MISSISSIPPI DEPARTMENT OF HEALTH

Statement of

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Roundtable on

Public Health Preparedness in the 21st Century

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Mr. Chairman, other distinguished Subcommittee members and meeting participants, thank you for the opportunity to present at the March 28, 2006 Roundtable titled *Public Health Preparedness in the 21st Century*. I am Peggy A. Honoré, Chief Science Officer for the Mississippi Department of Health. In this role, I currently lead a national Robert Wood Johnson Foundation funded initiative to advance fields of study in public health systems research and public health finance as a means of bridging knowledge gaps between science and the practice of public health. Support for this work is viewed as critical to ensuring a robust public health infrastructure grounded in sound evidence-based practices to ensure the safety and well being of all Americans.

The practice of public health in America is delivered through a complex system of organizations and industries working to ensure conditions in which all citizens can be safe and healthy. This enormous operational structure makes understanding the connected dynamic relationships in the system a complex challenge. My observations on this challenge and the three questions that we are to address today come from the unique perspective of having served in the three diverse areas of private industry, government (state and federal) and academia, primarily as a practitioner and transitioning into practice-based research.

The challenges facing the contemporary public health system are daunting particularly since the system was characterized nearly twenty years ago by the Institute of Medicine (IOM) as being in disarray. Since then, preparedness has emerged as an additional critical function. Numerous reports for over a decade have warned of an imminent workforce crisis. Very little is known about the finances that fund the system and the profession has struggled to clearly and concisely articulate its role to the public. Open dialogue on these issues that put all Americans at risk are fundamentally essential and my remarks are offered with the highest degree of appreciation for being included in the discussion.

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?

In the post 9-11 era, it has become apparent to the public health community that voluntary disease reporting by jurisdictions is simply not adequate to protect Americans from the current threat of intentional and naturally-occurring disease outbreaks. The recent anthrax attacks via the postal system and global concerns about an influenza pandemic are good examples of this ever-changing threat. In response, a much more proactive approach to disease detection has been adopted throughout the U.S and specifically in the State of Mississippi. Now, automated, electronic syndromic disease surveillance systems are beginning to be used to supplement the historically proven and still critical reporting by physicians, hospitals, and clinical laboratories.

As a direct benefit of Bioterrorism Preparedness and Response Act funding, the Mississippi Department of Health (MDH) has taken a leadership role to implement technologies throughout the system for near real-time diagnosis of disease and other threats. Most important, the only practice and academic partnership in the nation for syndromic surveillance that I am aware of is with the MDH and University of Mississippi Medical Center. The MDH working with vendors have implemented several systems in Mississippi as listed below.

- TheraDoc – technology that integrates individual electronic patient records with clinical data, global medical knowledge and institutional protocols. The system has been implemented at the University of Mississippi Medical Center in Jackson and will facilitate timely notification and investigation of reportable diseases and suspect conditions directly to authorized MDH staff.
- Visual Dx – diagnostic reference software that includes continuously updated high quality photographed images of diagnostic possibilities. This system was developed for military and first responder field use. It will assist front-line clinicians to correctly identify and differentiate clinical syndromes resulting from the intentional use of biological agents. For example, few physicians currently practicing in the U.S. have ever seen an actual case of smallpox or anthrax, and this system is being deployed to the local hospitals that will likely serve as the entry point into the healthcare system of the first case of an illness that might result from a terrorism attack. The training value of this system to clinicians will be immeasurable if we ever have a biological event in our state.
- ThreatScreen – an exposure/identification, data collection, and reporting tool used to quickly access victims to determine chemical, biological, or nuclear agent exposure and where data is shared in real-time through a wired or wireless connection. The system is being installed throughout the entire Mississippi Emergency Medical Services Trauma Care System. The application will be available in all 480 licensed ambulances and 75 hospital emergency rooms.
- Early Aberration Reporting System (EARS) – an electronic syndromic surveillance system that is being installed in hospitals throughout the state. This system will provide sensitive and timely notification of both intentional and naturally-occurring disease outbreaks anywhere in the state that will permit a more timely, life-saving response.

These information technologies have greatly enhanced the department's capacity for Biosurveillance. However, ensuring a national real-time situational awareness system is contingent upon the confluence of a number of interrelated factors. These include establishment of national evidence-based guidelines for the implementation of such systems, sufficient levels of funding for implementation, clear roles and responsibilities for federal, state, and local agencies, and appropriate competencies at all levels in the public health workforce to operationalize and maintain the systems.

While much has been accomplished at the federal level to develop IT situational-awareness systems, it is unclear if examinations, through research or evaluations, have been conducted to document best practices or to facilitate course corrections. Examinations are warranted to address questions such as: what is the impact of organizational structure (e.g. centralized, decentralized, or regionalized) at the state and local levels to effective implementation of situational-awareness systems; what metrics determine organizational capacity to implement such systems; and what are the workforce competencies and skills needed *prior* to implementation to operationalize an effective system?

Biosurveillance must be a standard practice in public health and the knowledge acquired through research and evaluation would provide some degree of assurance that the system is truly evidence-based and capable of protecting us all.

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?

Over 64% (1400 employees) of the MDH workforce was deployed to respond in the aftermath of hurricane Katrina. A comprehensive workforce-training program was established over the past three years using Bioterrorism Preparedness funding. Statewide disaster nursing and preparedness training was provided to all nurses and environmental health specialist through the University of Mississippi Medical Center and state community college system. Training was focused on building competencies for disaster nursing and management of special need shelters during disasters. Besides the MDH employees trained, we also provided training to over 2,000 first responders across the state.

From a system-wide perspective, a reality that threatens the stability of the public health system is the dire assessments of its workforce. Key findings documented through various research efforts include lack of formal education and training in core public health education, recruiting difficulties, non-competitive salaries and high turnover rates. Unlike other professions, there is no common skill set established for entrants into the profession of public health. And the lack of professional licensure and credentialing in key functions serves to weaken the system. Without attention to this problem, do we know if the workforce is capable of supporting the vision for all-hazards preparedness utilizing complex situational awareness systems?

The Master of Public Health (MPH) is touted as the entry into the field. Ironically, in the MDH over 60% of employees have educational levels less than a bachelor's degree. These workers have already entered the profession but lack opportunities for public health education at the undergraduate level because the entry degree is the MPH. Also, recent research into finance courses of MPH curriculums found that the content is directed more to the medical care delivery system than to providing finance skills needed in public health settings. Because attention in academia has been focused on the financial components of the medical care delivery system, is this a contributing factor to why we know so little about the sources, uses, and effectiveness of funding for public health? Unlike data for every school district in America, data are not readily available to determine county level funding allocations to public health services in each jurisdiction. In 2003 the IOM even reported that attempts to provide guidance on workforce and funding for the public health infrastructure was not possible due to a scarcity of research and evidence to support such recommendations.

A significant research finding by the IOM and others is the lack of collaboration between schools of public health and health departments. This gap between practice and education serves as a chasm that further divides science from practice. Strategies should be formulated, funded and implemented that provide opportunities for more structured collaborations between health departments and schools of public health based on models from academic medical centers.

Public health should also research workforce models implemented in other professions to bridge gaps between practice and science. The community psychology doctorate degree, focused on population and organizational level interventions, emerged in the 1960s. Leaders in that profession recognized the need for professionals to be trained in population level evaluation and analysis compared to the more traditional clinical or individual level.

An additional strategy that can be borrowed from other professions such as pharmacy and engineering is to reach out to the nation's system of community colleges. Over 65% of all healthcare workers have some level of training at community colleges. Both professions have collaborated with community colleges and universities for joint programs leading to doctorate degrees. This could serve as an ideal mechanism to expand diversity in the public health workforce since 40% of community college students are from underrepresented populations. The MDH is currently developing a model to educate the existing and future public health workforce through the state's community college system. The program will provide opportunities for public health tracked associate degrees that articulate to four-year institutions. This movement from training to *educating* the workforce creates a paradigm shift that serves to the benefit of public health, the individual, and society.

The nation should also invest in the current and future public health workforce by enacting the Public Health Preparedness Workforce Development Act (S.506). Public Health simply cannot attract the talent needed for a sustainable public health system without this level of federal commitment. The best and brightest of physicians, epidemiologist, laboratory technologist, information specialist, researchers and others critical to a robust system will simply go elsewhere.

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?

The function of research was identified as one of the 10 Essential Services of public health agencies in the early 1990s. The role of research and its relevance to effective preparedness is valued by the MDH. The MDH is one of only a few health departments in the nation with an Office of Science dedicated to ensuring that evidence-based practices are embedded throughout the agency. The function is practice-based and aligned with goals of using research combined with a development function to implement effective practices and services.

After many decades of inadequate funding, the Public Health Security and Bioterrorism Preparedness Act of 2002 provided valuable funding to build disaster preparedness and response capacity at the state and local level. A few national research projects have provided valuable insights on the wide variability of how the funding has been utilized while also trying to assess the impact on system preparedness. Lack of available data has made some examinations particularly challenging. And it has not been abundantly clear how preparedness performance could be systematically measured given the lack of widely accepted standardized performance metrics. There are many other critical areas of research that warrant attention as well. In addition to some research topics laced throughout this document, others include:

a) modeling to assist with prioritizing state and local level funding decisions
b) examinations of lessons learned from Katrina and other disasters to determine the impact of funding decisions to effective preparedness
c) determination of system impact on 75% of the population that will not receive antivirals

d) comprehensive examinations of national, state and local spending on preparedness
e) examinations to identify system preparedness as well as programmatic performance metrics
f) comprehensive datasets to facilitate benchmarking
g) comprehensive examinations at the federal, state, and local level of the composition, utilization, and sources of funding for the public health system
h) modeling to assist with mass evacuation planning, staff deployment, and special sheltering needs
i) impact to the public health system of staff redirected to acute care during disasters
j) impact to traditional public health functions during disasters
k) examinations to determine system capacity to implement federal all-hazards disaster plans

We cannot build, let alone sustain, a public health system lacking the evidence for best practices for traditional functions as well as an all-hazards public health response. Research is the instrument for examinations to understand the complex system dynamics of public health practice. It is a quality improvement fabric issue that should be woven throughout all components of the system. However, it seems somewhat ironic that federal preparedness grant guidelines prohibit utilization of any funding for research. The Center for Studying Health Systems Change noted in 1996 that the public health sector, unlike the medical care system, had very little research and measures that could be used to examine the performance of the system. A decade later, very little progress has been made to address the problem.

A powerful method to defining, measuring, and sustaining capacity for public health system preparedness would be to establish a national initiative dedicated to strengthening research efforts. The primary purpose should be to coordinate national preparedness research efforts and to ensure that the public health infrastructure is intact to protect the safety and health of all Americans. The program should be structured to fund collaborations between academia and practice agencies (to ensure practicality, relevance, and translation) with the intent of establishing demonstration projects for replication nation-wide. Insuring preparedness through science and evidence is fundamental, urgently needed and essential. Research has been noted as a fundamental service of public health practice. Every disaster creates an elevated sense of urgency. And shared interests for a safe and secure America make it essential.