

Hurricane Katrina at 15: Introduction to the Special Section



See also Kim-Farley, p. 1448, and the *AJPH Hurricane Katrina 15 Years After* section, pp. 1460-1503.

Hurricane Katrina was a social and public health disaster.¹ From the perspectives of health care systems, the environment, community health, and everything in between, Katrina devastated New Orleans, Louisiana, and the Gulf Coast. In the 15 years since the storm, we have learned much about how devastating natural disasters can be for a community and how many ways public health can be involved in creating opportunities for recovery and preparing for the next disaster. Some of the lessons that we learned and that we need to learn are touched on in this special section.

Hurricane Katrina devastated the public health and health care systems across the US Gulf Coast and exposed the health and racial inequities that have persisted among this community for decades. As Kim-Farley notes (p. 1448), we are reaping what we sow. Individuals and families were affected emotionally, physically, and spiritually because of this disaster. Hurricane Katrina exacerbated the community's health problems and exposed the fragmentation in care. Despite this, individuals in the community came together to mobilize and organize and to identify solutions to transform how health care was delivered to the community while ensuring health and

racial equity. Over time, social norms evolved—shifting from residents accessing care in emergency departments to residents going to community-based health care provider organizations that offered comprehensive and holistic health and wellness services, including mental health and substance abuse disorder treatment.

HEALTH AND HEALTH CARE SYSTEMS

Three contributions to this special section discuss the impact of Hurricane Katrina on individuals' health and on health care systems. "Hurricane Katrina beat us. We lost the ability to communicate, transport by land and air, and provide health care for the population," writes Honoré (p. 1463). In this piece, Honoré highlights the inequities that were exposed and lessons from his experience as the commander of Joint Task Force—Katrina. Honoré provides a timely invitation to readers to confront injustices and improve preparedness and response to natural disasters amid COVID-19.

Harville et al. (p. 1466) explore the trends in pregnancy outcomes in women residing in the US Gulf States after Hurricane Katrina and consider

whether women had an increase in adverse pregnancy outcomes because of the disaster. Katrina put a spotlight on the need for a major transformation of public health and health care system infrastructure to support the holistic needs of individuals.

Davis et al. (p. 1472) discuss the \$100 million federal Primary Care Access and Stabilization Grant program, which paved the way for innovative and sustained public health and health care transformation across Greater New Orleans. This infrastructure offered community residents easily accessible, higher quality holistic care and acted as a catalyst for sustained funding for community-based health care organizations.

ENVIRONMENTAL HEALTH

Four contributions to this special section address the environmental health issues raised and affected by Katrina. Hurricane

Katrina was a natural event that had disastrous results because of the storm itself and the infrastructure and human failings that led to widespread flooding and power outages. Some of the failings were owing to being unprepared for a natural event of this magnitude. Wilson et al. (p. 1476) argue that we are still unprepared and that there remains work to be done to integrate environmental and public health expertise into a preparedness system. The 2019 Pandemic and All-Hazards Preparedness and Advancing Innovation Act is a recent policy-level action to raise environmental health preparedness. Of course, the outcome of this act will depend on our ability to implement its provisions and address any challenges.

Even when we are prepared for environmental events, the responses are not always quick enough to address the most serious concerns or to understand the full nature of the events. Lichtveld and Birnbaum (p. 1478) comment that we often focus our attention and resources on the immediate response phase and devote insufficient attention to any prolonged recovery. The longer-term problems brought on by Katrina made the environmental health community aware of and responsive to assessment and recovery after the Deepwater Horizon disaster

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This editorial was accepted July 15, 2020.
doi: 10.2105/AJPH.2020.305885

(2010). Having the National Institutes of Health's Disaster Research Response Program in place may facilitate immediate and longer term responses to future disasters.

Many authors have examined Katrina's major environmental effects on New Orleans and their endurance. Diaz et al. (p. 1480) review this extensive literature and provide a summary of work related to floods, wastes, land losses, and other environmental consequences of Katrina. The numbers are staggering: 400 billion gallons of floodwaters, 120 million cubic yards of storm debris, and six times the usual annual land loss. Katrina led to the design and construction of the Hurricane Storm Damage Risk Reduction System, which we hope will help to protect New Orleans, at least in the near term.

In addition to the loss of homes and land, Katrina compromised the interiors of thousands of homes. Lichtveld et al. (p. 1485) comment on the mold infestation of homes and the resulting exacerbations of childhood asthma. Community-based participatory research addresses environmental asthma in a manner that can serve as a model for other communities. This model is particularly relevant today, as we come to grips with the full understanding of environmental health threats, disasters, and health disparities.

PUBLIC HEALTH RESPONSE

Hurricane Katrina, coined "the worst natural disaster of the century," exposed the essential need for a multifaceted cross-sector public health response. This disaster featured a lack of city, state, and federal

coordination. According to the Centers for Disease Control and Prevention, approximately 1800 people from Louisiana, Mississippi, Florida, Alabama, and Georgia lost their lives in Hurricane Katrina.² Five contributions to this special section look at promising community health practices that encourage predisaster planning and cross-sector coordination. In true Louisiana form, these contributions are a bit of a gumbo, looking at a variety of topics that affected community health, including public safety, cascading events, food access inequity, and community health workers as well as promising practices in pet evacuation and public health infrastructure.

Murphy et al. (p. 1490) examine the need for public health to integrate with public safety in predisaster planning as opposed to the commonplace postdisaster preparedness strategies. Murphy et al. note that lessons from Hurricane Katrina are vital for creating "a pathway to improve proactive cross-disciplinary integration and all-hazards preparedness."^(p1490) There remains a need to learn from the gaps impeding an integrated response, the federal evaluation of the Department of Homeland Security and Exercise and Evaluation Program, and the local response from the New Orleans City Assisted Evacuation framework.

Greenberg (p. 1493) urges hazard mitigation planning that includes cascading effects as a way to think beyond the natural disaster into certain "trigger events," which can lead to deadly consequences. Greenberg highlights the need to systematically analyze how a single disaster event can cascade into multiple failures that substantially multiply severe consequences. Including

cascading effects is another tool for coordinating public health and emergency response. Greenberg also looks at existing policy to coordinate these efforts through the Stafford Act.

Food access inequities were vastly expanded after Katrina. Rose and O'Malley (p. 1495) compare national programs and their food access approach, along with giving a historical perspective of programming to address the spectrum of food access issues in US metropolitan areas. Food Access 3.0 offers community-driven and socially innovative solutions to the decades-long issue of sustainable and healthy food access for families.

Haywood et al. (p. 1498) provide an account of responding to community needs and organization around community health workers during post-Katrina recovery. In the varied history of the use and acceptance of community health workers in the United States, Wennerstrom et al. describe how this necessary brigade of community liaisons organized to fill a devastating public health void in New Orleans. They state that community health workers "not only supported recovery from the devastation but also learned important lessons through organizing themselves into a professional association to support their growing workforce and influence policy."^(p1498)

Hurricane Katrina had a lasting impact on many policies in emergency preparedness and disaster response for pet safety. Babcock and Smith (p. 1500) review the critical work of disaster planning and pet safety and the lasting aftermath that changed public health policy and disaster response after Katrina. The Pets Evacuation and Transportation Standards Act of 2006, one of the early wins from dismal outcomes

in New Orleans, was established with lessons learned following Hurricanes Gustav and Harvey. The need to train city, public health, and community members is key in any preparedness plan. New Orleans has shown innovation in offering training, both live and virtual, to prepare for future events.

Just as health and environmental systems have learned and evolved, so too has the public health system. As Gee (p. 1502) notes, the data systems and other critical public health infrastructure developed after Katrina have enabled more effective responses to the Baton Rouge floods and now COVID-19 than would have previously been possible. With each storm, public health systems improve to address the next one. **AJPH**

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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