INDUSTRY DX Kevin Joy September 11, 2017 12:00 PM

Ripple Effect: How Hurricanes and Other Disasters Affect Hospital Care

Natural disasters can overwhelm busy hospitals for days after storms dissipate. The reason: a wave of medical needs — beyond injuries — from patients without resources.

On a typical day, hospitals can be chaotic.

But when a natural disaster hits, occupancy rates — and stress levels of health care workers — can be pushed to the limit. Both represent significant barriers to optimal care.

The aftermath of hurricanes Irma and Harvey underscore the need for health care facilities to plan for the worst.

“If you’re not prepared for sudden surges in demand for acute and emergency care, then you will compromise not only the incoming disaster patients but also existing emergency department and hospitalized patients,” says Mahshid Abir, M.D., M.Sc., an assistant professor of emergency medicine at the University of Michigan and director of the Acute Care Research Unit at the U-M Institute for Healthcare Policy and Innovation.

Storm-related injuries aren’t the only reason for the influx of patients presenting to emergency departments and hospitals, however.

Abir and Sue Anne Bell, Ph.D., M.S.N., FNP-BC, a U-M clinical associate professor of nursing, published a study in August affirming that natural disasters can set off a chain reaction of medical issues among patients, leading to increased hospitalization rates.

The study, in *Annals of Emergency Medicine*, compared the first 30 days of Medicare claims data from southeastern ZIP codes affected by a deadly rash of tornadoes on April 27, 2011, with claims data from the rest of the year.

After excluding the first three days after the disaster — when weather-related injuries were most likely — hospitalizations rose by 4 percent during the post-tornado period, the same increase seen during the 72 hours after the storm.

Even a single-digit percentage increase can have major implications: “It translates to hundreds of additional hospital admissions,” says Bell, whose research focuses on disaster preparedness and response.

Prior work by Abir and U-M researchers also showed increased hospital length of stay in the weeks after a mass-casualty incident.

Which is why hospitals must anticipate a range of risks surrounding storms — from medication shortages and mental health needs to nonfunctioning home medical equipment due to power outages.

Abir and Bell spoke more about their work:

How can a natural disaster affect a hospital’s ability to offer care?

Abir: Many hospitals already function at near or maximum capacity. Imagine being hit with a surge of critical patients or those with exacerbation of chronic disease. There's only so many resources to go around.

If an area is flooded or at risk of flooding, facilities will evacuate. That happened in Texas with Harvey. In Florida, they have pre-emptively evacuated hospitals and nursing homes.

When transferring evacuated patients to alternate facilities, it is key to utilize electronic health records to make patient records available to receiving facilities where possible. You have to create the full picture of a patient's health for the receiving facility to preserve continuity of care. Otherwise, you're starting from scratch.

Your study found that hospitalization rates still rise even after disaster-related injuries are excluded. Why?

Abir: One of the things that happens after a disaster, particularly if it involves a rush to evacuate, is that patients leave medications behind. Maybe the pharmacies are closed. That can lead to an exacerbation of chronic diseases such as diabetes and asthma. Others might lose power to operate home medical devices such as ventilators. Undoubtedly, that may lead to increased hospitalizations.

SEE ALSO: How Hospitals Can Improve Crisis Management When Tragedy Strikes

Bell: People often hear these dire warnings on the news, and then the storm might take a last-minute turn. That could make them reluctant to evacuate. There's always some inherent uncertainty with a disaster, but one of the best ways for an individual to protect his or her health and relieve a burnt-out health care system is to heed the warnings of authorities.

How might those seeking care after a disaster differ from other patients?

Bell: These people face enormous challenges. It's possible they've lost homes, they don't know where their loved ones are, they could have left pets behind. They're also going back to a completely uncertain future. And there's plenty of evidence to

show that patients with baseline mental health issues experience the stress of a disaster even more.

Abir: There's a saying that disasters don't discriminate. It couldn't be further from the truth. Yes, disasters affect everyone, but vulnerable individuals — those with lower socioeconomic status, mental health issues, older individuals, children, pregnant women — are generally more challenged. More and more preparedness approaches are taking vulnerable populations into account.

What lessons can facilities take from your research?

Bell: Lack of access to dialysis is a big problem. After Harvey, a number of dialysis centers closed. Dr. Abir's and other prior research helped elucidate the need to have people dialyzed before the storm, bridging the gap until resources were more stable.

What role do health care coalitions play in disaster response?

Bell: A health care coalition is a group of state, local and hospital-based administrators working together to think critically about preparedness and what they can do to pool resources in a time of disaster. For example, in Michigan, we have a clear plan to share access to ventilators.

Abir: They are set up differently in states across the U.S. Ultimately, they work with various stakeholders across the health care system — including dialysis vendors and pharmacies — and other key stakeholders in the private sector, faith-based groups, to help build community resilience and share resources during emergencies.

Although the goal is to build relationships that can be leveraged during emergencies, a lot of coalitions now recognize that a situation doesn't have to be catastrophic to share information and resources to meet community needs.

How might the increased workload after a natural disaster affect health care employees?

Abir: Moving forward, we need to screen for and address the stresses these providers may experience. Some hospitals have offered mental health services for

staff in the aftermath of mass-casualty incidents.

I think it's a really important issue, but I don't think we're quite there yet. Health care providers are patient-first, rightly so. But in order to provide the best care, we need to take care of ourselves and each other. This is especially true in the stressful aftermath of disasters.

Bell: Being able to identify signs of mental health distress among providers is important. Those little things might include debriefing in a safe space with colleagues, taking a few minutes out to do some deep breathing and focusing on individual and immediate needs. That is often overlooked on a daily basis, but it becomes even more important when you're in a disaster situation.

MORE ARTICLES ABOUT: Emergency & Trauma Care, Health Care Quality, Health Care Delivery, Policy, and Economics