Association of State and Territorial Health Officials

ASTHO

States of Preparedness: Health Agency Progress 2006

The Association of State and Territorial Health Officials (ASTHO) is the national non-profit organization representing the state and territorial public health agencies of the United States, the U.S. Territories, and the District of Columbia. ASTHO's members, the chief health officials of these jurisdictions, are dedicated to formulating and influencing sound public health policy, and to assuring excellence in state-based public health practice.

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Cover Images:

Aerial view of Biloxi, Mississippi following Hurricane Katrina
Photograph courtesy of Mississippi Department of Health

Strategic National Stockpile (SNS) Exercise
Photograph courtesy of Tennessee Department of Health

Transmission Electron Micrograph of the Ebola Virus. Hemorrhagic Fever, RNA Virus
Photograph courtesy of Cynthia Goldsmith, Centers for Disease Control and Prevention (CDC)

Cots and hospital beds set up in the Orange County (Florida) Convention Center
Photograph courtesy of Jocelyn Augustino, Federal Emergency Management Agency (FEMA)

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A tremendous investment in improving our nation's preparedness for bioterrorism and other public health emergencies has been made in recent years. State and local public health agencies have upgraded their surveillance and epidemiological capacities, built up communication and information networks, developed and tested response plans, improved their laboratories, expanded medical surge capacity, and provided important training and education to their staff and the public, primarily through federal funding from the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA). Health agencies in all 50 states, the District of Columbia, seven territories and three localities receive preparedness funding from the CDC and HRSA.

Using the "all-hazards" approach, states are building a public health infrastructure that can prepare for and respond to any event. Coming after years of underfinancing, this renewed focus has allowed states to mount more effective responses to common events such as chemical spills and foodborne illness outbreaks. It has also enabled states to prepare for high risk national security events such as the 2004 political conventions and major sporting events such as the Super Bowl and the 2002 Winter Olympics. The investment in public health preparedness has led to improved responses to highly-publicized public health concerns involving emerging zoonotic threats such as monkeypox, SARS and mad cow disease; to resurgences of infectious disease threats such as measles, mumps and pertussis; to false alarms involving potential terrorist threats such as anthrax, sarin, ricin and tularemia; and to incidents such as Hurricanes Katrina and Rita and seasonal influenza vaccine shortages.

The following pages provide a sampling of how health agencies like those in Arizona, Delaware, Iowa, Mississippi, Missouri, New York, New York City, Ohio, Oregon, South Carolina, Tennessee and Utah have used their preparedness funds to increase the safety of communities, to rapidly identify and respond to new threats, and to improve their preparation for future emergencies based on lessons learned from exercises and real-life events. These illustrations focus on some of the most recent activities of state and territorial health agencies to meet preparedness goals and do not fully encompass the vast range of activities occurring in all states.
A sustained federal commitment to public health preparedness will allow state health agencies to continue the work they have started as well as face newly emerging threats.

All-Hazards Planning and Rapid Risk Assessment to Prevent Death and Illness

The prevention of death and illness from bioterrorism and other public health threats and emergencies is the primary goal of our nation's public health preparedness efforts. Many states, such as Delaware, have created new offices within their health agencies to focus on this goal. Others, such as Massachusetts, Nebraska and New Jersey, have regionalized their activities to better serve the population of their entire states. In the case of Massachusetts, the creation of seven emergency preparedness regions has made it easier for the state health agency to reach out to the 351 local health agencies in the state. Regardless of the structure of state health agencies, through all-hazards planning they have identified their vulnerabilities and improved their capacity to gather information, enhancing their ability to recognize threats earlier and prevent or minimize their effects. Like many other states, Arizona, Missouri, and South Carolina are working both within their health agencies and in cooperation with other partners in pursuit of this goal.

Arizona – Planning for Improved Food Security

State health agencies frequently collaborate on prevention activities with other state agencies and partners. The Arizona Department of Health Services is leading its state's effort to improve food security. In cooperation with producers; the retail industry; and other state, local, and federal government agencies, the department has created a working network of food professionals from all segments of the food industry to increase food security awareness. The Arizona Department of Health Services leads training efforts and facilitates information exchange among the partners, leading to an unprecedented level of communication and cooperation. One outcome of this effort is the state health agency's development of the *Industry Vulnerability Assessment for Food Security* checklist which provides guidance for operators of food establishments. Through this established food biosecurity effort, the state is far better prepared to prevent widespread threats to the public through intentional biological or chemical contamination of foods or other acts of product tampering.

Arizona Department of Health Services Laboratory and Epidemiology Staff Reviewing Food Security Checklist and Video
Photograph courtesy of Arizona Department of Health Services

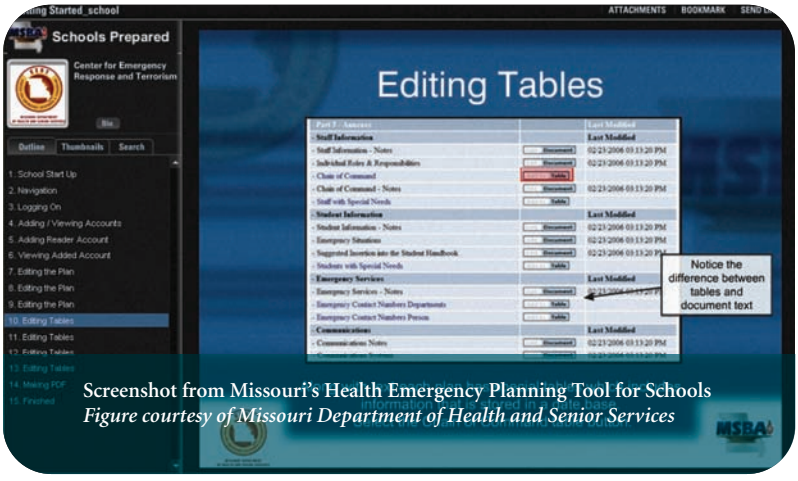
State of the States

State health agencies have made great progress in recent years working toward a functional, comprehensive, all-hazards, public health preparedness system. Currently, every state in the nation has:

- 24/7/365 capacity to investigate urgent disease reports.[1]
- Plans for receipt and distribution of Strategic National Stockpile assets.[2]
- Detailed public health response plans.[3]
- Laws granting quarantine powers.
- Protocols to activate emergency response systems 24/7/365.[4]
- Surge capacity plans in place.[5]
- Participation in the Health Alert Network.[6]

Missouri – Preparing Schools for Health Emergencies

Incorporating public health concerns in existing planning efforts is another focus of state health agencies. In Missouri, the state health agency is working to improve public health preparedness in schools. The Missouri Department of Health and Senior Services contracted with the Missouri School Boards Association to create a secure, web-based tool to assist schools in planning and training for emergency events. Beginning April 1, 2006, all schools in the state could upload critical information such as floor plans, students with special needs, staff information, and utility shut-off locations to aid the response to events such as infectious disease outbreaks and hazardous materials incidents. Intended to enhance existing all-hazards plans, the plans can be accessed by the schools, the health department, and police, fire and other first responders through secure internet connection, local hard drives, Palm and Pocket PC, and downloaded print material. School districts can make changes to their plans, which instantly update individual school plans within the district. School plans can be changed and updated by administrators and can be tracked and viewed by others who have been granted access by the school district. Online training is available on the creation of the plans and use of the system. As they begin to use the system, schools, the health department, and other responders will gain a greater understanding of school vulnerabilities and how to prevent dangerous situations among the school-age population.



Screenshot from Missouri's Health Emergency Planning Tool for Schools
Figure courtesy of Missouri Department of Health and Senior Services

South Carolina – Early Recognition of Threats

In South Carolina, the Division of Acute Disease Epidemiology at the Department of Health and Environmental Control summarizes daily epidemiological reports for the state's intelligence fusion center. Known as the South Carolina Information Exchange or SCIEx, the intelligence fusion center collects data from the South Carolina Department of Health and Environmental Control and five other state agencies. These data can be mined and analyzed to detect potential threats and to improve overall situational awareness in the state. Health data such as summaries of calls to the state poison control center, reports on over-the-counter retail sales of certain medications, calls handled by the 24/7 consultant on-call, and chief-complaint information from hospitals are analyzed each day and summarized by the department prior to submission. SCIEx incorporates this information in the current statewide risk assessment which is shared daily among all participating state agencies. Ongoing outbreaks of public health significance are also shared as part of the daily report to SCIEx. The South Carolina Department of Health and Environmental Control, Division of Acute Disease Epidemiology also circulates statewide epidemiological surveillance and response reports to state, regional and local public health response personnel weekly. These reports are a compilation of events of public health significance occurring statewide that are unusual, novel or outbreak-related. They provide situational awareness to all aspects of public health regarding events that may require a broader epidemiological response. By identifying potential threats early and distributing information to appropriate stakeholders, South Carolina increases its odds of preventing harm to large numbers of citizens.

Pandemic Preparedness

All states are planning for the threat of pandemic influenza. Answering a call by U.S. Department of Health and Human Services Secretary Michael Leavitt, states and territories hosted individual pandemic influenza planning summits during the first half of 2006. These summits brought together diverse stakeholders from throughout the state to educate participants about the potential threat and to engage them in identifying strategies to manage a pandemic. All state health agencies have developed plans for pandemic influenza which they continue to revise based on their state summit experiences, changing knowledge about the threat, and guidance provided by the federal government. Pandemic influenza has become a major focus for all health agencies.

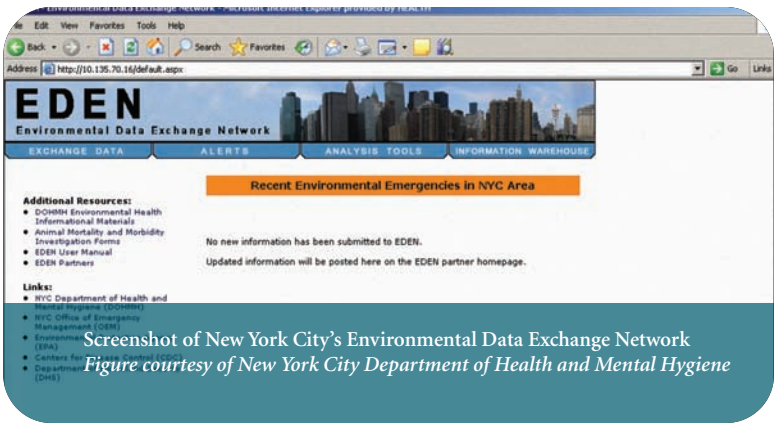
Kentucky Pandemic Influenza Planning Summit
Photograph courtesy of Kentucky Department for Public Health

Detection and Reporting of Threats to the Public's Health

State and territorial health agencies have dramatically improved their capacity to rapidly detect health threats and share that information with their partners. Through early event detection, state health agencies are able to rapidly notify the public, clinicians and others of potential threats and response measures. States are also responsible for responding to positive signals from automated bioterror agent detection systems installed in workplaces, such as the biodetection systems in postal processing facilities, and sensors in various cities that are part of the federal BioWatch program. Health agencies are better able to detect threats as they continue to develop electronic and syndromic surveillance systems, improve and expand their laboratory capabilities, and provide enhanced training and education to their personnel. New York City, Ohio, and Oregon are among the health agencies working to enhance their abilities to detect and report specific health threats.

New York City – Timely Information Exchange

Health agencies are working to improve the timeliness of information exchange and sharing that can be used to reduce threats. In New York City, the Emergency Data Exchange Network (EDEN) allows different agencies to share environmental health monitoring data. Using a secure web portal, New York City Department of Health and Mental Hygiene staff can store data, generate reports and exchange information. Another initiative assuring rapid information transfer is the environmental handheld project. Using wireless Bluetooth technology, field staff are able to collect and automatically transmit environmental information including air and radiological monitoring data. The environmental handheld project is just one of the many data sources for EDEN. While currently focused on departmental data, EDEN is expected to eventually gather information from a variety of city, state and federal agencies. Server to server data exchange is the preferred mechanism for data transfer. Other transfer mechanisms are accommodated as well, including file upload or direct data entry via EDEN's web portal. EDEN is intended for both routine and emergency use, and the city's Office of Emergency Management plans to use the system when it stands up its Emergency Operations Center. The Department of Health and Mental Hygiene is currently working on a draft protocol and is formalizing agreements with other agencies. EDEN is funded through a Department of Homeland Security grant while its staff are funded through the CDC public health preparedness cooperative agreement. The system is also filling a citywide need to develop protocols for standardizing how environmental monitoring data are managed, analyzed, interpreted and reported.



Screenshot of New York City's Environmental Data Exchange Network
Figure courtesy of New York City Department of Health and Mental Hygiene

Ohio – Web-based Reporting

State and local health agencies are also improving their ability to monitor situations so that they can detect unusual disease patterns and alter their response as needed. Like other state health agencies, the Ohio Department of Health has an established disease surveillance system. What the department did not have was a systematic way of securely collecting information from healthcare facilities on uncommon or novel diseases. The Ohio Department of Health used its public health communication system to rapidly establish a secure, Web-based reporting system for Clostridium difficile infection. C. difficile is a bacterium that generally causes diarrhea and other intestinal conditions. However, in the last few years a new strain has been identified in a growing number of cases which seems to cause more serious illness and even death in some patients.[7] Beginning January 1, 2006, more than 120 local health departments have weekly access to the system and the capacity to provide and update reports for the hospitals and long term care facilities within their own jurisdictions. This will allow the state health department to establish facility-level baselines for infection and identify unusual activity that may signal an outbreak. Infection control efforts can then be focused on specific healthcare facilities so that the outbreak can be managed and stopped. The Ohio Department of Health is confident that it can rapidly set up a similar system for future emerging threats.

Oregon – Radiation Monitoring

Using funds from the Department of Homeland Security, the Oregon Public Health Division purchased radiation monitoring kits to ensure that rural hospitals and health clinics have the resources to protect themselves and the communities they serve. By the end of 2006, 42 kits will be distributed throughout the state along with additional radiological equipment loaned to eight universities. When distribution and training is complete, Oregon will have four layers of response to radiation incidents. At least one hospital or medical clinic in each rural county will have equipment and trained personnel. A minimum of three personnel per regional HAZMAT team will receive specialized radiological response training. All 16 HAZMAT teams in Oregon already have five radiation monitoring kits. University teams will have specialized training and additional radiological resources. The state radiological response team and its equipment round out Oregon's coverage. The Oregon Public Health Division provides training, assists in the development of local plans, and coordinates exercises to test the response system. In combination, these activities will allow the state to quickly detect radiological events and adequately respond to manage the health consequences.

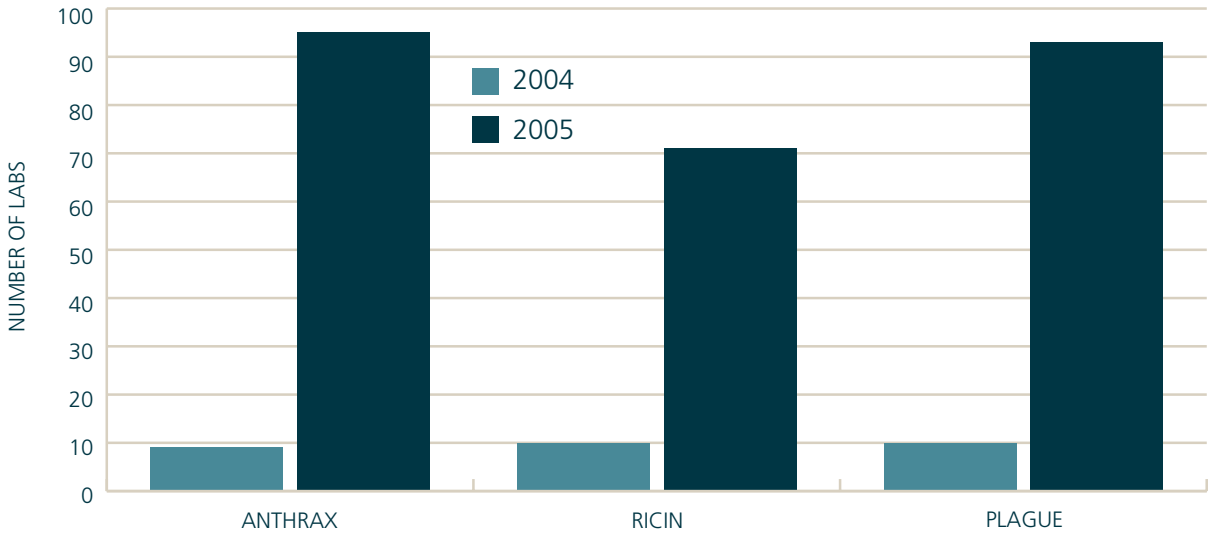
Laboratory Advances

Public health laboratories are essential to the rapid detection and confirmation of terrorism agents and other disease threats. There has been dramatic progress in the last five years in state public health laboratory capacity.

- The number of Biosafety Level 3 labs across the country has increased from 69 in 2001 to 139 in 2005.[8]
- The number of labs participating in the Laboratory Response Network (LRN) has increased from 91 in 2001 to 150 in 2006. Every state now has at least one LRN-participating laboratory.[9]
- In just one year, from 2004 to 2005, the number of state health agency laboratories with the capability to test for several select agents increased.[10]
    - Anthrax – from 9 labs to 95.
    - Ricin – from 10 to 71.
    - Plague – from 10 to 93.

States are improving their capacity to handle chemical agents as well as biological agents. These improvements are primarily funded through preparedness funds, and have a tremendous beneficial impact on the ability of state health agencies to rapidly and accurately test samples on an everyday basis.

NUMBER OF STATE HEALTH AGENCY LABORATORIES WITH CAPABILITY TO TEST FOR VARIOUS SELECT AGENTS



Investigation to Mount Effective Public Health Response

Building upon their core epidemiology capacity, state health agencies are using classic public health techniques to investigate disease outbreaks and coordinate appropriate responses. Because epidemiology and surveillance capacities have been strengthened through the investment in public health preparedness, state health agencies are able to detect unusual events more quickly and initiate interventions to minimize the impact on the public. The 2006 mumps epidemic in the Midwest is the most recent example of how improvement to state public health investigative capacity has led to improved response.

Iowa – Center of an Epidemic Investigation

At the center of the nation's 2006 mumps epidemic, Iowa had approximately 2,000 cases. In early April 2006, the Iowa Department of Public Health implemented its incident management structure to manage the epidemic and handle calls from clinicians and local health departments. Based on an investigation of cases, the department quickly determined that 18- to 25-year-olds were the most at-risk population. Using every aspect of its public health preparedness system, the Iowa Department of Public Health launched a vaccination program targeting this population. Phase one of the intervention was targeted at 18- to 25-year-olds in the 35 Iowa counties housing college and university facilities. Previous Strategic National Stockpile training was called into action by local health departments as they set up vaccination clinics using existing points of dispensing plans. Based on continued investigation, phase two expanded the focus to 18- to 25-year-olds in all Iowa counties. In mid-May, phase three began targeting all Iowans through age 46. By continuing to monitor the evolving situation, the Iowa Department of Public Health was able to focus its efforts on those most at-risk and change course as needed to gain control over the outbreak.

Reaching out to the young adult population presented unique challenges to the state and local health agencies. The Iowa Department of Public Health based its risk communication strategy on previous training in how to reach out to various populations. The department understood that traditional communications outlets such as newspapers and local newscasts were not the most effective mechanisms for targeting the population and planned its outreach accordingly. Part of this strategy was reaching out not only to the young adult population, but also to their parents who effectively worked to ensure their children were vaccinated. The department also collaborated closely with the governor's office and the state department of homeland security and emergency management to ensure that a consistent message was presented throughout the state. The expanded range of age groups covered in each phase of the intervention also presented challenges to the Iowa Department of Public Health and required careful communication to educate the public and maintain trust.

Iowa – Center of an Epidemic Investigation (cont.)

Many other aspects of the state's public health preparedness plans were successfully tested by the outbreak. The state's Health Alert Network (HAN) was used to send alerts and share fact sheets and recommendations to clinicians and local health departments. Local health departments found the alerts helpful as they responded to events in their communities. The HAN is a secure, web-based communication system allowing users such as hospitals, local public health departments, and others to share documents, post announcements and collaborate. The state's public health laboratory is located in a different city than other functions of the state health agency, but through daily briefings with the incident management system the state health agency and laboratory were able to share information. Timely and reliable communications with the laboratory were important in working on testing protocols and confirming accurate case counts.

The most important element of the Iowa Department of Public Health's intervention strategy was its workforce. Prior to the recent investment in public health preparedness and infrastructure, the department lacked the trained staff necessary for an effective response. During the mumps epidemic, the department was able to expand its response from the initial involvement of its epidemiology staff to other areas of the agency. Trained staff were available as backup and support to ensure that the response to this emergency was successful while maintaining other essential work.

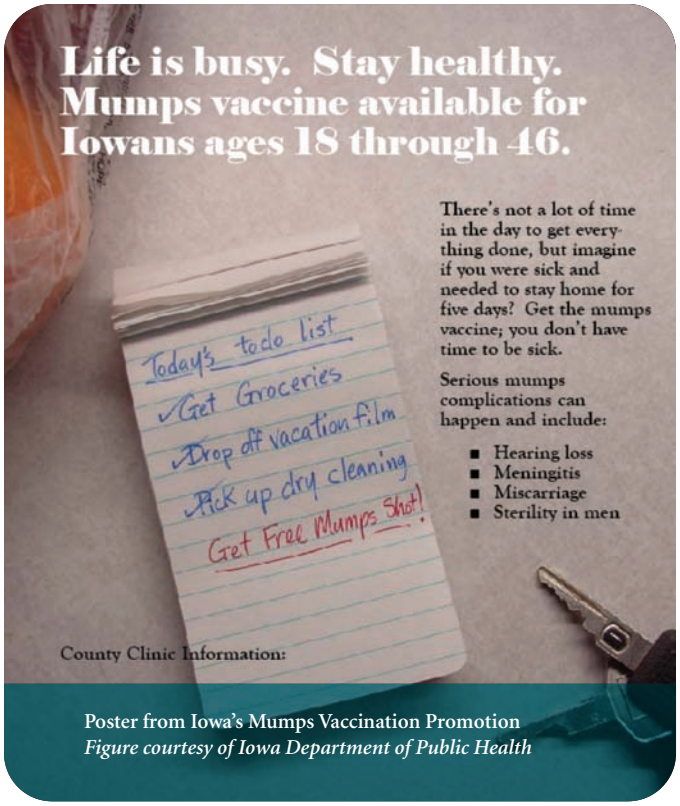
Even as the epidemic continued, the Iowa Department of Public Health began to identify areas of strength and weakness in its preparedness planning. After action reports from mass vaccination clinics will improve preparations for pandemic influenza and other infectious disease outbreaks. Job action sheets detailing staff duties during emergencies will be revised along with identification of personnel assigned to perform various incident command functions. Health agencies, healthcare facilities and educational institutions are all reviewing their vaccination policies and other procedures to identify areas in need of revision. Work started as part of this disease investigation continues long after the last case has been identified and will improve the agency's future planning efforts.

New Techniques in Public Health Surveillance

Disease surveillance has always been a key public health function. However, advances in technology and data collection allow state health agencies to do things now that were not possible a few short years ago. State health agencies have made great progress in strengthening their electronic surveillance systems, enabling more rapid collection and analysis of key public health data. Many health agencies, including those in the District of Columbia and New York State and City, have gone a step further and developed syndromic surveillance systems that collect information from non-traditional sources in hopes of detecting unusual patterns that may signal emerging events. In the District of Columbia, the syndromic surveillance system collects real-time hospital and school-based data. Continued investment in state of the art surveillance systems will enable state health agencies to rapidly detect threats and mount investigations to curtail their impact on the population.

Public Health Workforce Challenges

One of the greatest challenges to building a strong public health preparedness infrastructure is the recruitment and retention of qualified public health professionals. Public health is a personnel-intensive field – investments in resources such as public health laboratories and up-to-date surveillance systems are ineffective without trained, professional staff to read laboratory samples, analyze epidemiological data, respond to emergencies, or communicate with the public. However, the number of experienced personnel projected to retire from public health service in the coming years far exceeds the number of qualified staff entering the field. State health agencies are using a variety of techniques to advance professional opportunities for existing staff and to attract young practitioners to public health. In Delaware, the state health agency has collaborated with academic public health preparedness centers to provide all-hazards professional development programs for public health and healthcare workers in the state. The South Carolina Department of Health and Environmental Control has expanded its epidemiology reference materials and continues to host a statewide "Epi-Conference" on acute disease epidemiology topics for state and local public health staff and hospital infection control practitioners. In addition, a nursing summit for public health preparedness was held to build up the knowledge of staff, share information and provide networking opportunities. State health agencies are targeting activities to their immediate needs, but a long-term, national strategy to address the impending public health workforce shortage would benefit all states.



Poster from Iowa's Mumps Vaccination Promotion
Figure courtesy of Iowa Department of Public Health

Controlling the Impact of Public Health Emergencies

Gaining control over a situation is critical to lessening the impact of an emergency on the public. State health agencies are improving their ability to rapidly communicate with responders and the public, expanding surge capacity, assuring worker safety, and identifying means to quickly distribute countermeasures to affected populations. New York State and Utah highlight how some public health agencies are improving communications and surge capacity to control emergencies.

New York – Targeted Messaging for the Public

Effective communication is a critical countermeasure in a public health emergency. The New York State Department of Health demonstrated the importance of rapid, accurate public information after an outbreak of chronic wasting disease was detected in deer in central New York in March 2005. Because some diseased deer may have been consumed at a community game dinner, the health department quickly established a call center with trained staff to handle the expected large number of public inquiries and alleviate concerns. A year later, when more than 3,100 people reported illness during an outbreak of cryptosporidiosis linked to a spray park, the call center served as an information clearinghouse for anxious residents in 32 upstate New York counties. Daily telephone briefings conducted with other state agencies and local health officials in the affected counties, coupled with regular updates to the Department's Web site and secure Intranet, further enhanced message consistency. Web-based communication was also used during the 2004-05 influenza vaccine shortage as part of a multimedia "Fight the Flu" health education campaign that garnered a "Silver" award from the ASTHO-affiliated National Public Health Information Coalition. Like other states, the New York State Department of Health uses multiple methods to administer an "information inoculation" and communicate with the public to address issues of concern, ensure accuracy and provide advice to affected populations about what they can do to reduce their health risks.

New York State Department of Health Call Station.
Photograph courtesy of New York State Department of Health.

Tennessee Mini-TED Exercise.
Photographs courtesy of Tennessee Department of Health.

Medical Countermeasures

The Strategic National Stockpile (SNS) is a federally-maintained cache of pharmaceutical supplies that can be deployed to any location in the nation in response to a terrorist attack or other public health emergency. An initial push package can be delivered within 12 hours while a more targeted shipment of pharmaceuticals and other medical supplies follows. The SNS also contains two specialized sub-categories: CHEMPACK, which includes antidotes and other supplies to respond to exposures to chemical agents, and federal medical shelters, which are modular mobile hospitals that can be set up to provide medical surge capacity. State health agencies are responsible for the receipt and distribution of SNS assets to the public. Beginning in 2006, every state in the nation has a Cities Readiness Initiative (CRI) in at least one metropolitan area. CRI requires jurisdictions to demonstrate that they can distribute countermeasures to their entire population within 48 hours. State health agencies exercise their ability to receive and distribute SNS assets in a variety of ways. The Tennessee Department of Health created a mini-Training Education Demonstration (TED) package to improve its ability to manage SNS assets. Six containers matching the specifications of the SNS TED are used to train staff in warehousing SNS assets and to exercise receipt of the Stockpile.

Utah – Enhanced Network Communication

As seen during the September 11, 2001 terrorist attack and, more recently, following Hurricane Katrina, it is essential that personnel be able to communicate with each other during their response to an emergency. Funded by the state's departments of health and homeland security, the Utah Wireless Integrated Network (UWIN) ties various frequencies together to enhance communication. Whether they are using radios, land phone lines or cellular phones, responders from various agencies are connected through this interoperable system. Through a Memorandum of Agreement with the Utah State Division of Information Technology, the Utah Department of Health hired a part-time consultant to review and assess communication needs to ensure secure and redundant communications systems among the department, hospitals and healthcare facilities, local health departments, emergency medical services, emergency management agencies, public safety agencies, neighboring jurisdictions, and federal public health agencies within Utah. The assessment was coordinated with the state Divisions of Emergency Services and Homeland Security. Based on the assessment, the state purchased additional 800 and 155.340 MHz radios to tie into existing cellular and satellite phones. Users receive initial and ongoing training to maximize the effectiveness of the system.

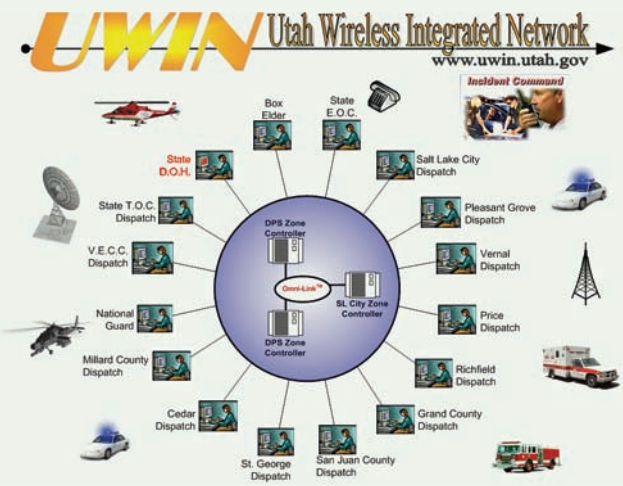


Diagram Showing Communications Linkage and Interoperability of Systems.
Figure courtesy of Utah Department of Health.

Mobile Medical Surge Capacity

Mobile hospitals are one solution to improve medical surge capacity. Health agencies in Connecticut, Nevada and other states have developed mobile hospital facilities that can be used for response to a variety of emergencies. North Carolina's MED-1 portable hospital deployed to Mississippi following Katrina along with the State Medical Assistance Team trailers filled with supplies. Set up in a Kmart parking lot, the 120 bed hospital was the only one operating in the county. More than 500 personnel from North Carolina provided care to nearly 7,500 patients during seven weeks following Katrina's landfall. Funding from HRSA, CDC, and DHS helped the North Carolina Department of Health and Human Services purchase the hospital and supplies and hire staff to support it.

Recovering from Public Health Emergencies

The long term recovery from an emergency is just as important as the actions taken in immediate response to the initiation of an event. State health agencies play an important role in helping restore the impacted community back to normal and assuring the health and safety of affected citizens. Health agency activities range from certifying the safety of water supplies to educating populations about clean-up precautions to conducting epidemiological studies of affected citizens.

Aerial View of Biloxi, Mississippi, September 2005.
Photograph courtesy of Mississippi Department of Health.

Aerial View of Biloxi, Mississippi, September 2005.
Photograph courtesy of Mississippi Department of Health.

Mississippi – Restoration and Recovery from Disaster

The Mississippi Department of Health had only a fraction of the response and recovery capacity it has today prior to the recent investment in public health preparedness. The department could draw upon personnel from around the agency to staff emergencies, but it had no dedicated response equipment or personnel. Over the last few years, the state used federal funds to build its public health preparedness capacity. By the time Hurricane Katrina hit, the Mississippi Department of Health had more than 1,300 identified and trained responders available. The Katrina recovery effort was greatly enhanced by the availability of appropriately trained personnel and equipment that allowed the department to project and sustain their efforts from their command center in Jackson to the Gulf Coast.

Trained personnel from the Mississippi Department of Health were in every Emergency Operations Center along the state's Gulf Coast until April 2006. These personnel were closely tied into the activities of the local emergency management agencies, participating in meetings and surveys and identifying a multitude of efforts to which the state health agency could provide assistance. Months after the storm, Mississippi Department of Health staff remain engaged in recovery efforts, from surveying hospitals to testing water treatment plants. This sustained effort would not have been possible without the recent improvements in the state's preparedness and response capabilities.

State health agencies from across the country assisted in the immediate response to the 2005 hurricanes and in recovery efforts along the Gulf Coast. State health agencies coordinated the deployment of more than 3,500 public health and medical personnel to the impacted area to assist in conducting epidemiological assessments, staffing special needs shelters and healthcare facilities, and monitoring environmental threats. Thousands more personnel assisted in their home states by helping Gulf Coast residents who were displaced to other states, tracking down immunization information for students starting school in new locations, and providing surge laboratory testing for states impacted by the hurricanes. State health agencies are using the lessons learned from the hurricanes to revisit their existing plans and to reconsider issues such as evacuation from healthcare facilities, meeting the needs of vulnerable populations, and planning for the effective identification and deployment of public health and medical volunteers.

Learning from the Past to Improve in the Future

Like other state and local public health agencies, Delaware and Tennessee are engaged in a variety of activities to assess their current capabilities and to better prepare for future events. Whether within the agency or in collaboration with other partners, these activities play an important role in improving public health emergency planning and response. This constant quest for improvement leads to better health outcomes for populations affected by emergency situations.

Delaware – Meeting Functional Needs of the Population

Delaware Division of Public Health was concerned that public health response and recovery plans did not meet the needs of all persons during and following an emergency. To address some of these concerns, several improvements were implemented immediately including development of an Interpreter Corps for non-English speaking and deaf persons; implementation of a Medical Needs Shelter Program; incorporation of disabled persons in exercises and plan review; and publication of emergency guidelines for persons with disabilities. The Division of Public Health, however, continued to seek input through focus groups, survey, and statewide conferences to identify a strategy to comprehensively address the needs of all individuals. It was determined that it was difficult for planners to address needs consistently without going to many sources for specific information. The Division of Public Health decided to adopt a strategy which cast a wide net and broadly defined special needs planning as:

> *Special needs planning for emergencies includes making provisions, developing systems and plans that address the requirements necessary to meet the functional needs of all individuals.*

Commonalities for individual needs for children, disabled, homeless, economically disadvantaged, institutionalized (group homes, prisons, hospitals, nursing homes), elderly, frail, special medical needs, and persons temporarily injured or quarantined were determined. This comprehensive approach led the Division of Public Health to develop, *A Guide for Emergency Preparedness Considerations for Individuals with Functional Needs*, which is currently being used to assist planners in this effort.

Large Scale Exercise Participant with Service Companion.
Photograph courtesy of Delaware Division of Public Health.

Tennessee – Integration of Preparedness Across Agencies

Many health agencies have established systems to develop and test preparedness and response plans for health-related emergency events. Through exercises and after action review, states are able to continually improve their emergency response capabilities. Tennessee took this one step farther. It merged tabletop and full-scale exercise activities of its public health, animal health, homeland security, and emergency management agencies under one umbrella. By doing so, the state has improved overall collaboration and gained a better understanding of how efforts are integrated during an emergency response. The Tennessee Department of Health is better able to assess its role in the state's emergency response efforts and quickly change course as needed.

Testing the Plan

Exercises are one way for state health agencies to test their readiness. The congressionally-mandated Top Officials, or TOPOFF, series tests local, state, regional, national and international level response through simulated events in multiple locations. Two years of planning and training culminate in a final full-scale exercise simulating a catastrophic event. TOPOFF 4 will be staged in Arizona, Oregon and Guam in October 2007. In April 2005, New Jersey and Connecticut were the host states for TOPOFF 3. Previous sites were Washington and Illinois in TOPOFF 2 and Colorado and New Hampshire in the original TOPOFF. These large-scale exercises allow personnel from a wide range of fields to participate in or observe the multi-agency, multi-jurisdictional response. Extensive after action reports provide an opportunity to identify areas in need of greater coordination and attention to improve responses to real-life events and to design even more challenging exercises for the future.

Public Health Emergencies Can Happen Anywhere

Utah's Bryce Canyon National Park is about as remote as any area in the United States. However, in addition to the surrounding area's year-round rural population, thousands of visitors each year are attracted to the area's unique geologic features. In July 2005, Ruby's Inn, just outside the entrance to Bryce Canyon, was evacuated after an unknown irritant spread through the ventilation system causing respiratory symptoms among guests and employees. Fifty-one patrons, by EMS and self-transport, arrived at the small, six emergency-department-bed Garfield County Hospital.

Fortunately, just four weeks earlier, the annual HRSA training program had been delivered to hospital staff, including instruction in decontamination and triage. Beginning in 2002, the Utah Department of Health used its HRSA funds to equip all acute care hospitals in the state with decontamination shelters, personal protective equipment and other supplies. All 51 patients were quickly and efficiently processed through the hospital's decontamination unit and received timely treatment with no harm to hospital personnel or contamination of the facility. No one was seriously injured by the irritant, and hospital personnel credit the training and equipment they received through HRSA funds for the successful, real-life test of their community's emergency surge capacity and decontamination plans. Public health emergencies truly can happen anywhere.

The Future of Public Health Preparedness

State and territorial public health agencies have made great progress in improving their ability to prepare for and respond to public health emergencies. The examples described in this report only provide a snapshot of the myriad activities being engaged in at the state, local, regional and federal level to prepare our nation for bioterrorist attacks, catastrophic natural disasters and other public health threats and emergencies. State health agencies are now able to respond to events that would previously completely overwhelm them or prevent them from effectively maintaining everyday activities necessary to protect the public's health. A sustained commitment to these programs will enable state health agencies and their partner local health departments to continue to maintain and expand their capacity to effectively handle any event thrown at them and contribute to the protection of our nation's security.

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[1] Centers for Disease Control and Prevention. "Fact Sheet: CDC Makes Preparedness a Priority." May 19, 2006.
[2] Ibid.
[3] Ibid.
[4] Ibid.
[5] U.S. Department of Health and Human Services. "Budget in Brief: Fiscal Year 2007." Available at: http://www.hhs.gov/budget/07budget/2007BudgetInBrief.pdf. Accessed 07-05-06.
[6] Ibid.
[7] Centers for Disease Control and Prevention. "Information About a New Strain of Clostridium Difficile." Available at: http://www.cdc.gov/ncidod/dhqp/id_CdiffFAQ_newstrain.html. Accessed 07-06-06.
[8] Centers for Disease Control and Prevention. "Fact Sheet: CDC Makes Preparedness a Priority." May 19, 2006.
[9] Ibid.
[10] Ibid.

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