

Issue Brief

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State Strategies for Fully Integrating Public Health into Homeland Security

Executive Summary

During the latter half of the last century, public health was often considered a less than integral part of disaster and emergency response. As emergency management and homeland security evolved, public health officials frequently found themselves at the periphery of preparedness and response efforts. This lack of integration into homeland security structures has been further hindered by a public health culture sometimes at odds with decision-making approaches favored by other first response agencies and a public health infrastructure that has lagged behind other response agencies in terms of involvement.

In many ways, the 2001 anthrax attacks and the emerging threat of bioterrorism finally changed this perception. With expertise not found in other disciplines—unique authorities including quarantine, isolation, and drug distribution—and surveillance systems that provide important intelligence about infectious diseases, states have come to realize that they can ill afford to leave public health out of any disaster. The result is a search for new ways to integrate public health into emergency response and homeland security at all levels of government.

The problem of culture clashes and unfamiliarity with emergency management must be overcome to take advantage of the lifesaving assets of expertise and authority that public health brings to disasters. To better integrate public health into their homeland security structures, states should:

- include public health fully in the state homeland security governance structure;
- include public health fully in homeland security planning;
- incorporate public health in state and local exercise and training activities; and
- include public health fully in homeland security intelligence and analysis.

The Evolving Role of Public Health

Responding to disasters once was considered the sole province of emergency managers, law enforcement officers, and firefighters. To many Americans, the term “first responders” still conjures images of National Guard airlifting victims of hurricanes from rooftops, or fire department personnel digging through the wreckage of structures to search for victims. It is rare to think of first responders as latex-gloved officials inoculating the elderly and children against diseases spawned by fetid flood waters, or lab officials quietly monitoring the incidence of West Nile Virus in local bird populations.

Americans have good reasons for this perception. During the latter half of the 20th century, public health officials often found themselves at the periphery of preparedness and response efforts. As efforts such as the closure of swimming pools to stop polio in the 1950s faded from public life,

primary public health activities such as lead hazard abatement, reduction of tobacco use, and education about sexually transmitted diseases seemed to have little to do with natural or manmade disasters within mass populations. Moreover, the committee approach to decision-making favored by public health personnel often placed them at odds with the command and control philosophy of the emergency management community.

Pre-September 11 exercises such as the federal 2000 TOPOFF (short for “top officials” from a variety of disciplines) drill put these culture clashes on public display. The exercise simulated a mass outbreak of *Yersinia pestis*, or pneumonic plague, in the Denver metropolitan area. As the mock crisis spread, one participant noted, “Decisions made on Saturday were reversed on Sunday morning, then reversed again on Sunday afternoon ... reversing decisions back and forth is the antithesis of crisis management and efficient decision making.” Another commented, “The time frame that public health is accustomed to dealing with is not what is needed for bioterrorism.” By the fourth day when the plague exercise was terminated, the number of simulated sick or dead persons in Denver and beyond exceeded 3,500.ⁱ

Beyond culture clashes, public health agencies also have been hampered by a deteriorating public health infrastructure. In many ways, public health was a victim of its own success. The worldwide eradication of infectious diseases that long plagued humanity reached the height of optimism when the World Health Organization (WHO) announced that officials successfully treated the last known case of smallpox in Ethiopia in 1977. This success was soon rewarded with a long repetition of declining public health budgets at all levels of government.

The October 9, 2001, testimony of Mohammad N. Akhter, Executive Director of the American Public Health Association, painted a vivid picture of the state of public health. He noted that as we entered the 21st century:

- Half of all states lacked an Epidemic Intelligence Service Officer;
- Only 32 states employed a designated public health veterinarian; and
- Approximately 10 percent of health departments in the U.S. did not have e-mail.

Akhter commented, “If a bioterrorist attack occurred on a Friday afternoon, there would be no report of it until Monday morning under the current staffing profile of most health departments.”ⁱⁱ

Six days later and one office building removed from where Akhter testified, the opening of an anthrax tainted letter to the Office of Senator Tom Daschle would bring the sorry state of public health and its role in disasters into stark perspective. The issues raised by the 2001 anthrax attacks and their accompanying hoaxes across the country triggered a flood of federal dollars to state and local public health agencies to help rebuild the nation’s public health infrastructure. This money has begun to correct some of the most egregious shortcomings of the public health

system. The events of 2001 also triggered a reexamination of the role of public health in disasters of all types.

As states upgraded their own homeland security structures, many began examining ways to upgrade the assets of public health for emergencies. While bioterrorism and emerging infectious diseases are the most obvious triggers for these efforts, state homeland security directors also realize that, after responding to almost any natural or manmade disaster in their state they may face a second wave of disease-related deaths that amplify the human toll of an emergency. During an epidemic, access to information about patient health and treatment could prove to be as critical as access to information about terrorist intentions. Indeed, disease surveillance may be the most important type of intelligence available to authorities of any type during an emergency with public health implications. Furthermore, in many states public health authorities—not law enforcement, emergency management, or fire-fighting personnel—are the only entities empowered to enforce compliance with medical treatments, to shut down institutions to prevent the spread of disease, and to issue quarantine and isolation orders.

While some of these measures (especially enforced quarantine) have rarely been used in the United States in modern times, they were exercised by some countries during the 2003 severe acute respiratory syndrome (SARS) outbreak. Authorities from Asian countries and Canada, for example, ordered, “mass quarantines or closures for schools, hospitals, factories, hotels, restaurants, places of entertainment, or residential buildings.”ⁱⁱⁱ Canadian officials also ordered home a high school of 1,500 students with the local health commissioner issuing a statement highlighting his authority to hospitalize those students who refused to comply. In the United States, New York City issued a 10-day quarantine order for a foreign tourist in a hospital within its jurisdiction. San Jose, California, authorities also kept a plane arriving from Tokyo on the tarmac for several hours to investigate a potential SARS case. In conjunction with disease surveillance and tracking, as well as travel restrictions, some combination of these measures contributed to the control of the outbreak.^{iv}

While public health’s role in homeland security structures continues to grow, it is not yet fully integrated in most cases. To get to such a level, states must focus on four areas:

- include public health in the state homeland security governance structure;
- include public health in homeland security planning;
- incorporate public health in state and local exercise and training activities; and
- include public health fully in homeland security intelligence and analysis.

The problem of culture clashes and unfamiliarity with emergency management must be overcome to take advantage of the lifesaving assets of expertise and authority that public health brings to

disasters. This issue brief examines four key areas in which states can gauge their own efforts at integrating public health into their homeland security and emergency management systems against the practices of their peers. For those states where this effort is still in progress, this paper points to specific examples that offer guidance and innovative ideas.

Fully Integrate Public Health in the State Homeland Security Governance Structure

Efforts to include public health within state homeland security structures must start at the top. Most states recognize this and have included public health in the new governance structures, but the trend is not universal.

Nearly 30 states and territories organize their homeland security governance structure around committees, councils, or task forces. Normally, these organizations include representatives from emergency management, law enforcement, and fire and rescue. Today, over two-thirds of these organizations also include some public health representation.^v

Generally, these homeland security entities convene cabinet-level officials to address a state homeland security strategy, identify resources to be used during a disaster, share intelligence in a multi-disciplinary setting, and respond to incidents within the state. These partnerships aim to prevent “stovepiping,” or a lack of coordination, among state agencies. They also prevent redundancies and identify weaknesses in a variety of areas such as equipment, personnel, and planning.

In some states, working groups augment these cabinet-level committees. In addition, some state departments form committees to make strategic decisions, allocate resources, consolidate diverse funding streams, and share information. As the backbone of homeland security efforts in many states, the participation of public health on these various committees is essential. Three states, **Virginia, Delaware, and Florida**, serve as good examples of this type of integration.

The Centralized Approach. One way to place public health within homeland security structures is to ensure representation within central homeland security decision making committees at the highest level of state government. In Virginia, the Secure Commonwealth Panel sits at the top of the state’s homeland security structure. The Assistant to the Governor for Commonwealth Preparedness chairs the 29-member panel. In addition to representatives from the legislature, private sector, and localities, the panel includes the Secretary of Health and Human Services and other cabinet-level officials.^{vi} A Commonwealth Preparedness Working Group helps to bring issues before the overall Secure Commonwealth Panel and the governor; health officials serve on this working group.^{vii}

The formal ties created by the Secure Commonwealth Panel lead to an informal atmosphere where collaboration is the rule. According to Dr. Lisa Kaplowitz, the Director of Public Health

Preparedness, “It is a basic give and take. You must make sure that your partner departments stay informed.”^{viii} For example, when state public health officials had their first meeting about the federal Biowatch program they brought representatives from the Virginia Department of Emergency Management (VA-DEM). The rationale for this action was simple—both agencies have an important role in protecting the public from harmful biological agents and would need to at least speak the same language to deal with any such threat.^{ix}

Consolidating Diverse Funding Streams. Like their counterparts in Virginia, Delaware officials use a centralized approach to homeland security decision making. Through a variety of committees such as the Delaware Homeland Security Council, the Homeland Security Terrorism Preparedness Working Group, and the Catastrophic Planning Committee, the state developed an environment that encourages joint initiatives focused on consolidating a diverse set of funding streams for emergency management, homeland security, and public health.

In the state, all agencies devoted to homeland security benefit from this approach because it maximizes resources and prevents redundancy. For example, in a recent full-scale exercise with over 500 participants, the Delaware Emergency Management Agency (DEMA) assisted the Division of Public Health (DPH) by providing funds for overtime costs for hospitals and law enforcement personnel. In addition, DPH contracts with DEMA to provide key services such as risk and capability assessments, as well as the use of geographic information systems to plot healthcare facilities.

A Regional Approach to Integration. Another approach in addition to integrating public health into homeland security decision-making at the top levels of government is a regional model. In this model, the public health discipline is represented in regional decision making bodies, as well as the statewide committees that oversee regional efforts.

In Florida, the Domestic Security Oversight Board (DSOB) determines the state’s overall homeland security policies. Co-chaired by the commissioner of law enforcement and the director of the emergency management agency, the commissioner of health and a representative of the Florida Emergency Medical System (EMS) serve on the board. Augmented by a working group of senior staff, the DSOB oversees the two primary legs of the domestic security structure within the state.^x

The DSOB presides over seven Regional Domestic Security Task Forces (RDSTF) run by local elected sheriffs. With public health representation included, these RDSTF make planning and resource allocation decisions—including how public health dollars are spent. Plans are underway to gear the RDSTF toward response to further enhance Florida’s county-based response capabilities.^{xi}

Public health is far from left behind under Florida's regional system. In its 2002 annual report, the Domestic Security Oversight Board noted that \$44.3 million went to enhance public health and bioterrorism defenses. This money funded regional pharmaceutical stockpiles, including chemical agent antidotes and potassium iodide tablets for radiological emergencies; regional tabletop exercises to test the distribution of pharmaceuticals; personal protective equipment and training in decontamination for 77 of 207 trauma and acute care hospitals; and equipment to quickly identify food pathogens.^{xii}

Include Public Health in Homeland Security Planning

Whether preparing to distribute the medications to end an epidemic or preserving the health of evacuees after an initial disaster, states are now beginning to include public health in a wide variety of planning activities. Most disasters have a public health component and public health serves as the lead agency for health related crises such as bioterrorism or a naturally occurring infectious disease outbreak. Some states have chosen to use aspects of the disaster planning process as a vehicle to further integrate public health into state homeland security structures.

Incorporate Public Health into Strategic Security Plans. The most obvious place for planning to become integrated would be by correlating state public health and overall state homeland security strategic plans. States can accomplish this by giving public health a defined role in preparedness and response and by requiring public health and other agencies to work together. States such as **Arizona** and **Colorado** offer good examples of this technique.

In Arizona, the state strategic plan lumps the need to collect health information in a series of action items that also include the gathering of criminal justice information and the need to establish a 24/7 intelligence/information analysis center. Colorado's plan promises the establishment of protocols between health providers and law enforcement for bioterrorism events and a 24-hour emergency notification system to include law enforcement, emergency management, and public health.^{xiii}

Create a Plan for Distributing the Strategic National Stockpile (SNS). Some disaster scenarios call for widespread distribution of drugs. Public health must play a large role in this process. As the lead agencies for planning and response for bioterrorism and other public health emergencies, state public health organizations are required to work with other agencies. The assessment tool used by the CDC to rate a state's readiness to receive and deliver the SNS of pharmaceuticals and medical equipment, evaluates state planning efforts on the basis of inclusion of many non-health groups in SNS planning. For example, the governor's office will need to coordinate with health officials to communicate with the public; law enforcement will need to provide security at distribution sites; and transportation/highway department personnel will need to control traffic

flow. States in which public health is not integrated into the homeland security structure could have a hard time meeting these requirements.^{xiv}

In **Ohio**, for example, the Department of Public Health worked with 10 other state agencies to identify joint resources that could be used in the event of a need to distribute the SNS. The ability to provide medications on a mass scale may someday be the only option available to state leaders to stop the spread of a disease. The stakes simply are too great to ignore the need to efficiently distribute life saving medications to the public by working out culture clashes before such an event.^{xv}

Pandemic Influenza Planning. Another timely opportunity to integrate public health into homeland security is to develop a state plan for a potential pandemic flu. Pandemic influenza is a current real threat to homeland security in which public health must play a significant role. The emergence of the H5N1 strain of avian influenza in parts of Asia combined with last year's influenza vaccine shortages sent a shock wave through the public health systems in many state governments. In response to growing concern about a possible influenza pandemic, many states began planning to meet the needs of their citizens during a worst-case scenario.

Some states viewed this interest in what is primarily a public health issue as an opportunity to solicit input and expertise from other disciplines and from ordinary citizens. For example, former **Nebraska** Governor Mike Johanns spearheaded an effort to solicit broad-based recommendations for the state's influenza pandemic planning effort from a variety of sources. Johanns and his successor, Governor Dave Heineman, established the Nebraska Influenza Committee under the leadership of the state health and human services system.^{xvi}

This 40-member committee brought together ordinary citizens and public health professionals with officials from a wide variety of disciplines and backgrounds, including law enforcement, school systems, the faith community, academia, legislators, retailers, and tribes. To bring committee members without a health background up to speed about the specifics of a pandemic influenza, committee meetings included mock news segments simulating an outbreak, basic information about the clinical features and history of influenza, and facilitated discussions about a range of issues.^{xvii}

At the conclusion of the committee meetings, the advisory group made recommendations about vaccination goals, the prioritization of anti-viral medications, and whether to educate the public about influenza now or later. Nebraska health officials plan on continuing this level of involvement by encouraging citizens to comment on the state plan in conjunction with CDC site visits seeking comment on the national pandemic influenza plan. In addition, the state's Homeland Security Policy Group has been, and will continue to be, updated on issues related to pandemic influenza.^{xviii}

More recently, **New Hampshire** held workshops for police, correctional facility staff, Superior Court personnel, local emergency planners, hospital staff and other public health staff about their roles and responsibilities during an avian influenza outbreak. Held in a number of locations across the state, the workshop faculty included experts from the public health, law enforcement, and legal communities about topics ranging from the general handling of infectious patients to the legal aspects of isolation and quarantine within the state. Since only public health can issue quarantine and isolation orders in the state, only law enforcement can enforce such orders, and the orders can be overturned in court, the meetings reflected the need to work out issues and misunderstandings surrounding avian influenza before the state is in full crisis mode.^{xix}

As with the consequences of bioterrorism, a pandemic flu could be catastrophic. Flu pandemics, such as the one that occurred in 1918, have been known to kill millions worldwide and hundreds of thousands in the United States. Ensuring a cohesive command and control structure to respond to a flu pandemic is a necessity. States need input from a number of stakeholders and the public at large to prepare to make the tough choices needed in the event of this kind of tragedy. States also need to practice the plans that they make to facilitate a smooth response from all agencies in state government—not just public health.

Incorporate Public Health in State and Local Exercise and Training Activities

It is not enough to just pursue integration at the senior levels of government. States seeking to integrate public health into their overall homeland security structure also should view disaster exercising and training as an opportunity to pursue this multi-disciplinary approach because it gives workers from public health and other homeland security agencies the chance to get to know and understand each other's expertise, authority, and culture before a disaster. Often, mandated at the federal or state levels, exercising and training for first responders offer opportunities to meet and develop working relationships before a crisis. Two states, **Iowa** and **Massachusetts**, provide examples of bringing together public health and other first responders through exercising and training.

Include Public Health in State-Wide Exercising and Training Programs. States should make every effort to include public health agencies in exercise and training programs. In Iowa, the Homeland Security and Emergency Management Division (HLSEM) put together a State Agency Exercise group to discuss mutually beneficial exercises. This group includes representatives from public health, National Guard, Department of Corrections, Department of Land Stewardship and Agriculture, Department of Natural Resources, and University of Iowa Hygienic Laboratory. The collaboration of these agencies in designing a statewide exercise program led to a multi-disciplinary program that included six regional tabletop exercises devoted to bioterrorism in 2004 with over half of the 1,000 attendees from public health. An additional six regional exercises are planned for this year. One of these exercises will focus on a pandemic influenza scenario.^{xx}

The Iowa exercise component is further supplemented by the Education and Training Advisory Committee (EdTraC). Jointly created by the Iowa Department of Public Health, the Iowa Homeland Security and Emergency Management Division, and the University of Iowa School of Public Health's Center for Public Health Preparedness, EdTraC seeks to overcome turf wars and to stretch thinning budgets. It focuses on a number of cross-discipline training issues, including multi-hazard approaches such as homeland security, certification for trainers, evaluating preparedness of agencies, and standardizing terminology across disciplines.^{xxi}

There is an often cited saying in homeland security and emergency management literature that “an emergency is a bad time to begin exchanging business cards.”^{xxii} By conducting exercises, states can avoid this unfortunate fate. The Iowa approach demonstrates a realistic way of recognizing the fact that law enforcement will have little time to explain acronyms to epidemiologists if anthrax is released in Des Moines and public health officials will have little time to explain the need to get tetanus shots to emergency personnel digging through rubble after a tornado in Ames.

Exercising Region by Region. Another option for states seeking to integrate public health into homeland security structures through exercising and training at the operational level is to take a regional approach. The Commonwealth of Massachusetts developed a three-year plan that separates the state into five distinct regions. Among the many goals of the exercises performed within individual regions is to ensure monitoring for emergency health events and develop a capacity to blend information from many disciplines, including public health.^{xxiii}

Public health information and other intelligence collected by the Massachusetts State Police Intelligence Fusion Center helps to inform the development of training and exercising programs. Regional, multi-disciplinary consortiums that include public health agency representatives from the state and local level then set the strategy for the programs.^{xxiv}

To measure the effectiveness of integration, the state collected baseline data that takes into account past exercises and real-world events that brought agencies from different disciplines together in the field. Regional officials use this data to construct after action reports following exercises with specific actions for particular agencies at all levels of government and to produce timeframes for the completion of these actions. Every other year, state officials hold exercises conferences in each region to make progress reports.^{xxv}

This system tested central Massachusetts recently. The drill revolved around the release of nitric acid at a concert. It included 14 hospitals and 4,500 victims. The main purpose of the drill was to gauge communications between health, fire, and emergency management officials; to test hospital staff decontamination procedures; and to rate hospital triage functions and field treatment site capabilities. Overseen by the state Department of Public Health and Department of Fire Services, officials on the scene pronounced the exercise a success. Marlborough Fire Captain David Hicks

noted, “As far as setting up the [decontamination] unit and operating it, everything went smooth as can be.”^{xxvi}

Include Public Health in Homeland Security Intelligence and Analysis

The first sign of a biological attack or the emergence of a deadly infectious disease would come from the health care community. Doctors and nurses would report an increase in particular maladies or the emergence of a strange new disease. The signs for some biological agents such as smallpox, anthrax, or pneumonic plague can be subtle. Nevertheless, the best hope of containing an outbreak is to recognize it early and take appropriate measures. Public health disease surveillance systems need to be incorporated into statewide homeland security efforts to inform any state responses to disasters.

In addition, states should include public health representatives in state intelligence fusion centers. These centers and other state intelligence sharing entities seek to avoid the “information silo” phenomenon in which individual agencies, for a variety of reasons, tightly refused to share their own intelligence products (See NGA Center Issue Brief “Establishing State Intelligence Fusion Centers, July 13, 2005). Public health experts can inform the work of those centers through their medical and disease tracking expertise, infectious disease surveillance systems, and epidemiological capabilities. **Pennsylvania** and **Maryland** offer examples of states seeking fully to utilize public health expertise and resources for intelligence efforts.

Disease Surveillance Systems. One of the best assets that public health community can bring to homeland security intelligence efforts is a strong disease surveillance system. One of the best disease surveillance systems in the United States is the Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS). This disease reporting system takes information from 666 hospitals, 571 labs, 603 physicians, and 523 public health staff from across the state to allow state Department of Health epidemiologists to spot outbreaks before they become epidemics.^{xxvii}

In early November 2003, Joel Hersh, the director of Pennsylvania’s Bureau of Epidemiology, noticed an unusually high number of hepatitis A lab reports on PA-NEDSS. Within hours, Hersh ordered public health staff to track hepatitis A patients to track down the origin of the outbreak. When the epidemiologists recognized that the origin of the disease was a Chi Chi’s restaurant in Monaca, Pennsylvania, Hersh worked with the Department of Agriculture to shut the establishment down.^{xxviii}

The next day, state Department of Health personnel worked with local officials to set up hepatitis A inoculation clinics all over the state. The workers screened over 10,000 people and inoculated 9,000 of them over the next two days. Noting that the outbreak could have been much more severe if not caught early, Hersh commented, “Had it not been for PA-NEDSS, we couldn’t have responded that quickly.”^{xxix}

Systems like those in Pennsylvania have obvious implications for homeland security—especially for bioterrorism or naturally occurring epidemics. As was the case in Pennsylvania for the state Department of Agriculture and for local agencies, other first responders will need this kind of intelligence to coordinate their activities and effectively respond to emerging health crises.

Public Health in Intelligence Analysis. The intelligence provided by disease surveillance systems like PA-NEDSS would mean little to homeland security intelligence structures without public health personnel involved in the intelligence analysis process. The state of Maryland chooses to tap into this expertise within its fusion center on the “input” side of intelligence. The Maryland Coordination and Analysis Center (MCAC) provides intelligence support and strategic analysis to a wide variety of first responder agencies. Divided into two sections, the agency brings together a multi-disciplinary group composed of law enforcement, fire, EMS, emergency response, public safety, homeland security, and public health. Begun in 2003, MCAC has taken over 3,500 tips and processed over 4,500 requests for information.^{xxx}

MCAC takes information related to suspicious or unusual activity from the public and a variety of agencies, including public health. It then processes any potential threats or warnings to federal, state, and local officials. During the second part of this process, experts from the state Department of Health and Mental Hygiene and the Baltimore City Public Health Department join other experts from other disciplines to evaluate threat information. MCAC also has a hotline devoted to bioterrorism that is staffed by a public health official. Getting public health involved on the input side of intelligence gives Maryland a better chance of finding and stopping disease outbreaks before they become epidemics.^{xxxi}

Conclusion

There is no perfect strategy for integrating public health into homeland security. But by focusing on governance structures, homeland security planning efforts, training and exercising, and intelligence sharing, states can achieve a basic level of integration and establish a framework upon which to increase the integration of public health in state homeland security efforts. Interaction between public health and other homeland security partner agencies can reduce the unfamiliarity that results in mistrust and a lack of communication. The report makes four basic recommendations:

- States should ensure that public health officials have active representation within any homeland security governance or decision-making structure. If this structure involves committees and working groups, public health should have at least one seat at the table at the cabinet and senior staff levels. These entities should make a special effort to consolidate the diverse set of funding streams that flow to emergency management, homeland security, and public health to maximize efficiency and reduce redundancy;

- States should encourage public health input in homeland security planning. Good opportunities for outreach include state strategic planning activities, strategic national stockpile (SNS) distribution, and pandemic influenza planning;
- States should pursue a multi-disciplinary approach toward overall exercising and training for first responders. These efforts should include public health at the statewide and, if applicable, regional level; and
- States should take advantage of disease surveillance systems and ensure that public health has representation at intelligence fusion centers and in other intelligence sharing efforts. This not only will lead to further integration, but also will enhance the capabilities of intelligence efforts.

State homeland security officials will need the expertise of public health and should establish the processes and relationships to incorporate that knowledge into their homeland security structure during the planning processes—not after disaster strikes.

ⁱ T.V. Inglesby et al., “A Plague on Your City: Observations from TOPOFF.” *Clinical Infectious Diseases* 32 (2001): 439-440.

ⁱⁱ Laurie Garrett, “The Return of Infectious Disease,” *Foreign Affairs* January-February 1996; Mohammad N. Akhter, “Testimony of the American Public Health Association Concerning the Need for Investment in Public Health Preparedness to Combat Terrorism,” presented to the United States Senate Committee on Health, Education, Labor, and Pension, October 9, 2001.

ⁱⁱⁱ Lawrence Gostin et al., “Ethical and Legal Challenges Posed by Severe Acute Respiratory Syndrome,” *Journal of the American Medical Association* 290 (2003): 3229-3237.

^{iv} Lawrence Gostin et al., “Ethical and Legal Challenges Posed by Severe Acute Respiratory Syndrome,” *Journal of the American Medical Association* 290 (2003): 3229-3237.

^v Joe Trella, “Overview of States Homeland Security Governance,” National Governors Association, July 2005, <http://www.nga.org/Files/pdf/HOMESECSTRUCTURES.pdf>.

^{vi} Office of Commonwealth Preparedness, Commonwealth of Virginia, “Secure Commonwealth Panel,” available at www.commonwealthpreparedness.virginia.gov.

^{vii} *Ibid.*

^{viii} Conversation between author and Dr. Kaplowitz, August 9, 2005.

^{ix} Conversation between author and Dr. Kaplowitz, August 9, 2005.

^x Office of Public Health Preparedness, State of Florida, “Florida Public Health and Hospital Preparedness Overview,” Received August 1, 2005.

^{xi} *Ibid.*

^{xii} Florida Domestic Security Oversight Board, “Strengthening Domestic Security in Florida: Making Florida Safer,” November 2002.

^{xiii} “Securing Arizona: A Roadmap for Arizona Homeland Security,” available at www.governor.state.az.us/press/Securing_Arizona.htm; “Colorado Strategy for Homeland Security,” available at <http://ops.state.co.us/downloads/referencelibrary/cohomeland8.pdf>

^{xiv} *Ibid.*

^{xv} National Governors Association and Association of State and Territorial Health Officials, “State Health Official/Homeland Security Advisor Teleconference Summary: Strategic National Stockpile Planning,” May 23, 2005, <http://www.nga.org/Files/pdf/BIOTERRCC052305.pdf>.

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- ^{xvi} Nebraska Health and Human Services System, “Nebraska’s Pandemic Influenza Planning Process: Preparing for the Inevitable: The Beginning,” Revised 7/08/05.
- ^{xvii} *Ibid.*
- ^{xviii} *Ibid.*
- ^{xix} New Hampshire Department of Health and Human Services, “Isolation and Quarantine,” available at <http://www.dhhs.state.nh.us/>.
- ^{xx} Notes from conference call about exercise coordination.
- ^{xxi} Education and Training Advisory Committee, “Iowa’s Preparedness Strategic Plan,” http://www.public-health.uiowa.edu/icphp/about/committee/edtrac_stratplan.pdf.
- ^{xxii} Jay C. Butler et al., “Collaboration Between Public Health and Law Enforcement: New Paradigms and Partnerships for Bioterrorism Planning and Response.” *Emerging Infectious Diseases* 8 (October 2002), <http://www.cdc.gov/ncidod/EID/vol8no10/02-0400.htm>.
- ^{xxiii} Commonwealth of Massachusetts, “Homeland Security Exercise and Evaluation Program Three-Year Exercise Plan 2004-2006,” available at <http://www.mass.gov/Eeops/docs//programs/hs/MA3YrExPlancjs1public.doc>.
- ^{xxiv} *Ibid.*
- ^{xxv} *Ibid.*
- ^{xxvi} Jennifer Kavanaugh and Jon Brodtkin, “Disaster Drill Tests Response,” *Metro West Daily News*, September 18, 2005.
- ^{xxvii} Pennsylvania Department of Health, “Pennsylvania’s National Electronic Disease Surveillance System (PA-NEDSS),” available at www.dsf.health.state.pa.us.
- ^{xxviii} Center for Digital Government, “Tracking Silent Killers — Are State and Local Governments Effectively Implementing Disease Surveillance Systems?” available at www.centerdigitalgov.com.
- ^{xxix} *Ibid.*
- ^{xxx} Matthew Dolan, “MD Center Viewed as a Pillar in the Homeland Security Field,” *Baltimore Sun*, August 13, 2005.
- ^{xxxi} Maryland Coordination and Analysis Center, “Maryland Coordination and Analysis Center Overview,” Revised October 2004.