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TECHNICAL
REPORT

A National Agenda for Public Health Systems Research on Emergency Preparedness

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Prepared for the U.S. Department of Health and Human Services

HEALTH

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Summary

The lack of frequent opportunities to observe and learn from real-world responses to large-scale public health emergencies has hindered the development of an evidence base for public health emergency preparedness (PHEP). As a result, efforts to develop performance measures and standards, best practices, program guidance, training, and other tools have proceeded without a strong empirical and analytical basis.

To identify strategies for addressing the gap in evidence, the Pandemic and All-Hazards Preparedness Act of 2006 (PAHPA) (Pub. L. 109–417, § 101 et seq.) requires the Secretary of Health and Human Services to formulate a broad public health systems research agenda for emergency preparedness. The Office of the Assistant Secretary for Preparedness and Response (ASPR) asked RAND to facilitate the development of this research agenda, identify short- and long-term research priorities, and provide a basis for coordinating funders and researchers inside and outside the federal government. This broad agenda was to build upon a 2008 agenda developed by the Institute of Medicine (IOM) for the seven Centers for Disease Control and Prevention (CDC)–funded preparedness and emergency response research centers (PERRCs). A broad agenda outlining the preparedness-related research needs of public health systems will synthesize the existing evidence, organize future efforts to develop an evidence base, and, if implemented, will prepare us for conducting real-time research during large-scale public health emergencies. It will also serve to broaden our research opportunities by encouraging the use of exercises, data from smaller-scale incidents, and information collected in the course of routine daily activities with a preparedness analog for research purposes.

Developing a Research Agenda

RAND, in collaboration with ASPR, convened a panel of 13 experts representing diverse perspectives (e.g., philanthropic organizations, policymakers, state and local health departments, homeland security, federal agencies, academia, community groups, and private-sector organizations) to guide the development of the research agenda. Through facilitated discussion and consideration of a pre-circulated review paper, the panelists identified 20 research priorities and illustrative research questions in areas related to planning, response, resources and infrastructure, and accountability and improvement.

Public Health Systems Research Priorities

Table S.1 presents the research priorities and research questions organized by research area. During the second day of discussions, the panel was asked to identify up to ten top priority areas that should be pursued aggressively in the short (as well as long) term. For the purposes of this agenda, short-term priorities are those that can be addressed in two or fewer years, and long-term priorities require sustained focus for between two and ten years. Short-term priorities are shown in italics in Table S.1.

Table S.1
Public Health Systems Research Agenda Priorities, by Research Area

Priority	Research Question
Research Area 1: Planning and Other Pre-Incident Activities	
Improving public health emergency preparedness planning and organizational structure	What approaches could improve PHEP planning processes and procedures in a systems-based framework?
Engagement of diverse groups and populations in PHEP efforts	How can diverse communities (e.g., demographic, geographic, cultural) be best involved in PHEP-related activities, and how can their involvement be sustained?
Anticipating population behavior during disasters	How do individuals and populations behave during disasters, and what cultural, sociodemographic, and other characteristics affect those behaviors?
Disaster risk reduction	How can population and public health system vulnerabilities be reduced in an effort to prevent or mitigate adverse impacts ahead of time?
Research Area 2: Key Response Capabilities	
Improving epidemiology and surveillance in support of PHEP efforts	What approaches can improve the capability to determine the source, cause, incidence, prevalence, and other characteristics of diseases and other health conditions?
Public health laboratory systems	What approaches can support the improvement of a seamless laboratory network that can detect, characterize, and confirm threat agents in a timely manner?
Risk communication	What approaches can improve the public health system's ability to provide messages to the public that lead to appropriate preparedness and response actions?
Countermeasure delivery	What approaches are effective in decreasing the amount of time needed to distribute and dispense medical countermeasures during a public health emergency?
Systems for population-level care	What approaches can be used to provide medical and mental health care across the entire continuum of need (e.g., injured, sick, "worried well," first responders) during and after a public health emergency?
Special needs populations	What approaches can improve the public health system's ability to address the varied needs of special needs population groups?
Displaced populations	What approaches can effectively provide for the medical and public health needs of populations that have to vacate their homes or areas of residence in response to a disaster?
Recovery	What approaches can improve the public health system's ability to help the public regain or restore its well-being (e.g., physical, psychological) during and after a public health emergency?

Table S.1—Continued

Priority	Research Question
Strengthening the natural science base for advice provided during public health emergencies	What is the evidence base supporting advice given by public health authorities during public health emergencies?
Research Area 3: Resources, Infrastructure, and Legal Frameworks	
Information technology and infrastructure	How will technology innovation and adoption by the communication and health care fields influence emergency planning and response? How can the public health system best anticipate and plan for these changes?
Workforce and training	What training is necessary for the public health workforce to adequately respond to public health emergencies?
Legal framework research	How can legal and liability barriers to public health emergency preparedness and response be addressed?
Economics of PHEP	How can principles of economics be applied to encourage nongovernmental organizations and individuals to engage in and maintain involvement in preparedness-related activities?
Research Area 4: Accountability and Quality Improvement	
Standards, metrics, and quality improvement	What approaches can be used to ensure that the public health system has access to standards, metrics, and quality improvement tools?
Data sources and data collection	What approaches can be used to develop data sources to support PHEP research and evaluation, either by leveraging existing data or by creating new data sources or repositories?
Tools and templates to promote the transfer of research findings into practice	What approaches can support health departments and other system actors in selecting, adapting, and implementing research?

Given the scope of the task, an initial research agenda is necessarily general in nature, and additional effort will be needed to further refine potential research topics in each of the 20 areas. Also, the agenda will need to evolve over time with changes in our understanding of public health threats and vulnerabilities and as the existing knowledge base grows. By encouraging interest in an agenda among diverse groups of partners, the U.S. Department of Health and Human Services can help build a strong evidence base to improve the preparedness and response of the public health system, as well as the recovery of the nation's public.