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Gaps in Public Health Preparedness

Lessons Learned in California

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Is California's public health system prepared for a bioterrorist attack? Or a deadly new infectious disease such as SARS? A RAND Corporation team found that even in California—widely regarded as one of the best-prepared states—the level of preparedness ranged from excellent to poor. Californians' level of public health protection depends on the public health jurisdiction in which they happen to live.

Key findings:

- The level of bioterrorism preparedness across California's jurisdictions is uneven, ranging from excellent to poor.
- There are wide variations in every aspect of preparedness strategy, development, and implementation.
- The system suffers from inefficiency and waste.
- Strong leadership will be required to develop a shared understanding of public health organization and responsibilities.

What Public Health Should Be Able to Do

Imagine that bioterrorists deliberately release an infectious agent such as smallpox, or that a new and deadly virus makes its way into the human population. The public health system should be able to recognize the disease and control its spread. For example, doctors from one or more hospital emergency rooms might call the local public health agency to report a "suspicious" case. (Recognizing the disease quickly is likely to be a challenge. Early stages of smallpox, for example, resemble flu.) Public health officials would analyze the suspicious cases, recognize that an epidemic might be under way, and ensure that samples are sent to an appropriate laboratory. If the disease is confirmed, they would begin isolation, quarantine, and vaccination procedures, and ensure that those in need receive care. They would have to work closely with many others in the community, including law enforcement and first-response personnel, community groups, and health care professionals.

Complex as the above tasks are, the list is far from complete. Public health officials would have many other responsibilities as well. For example, effective communication with the media and the public would be crucial. To control the disease and avoid public panic,

This Highlight summarizes RAND Health research reported in the following publications:

Lurie, N., J. Wasserman, M. Stoto, S. Myers, P. Namkung, J. Fielding, and R. Burciaga Valdez, "Local Variation in Public Health Preparedness: Lessons from California," *Health Affairs*, Vol. 11, No. 7, July 2004.

Lurie, N., R. Burciaga Valdez, J. Wasserman, M. Stoto, S. Myers, R. Molander, S. Asch, D. Mussington, and V. Solomon, *Public Health Preparedness in California: Lessons Learned from Seven Health Jurisdictions*, Santa Monica, Calif.: RAND Corporation, TR-181, 2004.

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public health officials should be able to communicate their recommendations quickly and credibly to everyone in California's highly diverse population.

Being ready for a public health emergency, such as a bioterrorist attack or a new infectious disease, is a key public health priority. The September 11 terrorist attacks and the subsequent anthrax attacks revealed that our public health system has suffered from years of neglect and inadequate funding. Since September 11, Congress has allocated approximately $3 billion to the states to rebuild public health. As part of California's effort to improve preparedness, a statewide commission asked RAND to help evaluate California's ability to respond to a bioterrorist attack.

Measuring Preparedness

Despite the new focus on preparedness, big questions remain. One of the most important is: How will we know when we are "prepared"? There is currently no consensus on how to measure preparedness.

The RAND team used as a framework the Essential Public Health Services (see left column of the table), which were developed by the public health community to specify the basic functions every public health jurisdiction should be able to provide.

The team started by developing a set of proposed measures (and related questions) for each Essential Public Health Service (EPHS). To create the set used for the study (examples are in the right column of the table), the research team convened an expert panel to assess the importance and feasibility of each proposed measure. The measures were used to guide site visits and tabletop exercises, which were conducted in each of the participating jurisdictions. (Tabletop exercises require participants to work together to figure out how they would respond to an imaginary scenario.)

Seven of California's 61 public health jurisdictions participated in the site visits and exercises, representing a wide range of California's diversity. In California, most jurisdictions are counties, but a few are cities. The participants included health departments in large and small jurisdictions, both urban and rural, with different types of minority populations. The seven jurisdictions represent two-fifths of the state's population.

Preparedness Varies Dramatically

The study revealed wide variations in the level of preparedness. Only two of the seven jurisdictions were well prepared to handle an emergency. One was very poorly prepared. The others ranged somewhere in the middle.

On the one hand, the two well-prepared jurisdictions shared some common attributes. Both had excellent leadership across a variety of departments. Both had confidence and experience in communicating with the public and the media, and in coordinating with the law enforcement community.

On the other hand, the medium to poorly prepared jurisdictions (and, in some areas, even the well-prepared jurisdictions) shared some common problems.

Findings related to all seven jurisdictions include:

Monitoring health status (EPHS 1): Only two jurisdictions had conducted recent community health assessments. Health officials knew relatively little about the demographics of potentially vulnerable populations. In some jurisdictions, representatives from police and fire departments knew more than the health department about vulnerable populations. No jurisdiction had a comprehensive surveillance system.

Diagnosing and investigating health problems (EPHS 2): Health departments varied dramatically in their ability to rapidly alert doctors and hospitals to a potential outbreak. Only one jurisdiction could rapidly contact most practicing doctors in the area. Another seemed fundamentally uncertain about how to begin an investigation.

Informing and educating (EPHS 3): Two jurisdictions had relatively strong relationships with the media; two had weak relationships. One health department can communicate health information in nine languages; another cannot communicate in any language except English.

Mobilizing community partnerships (EPHS 4): Only two jurisdictions do substantial outreach to doctors. In one jurisdiction, disaster agencies are uncertain about their role. No jurisdiction has invited minority-serving organizations to participate in preparedness planning.

Developing policies and plans (EPHS 5): Surprisingly, having a bioterrorism plan does not mean that the jurisdiction is prepared. One jurisdiction—one of the best prepared—had no written plan at all, because it lacked sufficient staff to write it down. Another had a detailed plan, but exercise participants were unfamiliar with its contents. Most jurisdictions have formal mutual-aid agreements with firefighters and first responders, but not with other public health jurisdictions.

Enforcing laws and regulations (EPHS 6): If the local public health department mandates containment actions (such as quarantines), will the police enforce them? In some jurisdictions, participants questioned the public health officer's authority to issue a quarantine or similar order. Most jurisdictions were uncertain about whether the police would actually use force to carry out the action.

Linking people to needed services (EPHS 7): The current shortage of nurses will seriously imperil surge capacity in a public health emergency. Many public health nurses

Performance Indicators	
Essential Public Health Services*	**Examples of Performance Indicator Questions**
1. Monitor health status to identify community health problems	Does the health department conduct regular assessments of the community and know about its different populations and their needs?
2. Diagnose and investigate health problems and health hazards in the community	Can the health department contact most community doctors and hospitals promptly to begin surveillance?
3. Inform, educate, and empower people about health issues	Have contacts with the local media been developed? Have robust channels of communication with minority groups been developed?
4. Mobilize community partnerships to identify and solve health problems	Is there an effective system for getting information to and from health care providers? Have community partners participated in preparedness planning?
5. Develop policies and plans that support individual and community health efforts	Is the local health department an integral part of the community's emergency-response structure?
6. Enforce laws and regulations that protect health and ensure safety	Are public health laws known and understood by the police and other first responders?
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable	Has a plan for emergency surge capacity (hospitals, intensive care units, isolation, etc.) been developed?
8. Assure a competent public health and personal health care workforce	Will a sufficient number of public health personnel be available in an emergency?
9 and 10. Conduct evaluations of services and research on solutions to public health problems.	(Since funds to conduct evaluations were not included in the federal grants, most sites devote few resources to evaluations and research. These functions were not a major focus of the site visits and exercises.)

*Adapted from: Public Health Foundation, *National Public Health Performance Standards Program: Performance Improvement Resource Guide for Local Public Health Systems*, June 2002. Available online at http://www.phf.org/PerformanceTools/NPHPSPtools-EPHS.pdf.

also work at one or more local hospitals or nursing homes and could only be in one place (if they came to work at all) in an emergency. Two interrelated needs must be satisfied to improve surge capacity: more staff (including more public health nurses) and a coordinated emergency plan to let people know where they should be in an emergency.

Assuring a competent workforce (EPHS 8): In all but one health department, a key public health function was dependent on a single person who was very close to retirement. Hiring freezes imposed by state and local budget crises and bureaucratic hiring processes compound staff shortages in every jurisdiction.

Wide Variations Indicate Inefficiency and Waste

Most jurisdictions had similar preparedness needs. But each had prioritized its needs differently and had developed widely different plans. Many were allocating scarce resources, often working on their own, to fill needs that were common to all jurisdictions in the state, such as developing training programs for public health nurses to learn how to investigate an outbreak. For many functions, not just those related to preparedness, sharing resources throughout the region could greatly increase efficiency.

The inadequate statewide information system adds to the problem by hindering information-sharing. Every jurisdiction expressed a need for an expanded statewide information system that could be used to monitor and manage many aspects of a public health emergency.

Preparedness Has a Hidden Cost

The focus on bioterrorism preparedness, combined with California's current fiscal crisis, may have endangered other key public health functions. Almost every jurisdiction reported that, as a consequence of federal emphasis on bioterrorism, other key public health programs have been cut back. In many jurisdictions, some of the best staff members have

been reassigned to bioterrorism and away from programs such as teen-pregnancy prevention and contact-tracing for sexually transmitted diseases. Due to budgetary limits, additional staff cannot be hired. On a county level, the new source of funds for bioterrorim often means that the public health budget in other areas is correspondingly reduced. This indicates that the recent investments in bioterrorism preparedness may have had unintended negative consequences.

What's Needed to Improve Preparedness?

Many of the research team's recommendations will not only improve bioterrorism preparedness but will also help improve California's response to the full range of public health threats.

The first step is to make better use of California's resources by improving collaboration at every level—county, region, and statewide. Centralization and regionalization of some functions would help reduce waste and eliminate duplication of effort. Carrying out this recommendation will require strong leadership at the state level. Rearranging responsibilities is politically sensitive; to succeed, the process must be fair, evidence-based, and neutral.

A second, equally important step is to develop a set of objective performance measures. The interim measures developed for this project are only a start. With effective measures, performance in each jurisdiction could be tested regularly.

Third, the statewide information system must be improved. Emergency public health activities cannot be coordinated unless the underlying information is also coordinated, up-to-date, and available to all jurisdictions.

Fourth, community organizations must be involved in preparedness activities. It is especially important to involve minority-serving groups, schools, and large employers. These organizations will be critical in responding to a public health emergency.

Fifth, the public health workforce must be expanded. Salary structures should be revised, and archaic hiring practices streamlined. Succession planning for key members of the workforce who are nearing retirement must be undertaken immediately. Local jurisdictions, instead of competing with each other for scarce resources, should work together to determine how their collective needs can best be met.

Sixth, public health should strengthen its links to the health care delivery system, including doctors and hospitals. Surveillance and control activities will be impossible without their cooperation.

Finally, the many differences among jurisdictions indicate fundamental differences in the concept of public health itself. What is public health? How should it be structured? What should local public health jurisdictions be doing to improve health in their communities? Perhaps RAND's most important recommendation is that a high-level commission undertake the task of creating a shared understanding of what public health is and does. Ensuring that Californians are protected against both old and new threats to their health will take strong leadership and a new consensus about the role of public health. ■

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