Preparing For The Unknown, Responding To TheKnown: Communities And Public Health Preparedness

Communities have improved their emergency response systems, but hospitals still could not handle a sudden spike in patient demand.

by Aaron Katz, Andrea B. Staiti, and Kelly L. McKenzie

ABSTRACT: More than four years after September 11, 2001, bioterrorism preparedness remains a high priority for federal, state, and local governments. With reasonably flexible federal funding, communities have strengthened their ability to respond to public health emergencies, according to assessments by stakeholders and market observers. Collaborative relationships developed for bioterrorism preparedness have proved useful in addressing other threats, such as natural disasters and infectious disease outbreaks. Major ongoing challenges include funding constraints, inadequate surge capacity, public health workforce shortages, competing priorities, and jurisdictional issues. [Health Affairs 25, no. 4 (2006): 946–957; 10.1377/hlthaff.25.4.946]
ties’ health. Federal funding has allowed jurisdictions to improve disease surveillance, communication, and laboratory capacity, although past reports suggest that improvements are not consistent across communities. Local public health officials have developed closer working relationships with various partners around preparedness planning. Activities such as those focused on bioterrorism threats and distribution of pharmaceutical stockpiles brought public health officials together with emergency management, police, fire departments, and medical care providers in collaborations that once were rare. However, these earlier reports noted several challenges, such as public health workforce shortages, barriers to regional coordination, incompatible communication systems, and lack of surge capacity. Also, balancing their attention between bioterrorism preparedness and other public health priorities has proved difficult for public health agencies, especially given that states have cut some public health funding in recent years.

Building on the Center for Studying Health System Change’s (HSC’s) findings in 2002–03, this report examines the progress communities have made two years later in their ability to respond to public health emergencies.

**Study Data And Methods**

Our findings are based on data collected during biennial site visits for the Community Tracking Study (CTS), a longitudinal study conducted by HSC. Site visits for Round Five of the CTS occurred between January and June 2005 and included interviews with more than 1,000 health system leaders from a wide range of organizations across twelve nationally representative markets.

Public health was the focus of 155 telephone and in-person interviews across the twelve sites. In each community, we sought to interview three local public health agency executives, a community partner in public health (an organization that collaborates with the local health agency), executives at up to five hospitals, two community health center (CHC) executives, and a market-vantage respondent. We also interviewed representatives of state health departments as well as one federal public health agency and one national public health association.

The interviews included questions about changes in public health funding; effects of funding changes on bioterrorism preparedness and other public health priorities; changes in public health capacity; agencies’ ability to balance competing priorities; and the usefulness of previously formed bioterrorism preparedness collaborations in the pursuit of other public health priorities.

**Study Findings**

- **New public health priorities emerge.** Bioterrorism preparedness remains a high priority in the CTS sites. States and communities continue to dedicate generous resources to preparedness activities, and the ability to respond to a terrorist attack remains an overarching concern for health departments. Although much work remains to improve infrastructure and address remaining deficiencies, respondents...
indicated that state and community preparedness levels overall have improved since 2001. As a result, the emphasis on bioterrorism preparedness has evolved from expansion of capabilities to sustainability, allowing public health departments to direct more attention toward traditional public health activities such as childhood immunizations, infectious disease control, and chronic disease prevention.

Although bioterrorism preparedness remains a top priority, many state and local health officials indicated that during the past two years, health departments have focused more effort on other public health concerns. These priorities ranged from lead poisoning, smoking, maternal and child health, health disparities, dental care access, and cancer to preventing and responding to outbreaks of communicable diseases such as tuberculosis (TB), HIV/AIDS, and West Nile virus. As is often the case, emphasis on these items varied from community to community, based on factors such as the burden of specific diseases, political leadership and community activity around specific health issues, and the amount of funding available. For example, HIV/AIDS is a key issue in northern New Jersey, where the already-high prevalence rate of HIV continues to climb. Respondents reported that CDC and Ryan White funding allowed them to undertake new efforts to combat the disease. In Little Rock, respondents were most concerned about childhood obesity, a top priority of Gov. Mike Huckabee. Key stakeholders have embraced his obesity prevention initiatives, some of which provide funding for community programs.

Chronic disease prevention, however, emerged as a priority across states and communities. Nationally, this issue has received increased attention in recent years, with federal programs such as Steps to a HealthierUS providing funding for selected communities (including Boston, Cleveland, and Seattle among CTS sites) to undertake prevention activities related to asthma, diabetes, and obesity. In Indianapolis, the local health department is promoting healthy lifestyles through the fitness program Indy in Motion, and South Carolina has launched the Healthy South Carolina Initiative to improve family fitness. In Arkansas, enactment of the 2003 Child Health Initiative and Governor Huckabee’s highly publicized weight loss in 2004 led to a number of obesity-related initiatives, including measuring the body mass index of all elementary school children.

Infrastructure improvements. Generally, respondents felt that the federal government’s “all-hazards approach” has facilitated investments that benefit the public health system as a whole. Most communities reported using bioterrorism funding to create multiple-use systems that can respond to a range of events including terrorism. By investing in such areas as communications, epidemiology, and lab capacity, health departments have strengthened core functions that contribute to the success of various public health activities.

State and local health departments reported improved communication among providers, health departments, and other emergency response agencies as a result of bioterrorism funding. They have invested in new communication tools, such as radio systems, online alert networks, and new computer equipment, which are es-
sential for effective responses to terrorist events or other emergencies. For exam-
ple, the Ohio Department of Health now has a dedicated cable line to instantly 
communicate with local health departments about health threats as they arise, 
vastly improving response time and coordination. A Michigan county outfitted its 
communicable disease unit with computers and software programs and set up a 
county communications center, to enable quicker response times. 

Health departments have also used bioterrorism preparedness funding to hire 
risk communicators, preparedness coordinators, and epidemiologists to address 
emerging needs related to bioterrorism. Because their expertise can be applied to 
other functions, some health departments report that the new staff have helped 
offset staff cuts in other public health programs resulting from state and local 
budget shortfalls. 

Increased staffing levels have also enhanced health departments’ lab capabili-
ties. Most states with CTS sites have upgraded their public health laboratories to 
handle anthrax samples and other hazardous agents in the aftermath of 9/11, re-
quiring additional staff. Similarly, hiring epidemiologists and statisticians (and in-
vesting in computer equipment) has led to improved disease surveillance. The 
Florida Department of Health has used preparedness funds to integrate its sur-
veillance systems and collect data in a central database, allowing for more rapid 
and streamlined health threat analyses. Although focused initially on bioterrorism 
preparedness, this new capability will support efforts to address many types of 
disease outbreaks. Boston and Seattle have implemented “syndromic surveillance” 
systems that collect information in real time from hospitals, pharmacies, and other 
ources so that public health officials can detect spikes or clusters of symptoms 
that might indicate a disease outbreak. 

Local health departments also reported that the overall preparation process for 
bioterrorism disasters has improved their ability to evaluate and respond to vari-
ous public health threats. Respondents feel better prepared for any emergency. 
One of the main benefits of the bioterrorism planning process has been the oppor-
tunity to collaborate with other actors in the emergency response system. 

■ Ongoing collaborations. As reported two years ago, the 2001 terrorist attacks 
highlighted the need for much closer communication and coordination across sec-
tors.8 Previously, many public health agencies had limited contact with law enforce-
ment and other emergency response personnel. Agencies have had to work through 
differences in their organizational cultures and approaches to managing emergen-
cies to work together and understand each other’s roles. These efforts have led to on-
ging collaborations among local public health agencies, law enforcement, fire de-
partments, emergency medical services (EMS), and hospitals and to increased 
interaction between federal, state, and local agencies. The 2005 site visits revealed 
that these collaborations have continued and, in most communities, have grown 
stronger. Some public health agencies are now reaching out to additional partners, 
such as schools, private businesses, and other nongovernmental agencies.
Respondents indicated that the relationships formed for bioterrorism preparedness are useful for responding to naturally occurring emergencies. For example, Cleveland respondents described the partnerships between agencies and organizations as critical during the 2003 blackout. Miami respondents said that bioterrorism trainings and disaster preparedness drills fostered a high level of cooperation among various players in the emergency response system that, in turn, resulted in smoother responses to a series of hurricanes in 2004.

Collaborations formed around preparedness efforts also have been useful in addressing infectious disease outbreaks and distributing flu vaccines. For example, existing collaborations aided responses to a pertussis outbreak in Seattle in 2004–05 and a hepatitis A outbreak in Boston in 2004. Also, many communities activated their bioterrorism vaccine dissemination plans to distribute flu vaccine in 2005, using relationships among public health agencies, the medical community, and organizations such as the Red Cross. Such relationships largely have not been helpful for other public health priorities, however, such as chronic disease prevention and anti-obesity efforts, which typically do not include emergency response personnel.

**Testing under fire.** Communities have had numerous opportunities to test the investments they have made in public health preparedness and examine the extent to which their capacities have improved. We have organized these opportunities into three categories: planned preparedness exercises, “live-fire” tests, and public health emergencies; examples of the latter two are shown in Exhibit 1.

*Planned preparedness exercises.* These exercises include community-specific or nationally coordinated drills designed to test local response capacity. Community drills—which could be tabletop exercises or simulated events in the field—are designed to test such capabilities as emergency communication systems, vaccine distribution, and command-and-control structures. For example, Miami conducted a tabletop exercise involving a maritime terrorist threat that involved port authorities, cruise lines, physicians, and others. A bioterrorism exercise in New Jersey tested collaboration among the local police, fire departments, and the University Hospital’s EMS system.

The DHS has coordinated multisite tests called Top Officials, or TOPOFF, exercises involving federal, state, and local agencies. These congressionally mandated exercises, which focus on threats from weapons of mass destruction, involve a series of seminars and planning events that led up to a full-scale terrorist attack simulation. Since 2000, three TOPOFF exercises have been conducted, two involving CTS communities: Seattle and Chicago in TOPOFF 2 and New Jersey and Connecticut in TOPOFF 3.

*“Live-fire” tests.* Live-fire tests are large-scale planned events in a community—such as sporting events or conventions—that offer public health agencies and their partners opportunities to test their preparedness capacities in real-life situations. For example, Cleveland hosted the International Children's Games in 2004,
which allowed the city to activate its emergency operations center. Boston did the same for the Democratic National Convention and World Series that same year, especially testing its partnerships with state and federal agencies.

Public health emergencies. Actual public health emergencies often revealed most clearly the strengths and weaknesses of local public health preparedness efforts. Nearly all twelve CTS sites reported that the flu vaccine episode in 2004–05 tested their ability to respond quickly to a sudden surge in demand, such as might occur in a smallpox terrorist attack. In fall 2004, public health officials strongly urged vulnerable people to get vaccinated. A manufacturing problem with one of two major suppliers caused a severe shortage and large pent-up demand. When vaccine shortages eased in early 2005 and demand spiked, many locales activated their bioterrorism vaccine dissemination plans, creating temporary clinics or moving vaccine quickly to hospitals. Observers in most sites reported that these efforts were successful and validated many of their preparedness efforts.

More urgent emergencies also challenged response capacities. In Boston, officials faced two consecutive hepatitis A outbreaks, one that required inoculation of 2,500 people in two days and the second involving 900 people. These outbreaks tested the city’s surge capacity, incident command structure, stockpile planning,
volunteer training procedures, and risk communication plans. It also tested coordination among EMS, schools (for buses), the transportation department, and the emergency call center. Lansing, Syracuse, and Cleveland responded to multiple threats during the Midwest power grid failure in 2003 by mobilizing their respective emergency operation centers. The lack of electricity highlighted gaps in backup power for water systems and sewage treatment, as well as for telephone systems. In response, Lansing purchased “old simple operating phones” that don't require electricity. Three water treatment facilities in Phoenix shut down in early 2005, causing a “boil water” order that revealed inadequate preparation for public information and risk communication. Large-scale vehicular accidents also tested emergency response, surge capacity, and interagency communications and coordination in Greenville, Lansing, and Little Rock.

■ Remaining challenges. Observers generally reported that planned exercises, live-fire tests, and public health emergencies showed improvements in public health capacity as a result of new infrastructure and collaborative relationships. They also reported that challenges remain, particularly in sustainable funding, provider capacity, public health workforce, competing priorities, and jurisdictional confusion.

Funding. In most communities, the most important funding sources for public health preparedness are the CDC and HRSA programs. Through these programs, Congress has made the first major investment in basic capacity building for public health agencies in recent memory. New funds, however, along with the publicity around terrorist threats and their prevention, have “raised expectations about preparedness and our ability to respond by the programs and initiatives we’ve put in place,” explained one local health official. Public health leaders in a number of CTS sites voiced concern about their ability to meet these expectations over time, given questions about the sustainability of federal funding.

Total public health and hospital preparedness funding from the CDC and HRSA dropped 3 percent from FY 2003 to FY 2005, from $1.37 billion to $1.33 billion.8 Eight of the twelve CTS sites experienced funding reductions during this period (Exhibit 2). The overall drop in federal funding has been exacerbated in some communities by the redirection in 2004 of some funds from states (which pass funds through to communities) to cities that are projected to be at highest risk of attack. The Cities Readiness Initiative (CRI) was blamed by some local health officials for the reductions in their preparedness grants.9 For example, respondents in Lansing attributed its drop in funding to Detroit’s new CRI grant.

Federal cuts have been magnified in some communities by concurrent cuts in state support for public health, despite federal nonsupplantation provisions. Respondents noted that state public health funding in Arkansas had dropped every year for the past twenty years, and Indiana’s public health budget dropped 17 percent from 2004 to 2005. In some communities, the combination of state and federal cuts has left local governments holding the bag. As a respondent in Lansing said, “If federal support slows or goes away, this will dump these obligations on lo-
Because of increased expectations, it will be hard for local officials not to continue such efforts, but to do so will mean hurting some other services.

Provider capacity. Hospitals, and to a lesser extent other health care providers, have improved their ability to respond to public health threats, but observers are not confident of their ability to handle large-scale emergencies. Most hospitals reported being involved in meetings with public health and emergency management officials and, for the most part, indicated that they are more prepared than they were two years ago, through acquisition of new equipment such as decontamination showers and isolation units. Some hospitals reported, however, that funding wasn’t sufficient to make adequate investments, particularly for improving information systems and training staff. For example, a hospital in Miami noted gaps in its technological capabilities and computer equipment that would allow it to track emergent events. Several hospitals reported that finding time and money to train staff was an ongoing concern, particularly given staff turnover.

In almost all communities, hospitals expressed concerns about having the standby capacity to handle a sudden spike of patients in a terrorist attack, natural disaster, or epidemic. Large hospitals, especially those that anchor community safety nets, often operate at or near capacity, so their ability to serve a large influx of critical patients is limited. As one hospital chief executive officer (CEO) re-

EXHIBIT 2
Changes In Public Health Preparedness Funding Nationally And In Twelve States, 2003–2005

<table>
<thead>
<tr>
<th>Site</th>
<th>CDC</th>
<th>HRSA</th>
<th>Total to jurisdiction</th>
<th>FY 2003</th>
<th>CDC</th>
<th>HRSA</th>
<th>Total to jurisdiction</th>
<th>FY 2005</th>
<th>Percent change, 2003–2005</th>
</tr>
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<tbody>
<tr>
<td>AZ</td>
<td>15,755</td>
<td>9,030</td>
<td>24,785</td>
<td>17,067</td>
<td>8,964</td>
<td>26,031</td>
<td>5.03</td>
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<tr>
<td>AR</td>
<td>10,461</td>
<td>5,078</td>
<td>15,539</td>
<td>9,302</td>
<td>4,634</td>
<td>13,936</td>
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<tr>
<td>CA</td>
<td>55,590</td>
<td>38,774</td>
<td>94,364</td>
<td>61,339</td>
<td>39,203</td>
<td>100,543</td>
<td>6.55</td>
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<tr>
<td>FL</td>
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<td>25,776</td>
<td>63,958</td>
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<td>IN</td>
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<td>27,687</td>
<td>16,461</td>
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<td>35,555</td>
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<td>NY</td>
<td>27,794</td>
<td>18,020</td>
<td>45,814</td>
<td>28,293</td>
<td>17,748</td>
<td>46,041</td>
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<tr>
<td>OH</td>
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<td>18,235</td>
<td>46,317</td>
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<tr>
<td>SC</td>
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<td>US</td>
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<td>498,000</td>
<td>1,368,000</td>
<td>862,770</td>
<td>470,755</td>
<td>1,333,532</td>
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NOTES: CDC is Centers for Disease Control and Prevention. HRSA is Health Resources and Services Administration.
marked, “The notion of having surge capacity in the community to deal with a large-scale disaster is really pie in the sky.” Hospital officials also face a daunting array of possible threats, from chemical to nuclear to biological, which are challenging even to the best of planners. The predicament was voiced by one emergency department (ED) director, who wondered, “How much do you really prepare for the unknown? How many victims do you plan for? No one can really tell us.”

CHCs may be well situated in some communities to be a first line of response to public health emergencies. Two years ago, CHCs in the twelve CTS communities were largely uninvolved in bioterrorism preparedness efforts. The 2005 site visits revealed that CHCs’ preparedness has improved. Some states are allocating HRSA funds to CHCs, in addition to hospitals, which have in turn attended training meetings, purchased equipment, and evaluated their policies and plans. For example, a CHC in northern New Jersey has received funding in increments of about $5,000 for training or equipment. In at least a few communities, CHC directors expressed concerns about not having the capacity to handle large-scale events. In the words of one director, “We could handle a few more earaches…. We are short-term focused and have lots of day-to-day challenges we have to deal with.” Rather than being able to serve a large influx of patients, some respondents see a role for CHCs in providing risk communication with the public, particularly in communities with diverse languages and cultures.

Staffing. Public health agency staffing continues to be a challenge for states and communities. In 2004 the Association of State and Territorial Health Officials (ASTHO) reported that, on average, 24 percent of the public health workforce is eligible for retirement, and that figure is as high as 45 percent for some state public health agencies. Staffing problems stem in part from a short supply of public health workers and an inability to offer competitive salaries. Some respondents reported that budget constraints have caused hiring restrictions at the state and local levels. For example, public health staffing has eroded in California in recent years, and observers said that the state health department is now operating at roughly 60–70 percent of its capacity of ten years ago. In fact, bioterrorism staff are the agency’s only new hires, while hiring in other areas has been frozen or cut back. State officials from Michigan and Indiana also reported being unable to employ sufficient public health staff. Respondents from Orange County especially noted trouble recruiting public health nurses.

Competing priorities. Across the twelve communities, local public health agencies indicated that balancing competing priorities continues to be very difficult. Although preparedness funding has clearly helped bolster public health infrastructure, some community respondents question the amount of money devoted to bioterrorism preparedness planning versus more day-to-day public health concerns, such as immunizations, sexually transmitted diseases (STDs), and TB prevention. For example, an ED manager in Seattle questioned having to spend time preparing for an unlikely terrorist attack when “real-life” challenges must be faced
every day, such as flu epidemics among the homeless population. One public health official described a disproportionate amount of money being allocated to the “virtual disease” of bioterrorism rather than real disease such as TB.

*Jurisdictional confusion.* Potential conflicts and gaps between the responsibilities of federal, state, and local officials have long been recognized as an impediment to public health preparedness. Despite collaborations and improved communication among stakeholders, a few observers noted remaining jurisdictional issues. For example, in Miami during Hurricane Ivan in 2004, emergency responders were confused over who was in charge of a central shelter facility. Interviewees suggested that the reorganization of federal agencies for homeland security left uncertainty over the roles of the DHS, the Federal Emergency Management Agency (FEMA), and the U.S. Department of Health and Human Services (HHS); and the state health department had a difficult time figuring out which agency to contact for which issue. Respondents in Boston expressed similar frustrations, because each major federal agency involved in preparedness efforts (CDC, DHS, and HRSA) has its own regional structure whose geographic boundaries match neither those of other federal agencies nor those of local emergency response agencies. These noncontiguous jurisdictions reportedly caused duplicative efforts in some cases and conflicts in others. As one respondent remarked, “They used to say that all emergencies are local; now all emergencies are federal.”

**Discussion**

Preparedness is a process, not a destination. The U.S. Government Accountability Office (GAO) found in 2004 that “no state is fully prepared to respond to a major public health threat.” Our visits in 2005 revealed ongoing challenges to and gaps in communities’ ability to respond to large-scale disasters. Indeed, both public health and hospital officials raised questions about whether communities could ever be prepared for the full range of potential disasters. “There are so many unknowns,” said one observer in Little Rock. “It would be one thing if you only had to worry about one situation, but when you look at the scope of things that could happen, I think there will always be gaps.”

Nonetheless, we found that the capabilities of local public health and emergency response agencies are much improved from two years ago. Overwhelmingly, respondents attributed this progress to the large influx of federal funding whose benefits have accrued to basic public health functions. With few exceptions, state and local health officials praised CDC funding, because they were able to beef up these essential capacities that had eroded through long years of funding neglect. In the eyes of these leaders, funding that is ongoing and flexible is key.

The ongoing nature of the funding has been critical, as most improvements revealed in our site visits were not one-time investments but rather required years of effort. The intersectoral collaborations among public health, fire, police, and emergency management agencies are a prime example. These groups have differ-
ent cultures and approaches to emergency response and public communication. Overcoming these differences requires the development of working, trusting relationships, where often none existed, and maintaining such relationships requires ongoing nurturing through regular meetings and planning exercises. Likewise, building the capacity of staff to take on multiple responsibilities during disasters requires a continuous series of training sessions as new techniques and lessons are learned and as trained staffers leave and new ones are hired.

Agencies’ ability to use the CDC funds to strengthen core public health functions was a departure from years of categorical funding, which often undermines a community’s ability to prepare for a wide range of threats. Public health agencies have considerable experience with funds restricted to HIV/AIDS, maternal and child health, TB, and the like. Respondents in 2003 voiced concern that bioterrorism preparedness would be just one more in the long line of vertical programs; starting in 2003, federal authorities pushed efforts to prepare for a smallpox bioterrorism event, which some local and state officials feared would divert attention and resources from other, more plausible, public health threats.14 Our interviews in 2005 found that nothing came of fears that bioterrorism preparedness would become another categorical program.

Although public health and its emergency-response partners reported much progress in their potential to respond to public health threats, the picture of the health care system is less sanguine. Funding from HRSA’s National Bioterrorism Hospital Preparedness Program had to be dispersed to thousands of hospitals, meaning that few hospitals received more than a few thousand dollars—enough only to purchase equipment such as isolation suits and provide one-time training to staff. Hospitals’ big challenges, however, involve having sufficient space and staff to treat large numbers of patients who need immediate attention after a biological, chemical, or nuclear terrorist attack. The hospital CEOs and ED directors we interviewed, as well as respondents from CHCs and medical practices, were nearly unanimous in their view that given capacity limitations, they could not accommodate the large surges in demand envisioned by worst-case scenarios.

When the tsunami hit southern Asia on 26 December 2004, we learned quickly of the absence of early-warning surveillance systems, emergency communication networks, and response planning in the Indian Ocean region. But when Hurricane Katrina wreaked havoc on the U.S. Gulf Coast on 29 August 2005, we realized that our own level of emergency preparedness and response was inadequate, even after four years of intense planning activities and the investment of billions of dollars. If we could pick our disasters, we might be able to prepare for them, but disasters of the scope of the tsunami and Katrina stretch the outer bounds of what communities might ever be prepared for. Yet even if we can’t be “fully” prepared, we can be better prepared. Our study found that sizable increases in funding for basic public health infrastructure can
lead to improved community preparedness and hinted that retrenchment from this investment could erode newfound capacity. The current threat of pandemic avian flu raises the ante for policymakers to learn from this experience.

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NOTES
4. Staiti et al., “Has Bioterrorism Preparedness Improved Public Health?”
5. The twelve communities were Boston; Cleveland; Greenville, South Carolina; Indianapolis; Lansing; Little Rock; Miami; northern New Jersey; Orange County, California; Phoenix; Seattle; and Syracuse. They were randomly selected from among large metropolitan areas with populations of more than 200,000.
6. The terms “bioterrorism preparedness” and “public health preparedness” are often used interchangeably in public health discussions, reflecting inherent ambiguity in the CDC and HRSA programs. Although the names of both programs include the term “bioterrorism,” guidance provided to state and local health officials discusses an “all hazards” approach; that is, funding is to be used for planning and capacity building that addresses a broad array of public health threats in addition to bioterrorism. In this paper we use “bioterrorism preparedness” to refer to preparedness efforts targeted specifically to terrorist threats and “public health preparedness” for efforts that target both natural and human-created public health threats. “Emergency preparedness” refers to the capacity to respond to emergencies of all types, including public health emergencies.
8. Staiti et al., “Has Bioterrorism Improved Public Health?”
10. Begun in FY 2004, the Cities Readiness Initiative (CRI) is a pilot program through which the CDC redirects some public health preparedness funds from states and local health departments to twenty cities (including Boston, Cleveland, Miami, Phoenix, and Seattle among CTS sites) and the District of Columbia. The CRI aims to improve these cities’ ability to dispense medicine and medical supplies from the Strategic National Stockpile in case of a large-scale bioterrorism attack or nuclear accident.
13. GAO, Public Health Preparedness.