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# TESTIMONY

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## Public Health Preparedness in the 21st Century

NICOLE LURIE

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March 2006

Testimony presented before the Senate Health, Education, Labor and Pensions  
Committee, Subcommittee on Bioterrorism and Public Health Preparedness on  
March 28, 2006

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**Dr. Nicole Lurie<sup>1</sup>**  
**The RAND Corporation**

**Before the Health, Education, Labor and Pensions Committee**  
**Subcommittee on Bioterrorism and Public Health Preparedness**  
**United States Senate**

**March 28, 2006**

My name is Nicole Lurie, M.D., M.S.P.H. I am a physician and public health researcher at RAND. As you know RAND is a non-profit, non-partisan think tank whose mission is to improve public policy. Health is our fastest growing and largest unit and many of us are passionate about making a difference in public policy. I am happy to have the opportunity to share my thoughts on public health preparedness in the 21<sup>st</sup> century. My comments will be based largely on the research that my colleagues and I have done at RAND in the past three years. This includes evaluations of public health preparedness in two states—California and Georgia, as well as a series of projects we have done for the Office of the Assistant Secretary for Public Health Preparedness at HHS. In the course of this work we have conducted 32 tabletop exercises on a range of issues, including smallpox, anthrax, botulism, plague and pandemic influenza. In addition, our team has visited and interviewed key officials from 44 communities in 17 states. Over the three years we have been doing this work, we have seen clear evidence of progress in preparedness across a range of dimensions, although I'll also be the first to tell you that we have miles to go before we sleep, especially as we face the threat of pandemic influenza. It is from this perspective that I address your specific questions.

*1) Situational awareness is based on timely lab and hospital reporting, interconnected surveillance systems, consistent epidemic monitoring and reporting, and appropriate risk communication. Currently, there is wide variability across the country in these capabilities. How do we best make progress towards a national public health infrastructure with real-time situational awareness?*

Our findings corroborate your assessment that the capabilities to promote situational awareness vary widely across the country. While we have seen clear evidence of strengthened syndromic surveillance systems and a much more robust Laboratory Response Network (LRN), the level of sophistication of information technology, as well as the ability to analyze and use it, varies widely.

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Our research points to two areas of particular need: ongoing investment in technologies to make possible shared situational awareness, as well as support for building the human and organizational relationships needed to get the most out of these technologies.

**A key priority is the need for continued investment in interoperable information technology for routine and enhanced surveillance, provider notification, outbreak investigation and event management.** The current proliferation of new, siloed systems is unlikely to accomplish the goal of improving shared situational awareness. Many are not linked, either within or across states, and some bypass state and local health departments in the early phases of data capture and transmittal. Some health departments report challenges in monitoring multiple systems, particularly those with frequent 'false positives', while others do not yet have even basic technologic capabilities in place. Ultimately, these information systems need to link not only our health departments and laboratories, but also our hospital emergency and inpatient departments and our outpatient practices and community clinics. Key to improved situational awareness continues to be the astute clinician, who in almost every important outbreak or public health emergency has been the first reporter. Hence, continuing to strengthen relationships between public health and the clinician community—linking public health and clinical practice through robust information systems and communication networks—remains of paramount importance. I anticipate that continued building in this area will be needed for at least several years, followed by support that maintains the gains we make, rather than falling back into a cycle of disinvestment that will force public health to backslide once again.

**But these investments will be effective only if there is greater consistency in technological capabilities across public health and improved linkages among public health departments and between public health and other organizations with responsibilities for shared situational awareness and emergency response.**

While technological solutions are part of the answer, we also need to recognize the limits of what technology can do. For example, we need to maintain the ability to function in a Katrina-like situation, in which Mother Nature disabled electronic and cellular communication for a prolonged period of time. We also need to continue to look for solutions to problems that are unlikely to be touched by improved technology. For example, we should remember that the nation's 45 million uninsured may be more likely to delay seeking care, even in a public health emergency, and that signals from some populations may be completely missed no matter what systems are in place for monitoring and reporting. And finally, the astute clinician is still more likely to pick up the phone and call the state or local health department than to rely on electronic reporting.

**Priority also needs to be given to strengthening relationships and improving lines of communication within public health and between public health and other entities involved in emergency response.** Our research has consistently found confusion about who is supposed to do what in a public health emergency, and when responsibility shifts from local to state or federal entities. And there are still communities in which public health and other first responders lack equipment to communicate with one another in an emergency. Strengthened relationships and improved communication will help mitigate these problems, but technology alone will not make them go away.

**Continued support for relationship building across entities--including health and public health, emergency response, etc.--to develop and enhance shared situational awareness—is needed.** The transformation of public health is bringing together people from very different cultures, including military and first responder communities and public health. Technology puts people in touch with each other, but relationships, shared mental models and shared language and vocabulary is what allows them to “communicate.” Fortunately, relationship building can be facilitated through continuing support for the process of planning and continued exercising. Moreover, one clear area in which Congress can help is to insist on greater congruence and consistency among program guidance from different agencies, including DHS, CDC and HRSA and others. Currently, the guidance provided by these organizations is often confusing, inconsistent, and at times contradictory. These organizations should be strongly encouraged to focus guidance on shared, crosscutting capabilities. Future funding should be structured in ways that forces these agencies and their many stove-piped programs to work more closely together.

*2) How do we recruit, train, and retain a prepared public health workforce with the ability to respond to national threats-- whether acts of terrorism or by Mother Nature?*

A well-trained, prepared public health workforce is paramount to our nation's ability to deal with the wide array of threats to the public health. While, in the course of our work, we found some fabulous public health professionals, we also found problems across the areas of recruitment, training, and retention. In our research we found that numerous health departments had people in critical functions about to retire with no ability to replace them. In other departments, we found people in critical positions who had absolutely no training to do the jobs they were expected to do. In almost every community we heard that salaries for public health professionals, especially laboratorians and epidemiologists are not competitive enough to recruit and retain high-quality staff. Many lose their best staff to the private sector over these issues.

**Stability in funding is needed to support recruiting and retention efforts.** The pipeline for those wanting to enter public health practice is quite small. While the prestige and salary of such

positions is clearly an issue, so too, is the uncertainty about whether there is long-term support for public health preparedness. The initial enthusiasm spurred on by early investment has clearly been dampened by continued cuts to the program. Without stability in funding, market forces will give incentives to the best and brightest—and even those who are simply ‘good enough’—to go elsewhere, rather than to our nation’s public health agencies.

**More attention should be given to defining public health responsibilities.** You will doubtless hear from other panelists about the need to define develop and maintain a database with which to monitor the status of the public health workforce, as well as the need to define workforce competencies for public health. In addition, there needs to be more frank discussion of what are proper public health responsibilities and what should be done by other disciplines in collaboration.

Just because an event concerns a health threat or requires some sort of medical countermeasure doesn't necessarily mean that a public health professional should sit in the incident command chair, although it will be critical to have public health personnel working closely with others in a unified command structure. Indeed, once the existence of an emergency is clear, the early stages of many responses focus on logistics issues that require expertise other than that possessed by most public health professionals. For example, my colleagues have most recently shared with me their frustration at watching highly educated health scientists struggle to learn how to use pallet jacks in medical warehouses to deliver components of the SNS. Clearer thinking about what functions public health professionals do and don't need to do, as well as a set of financial ground rules about how they tap into components of the workforce funded by other non-preparedness sources to address day-to-day work, needs to be reflected in program guidance, provisions concerning funding fungibility, maintenance of effort, etc.

**More attention is also needed to two areas of workforce development that our team has consistently noted as major gaps. The first is leadership development.** Our research found that, more than any single thing, strong leadership distinguished those organizations that performed well on exercises from those that did not, and the better prepared, integrated public health agencies from those that were less prepared. While the willingness to take charge—command and control—is one aspect of leadership, strong leadership requires many other capabilities, including a clear vision, willingness to make decisions and assume responsibility, development of staff that can function independently, ability to collaborate across disciplines, ability to function in an inherently political environment, and superb communication skills. I believe that a significant investment in leadership development is essential, and that leadership development and training must become an essential element of public health training. Some

health departments have understood the importance of this, and have even used preparedness monies for leadership development in their health departments. Let me also point out that such development also helps train the workforce of tomorrow, and is essential to succession planning.

**The second area of substantial need is the development of quality improvement skills.**

Time and time again in our site visits and exercises, we found that health departments rediscovered problems that they had encountered in prior exercises, but that nothing had happened, often because staff lacked the time, knowledge and skills to act on them. Implementing quality improvement (QI) requires that staff at all levels of the organization have both theoretical knowledge and practical skills in quality improvement. While the need to improve public health emergency preparedness is widely recognized, less investment has been made in *creating the organizational capacity* needed to support that improvement. Leaders and managers must have an understanding of QI in order to be able to formulate and communicate a vision for improvement. They, as well as program directors and staff, must have fundamental QI skills to translate this vision into practice.

Vehicles for increasing QI capacity could include development grants, education and training, technical assistance, tool development (including information technology), leadership and management training, and grants that incentivize and reward QI practices and continuous improvement in performance. While I am encouraged that the CDC preparedness goals now include 'improvement,' there is no explicit funding tied to developing the skills or programs to achieve this. To the extent that funding is seen as a 'zero sum game,' an emphasis on "improvement" without specific funding attached suggests that other things will need to be put aside to support this goal.

*3) How do we develop public health systems research, paramount for developing evidence based best practices and benchmarks, for an all-hazards public health response?*

- *For example, do issues ranging from disease forecasting to financial modeling of federal and state public health investments need further study?*
- *How is "public health preparedness" best defined and what are the metrics for measuring success?*

We are facing a serious knowledge gap in relation to public health systems research, and especially the components that have to do with emergency response and situational awareness. One problem is that those who typically fund science research do not consider public health systems research to be either "science" or "health services research," and much of the public

health community does not yet accept systems research as part of public health research. Furthermore, public health systems research is a very new field with almost no funding.

**One area that should be given priority for funding is research to identify evidence-based best practices in emergency preparedness.** Our work has identified a near total void in this area. Indeed, such research is necessary to provide the evidence base to support the development of guidelines, or performance measures and metrics. We have been fortunate to be able to use our work with HHS to break new ground in this important area. And our research has produced important findings that have helped advance the field. Let me give you just a few examples. Our work in California highlighted the fact that not all Americans are afforded the same level of public health protection. Our work on the ability of public health departments to receive and respond to emergency case reports highlighted serious system deficiencies in health departments, as well as the fact that perfect performance is achievable. And, our case studies have identified repeated 'systems failures' in non-bioterrorism outbreak investigation and response.

This research gap can be addressed. Let me remind the committee that a similar gap once existed in the areas of quality of care and patient safety. It took significant investment in research to get the job done. A similar effort needs to be mounted here. Both AHRQ and CDC would be appropriate agencies to entrust with such funding such research.

**Research on evidence-based practices can help in the development of truly objective measurable performance measures.** These are critical for assessing progress, generating improvement, and accountability. Evidence-based research can help to decompose the issues into identifiable components so that we can develop performance measures based on structure, process, and outcome. We would maintain that a smaller number of strong measures are probably more usable in the long run than hundreds of more difficult-to-measure items. Our work has made abundantly clear the need for greater alignment across guidance areas and the importance of focusing scarce measurement resources on these areas. Indeed, there is already quite a bit of overlap across guidance documents, but turf battles and measurement philosophies get in the way of progress. Even better would be more attention to examining response processes and pulling out crosscutting capabilities right from the beginning. We have been doing such work with the SNS and other areas of the Cooperative Agreement guidance, and are encouraged by the emphasis on capabilities-based and all-hazards planning is great (HSPD-8, NPG, etc).

**It is important to recognize that the development of appropriate and effective metrics will require time – as well as trial and error—and research.** In this area, we cannot let the perfect be the enemy of the good. For example, early measures in the area of quality measurement in the health care system—outcome reporting of cardiac surgery, and early HEDIS measures—were, by today’s standards, fairly crude. However, the use of these measures over time, as well as a commitment to taking these measures seriously, made them get better. We can and should use a similar approach here.

**Finally, let's not forget that assessments and standards just tell us where we need to be, but that we probably also need some real mechanisms to assure accountability to ensure that these things remain at the top of people's agendas.**

In closing, from our vantage point at RAND, the recent federal investment in public health preparedness is paying off. This investment has injected new life into what was widely considered to be a moribund public health system. Our research, for example, indicates that state and local public health departments have made significant progress in their efforts to improve disease surveillance systems; to enhance laboratory capacity; and to communicate more effectively with hospitals, physicians and other community partners, the media, and the public. But as I have indicated above, many important gaps remain, and I am happy to discuss those that go beyond the questions that are the focus of this particular discussion. Investments in the areas of information technology, workforce development and public health systems research continue to be needed to sustain and build upon these gains and to create a public health system capable of minimizing morbidity and mortality associated with a wide range of public health threats.

**Dr. Nicole Lurie  
The RAND Corporation**

***One-Page Summary of Statement Given March 28, 2006***  
**Before the Senate Health, Education, Labor and Pensions Committee**  
**Subcommittee on Bioterrorism and Public Health Preparedness**  
**United States Senate**

*1) Situational awareness is based on timely lab and hospital reporting, interconnected surveillance systems, consistent epidemic monitoring and reporting, and appropriate risk communication. Currently, there is wide variability across the country in these capabilities. How do we best make progress towards a national public health infrastructure with real-time situational awareness?*

- Continued investment in interoperable information technology for routine and enhanced surveillance, provider notification, outbreak investigation and event management.
- These investments will be effective only if there is greater consistency in technological capabilities across public health and improved linkages among public health departments and between public health and other organizations with responsibilities for shared situational awareness and emergency response.
- Technology alone will be insufficient. Continued support is needed to strengthen relationships and improve lines of communication within public health and between public health and other entities involved in emergency response.

*2) How do we recruit, train, and retain a prepared public health workforce with the ability to respond to national threats-- whether acts of terrorism or by Mother Nature?*

- Stabilize in funding to public health preparedness is essential for students to see a clear career path in public health preparedness
- Defining public health responsibilities more clearly.
- Emphasize workforce development, including leadership development and quality improvement skills.

*3) How do we develop public health systems research, paramount for developing evidence based best practices and benchmarks, for an all-hazards public health response?*

- For example, do issues ranging from disease forecasting to financial modeling of federal and state public health investments need further study?
- How is “public health preparedness” best defined and what are the metrics for measuring success?
- Funding for research to identify evidence-based best practices in emergency preparedness is critical, and ultimately underpins the next generation of truly objective measurable performance measures.
- The development of appropriate and effective metrics will require time – as well as trial and error—and research.
- Assessments and standards just tell us where we need to be, but that we also need some real mechanisms to assure accountability to ensure that public health preparedness remains at the top of people's agendas.
- Ten critical areas for performance measure development are attached.