

Science-ready - enabling public health research during disasters

By Paula Whitacre

Every disaster, no matter the cause, is unique in its effects on the environment and people. Yet common elements highlight the need for research to help in recovery and lessen the negative impacts of future events. A workshop June 12-13 on the NIH campus in Bethesda, Maryland, provided the opportunity to explore these concerns.

More than 200 researchers, responders, and planners participated in the Workshop on Enabling Public Health Research During Disasters. Disaster research requires science on steroids, noted NIEHS senior medical advisor Aubrey Miller, M.D.

"We have to do better than the time before," said Nicole Lurie, M.D., U.S. Department of Health and Human Services assistant secretary for preparedness and response (ASPR), and a rear admiral in the U.S. Public Health Service. Describing research challenges in the wake of events from the H1N1 flu epidemic to the Deepwater Horizon oil spill, she identified the development of rosters of experts, preapproved clinical research protocols, and more rapid ways to fund research and start fieldwork, as a few of the many ways that ASPR, NIH, and other agencies seek to improve the process of conducting disaster research.

Disaster versus nondisaster research

Workshop participants underscored the differences between research around disasters versus other settings. The most compelling examples came from three case studies - Hurricane Katrina, presented by David Abramson, Ph.D., study director of the Columbia University Gulf Coast Child and Family Health Study; the World Trade Center collapse and health effects on first responders, detailed by David Prezant, M.D., chief medical officer at the Office of Medical Affairs for the Fire Department of the City of New York; and Superstorm Sandy, presented by Lewis Goldfrank, M.D., chair of the Department of Emergency Medicine at New York University Langone Medical Center, who described the cracks in health care delivery in Manhattan in the wake of the storm.

According to Prezant, nondisaster research is deliberative. A disaster, on the other hand, presents the need to gather data as soon as possible, under difficult circumstances, with many confounding elements. "Disaster science is not an experiment, but a promise to help recovery," Prezant noted.

NIEHS and NTP Director Linda Birnbaum, Ph.D., highlighted NIEHS support for disaster research (see side bar), noting that research must take place not only acutely, but also long term. "We must study the impacts of exposures and stressors on the most vulnerable - the young, the old, the sick, the poor, and those in disadvantaged communities," she said.

Conducting disaster research

Concurrent sessions addressed specific aspects of conducting disaster research. Each of them reported back with recommendations, including:

- Build partnerships and establish trust with health agencies, Institutional Review Boards, and the public, before a disaster strikes.
- Share data with those affected, to aid in recovery.
- Develop a repository of tools and practices.
- Integrate research into existing response structures.
- Collect data as rapidly as possible, and through various means, such as responders and citizen-scientists.

Responding to the recommendations, Irwin Redlener, M.D., from Columbia University, stated his perspective on the role of disaster research. "[It must] save lives and guide policy," he said.

Marcia McNutt, Ph.D., editor in chief of the journal *Science*, emphasized the critical, often unheralded role of science behind the scenes. "Keep an eye on the real prize - using science to reduce disaster risk and help with mitigation," she said. "The most important disaster is the one that never made the headlines, because of prevention."

NIEHS co-sponsored the workshop with the U.S. National Library of Medicine, ASPR, Centers for Disease Control and Prevention, and Institute of Medicine of the National Academies. The workshop presentations and audio are available [online](http://www.iom.edu/Activities/PublicHealth/MedPrep/2014-JUN-13.aspx).

(<http://www.iom.edu/Activities/PublicHealth/MedPrep/2014-JUN-13.aspx>)

The Institute of Medicine will be publishing a summary report in the near future.

(Paula Whitacre is a contract writer with the NIEHS office in Bethesda, Maryland.)



Joseph (Chip) Hughes distinguished characteristics of research during rescue, which may be chaotic and involve risk-taking; recovery, which is more planned, evenly paced, and presents lower risk; and clean-up, in which risks are assessed and better understood. (Photo courtesy of Paula Whitacre)



From left, Birnbaum; Toby Schonfeld, Ph.D., U.S. Environmental Protection Agency (EPA); Glenn Paulson, Ph.D., EPA; and Miller take a break during the workshop. (Photo courtesy of Paula Whitacre)



From left, Abramson, Goldfrank, and Prezant shared firsthand experiences in disaster research in the aftermath of Hurricane Katrina, Superstorm Sandy, and 9/11, respectively. (Photo courtesy of Paula Whitacre)



With a photo taken after the collapse of the World Trade Center as a dramatic backdrop, Birnbaum emphasized the need for research into acute and long-term disaster impacts. (Photo courtesy of Paula Whitacre)

NIEHS support for disaster research

[Gulf Long-term Follow-up Study](https://gulfstudy.nih.gov/en/index.html)

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- a study of the health of clean-up workers and volunteers who responded to the 2010 Deepwater Horizon oil spill in the Gulf of Mexico.

[NIH Disaster Research Response Project](http://disaster.nlm.nih.gov/dimrc/dr2/disasterresearch.html)

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- a pilot project to create an environmental health disaster research system through platforms of ready-to-go research data collection tools and a network of specially trained research responders.

NIEHS Worker Education and Training Program - including coordination of a [Disaster Research Response Exercise](#)

(<http://tools.niehs.nih.gov/wetp/events.cfm?id=2537>)

in Long Beach, California, in April 2014 (see [story](#)).

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(bruskec@niehs.nih.gov)

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