in that state participated in at least one activity per quarter.

Data for this analysis will cover the FY2011 reporting period (October 1, 2010 to September 30, 2011) and will be provided by OCVMRC to TFAH.

Federal Policy Issues and Recommendations

Over the past decade, the country has made great strides in preparing for public health emergencies.

However, there are still major, fundamental gaps that leave Americans unnecessarily vulnerable to threats of disease, disasters, and bioterrorism.

The current economic climate makes it harder than ever to continue progress and threatens the improvements that have already been made. Even with limited resources, we must address some key issues, otherwise the country will remain at high-risk.

TFAH has identified some top concerns that must be addressed moving forward, including:

A. Providing resources to truly modernize public health systems — including a real-time disease detection and tracking system;

B. Ensuring there are a sufficient number of adequately trained public health experts — including epidemiologists, physicians, nurses, and other workers — to respond to all threats to the public's health, including the priorities established in the PAHPA;

C. Improving research, development, and availability of vaccines and medications;

D. Increasing the ability of the public health and health care systems to quickly expand beyond normal services during a major emergency; and

E. Working with communities to cope with and recover from emergencies — particularly more vulnerable members of communities, such as children, the uninsured or underinsured, the elderly, people with underlying health conditions, racial and ethnic minorities, and lower-income individuals.

REAUTHORIZATION OF THE PANDEMIC AND ALL-HAZARDS PREPARENDSS ACT (PAHPA)

In 2011, Congress may consider reauthorization of PAHPA, which became law in December 2006. This would provide an opportunity to update the statute to more adequately address ongoing challenges that public health preparedness faces.

The PAHPA legislation helped to greatly strengthen the nation's preparedness and response planning — and helped the country plan ahead and be better prepared for emergencies like the H1N1 flu pandemic and Gulf Coast oil spill.

In 2010, members of the Institute of Medicine's Forum on Medical and Public Health Preparedness for Catastrophic Events identified a number of priority issues that should be considered as part of PAHPA reauthorization discussions. TFAH recommends that these issues be treated as top priorities:

1) Sustaining and strengthening state and local preparedness through federal grants and defining benchmarks or measures of preparedness and response;
2) Data collection and research;
3) Improving preparedness and response for vulnerable populations;
4) Leveraging the health care industry to strengthen preparedness and response;
5) Medical countermeasures;
6) Modernization of the National Disaster Medical System (NDMS); and
7) Improving regional and community resilience.

TFAH asked Dr. Robert Kadlec and Lynne Kidder, who co-chair the forum, to provide a commentary about these priority issues.

EXPERT PERSPECTIVE

Priorities for Reauthorization of the Pandemic and All-Hazards Preparedness Act

By Robert Kadlec and Lynne Kidder

Since the 109th Congress enacted the Pandemic and All-Hazards Preparedness Act (PAHPA) in late 2006, we have seen many of the bill's provisions have a direct impact on the federal, state and local responses to large-scale medical and public health disasters — including most recently, the 2009 H1N1 pandemic, the response to the 2010 earthquake in Haiti, and the health effects of the Deepwater BP Oil Spill. Many of the outcomes from the original legislation have strengthened the medical and public health community, and the nation's resilience at large; however, many challenges remain.

The 2006 PAHPA authorized HHS to appoint the Assistant Secretary for Preparedness and Response; provided new authorities for a number of programs, including the advanced development and acquisition of medical countermeasures; and called for the establishment of a quadrennial National Health Security Strategy. How do we build on this foundation to enable continued progress? As the 112th Congress takes on the responsibility of reauthorizing PAHPA, it will become extremely important that the full spectrum of the public health community inform the on-going discussions related to that legislation. We believe medical and public health stakeholders must identify a set of key principles, goals, and core capabilities that can guide the PAHPA reauthorization.

At a recent meeting of the Institute of Medicine's Forum on Medical and Public Health Preparedness for Catastrophic Events, its members discussed a spectrum broad range of issues that will be important to consider during PAHPA reauthorization. Seven core capabilities emerged as worthy of priority consideration: 1) Sustaining and strengthening state and local preparedness through federal grants; 2) Defining benchmarks or measures of preparedness and response and data collection and research; 3) Improving preparedness and response for vulnerable populations; 4) Leveraging the health care industry to strengthen preparedness and response; 5) Medical countermeasures; 6) Modernization of NDMS; and 7) Improving regional and community resilience.

Sustaining and strengthening state and local preparedness through federal grants

National preparedness and response is largely dependent on the ability of states and localities to effectively prepare for and manage the response to disasters. This capability requires training, exercising, and resources. We need to improve current funding mechanisms by considering alternative funding formulas, multi-year grant cycles, greater flexibility in carryover and use of funds, improved streamlining of federal resources during disasters, and whether to provide states and localities the authority to utilize or draw from other federal grant dollars when responding to a public health emergency. In addition, during non-Stafford Act public health emergencies, there is a need for alternative funding mechanisms.

Defining benchmarks or measures for preparedness and response: data collection and research

Disaster management is not static, but an evolving capability that requires real time situational awareness to inform decisions. Furthermore, as the Deepwater BP Oil Spill and destruction of the Twin Towers in New York have shown, many disasters carry long term health consequences that may not be apparent at the time of the incident. Therefore, it is important to begin to collect data from the time an incident occurs — not 100, 200, or 300 days later. We need to create a research infrastructure that fits into response plans, without becoming a burden to responders. Scientific protocols should be in place and ready to be activated when a disaster occurs, with the understanding that the research infrastructure must be flexible enough to adapt to unique or changing circumstances.

Improving preparedness and response for vulnerable populations

Planning for vulnerable populations must be a central component of disaster planning and response at all levels of government — not an afterthought. We need to clarify the authorities and responsibilities of

federal, state, and local governments to better facilitate the care and potential evacuation of vulnerable populations. There should be greater focus on technologies capable of tracking individuals during an emergency, and public shelters need to better integrate the needs of persons with disabilities. Children and youth in particular have unique requirements and must become a national priority.

Leveraging the private health care industry to strengthen preparedness and response

Government alone does not have the resources or expertise to prepare and respond to a significant public health disaster. Rather, the most prepared communities are those that work in partnership with the entire community — both public and private sectors — to ensure a resilient disaster response system. Medical and public health preparedness must be considered a component of national security, as well. Partnerships with private industry — such as pharmacies, hospitals, EMS and other critical infrastructure, need to be part of medical and public health preparedness and response planning. Legal and regulatory frameworks need to facilitate, not discourage, this kind of capacity-building collaboration so critical to disaster response.

Medical countermeasures

Research, development, and dispensing of MCM should remain a national priority. We need to create benchmarks and new tools to ensure states and localities have the capability to deliver and administer MCM within a defined timeframes; improve guidance pertaining to the Shelf-Life Extension Program for medical countermeasures; continue our work to develop alternative and enhanced dispensing modalities, including home stock piling; and create a federal registry to be used in coordination with other biosurveillance tools, to track and monitor medical countermeasure distribution and dispensing. And finally, we need to provide for emergency use authorizations of non-FDA approved MCMs.

Modernization of NDMS

The National Disaster Medical System (NDMS) provides medical care to victims and responders during a domestic disaster by supplementing response capabilities and assisting state and local authorities. While NDMS has a solid track record of service, the program could be strengthened through the establishment of regional centers of excellence and by providing core standardized training for all providers and response entities. Improved partnerships with the private sector and improved logistical systems to track personnel and supplies would also enhance response capabilities and coordination. An important adjunct to NDMS is the pivotal role played by Emergency Medical Services, whose capabilities and contributions should be recognized as an essential part of our national system.

Improving regional resilience

Community resilience is dependent not only on the capabilities of its local citizens and institutions, but also on the preparedness and resources of neighboring communities. Likewise, regional resilience is fundamental in managing any large-scale public health disaster of national or even global significance. Research should continue to establish core standards and metrics of readiness, response, and recovery. Regional disaster plans should be inclusive and regularly exercised, along with associated training programs. Regional centers should also facilitate information sharing among health systems and other critical infrastructure.

Conclusion

The reauthorization of PAHPA provides the medical and public health community the opportunity to debate and define the core capabilities that will ensure that our neighbors, communities, and the nation are capable of responding to large-scale medical or public health threats. These capabilities need not be codified, but rather should help inform PAPHA reauthorization so as to provide the tools and guidance for states and local communities to achieve a higher level of preparedness and resilience.

Dr. Robert Kadlec is a Vice President in the Global Public Sector of PRTM. He previously served as Special Assistant to the President for Homeland Security. He also serves as co-chair of the Institute of Medicine's Forum on Medical and Public Health Preparedness for Catastrophic Events

Ms. Lynne Kidder is a Senior Advisor at the Center for Excellence in Disaster Management and Humanitarian Assistance, a DoD organization reporting to U.S. Pacific Command. She also serves as co-chair of the Institute of Medicine's Forum on Medical and Public Health Preparedness for Catastrophic Events

The responsibility for the content of this commentary rests with the authors and does not necessarily represent the views of the Institute of Medicine, its staff, its committees, or its convening activities.

Federal Funding for State and Local Preparedness, Hospital Preparedness, and State and Local Pandemic Preparedness

PHEP Actual Levels - 2009 report.	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	TOTAL
Upgrading State & Local Capacity	$1,038,858,000	$918,454,000	$919,148,000	$823,099,000	$766,660,000	$746,039,000	$746,596,000	$761,100,000	$6,719,954,000
HPP Actual Levels - 2009 report	**FY 2003**	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**FY 2009**	**FY 2010**	
Hospital Preparedness	$498,000,000	$514,943,000	$487,098,000	$473,882,000	$474,030,000	$423,399,000	$393,585,000	$426,000,000	$3,690,937,000
Pandemic Influenza Supplemental Funding			**FY2006**	**FY2007**	**FY2008**	**FY2009**			
				$325,000,000	$250,000,000	$24,000,000	$1,444,000,000		$2,043,000,000
Subtotal	$1,536,858,000	$1,433,397,000	$1,406,246,000	$1,621,981,000	$1,490,690,000	$1,193,438,000	$2,584,181,000	$1,187,100,000	
Total Pandemic & All Hazards Funding for S&L and HPP									**$11,266,791,000**

A. FUNDING AND MODERNIZING PUBLIC HEALTH PREPAREDNESS

While the available funds to improve public health preparedness over the last decade have supported major improvements — in recent years, the funding levels have been insufficient to truly modernize and upgrade many public health functions.

Over the years, the funding has decreased — due to federal cuts to the grants for state and local preparedness and state and local cuts to core infrastructure.

In order to bring public health into the 21st century and to improve the boots-on-the-ground readiness, TFAH recommends that:

1. Infrastructure funds authorized by the new health reform legislation should be appropriated and leveraged to modernize biosurveillance, the public health workforce, and other core systems; and
2. Cuts to the state and local preparedness grants must be restored to levels adequate to meet current public health preparedness needs, including special focus on building the public health workforce, and greater flexibility is needed to get funds out quickly to states and locals during emergencies.

1. Health Reform and Modernizing Biosurveillance and Infrastructure

Despite attempts to improve preparedness — funding has not been at an adequate level to upgrade some core systems — and until these outdated systems are modernized, responses to emergencies will be behind the times.

Departments around the country are operating with outdated technologies, workforce and training shortages, and limited laboratory capacity.

As a priority example, the lack of real-time, coordinated surveillance is one of the most troubling and ongoing gaps in our core systems. While technologies exist to greatly improve the collection, reporting, and timeliness of data — resources have not been devoted to an overhaul. Instead, health departments around the country have a patchwork of different systems and reporting methods — which slow and hamper the intelligence public health officials can use to track and control disease outbreaks or bioterrorism events. CDC should also be able to perform in-depth epidemiologic assessments.

Looking for resources in the current economic climate to upgrade systems is more challenging than usual. However, the Prevention and Public Health Fund, created in the Affordable Care Act (ACA), provides a new potential opportunity for increased funds to improve infrastructure. Over the next 10 years, $15 billion will be available to support a broad range of public health programs. In FY 2010, the Obama Administration committed $70 million in one-time funding for Public Health Infrastructure.[62] Congress and the Administration should make a multi-year commitment of a defined portion of the fund to improving Public Health Infrastructure.

TFAH recommends that the ACA funds devoted to public health infrastructure be coordinated with the Public Health Emergency Preparedness (PHEP) grants to leverage a meaningful modernization of the core capacities of state and local health departments. This would have a positive impact on our public health system across all threats and all public health problems, and would specifically improve our nation's preparedness capability by including:

- A real-time surveillance system with uniform national standards that is compatible with emerging Health Information Technology (HIT) and Electronic Health Records (EHR) standards;
- Laboratories with state-of-the-art, interoperable technology and enough trained experts;
- Coordinated, efficient ability to distribute vaccines, medications, and equipment to the public; and
- A dedicated workforce with the expertise to manage information and new technologies.

Fed Funding for State & Local Preparedness, Hospital Preparedness, & Pandemic Preparedness						
PHEP Actual Levels 2009 report.	**2010 +/- 2005 (unadjusted for inflation)**	**% change (adjusted for inflation)**	**% change President's Budget**	**FY 2011**	**2011 +/- 2010**	**% change**
Upgrading State & Local Capacity	($158,048,000)	-17%	-26.95%	757,793,000	-$3,307,000	-0.43%
HPP Actual Levels - 2009 report	**2010 +/- 2005**					
Hospital Preparedness	($61,098,000)	-13%	-22.85%	426,000,000	$0	0.00%
Pandemic Influenza Supplemental Funding						
Subtotal	($219,146,000)	-16%	-25.53%			

CDC Funding
Source: FY 2010: http://www.cdc.gov/fmo/topic/Budget%20Information/appropriations_budget_form_pdf/FY2011_CDC_CJ_Final.pdf, p. 281

Source: FY 2009: http://www.cdc.gov/fmo/topic/Budget%20Information/appropriations_budget_form_pdf/FY2010_CDC_CJ_ Final.pdf, p. 366

Source: FY 2007 and FY 2008 numbers from http://www.cdc.gov/fmo/PDFs/FY09_CDC_CJ_Final.pdf, p. 371; FY 2004 and 2005 confirmed on p. 375.

Note: Upgrading State & Local Capacity includes funds for: PHEP Cooperative Agreement, Centers for Public Health Preparedness, Advanced Practice Centers, and All Other State and Local Capacity.

HPP Funding
Source: FY 2010: http://dhhs.gov/asfr/ob/docbudget/2011phssef.pdf, p. 32.

Source: FY 2009: http://www.hhs.gov/asrt/ob/docbudget/2010phssef.pdf, p. 8.

Source: FY 2007-2009 HHS FY 2009 Justification of Estimates for Appropriations Committees, http://www.hhs.gov/budget/09budget/budgetfy09cj.pdf, p. 290.; FY2004-2008 p. 304.

Note:HPP budget authority includes funding for both Hospital Preparedness and ESAR-VHP

2. Restore Funding for State and Local Preparedness Grants and Increase Flexibility and Speed of Funds to States During Emergencies

The H1N1 pandemic flu demonstrated ongoing budget and funds distribution challenges for emergency health preparedness.

The federal dollars that CDC uses to fund the state and local PHEP cooperative agreements, the Centers for Public Health Preparedness, the Advanced Practice Centers, and all other state and local capacity have declined nearly 27 percent since FY 2005 when adjusted for inflation. The President's FY 2011 budget proposal included $757.8 million for upgrading state and local capacity, a decline of less than one percent from FY 2010's $761.1 million.[63]

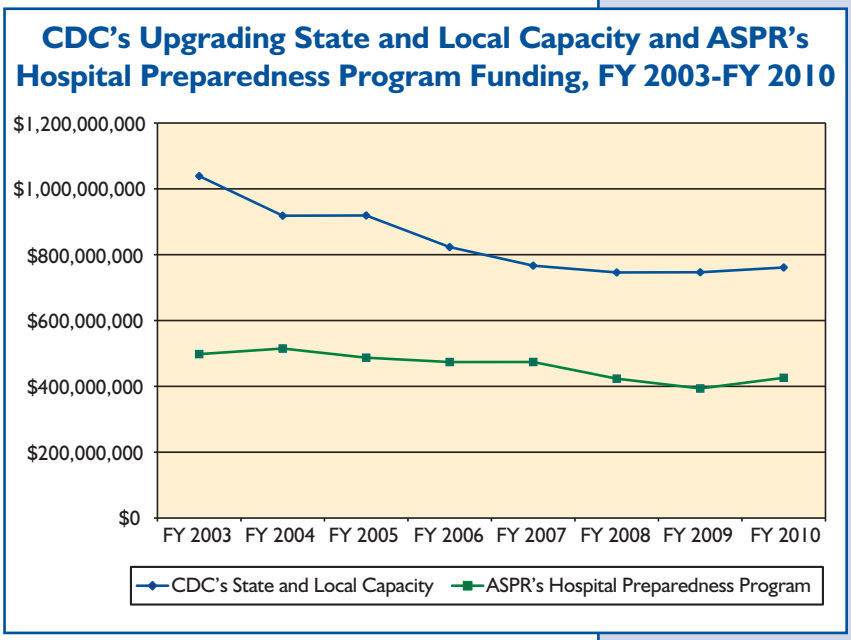
In addition to using new funds from ACA and restoring the cut funds, federal funding for preparedness should be better harmonized across departments and funding streams to ensure funds are being used as effectively as possible. Right now, federal funding for public health preparedness is fragmented with several agencies and departments responsible for various grant programs, including CDC, ASPR, and DHS. Each agency has its own funding requirements and objectives, which makes it challenging for state and local health departments to develop comprehensive preparedness plans.

Additional recommendations for the PHEP and for future supplemental emergency funds include:

- Putting mechanisms in place to get funds to states and for states to get funds to local departments and for contracting to be able to happen more quickly during emergencies;
- Considering enhanced flexibility to allow state and local health departments to waive some categorical requirements during times of emergencies – so all public health staff can be used to respond during crises;
- Ensuring maintenance of effort requirements are upheld and that states are required to maintain their funding levels; and
- Creating multi-year funding to allow more resources and time for states to meet requirements.

*Note: CDC's State and Local Capacity includes funds for: PHEP Cooperative Agreements, Centers for Public Health Preparedness, Advanced Practice Centers, and all other state and local capacity. ASPR's Hospital Preparedness Program line includes actual grant awards to states and ESAR-VHP funds. This chart represents actual funds, not adjusted for inflation.

Source: 1) Upgrading State and Local Capacity from CDC's FY 2011 Budget Justification document.[64] 2) Hospital Preparedness Program (HPP) funding from HHS's FY2011 Public Health and Social Services Emergency Fund Budget Justification document.[65]



B. ENSURING SUFFICIENT NUMBER OF ADEQUATELY TRAINED PUBLIC HEALTH EXPERTS

The public health workforce is in crisis. There are not enough professionals, particularly trained experts, to adequately protect Americans during health emergencies.

- As of 2008, the United States had an estimated 50,000 fewer public health workers than it did 20 years ago. In 2008 and 2009, approximately 23,000 local public health jobs were cut and additional jobs were lost at the state level;[66] and
- One-third of the public health workforce will be eligible to retire within five years.[67]

Public health needs to attract a new generation of professionals to serve core functions — but this is complicated by the fact that actual job slots are being cut, which makes it harder to recruit new individuals to enter the field.

The ACA provides some new opportunities to attract the next generation of public health professionals — but it does not necessarily adequately address the number of needed positions. TFAH recommends that serious efforts be made to recruit and train new workers, but also to evaluate the actual staffing needs of state and local health departments to perform basic preparedness functions, and that, where necessary, jobs be created or recreated to match the need.

TFAH recommends that some of the infrastructure funding provided in the Prevention and Public Health Fund be directed at protecting existing positions and recruiting and training new public health workers. In addition, TFAH recommends the workforce-related provisions of the ACA be implemented effectively and strategically to enhance the public health workforce as much as possible. Some of these key provisions include:

- The **Public Health Workforce Loan Repayment Program** which would provide loan repayment assistance for individuals who agree to serve full-time in a federal, state, local or tribal public health agency for at least three years. In FY 2010, $195 million was authorized to be appropriated for this program, and such sums as necessary for FY 2011-2015.
- The **Training for Mid-Career Public and Allied Health Professionals Program** would authorize the U.S. Secretary of HHS to make grants or enter into contracts to award scholarships to mid-career public health and allied health professionals to enroll in degree or professional training programs. $60 million was authorized for these programs in FY 2010 and such sums as necessary for FY 2011-2015.
- The **Fellowship Training in Public Health** authorizes funding for fellowship training in applied public health epidemiology, public health laboratory science, public health informatics, and expansion of the epidemic intelligence service in order to address documented workforce shortages in state and local health departments. For each of fiscal years 2010 through 2013, $5 million was authorized for epidemiology fellowship training programs, $5 million for laboratory fellowship training programs; $5 million for the Public Health Informatics Fellowship Program; and $24,500,000 for expanding the Epidemic Intelligence Service;
- **Grants to Promote the Community Health Workforce (CDC)** authorizes the Director of CDC to award grants to promote positive health behaviors and outcomes for populations in medically underserved communities through the use of community health workers; and
- **Epidemiology-Laboratory (Epi-Lab) Capacity Grants** which authorize the U.S. Secretary of HHS (subject to the availability of appropriations) to establish an Epidemiology and Laboratory Capacity Grant Program to award grants to eligible entities to assist public health agencies in improving surveillance for and response to infectious diseases and other conditions of public health importance. $190 million was authorized for each year of fiscal years 2010-2013. $20 million from the ACA Prevention Fund has already been used for Epi-Lab Capacity Grants.

C. RESEARCH AND DEVELOPMENT OF MEDICAL COUNTERMEASURES

Research and development of vaccines and medicines to help protect Americans from new diseases and bioterrorism threats remains problematic.

Project BioShield and BARDA were created to incentivize and speed the creation of new MCM. These have been important developments, which have led to advancements, including the rapid development of a vaccine in response to the H1N1 pandemic flu outbreak in 2009.

However, there are many challenges to creating medical breakthroughs, and the bureaucracy and a perceived limited profitability in developing countermeasures constrain progress. Few private entities have invested in the medical countermeasure market. But, development and manufacturing of MCM is vital to national security.

TFAH recommends strategic rethinking to spur the creation of MCM– to help better align private and national security interests. The White House recently released such a plan — a new strategy that would address key priorities to create incentives for private industry while protecting the public's interest, including:

1) Enhancing regulatory innovation, science, and capacity;
2) Improving domestic manufacturing capacity;
3) Providing core advanced development and manufacturing services to development partners;
4) Creating novel ways for the enterprise to work with partners;
5) Developing financial incentives;
6) Addressing roadblocks from concept development to advanced development; and
7) Improving management and administration within the enterprise.

The MCM review provided a series of recommendations including:

- Establish Centers for Innovation in Advanced Development and Manufacturing: HHS would invest in flexible manufacturing, where a single facility could produce platforms for a variety of health threats, and create advanced development partnerships between the government, industry, and academia to leverage each group's assets.
- Improve Regulatory Science: The plan calls for investment in FDA's scientific capacity to oversee medical countermeasures, to modernize and allow for increased efficiency in the regulatory review process.
- Create an MCM Strategic Investor (MCMSI): The proposal asks for statutory authority to create an independent strategic investment firm, similar to a venture capital firm, to bring together government and private investment in biotechnology that meets emerging public health needs yet still has commercial uses.
- Expand Translation of Product Concepts: One idea included in this category would build Early Development teams that would act as "sherpas," to provide strategic guidance to partner companies and academic institutions as they work with federal programs, to help move promising concepts through the process.
- Shore Up Federal Leadership: The review recommends an MCM development leader at HHS, better agency coordination, and a multi-year planning process.

Although some of the recommendations — including the proposal for an independent strategic investment firm — will require Congressional authorization, many of the recommendations can be implemented without seeking additional authorities. The review noted that both the public and private sector will be needed to truly transform the MCM enterprise. At the August 19, 2010 release of the report, senior Obama administration officials committed $1.9 billion to the plan, most of which would be from funds left over from the response to the H1N1 flu pandemic.[68] The money would fund:

- $170 million to improve FDA regulation of the drug-development process;
- $678 million for the development of new, flexible countermeasures manufacturing facilities;
- $33 million to accelerate pharmaceutical development processes at the National Institute of Allergy and Infectious Diseases;
- $822 million for efforts related to pandemic influenza vaccine development; and
- $200 million for the creation of the independent strategic investment firm.

The plan is intended to connect and build around existing MCM programs, such as BARDA's investment in advanced development and NIH's grants for initial research. The strategy has tremendous potential to modernize America's countermeasure enterprise by taking a long-term approach to increase innovation, research, and development. But success will be dependent upon industry buy-in, strong White

House and HHS leadership, and champions on Capitol Hill. The White House should begin an education campaign of policymakers and provide as much detail as possible about its implementation strategy, including a multiyear professional judgment budget. Implementation plans should also include end-to-end details, from initial investment through distribution and dispensing of the final product.

PANDEMIC FLU VACCINE MANUFACTURING CAPACITY

The 2009 H1N1 influenza pandemic was a wake-up call that the United States does not have the infrastructure and capacity to produce MCM in a rapid manner. H1N1 also made people realize that pandemics, emerging infectious diseases, and drug-resistant bacteria are part of the same threat posed by bioterror attacks.

In August 2010, the President's Council of Advisors on Science and Technology (PCAST) issued a report with recommendations to enhance the nation's ability to produce influenza vaccine in a timelier manner.[69] The report recognized the efforts put forth by U.S. public health officials to confront the 2009/2010 H1N1 pandemic. However, according to the report, "their efforts were impeded by unanticipated delays that arose in manufacturing what was supposed to be the most powerful tool for preventing widespread morbidity and mortality: a vaccine designed to protect against the 2009 H1N1 virus." Although the United States was ultimately able to produce and procure enough H1N1 vaccine to protect half the population, this process took 38 weeks, and it would have taken an additional 10 weeks to produce enough supply to cover the entire nation. "Protecting the nation from an influenza pandemic thus requires tightening the schedule for making vaccine substantially," the report notes, adding that "in a serious pandemic, saving weeks could translate into saving tens of thousands of lives."

SOME KEY PROJECT BIOSHIELD AND BARDA ACCOMPLISHMENTS

Since 2005, Project BioShield has led to a number of advancements, including:

- Development and acquisition of the currently licensed anthrax vaccine, new smallpox MVA vaccine, two anthrax antitoxins, botulinum antitoxin, DTPA and KI chelating agents for rad/nuc, and Prussian Blue.

BARDA has led to a number of advances, including:

- More than 25 product candidates in development, including next generation anthrax vaccines and antitoxins, next generation botulinum antitoxins, smallpox vaccines and antiviral drugs, broad spectrum antibiotics, different types of therapeutics to treat illnesses associated with acute radiation syndrome, and biodosimetry devices to measure exposure to radiation. These radiation drugs and broad spectrum antibiotics are also multi-purpose products for rad/nuc and biothreats as well as oncology and community-acquired infectious pneumonia.
- Development, manufacturing, and acquisition of licensed H5N1 and H1N1 vaccines, as well as development of new cell- and recombinant-based influenza vaccines that provide platform technologies for many other products; antigen-sparing vaccines using new adjuvants; multiple cell- and antigen-sparing vaccine, which were licensed and used in Europe during the 2009 H1N1 pandemic; and new influenza antiviral drugs, which were used under Emergency Use Authorization during the 2009 H1N1 pandemic.
- Building domestic manufacturing surge capacity since 2007 to retrofit or build new facilities that produced vaccine during the 2009 H1N1 pandemic. A new cell-based vaccine manufacturing facility in North Carolina can produce not only influenza vaccines, but, in an emergency, can also produce vaccines or biologicals against known and unknown emerging infectious diseases at very large commercial scale.

D. SURGE CAPACITY

In the event of a severe health emergency, the health care system would be stretched beyond normal limits. Patients would quickly fill emergency rooms and doctors' offices, exceed the existing number of available hospital beds, and cause a surge in demand for critical medicines and equipment.

The challenge of how to equip hospitals and train health care staff to handle the large influx of critically injured or ill patients who show up for treatment after or during a public health emergency remains the single, most challenging issue for public health and medical preparedness.[70]

In public health emergencies, such as a new disease outbreak, a bioterror attack, or catastrophic natural disaster, U.S. hospitals and health care facilities are on the front lines providing triage and medical treatment to individuals. In the best of times, however, most emergency rooms and intensive care units (ICUs) must confront bed shortages and staffing issues; in a mass casualty event – particularly a pandemic influenza or mass bioterror attack – the situation could quickly spiral out of control.

ASPR at HHS is currently examining the Hospital Preparedness Program (HPP) to assess whether it is the best model for preparing the health care system for a disaster and how it can best focus on health system preparedness. TFAH supports these efforts by ASPR.

As it currently exists, HPP may not be the best model because it is a relatively small and discretionary funding stream, which may lead hospitals to lack the motivation or incentive to participate in the program. In FY 2010, HPP received $426 million, a nearly 23 percent decline since FY 2005 when adjusted for inflation. The President's FY 2011 budget proposal flat funds the program.[71]

Regardless, the HPP should be expanded and enhanced by:

- Increasing funding: HPP is a federal grant program intended to enhance the ability of hospital and health care systems to prepare for and respond to bioterrorism and other health emergencies. The funding for the HPP program is limited and does not cover large-scale emergency capabilities. HPP funding goes to state health departments where it is divided up between statewide health care preparedness initiatives, sub-state regional initiatives, and individual hospitals. Some hospitals receive as little as $10,000 annually although they may also benefit indirectly from regional and statewide programs;
- Encouraging state and local officials to expand inclusion of non-hospital health care settings – including ambulatory care and doctors' offices – in response plans and processes;
- Improving regional and community coordination, so cross-state and private-public resources can be leveraged;
- Improving crisis standards of care and planning development;
- Increasing support to alternate care sites that are needed during mass emergencies, including coordination, resource, and licensing and concerns; and
- Providing incentives for recruiting a surge workforce, so providers are ready in times of emergency, including creating incentives for private and public health workers to participate, and reaching out to a range of staff, including administrative staff, medical technicians, EMS, public safety workers, and medical and nursing students in addition to doctors and nurses. Issues of liability, licensing, and accreditation should all be addressed ahead of an emergency.

Issues around financing emergency preparedness care also must be further addressed, particularly ensuring payment concerns do not keep people who are uninsured or underinsured from seeking care, especially in the event of an infectious disease outbreak when they could spread the disease to others. In addition, providers must be compensated for care to the uninsured or underinsured, ensuring that payment concerns do not keep people from receiving care, including necessary vaccines and antiviral medications.

TFAH asked Eric Toner, MD, from the Center on Biosecurity to provide a commentary outlining key issues for surge capacity planning.

Hospitals Better Prepared for Common Disasters but National Strategy for Catastrophic Events Needed

By Eric Toner, MD

Over the last three years, under contract to the office of the Assistant Secretary for Preparedness and Response (ASPR) in the Department of Health and Human Services (HHS), the Center for Biosecurity of UPMC conducted a nationwide study of the state of hospital preparedness, how it has changed since 2001, and to what extent that change was due to ASPR's Hospital Preparedness Program (HPP).[72]

The HPP was created in 2002 after the anthrax attack of October 2001 to better prepare U.S. hospitals for bioterrorism and since then the program has provided approximately $400 million/year to the states and major cities, most of which was passed through to the hospitals.

We found that in many ways hospitals are in fact much better prepared than they were a decade ago and that much of the improvement can be attributed the HPP, but not only the HPP. Two other factors coincided with this improvement; the Joint Commission greatly strengthened its emergency management standards in January of 2001, and after 9/11 and the anthrax letters, many hospitals began to perceive the threat of disasters as being much more imminent. So, in fact, there was a convergence of factors that pushed hospitals to be better prepared; the threat perception provided motivation, the Joint Commission standards provided the "what to do", and the HPP provided the means to do it.

Specifically we found that most individual hospitals had designated emergency management coordinators, improved emergency operations plans, implemented incident command structures, improved communications, trained staff, and improved drills and exercises. But the most significant finding was that, in every location we talked to, cooperation among hospitals and between hospitals and public health and emergency management agencies had greatly improved. And every location had created, or was creating, some sort of health care coalition to facilitate preparedness.

In some locations, these coalitions were quite evolved; in others they were still nascent. In the best of them, the coalitions played a significant role in coordinating emergency response among the hospitals. We found several examples wherein the coalitions had been instrumental in improving the response to actual emergencies—the Minnesota bridge collapse and the Virginia Tech shootings are just two examples. In both cases, systems, technologies, and protocols created as a result of the HPP were judged to have made for a more coordinated response that saved lives. Much work remains to be done in most locations to be adequately prepared for common disasters like these but programs are in place that, over time and with sustained funding, should gradually lead to a good level of preparedness for this scale of event.

On the other hand, in contrast to these relatively small scale events, we found a significant gap in preparedness for catastrophic health events (CHE).[73] By this we mean the kind of events that could result in many thousands of sick or injured. This includes large scale bioterrorism, a nuclear detonation, or a major earthquake. We found few locations had well thought out plans for how they would respond to the health care demands of an event of this scale. And there was no national strategy that would lead to adequate health care preparedness for a CHE. So, in recommending future directions for the HPP we focused on health care response to CHEs.

So what could we do in response to a CHE? Really there are only three options: 1) move stuff in—deployable resources like DMAT teams; 2) move patients out—to other cities; or 3) alter the kind of care provided. The problem is that we have nowhere near enough deployable resources, or transportation assets in our current plans for this number of patients, and we have only just begun a national dialogue on altering standards of care in a crisis. We believe that we need to greatly improve our capabilities in all three of these realms.

The good news, however, is that despite very real limitations in medical surge capacity in any one city or region, the country as a whole has an enormous health care capacity. The problem is getting the patients and the medical resources in the same place in time to be of use.

We have recommended some steps that we believe would move the U.S. in the direction of being able to respond more effectively to a CHE. They include, among other things, rethinking the way we do patient transportation in a CHE—this probably means using non-medical vehicles without highly trained attendants; creating fully evolved health care coalitions in every city and linking them together to create a flexible web of coalitions that can provide mutual assistance and burden share; advancing the development of coordinated, fair, ethical, and legal approaches to crisis standards of care so we can do the most good for the greatest number; and creating a national framework for health care response to CHEs to guide states, and local entities in developing their own plans for medical and public health response.

E. COMMUNITY RESILIENCE

Ensuring communities can cope and recover from emergencies is another significant challenge in emergency health preparedness.

More vulnerable members of communities – including children, the uninsured and underinsured, the elderly, people with underlying health conditions, and racial and ethnic minorities – face special challenges that need to be planned for prior to emergencies happening.

Building community resilience is one of the two overarching goals identified by HHS in the release of the draft Biennial Implementation Plan for the National Health Security Strategy. It calls for fostering informed, empowered individuals and communities.

TFAH recommends that greater priority and effort be placed on preparing communities for emergencies. This includes providing clear, honest, straightforward guidance to the public – and for health officials to develop standing relationships with the community, so when emergencies arise, they will be trusted and understood. To be successful, members of the community must be engaged in emergency planning efforts.

Community relationships can be developed and maintained through ongoing public health efforts and programs, such as obesity prevention and tobacco prevention initiatives, and the Vaccine for Children program outreach. In fact, Communities Putting Prevention to Work grants, which were distributed as part of the America Recovery and Reinvestment Act of 2009, supported the building of community coalitions to address obesity and tobacco, and the Community Transformation Grants authorized in the ACA will also bring together community coalitions to address public health problems. These grants could be considered as long-term investments by also serving the purpose of building community resilience and improving public health department relationships with underserved communities. Outreach to individuals with underlying health problems serves a dual purpose since they are often particularly vulnerable during emergencies, and people dependent on prescription drugs or medical treatments encounter unique challenges during emergencies. Addressing mental health issues must also be a priority for disaster response and recovery efforts.

To be effective in reaching diverse communities, it is also important to ensure information is provided in channels beyond the Internet, such as radio and racial and ethnic publications and television, and in languages other than English. Furthermore, translations must be idiomatic rather than word-for-word and materials must be tailored to specific cultural perspectives and should be from a trusted source, such as religious and community leaders.

To highlight key considerations for some vulnerable, special needs, and at-risk communities, TFAH has included and supports:

- Recommendations from National Commission on Children and Disasters; and
- Recommendations outlined in a commentary from Nadia Siddiqui, Dennis Andrulis, and Jonathan Purtle for building a National Strategy for Advancing Preparedness Programs and Policies for Racially and Ethnically Diverse Communities.

NATIONAL COMMISSION ON CHILDREN AND DISASTERS RECOMMENDATIONS[74]

In October 2010, the National Commission on Children and Disasters released a report to the President and Congress on the state of children during disasters. The report finds chronic gaps in disaster preparedness for children since Hurricane Katrina and calls for a national strategy to protect children not only during an emergency, but also before and after.

The Commission broke down their recommendations into 11 main categories. Some key recommendations include:

- **Disaster Management and Recovery**
  - Distinguish and comprehensively integrate the needs of children across all inter- and intra-governmental disaster management activities and operations.
  - The President should accelerate the development and implementation of the National Disaster Recovery Framework with an explicit emphasis on addressing the immediate and long-term physical and mental health, educational, housing, and human services recovery needs of children.
- **Mental Health**
  - HHS should lead efforts to integrate mental and behavioral health for children into public health, medical, and other relevant disaster management activities.
  - DHS/FEMA and the Substance Abuse and Mental Health Services Administration (SAMHSA) should strengthen the Crisis Counseling Assistance and Training Program to better meet the mental health needs of children and families.
- **Child Physical Health and Trauma**
  - Congress, HHS, and DHS/FEMA should ensure availability of and access to pediatric MCM at the federal, state, and local levels for chemical, biological, radiological, nuclear, and explosive threats.
  - HHS should ensure that health professionals who may treat children during a disaster have adequate pediatric disaster clinical training.
  - The Environmental Protection Agency (EPA) should engage state and local health officials and non-governmental experts to develop and promote national guidance and best practices on re-occupancy of homes, schools, child care, and other child congregate care facilities in disaster-impacted areas.
- **Emergency Medical Services and Pediatric Transport**
  - The President and Congress should clearly designate and appropriately resource a lead federal agency for emergency medical services with primary responsibility for the coordination of grant programs, research, policy, and standards development and implementation.
  - Improve the capability of emergency medical services to transport pediatric patients and provide comprehensive prehospital pediatric care during daily operations and disasters.
- **Disaster Care Management**
  - Disaster case management programs should be appropriately resourced and should provide consistent holistic services that achieve tangible, positive outcomes for children and families affected by the disaster.
- **Child Care and Early Education**
  - Congress and HHS should improve disaster preparedness capabilities for child care.
  - Congress and federal agencies should improve capacity to provide child care services in the immediate aftermath of and recovery from a disaster.
- **Elementary and Secondary Education**
  - Congress and federal agencies should improve the preparedness of schools and school districts by providing additional support to states.
  - Ensure that school systems recovering from disasters are provided immediate resources to reopen and restore the learning environment in a timely manner and provide support for displaced students at their host schools.
- **Child Welfare and Juvenile Justice**
  - State and local child welfare agencies, state and local juvenile justice agencies, including residential treatment, correctional, and detention facilities, and HHS and Department of Justice dealing with juvenile, dependency, and other childhood court matters should all be adequately prepared for disasters.
- **Sheltering Standards, Services, and Supplies**
  - Government agencies and non-governmental organizations should provide a safe and secure mass care shelter environment for children, including access to essential services and supplies.
- **Housing**
  - Prioritize the needs of families with children, especially families with children who have disabilities or chronic health, mental health, or educational needs, within disaster housing assistance programs.
- **Evacuation**
  - Congress and federal agencies should provide sufficient funding to develop and deploy a national sharing capability to quickly and effectively reunite displaced children with their families, guardians, and caregivers when separated by a disaster.
  - Disaster plans at all levels of government must specifically address the evacuation and transportation needs of children with disabilities and chronic health needs, in coordination with child congregate care facilities such as schools, child care, and health care facilities.

EXPERT PERSPECTIVE

Building a National Strategy for Advancing Preparedness Programs and Policies for Racially and Ethnically Diverse Communities

Nadia Siddiqui, MPH; Dennis Andrulis, PhD, MPH; and Jonathan Purtle, MPH, MSc

Racially and ethnically diverse populations often experience higher rates of injury, disease and death from disasters and other public health emergencies.[75] While this unequal impact is clearly linked to community poverty and underlying socioeconomic inequalities, longstanding inattention to the profound influence of race, ethnicity and language—intimately related to, but extending far beyond emergency events—contribute significantly to this gap. As a result, failure to learn about and consider cultural beliefs and norms, limited English proficiency, legacies of distrust in government, and historic lack of access to health care, may greatly affect these communities' understanding of, participation in and adherence to preparedness recommendations and directives that can make the difference between life, disability and death.

While the legacy of Hurricane Katrina prompted attention to this national priority, other recent events reinforce patterns of inequity. For example, the Southern California Wildfires of 2007 had severe adverse health effects on Hispanic and Latino farm workers, migrant families and immigrants, who in many cases did not evacuate firestorms due to fear of detention or deportation by Border Patrol and lack of culturally and linguistically tailored communication on where, when and how to evacuate.[76] The 2009 H1N1 Pandemic catastrophically affected American Indians and Alaska Natives, who were found to have a three to eight times higher rate of hospitalization and mortality associated with the infection across at least 12 states.[77] And in the wake of the BP Oil Spill in the Gulf of Mexico, large scores of Vietnamese fishing communities were adversely affected, their response and recovery made difficult by cultural misunderstandings and language barriers that did not account for intra-cultural and dialectal differences.[78]

These legacies strongly reinforce the important and complex role that race, ethnicity, culture and language often play in influencing emergency preparedness, response and health outcomes. At the same time, they point to the need and urgency for national policies to build infrastructure, programs and strategies that ultimately eliminate inequities.

In recognition of this priority, the U.S. Department of Health and Human Services' Office of Minority Health supported a unique initiative, known as the National Consensus Panel on Emergency Preparedness and Cultural Diversity, to develop and issue "guidance to national, state, territorial, tribal and local agencies and organizations on the development of effective strategies to advance emergency preparedness and eliminate disparities for racial and ethnic communities." Created in 2006, the Panel is comprised of nearly three dozen experts from leading federal, state and local/community based public and private organizations, representing a broad spectrum of perspectives including public health, emergency managers and responders, hospitals and health care, risk communication, faith-based and neighborhood organizations, and diverse racial and ethnic groups. A complete list of National Consensus Panel members is available at http://www.diversitypreparedness.org/NCP/92/.

In 2008, the Panel released a National Consensus Statement and eight Guiding Principles, representing the nation's first, and only, blueprint on advancing preparedness for diverse populations. Built on the foundation of creating informed, empowered and resilient communities, a theme central to the U.S. Department of Health and Human Services' National Health Security Strategy, the consensus statement stresses that coordination in working with diverse communities is key to success, and concludes that their active involvement and engagement is essential to their understanding, participation in and adherence to public health preparedness and response actions. Core to success in the long term is commitment and support at all levels for developing sustainable programs and services that build in mutual accountability. (An abbreviated version of the statement can be found in the Institute of Medicine's 2009 Report entitled, Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations.)

Accompanying the consensus statement are eight guiding principles that provide a roadmap of actions and practical strategies for incorporating diverse communities into preparedness and response. Examples of featured principles include: identifying diverse community risks, needs and assets; creating drills and exercises that incorporate specific scenarios around diversity, race, culture, language and trust; building capacity for culturally and linguistically appropriate services and programs; and utilizing tools and measures to evaluate cultural and linguistic appropriateness of programs.

The consensus statement, guiding principles and Panel's specific recommendations around operationalizing the principles served as the foundation for developing a toolkit to offer guidance to public health and emergency management agencies as

EXPERT PERSPECTIVE CONTINUED

well as community-based organizations on practical strategies, promising models and resources for improving programs, plans and practices in meeting the needs of racially and ethnically diverse communities. In addition, the Panel's work offers important guidance and added depth and dimension on application of the toolkit and identified priorities for pandemic influenza planning and response in diverse communities, covering issues of public awareness, data and evidence, governance, community engagement, outreach and delivery networks. The complete toolkit will be available by Winter, 2011. For further information or to request the toolkit please contact Nadia Siddiqui at nsiddiqui@texashealthinstitute.org.

Finally, recent Panel discussions have stressed the need to identify and develop sustainable funding mechanisms for building community and organizational capacity for advancing emergency preparedness in diverse communities. Recognizing that investments in public health preparedness are declining at federal, state and local levels, the Panel recommends turning to the recent Patient Protection and Affordable Care Act (ACA) of 2010 for opportunities to frame diversity and preparedness priorities within the broader health care and community health context. For example, through the Centers for Disease Control and Prevention, ACA appropriates $100 million in competitive Community Transformation Grants (CTGs) between 2010-2014.[79] These grants are available to state and local governmental agencies and community-based organizations for the implementation, evaluation, and dissemination of evidence-based community preventive health activities to, among other priorities, "address health disparities". As such, CTGs offer one vehicle for agencies and organizations to address preparedness and response for diverse populations—broadly through enhancing community resilience as well as for distinct events such as seasonal and pandemic influenza. Other funding opportunities to address preparedness for diverse populations may be embedded in provisions focused on workforce diversity, cultural competence training and community health workers.

The work of the Panel generally and in the context of health care reform offers new opportunities for bridging an important divide in planning for and responding to racially and ethnically diverse communities and, in so doing, improving the health and well-being of all populations. Its dedication and continued contributions are testaments to the need for maintaining a national focus on this critical priority.

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APPENDIX A: CDC AND ASPR PREPAREDNESS GRANTS BY STATE

ALL-HAZARDS PREPAREDNESS FUNDING BY SOURCE AND YEAR								
	FY 2009				FY 2010			% Change
State	CDC	ASPR	Total	State	CDC	ASPR	Total	
Alabama	$9,984,931	$5,528,753	$15,513,684	Alabama	$10,048,584	$5,959,171	$16,007,755	3.09%
Alaska	$5,015,000	$1,232,661	$6,247,661	Alaska	$5,165,000	$1,295,371	$6,460,371	3.29%
Arizona	$13,658,394	$7,242,486	$20,900,880	Arizona	$14,047,671	$7,819,583	$21,867,254	4.42%
Arkansas	$7,279,503	$3,573,514	$10,853,017	Arkansas	$7,393,805	$3,836,580	$11,230,385	3.36%
California	$49,341,755	$29,486,456	$78,828,211	California	$49,301,738	$31,967,442	$81,269,180	3.00%
Colorado	$10,637,403	$5,697,522	$16,334,925	Colorado	$10,875,195	$6,142,385	$17,017,580	4.01%
Connecticut	$8,704,406	$4,332,291	$13,036,697	Connecticut	$8,719,806	$4,660,301	$13,380,107	2.57%
Delaware	$5,000,000	$1,433,223	$6,433,223	Delaware	$5,150,000	$1,513,099	$6,663,099	3.45%
D.C.	$6,461,359	$1,589,577	$8,050,936	D.C.	$6,616,482	$1,682,835	$8,299,317	2.99%
Florida	$32,906,612	$20,280,168	$53,186,780	Florida	$33,481,834	$21,973,177	$55,455,011	4.09%
Georgia	$18,146,190	$10,738,888	$28,885,078	Georgia	$18,481,819	$11,615,246	$30,097,065	4.03%
Hawaii	$5,144,507	$1,905,612	$7,050,119	Hawaii	$5,249,782	$2,025,920	$7,275,702	3.10%
Idaho	$5,330,380	$2,103,488	$7,433,868	Idaho	$5,495,096	$2,240,733	$7,735,829	3.90%
Illinois	$19,985,919	$11,422,845	$31,408,764	Illinois	$19,496,622	$12,357,745	$31,854,367	1.40%
Indiana	$12,979,201	$7,403,442	$20,382,643	Indiana	$12,995,857	$7,994,316	$20,990,173	2.89%
Iowa	$7,540,433	$3,760,725	$11,301,158	Iowa	$7,565,448	$4,039,814	$11,605,262	2.62%
Kansas	$7,446,545	$3,522,344	$10,968,889	Kansas	$7,530,021	$3,781,030	$11,311,051	3.03%
Kentucky	$9,510,505	$5,099,081	$14,609,586	Kentucky	$9,455,848	$5,492,721	$14,948,569	2.27%
Louisiana	$9,756,363	$5,188,408	$14,944,771	Louisiana	$9,999,458	$5,589,694	$15,589,152	4.13%
Maine	$5,183,337	$1,945,059	$7,128,396	Maine	$5,259,067	$2,068,743	$7,327,810	2.72%
Maryland	$12,690,042	$6,640,448	$19,330,490	Maryland	$12,720,551	$7,166,017	$19,886,568	2.80%
Massachusetts	$14,323,704	$7,538,670	$21,862,374	Massachusetts	$15,229,770	$8,141,119	$23,370,889	6.45%
Michigan	$20,123,542	$11,538,958	$31,662,500	Michigan	$20,143,034	$12,483,796	$32,626,830	2.96%
Minnesota	$12,055,280	$6,149,904	$18,205,184	Minnesota	$12,911,644	$6,633,486	$19,545,130	6.86%
Mississippi	$7,467,891	$3,682,495	$11,150,386	Mississippi	$7,527,286	$3,954,888	$11,482,174	2.89%
Missouri	$12,475,814	$6,888,644	$19,364,458	Missouri	$12,572,343	$7,435,455	$20,007,798	3.22%
Montana	$5,019,036	$1,532,896	$6,551,932	Montana	$5,166,198	$1,621,303	$6,787,501	3.47%
Nebraska	$5,774,382	$2,433,560	$8,207,942	Nebraska	$5,876,388	$2,599,056	$8,475,444	3.16%
Nevada	$7,292,961	$3,228,706	$10,521,667	Nevada	$7,511,623	$3,462,259	$10,973,882	4.12%
New Hampshire	$5,244,492	$1,937,756	$7,182,248	New Hampshire	$5,349,356	$2,060,815	$7,410,171	3.08%
New Jersey	$18,247,856	$10,039,764	$28,287,620	New Jersey	$18,015,661	$10,856,284	$28,871,945	2.02%
New Mexico	$6,853,141	$2,637,233	$9,490,374	New Mexico	$7,643,606	$2,820,161	$10,463,767	9.30%
New York	$22,171,004	$12,628,147	$34,799,151	New York	$22,932,149	$13,666,210	$36,598,359	4.92%
North Carolina	$16,224,492	$10,184,038	$26,408,530	North Carolina	$16,552,440	$11,012,906	$27,565,346	4.20%
North Dakota	$5,023,393	$1,195,281	$6,218,674	North Dakota	$5,021,860	$1,254,791	$6,276,651	0.92%
Ohio	$21,312,180	$13,050,486	$34,362,666	Ohio	$20,947,527	$14,124,698	$35,072,225	2.02%
Oklahoma	$8,536,905	$4,413,646	$12,950,551	Oklahoma	$8,487,239	$4,748,620	$13,235,859	2.16%
Oregon	$8,884,916	$4,546,549	$13,431,465	Oregon	$8,871,324	$4,892,898	$13,764,222	2.42%
Pennsylvania	$22,975,362	$14,103,046	$37,078,408	Pennsylvania	$22,808,671	$15,267,347	$38,076,018	2.62%
Rhode Island	$5,000,000	$1,667,365	$6,667,365	Rhode Island	$5,150,000	$1,767,281	$6,917,281	3.61%
South Carolina	$10,097,336	$5,225,017	$15,322,353	South Carolina	$11,034,653	$5,629,437	$16,664,090	8.05%
South Dakota	$5,000,000	$1,354,980	$6,354,980	South Dakota	$5,150,000	$1,428,159	$6,578,159	3.39%
Tennessee	$12,495,537	$7,103,056	$19,598,593	Tennessee	$12,711,428	$7,668,219	$20,379,647	3.83%
Texas	$42,816,952	$26,204,300	$69,021,252	Texas	$43,194,539	$28,404,362	$71,598,901	3.60%
Utah	$7,018,990	$3,288,335	$10,307,325	Utah	$7,328,511	$3,526,992	$10,855,503	5.05%
Vermont	$5,042,969	$1,182,205	$6,225,174	Vermont	$5,193,078	$1,240,595	$6,433,673	3.24%
Virginia	$16,613,973	$8,857,019	$25,470,992	Virginia	$17,063,098	$9,572,306	$26,635,404	4.37%
Washington	$13,561,976	$7,493,408	$21,055,384	Washington	$13,731,541	$8,091,982	$21,823,523	3.52%
West Virginia	$5,839,235	$2,488,384	$8,327,619	West Virginia	$5,898,188	$2,658,572	$8,556,760	2.68%
Wisconsin	$12,177,579	$6,575,694	$18,753,273	Wisconsin	$13,276,438	$7,095,720	$20,372,158	7.95%
Wyoming	$5,000,000	$1,063,125	$6,063,125	Wyoming	$5,000,000	$1,111,323	$6,111,323	0.79%
	CDC Total FY 09**	**ASPR Total FY 09****	**Grand Total FY 09****		**CDC Total FY 10****	**ASPR* Total FY 10****	**Grand Total FY 10****	**Grand Total Percent Change FY 09 - FY 10**
	$623,373,683	**$330,359,658**	**$953,733,341**		**$633,349,277**	**$356,452,963**	**$989,802,240**	**3.64%**

* Note that state CDC total funding include funding for Cities Readiness Initiative funding, Level 1 chemical laboratory funding, and EWIDS funding although not every state receives funding in all of these supplemental categories.**Note that totals do not include funds for three major U.S. metropolitan areas, Chicago, L.A. County, and New York City, U.S. Territories, such as Puerto Rico and Guam, and Freely Associated States of the Pacific, such as the Marshall Islands.

Source: FY2010 Funding 1) CDC. Public Health Emergency Preparedness Cooperative Agreement Budget Period 10 Extension (FY 2010) Funding. <http://www.bt.cdc.gov/cdcpreparedness/coopagreement/10/Revised_PHEP_BP10_Extension_Funding_Table_Aug2010.pdf> (accessed October 14, 2010). 2) HHS.gov. HHS Provides $390.5 Million to Improve Hospital Preparedness and Emergency Response. News Release, July 7, 2010. <http://www.hhs.gov/news/press/2010pres/07/20100707h.html> (accessed July 8, 2010.) FY2009 Funding 1) CDC. Cooperative Agreement Guidance for Public Health Emergency Preparedness Program Announcement AA154 - FY 2009 (Budget Period 10). Atlanta, GA: U.S. Department of Health and Human Services, 2009, p. 24-26. <http://www.bt.cdc.gov/cotper/coopagreement/10/FinalPHEP_BP10_Guidance_5-01-09.pdf> (accessed September 11, 2009). 2) HHS/ASPR. FY09 Hospital Preparedness Program Funding Opportunity Announcement. Washington, D.C.: HHS/ASPR/OPEO/DNHPP, August 2009, p. 84-85.

APPENDIX B: METHODOLOGY FOR SELECT INDICATORS

State Public Health Budget Methodology

TFAH conducted an analysis of state spending on public health for the last budget cycle, fiscal year 2009-2010. For those states that only report their budgets in biennium cycles, the 2009-2011 period (or the 2008-2010 and 2009-2010 for Virginia and Wyoming respectively) was used, and the percent change was calculated from the last biennium, 2007-2009 (or 2008-2010 and 2009-2010 for Virginia and Wyoming respectively).

This analysis was conducted from August to October of 2010 using publicly available budget documents through state government web sites. Based on what was made publicly available, budget documents used included either executive budget document that listed actual expenditures, estimated expenditures, or final appropriations; appropriations bills enacted by the state's legislature; or documents from legislative analysis offices.

"Public health" is defined broadly to include all health spending with the exception of Medicaid, CHIP, or comparable health coverage programs for low-income residents. Federal funds, mental health funds, addiction or substance abuse-related funds, WIC funds, services related to developmental disabilities or severely disabled persons, and state-sponsored pharmaceutical programs also were not included in order to make the state-by-state comparison more accurate since many states receive federal money for these particular programs. In a few cases, state budget documents did not allow these programs, or other similar human services, to be disaggregated; these exceptions are noted. For most states, all state funding, regardless of general revenue or other state funds (e.g. dedicated revenue, fee revenue, etc.), was used. In some cases, only general revenue funds were used in order to separate out federal funds; these exceptions are also noted.

Because each state allocates and reports its budget in a unique way, comparisons across states are difficult. This methodology may include programs that, in some cases, the state may consider a public health function, but the methodology used was selected to maximize the ability to be consistent across states. As a result, there may be programs or items states may wish to be considered "public health" that may not be included in order to maintain the comparative value of the data.

Finally, to improve the comparability of the budget data between FY 2008-2009 and FY 2009-2010 (or between biennium), TFAH adjusted the FY 2009-2010 numbers for inflation (using a 0.9841 conversion factor based on the U.S. Dept. of Labor Bureau of Labor Statistics; Consumer Price Index Inflation Calculator at http://www.bls.gov/cpi/).

After compiling the results from this online review of state budget documents, TFAH coordinated with the Association of State and Territorial Health Officials (ASTHO) to confirm the findings with each state health official. ASTHO sent out emails on November 4, 2010 and state health officials were asked to confirm or correct the data with TFAH staff by November 16, 2010. ASTHO followed up via email with those state health officials who did not respond by the November 16, 2010 deadline. In the end, seven states and the District of Columbia did not respond by December 1, 2010 when the report went to print. These states were assumed to be in accordance with the findings.

COMMUNITY RESILIENCY -- CHILDREN AND PREPAREDNESS INDICATOR

Indicator 7 focuses only on the first criteria in the Save the Children National Report Card on Protecting Children in Disasters

2010 National Report Card on Protecting Children in Disasters Criteria

This document provides analysis of the definitions and applications of the four minimum standards for emergency preparedness in Save the Children's National Report Card on Protecting Children in Disasters. Many states have policies in place that relate to disaster preparedness. Whether these policies meet the Report Card's standards depends upon their content and application.

In the Report Card, a state is not judged to meet a particular standard unless (1) the substance of the state's policy meets the minimum requirements of the standard; (2) the policy is man-

dated; and (3) all licensed or regulated child care — or in the case of the 4th criteria — all K-12 schools are subjected to the policy. Substantive descriptions of the standards are listed below. A rule is considered mandated if it is (1) in statute (2) in regulation or (3) is provided by the relevant agency as mandatory guidance. Mandatory guidance includes forms, templates, and technical assistance that are provided to all licensed or regulated child care facilities and are required to be completed or implemented.

The final requirement is that all licensed or regulated child care — and all K-12 schools in regard to the 4th criteria: An Evacuation Plan for Schools — be implicated by these requirements. Many states not receiving credit have policies in place but do not make those policies applicable to all facilities. For example, a state might have a full multihazard written plan requirement but apply it only to center-based child care, excluding homecare facilities. Despite having a regulation in place, the state would not receive credit for the first criteria: A Plan for Evacuating Children in Child Care.

Criteria 1: A Plan for Evacuating Children in Child Care

The state must require all licensed or regulated child care facilities to have a written multi-hazard plan for evacuating and safely moving children to an alternate relocation site. A multi-hazard plan must cover manmade and natural emergencies and address evacuation, shelter-in-place, and lock-down situations. A state may have more than one classification for licensed or regulated child care, but the standard must apply to all facilities equally.

Criteria 2: Reunifying Families after a Disaster

The state must require all licensed or regulated child care facilities to have a written plan for emergency notification of parents and reunification of families following an emergency. Again, a state may have more than one classification for licensed or regulated child care, but the standard must apply to all facilities equally.

Criteria 3: Children with Special Needs

The state must require all licensed or regulated child care facilities to have a written plan that accounts for children with special needs. This standard is not met by policies that address accommodations for special needs children in child care settings, but instead those that direct emergency plans to specifically meet the needs of all special needs children. Again, the requirement must apply to all licensed or regulated child care.

Criteria 4: An Evacuation Plan for K-12 Schools

The state must require all K-12 schools to have a multi-hazard emergency preparedness plan. A multi-hazard plan must cover manmade and natural emergencies and address evacuation, shelter-in-place, and lock-down situations. Mandating fire or tornado drills alone is considered incomplete and therefore does not meet the standard. Again, it should apply to all K-12 schools.

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