Identifying Disaster Medical and Public Health Research Priorities:
Data needs arising in response to Hurricane Sandy

Meeting Summary
November 16, 2012

In October 2012, Hurricane Sandy caused widespread devastation in the Mid-Atlantic and Northeastern United States, as well as parts of the Caribbean. On November 16, 2012, the Institute of Medicine (IOM) and The New York Academy of Medicine (NYAM) hosted a meeting at the NYAM Conference Center in New York City to 1) Explore challenges faced during preparation, response, and recovery to Hurricane Sandy; 2) Identify gaps in knowledge affecting disaster preparedness and response; and 3) Develop a set of priorities for near-term research based on Hurricane Sandy and other recent disasters that may inform future disaster preparedness, response, and recovery plans.

Invitees to the meeting included New York City, New York State, New Jersey, and federal government agency representatives; health care providers; academia; first responders; community organizations; philanthropic organizations; and disaster preparedness and response experts. Participants were welcomed to NYAM by Ruth Finkelstein, NYAM Senior Vice President for Policy and Planning. The meeting was chaired by the co-chairs of the IOM Forum on Medical and Public Health Preparedness for Catastrophic Events, Robert Kadlec, RPK Consulting LLC; and Lynne Kidder, President, Bipartisan WMD Terrorism Research Center.

Nicole Lurie, Assistant Secretary for Preparedness and Response, Department of Health and Human Services (DHHS), offered opening remarks, explaining that the meeting should not be viewed as an “after-action review,” but an opportunity to identify, while events are still fresh in people’s minds, the information needs that arose for decision-makers and responders as they attempted to serve the people in the area affected by the storm. It was noted that funders had

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1 This is a very brief meeting summary relaying the key meeting findings in relation to stated meeting objectives 2 and 3. More detailed meeting notes can be obtained by contacting Rosemary Alcantara at The New York Academy of Medicine: ralcantara@nyam.org.

2 A list of meeting participants is in Appendix 1.
Meeting Summary: Data needs arising in response to Hurricane Sandy
November 16, 2012

been invited to participate in the meeting and that DHHS has begun discussing opportunities to fund research.

To frame the discussion for the day, a panel presented their front line-experiences and decision-making challenges during Hurricane Sandy. Participants in this panel were Nirav Shah, New York State Commissioner of Health; Mary O’Dowd, New Jersey Commissioner of Health; Thomas Farley, NYC Commissioner of Health; Lewis Goldfrank, Professor and Chair, Department of Emergency Medicine, New York University School of Medicine; Irwin Redlener, Director, National Center for Disaster Preparedness, Professor of Clinical Population & Family Health, Mailman School of Public Health, Professor of Clinical Pediatrics, College of Physicians & Surgeons; and Elizabeth Ryan, President & CEO, New Jersey Hospital Association. This panel was followed by reflections from David Lakey, Texas Commissioner of Health. Robert Kadlec then moderated a conversation with the panelists and invited questions from the larger audience.

Following this panel, meeting participants divided into smaller group discussions to identify the information or data that would have been useful in the midst of the response. They were then asked to formulate their top research questions. The prioritized questions are as follows.

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**Priority Research Questions**

**Health Care Institutions:** What factors (regulations, guidance, practices, partnerships, plans, data/information, or other resources) help or hinder health facilities’ attempts to coordinate and minimize morbidity and mortality among patient populations?

- Why did things fail in healthcare organizations? Where were the near-misses and what was done to prevent them? How did decisions impact functioning?
- How were decisions made to evacuate a health facility, prioritize patient movement?
- What were the health outcomes of patients (who were moved at different times, not moved, etc)
- What are the “real costs” of evacuation?
- What tools were used to track patients and others?
  a. What technologies were used? By whom?
  b. Where did we lose track of individual patients?
  c. What databases/sources of information (including non-traditional, such as social media) were available? How was it used?
  d. What new tools/systems were developed during response? How were they used? Were they effective?
Meeting Summary: Data needs arising in response to Hurricane Sandy
November 16, 2012

Community: What factors enable individuals and communities to effectively prepare for and withstand an emergency? ie, What are the significant personal factors, community assets, community planning efforts, surveillance systems, and communication strategies that minimize morbidity and mortality?

- What are characteristics of resilient communities? How to predict, target, promote?
- How do we identify people not part of any existing service system but who need assistance in a disaster?
- How do different services and response systems coordinate their data and services (e.g., between FEMA, Red Cross, VNS, local providers, volunteers knocking on doors)?
- What are the health/mental health or well being /functional effects of different strategies (analyzed at level of individual, social networks, communities)?
- How do we rebuild smarter? What are the indicators of rebuilding toward a “new normal” where severe weather events are built in to the fabric of community, infrastructure, communications planning?
- What are the effective population-based behavioral health “stealth” interventions?

Health and Response Workforce: What are the primary barriers and facilitators for effective short-term and long-term deployment of health workforce personnel (including first responders, hospital staff, visiting nurses, home health workers, etc.) during emergencies?

- Longitudinal tracking of individual workers (first responder, health care, other disaster responder) for effects of stress/perceived lack of support on mental health, substance abuse, attrition/career changes, home/family effects

Communications: Who are the key audiences and what are effective messages and communication strategies (including modes and messengers) for assuring the health and safety of vulnerable populations during emergencies?

- Evacuation Decision-Making
  - Primary information sources
  - Influences on decision (beliefs, recommendations by government, communities, etc)
  - Personal experience of past events
  - Who left and who stayed behind
  - What would you do differently
- Look at social media strategies compared to other surveillance-what is seen as necessary and what ends up as background noise?
Meeting Summary: Data needs arising in response to Hurricane Sandy
November 16, 2012

Additional Concern: What is the essential information and data-sharing that must occur for effective cross-sector collaboration to identify and support (or to reduce morbidity and mortality) vulnerable populations before and during an emergency?

The meeting concluded with discussion of upcoming opportunities for continuing the conversation that had been initiated, including the fact that the *Journal of Urban Health* will have a special issue on this topic and that the National Library of Medicine is making information available. DHHS also indicated that funding sources are being identified to support research in the identified areas.
### Meeting Summary: Data needs arising in response to Hurricane Sandy

November 16, 2012

### Appendix: Meeting Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Sharon Lewis</td>
<td>Administration for Children and Families</td>
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<td>Rachael Pine</td>
<td>Altman Foundation</td>
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<td>Robyn Bash</td>
<td>American Hospital Association</td>
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<td>Sharon Stanley</td>
<td>American Red Cross</td>
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<tr>
<td>James Blumenstock</td>
<td>Association of State and Territorial Health Officials</td>
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<td>James Krauskopf</td>
<td>Baruch College</td>
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<tr>
<td>Lewis Goldfrank</td>
<td>Bellevue Hospital Center</td>
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<tr>
<td>Louise Comfort</td>
<td>Center for Disaster Management, Univ. of Pittsburg</td>
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<td>Scott Deitchman</td>
<td>Centers for Disease Control, Office of Noncommunicable Diseases, Injury and Environmental Health/NCEH</td>
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<td>Sam Groseclose</td>
<td>Centers for Disease Control/Office of Public Health Preparedness and Response</td>
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<tr>
<td>Irwin Redlener</td>
<td>Columbia University, Mailman School of Public Health</td>
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<td>Michelle Davis</td>
<td>Department of Health &amp; Human Services, Office of the Assistant Secretary for Health</td>
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<td>Sandra Howard</td>
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<td>Don Boyce</td>
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<td>Thuy Doan</td>
<td>Department of Health &amp; Human Services, Office of the Assistant Secretary for Preparedness and Response</td>
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<td>Nicole Lurie</td>
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<td>Jessica Tucker</td>
<td>Department of Health &amp; Human Services, Office of the Assistant Secretary for Preparedness and Response</td>
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<td>Kathy Brinsfield</td>
<td>Department of Homeland Security, Office of Health Affairs</td>
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<td>Sally Phillips</td>
<td>Department of Homeland Security, Office of Health Affairs</td>
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<tr>
<td>Richard Serino</td>
<td>Department of Homeland Security/FEMA</td>
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<td>Marcel Roth</td>
<td>Federal Emergency Management Agency</td>
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<td>John Guidry</td>
<td>Gay Men's Health Crisis</td>
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<td>Susan Waltman</td>
<td>Greater New York Hospital Association</td>
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<td>Sherl Brand</td>
<td>Home Care Association of New Jersey</td>
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<tr>
<td>Joanne Cunningham</td>
<td>Home Care Association of New York State</td>
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<td>Dan Hanfling</td>
<td>INOVA Health System</td>
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<tr>
<td>Bruce Altevogt</td>
<td>Institute of Medicine</td>
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<td>Autumn Downey</td>
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<td>Andy Pope</td>
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Meeting Summary: Data needs arising in response to Hurricane Sandy
November 16, 2012

Megan Reeve               Institute of Medicine
Clare Stroud              Institute of Medicine
Lynne Kidder              Institute of Medicine Preparedness Forum
Tia Powell                Montefiore-Einstein Center for Bioethics
Jack Herrmann            National Association of County and City Health Officials
John Balbus               National Institutes of Health/National Institute of Environmental Health Sciences
Aubrey Miller            National Institutes of Health/National Institute of Environmental Health Sciences
Stacey Arenesen          National Library of Medicine
Elizabeth Ryan           New Jersey Hospital Association
Karla Vermeulen          New Paltz College
Thomas Farley            New York City Department of Health and Mental Hygiene
Patsy Yang               New York City Department of Health and Mental Hygiene
Patricia White           New York Community Trust
Gus Birkhead             New York State Department of Health
Nirav Shah               New York State Department of Health
Karen Westervelt         New York State Department of Health
Richard Herrick          New York State Health Facilities Association
Eric Klinenberg          New York University
Neal Rambo               New York University Medical Library
K. Bradley Penuel        New York University, Center for Catastrophe Preparedness and Response
Mary O’Dowd              NJ State Health Commissioner
George T. DiFernando      NJ Center for Pub. Hlth. Preparedness, UMDNJ
Christopher Rinn         NJ State DOH Asst. Commissioner – Division of Public Health Infrastructure, Laboratories and Emergency Preparedness
Bonnie Arquilla          NY Inst. For All Hazard Preparedness at SUNY Downstate
Lewis Soloff             NYC Department of Health & Mental Health
Jerome Hauer             NYS Division of Homeland Security and Emergency Services
Mark D. Schwartz         NYU Langone Medical Center
Anita Chandra            RAND Corporation
Edward Waltz             State University of New York, Albany
Patricia Roblin          SUNY Downstate, SUNY LICH, and Kings County Hospital
David Lakey              Texas Department of Health
Ruth Finkelsstein        The New York Academy of Medicine
Andrew Martin            The New York Academy of Medicine
Vimla Patel              The New York Academy of Medicine
Tracy Pugh               The New York Academy of Medicine
Shara Siegel             The New York Academy of Medicine
Linda Weiss              The New York Academy of Medicine
Stacy Elmer              The White House
Meeting Summary: Data needs arising in response to Hurricane Sandy
November 16, 2012

Jeff Levi         Trust for America's Health
Natalie Grant    U.S. Department of Health and Human Services
Monica Schoch-Spana   University of Pittsburgh Medical Center
Penny Feldman    Visiting Nurse Service of New York
Nathaniel Hupert Weill Cornell Medical Center, Centers for Disease Control