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Moving Beyond the Katrina Crisis: From Danger to Opportunity Overview of Key Lessons Learned for Better Disaster Preparedness from the *American Journal of the Medicine Sciences* Third Post-Katrina Anniversary Symposium Issue

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Now in the midst of our fourth hurricane season post-Hurricane Katrina, it is as important as ever to revisit the lessons learned from the devastating experience, primarily to ensure we are prepared in the event of another natural disaster. With at least 3 hurricane seasons behind us without incident (from the perspective of the Gulf Coast region), it is tempting but not prudent to slip into our comfort zones and ignore the possibility of another hurricane. In 2008, *The American Journal of the Medical Sciences* (AJMS) dedicated a symposium issue to the extended effects of the hurricane ''crisis'' on New Orleans and other areas of the Gulf Coast and its unanticipated silver lining in providing the impetus for better disaster preparedness (*Am J Med Sci.* 2008;336(2):91–214). The Japanese symbol on the cover of the AJMS symposium issue captured the meaning of the word crisis: danger evolving to opportunity. Physicians, administrators, medical educators, residents, and students expressively reflected on the unexpected disaster aftermath—the opportunities and successes.[1] Certainly, many lessons were learned with this tragic experience, and the Gulf Coast is now better informed about what worked and what did not work during and after the disaster. The symposium issue addressed 4 areas of opportunities realized after the disaster: patient-focused disaster preparedness, medical education, health care infrastructure, and health care providers.[1] I encourage readers to revisit the symposium issue and refresh their memory regarding how far we have come in the recovery effort and where we still need to go. With the fourth post-Katrina hurricane season underway, it is worth recapping the key issues related to patients and providers, along with recommendations for improved processes that were covered in the symposium issue. Physicians and other health care providers may find these reminders helpful as they counsel their patients and each other about advance planning in the event of a disaster. Two areas from the symposium issue after the Katrina crisis are summarized here: patient-focused disaster preparedness and health care providers.

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PATIENT-FOCUSED DISASTER PREPAREDNESS

Chronic disease management post-Katrina was a major issue for displaced residents and health care facilities given that no one expected a prolonged evacuation and that many patients and medical institutions were inadequately prepared to manage chronic medical conditions in the long term. For many insured and underserved patients, access to regular health care and medications was limited for extended periods of time.

Issue: For patients with hypertension in the year following the storm, poor medication adherence was common. Patients reported not bringing their medications when they evacuated, running out of medications, having difficulties getting prescriptions filled, and experiencing a medication change. There was a high prevalence of unintentional nonadherence (ie, forgetfulness) after the disaster.[2] Selected hurricane-related factors (eg, death of a family member or friend, change in residence, and poor coping self-efficacy after the hurricane) may have had prolonged effects on antihypertensive medication adherence.[3]

Considerations for Future Disasters: Health care providers should encourage their patients to include advance planning for accessing medications

for chronic diseases and disease management in their disaster preparations (eg, adequate supply of medications, plan for refilling prescriptions, and checking blood pressure and other disease status); use reminder systems and family/friend support for patients prone to unintentional nonadherence; and have a hard copy, up-to-date list of their medical conditions and the medications they take for each one.

Health care providers taking care of patients in post-disaster situations should consider medication nonadherence as a potential contributing factor when medical conditions are not controlled.

Health care systems in disaster-prone areas should ensure access to patient medical and pharmacy records (eg, electronic medical records) to facilitate recordkeeping and prescription refills.[2]

***Issue*:** In patients undergoing hemodialysis, delayed evacuation (ie, less than 2 days before Hurricane Katrina), placement in a shelter (versus other evacuation location), lack of evacuation plan awareness, and a longer displacement were related to poor psychosocial health (eg, coping, quality of life, and/or depression) after the disaster.[4]

Considerations for Future Disasters: In an effort to minimize psychological effects and improve psychological recovery following disasters, patients undergoing hemodialysis should work with their health care providers and support systems to (1) inquire early about evacuation plans; (2) carefully consider evacuation locations; (3) evacuate early; and (4) plan for shorter displacement after a disaster. Healthcare providers should consider screening for and managing psychosocial issues in patients undergoing hemodialysis after disaster.[4]

***Issue*:** Natural and other disasters are sources of great psychological distress for pregnant women and may disrupt access to prenatal and other health care services, social support systems, and maternal resources. Although relatively little is known about pregnancy outcomes after disasters, women with high hurricane exposure (ie, having at least 3 of 8 severe hurricane experiences such as feeling one's life in danger, walking through flood waters, and having a loved one die) were at increased risk of having low-birthweight babies and may be at risk for preterm birth. Thus, exposure to specific severe disaster events (rather than general exposure to disasters) may be better predictors of poor pregnancy outcomes.[5]

Considerations for Future Disasters: Personal and community disaster preparedness efforts should include a plan for early evacuation of pregnant women in disaster-prone areas to minimize their exposure to severe disaster events.[5]

***Issue*:** The Jackson Veterans Affairs Medical Center, the University of Mississippi Medical Center, and other health care entities in Alabama and Mississippi played important roles in delivering local care and in providing care and resources for patients and personnel from other medical facilities obliterated or rendered inoperable after the storm. They identified problems with nonworking communication systems and lack of gasoline and fresh water supplies; and challenges with chronic disease management and lack of other ''essential personnel'' deemed necessary to run the health care system, volunteer coordination, and donation management.[6–8]

Considerations for Future Disasters: Following Hurricane Katrina, most major health care delivery systems in the Gulf South updated their communication systems; secured mechanisms to ensure adequate supplies of gas and fresh water; and updated their disaster management plans to include chronic disease management and expanded ''essential personnel'' classification to include housekeeping personnel, social workers, and case managers.

Although these new systems and policies have thankfully not yet been put to the ''real'' test in the Gulf South, it is important that health care systems in disaster-prone areas continue to monitor and ensure that all systems and policies are up-to-date and operational.

In addition, collaboration between state and federal relief agencies and local institutions to improve communication systems, volunteer coordination, and management of donations of medical supplies/medications will be important in effectively and efficiently responding to future disasters.[8]

CARING FOR THE HEALERS

Last, but certainly not least, important lessons were learned for the so-called invisible victims of disasters, the healers. The healers include physicians, other health care providers and professionals, and health care administrators and staff who worked tirelessly to overcome the numerous obstacles and meet the medical and other needs of the patients and communities affected by the storm.

***Issue*:** Although not often mentioned in post-disaster assessments, a hidden cost of disasters lies in ''rebuilding'' the healers exposed to trauma and experiencing burn-out stress syndromes and compassion fatigue. Representative data quantifying this issue post-Katrina and evidence-based treatment options targeting this problem in healers are limited.[9] There is growing interest in the direct and indirect exposure to trauma for health care providers dealing with disasters and in including strategies to address the concern in disaster preparedness processes.[10]

Considerations for Future Disasters: Physicians, other health care providers and professionals, health care administrators, and staff and their supervisors who work in disaster-prone areas should be aware of the signs of burn-out stress syndromes and compassion fatigue.

Personal stress management regimens tailored to the individual, work force stress reduction strategies at the organization and system level, and adoption of health care provider self-care practices as part of core competencies and accreditation standards may foster post-traumatic growth for physicians and other health care providers in disaster-prone areas.

CONCLUSION

Almost 4 years following the worst natural disaster in the United States, New Orleans and the other areas of the Gulf South are better prepared to deal with future disasters. The devastating memories during and after Katrina are forever etched in the minds of those who worked tirelessly to deal with the medical crisis that ensued. In disaster-prone areas, it is important that health care providers and medical institutions remain vigilant in disaster-preparedness efforts.

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