PERSPECTIVE

BY **Steven L. Kanter,** MD
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Every day, those who work and learn at academic health centers respond to multiple crises, be it a person who sustained acute, penetrating trauma or a hospitalized patient ready for discharge but with nowhere to go. Sometimes, these crises occur on a larger scale—e.g., a bus accident with multiple trauma victims—or even on a grand scale, such as earthquakes and fires that, suddenly and dramatically, impact the lives of very large numbers of individuals all at once. As the magnitude of a crisis scales up, crisis management becomes more and more important, and requires the direct attention of executive leadership.

In this issue of *Leadership Perspectives*, three academic health center leaders share their first-hand experiences as chief executives who have been on the front lines of decision-making in large-scale crisis management.

Guillermo Dominguez-Cherit, MD, regional dean for Tecnologico de Monterrey in Mexico City, discusses his institution's experience in emergency response to devastating earthquakes—as he notes, "one of the ultimate challenges to healthcare systems." That experience led to an identification of necessary investments: preparing disaster response kits for first responders, enhanced preparation of intensivists who care for critically ill patients during a crisis, and building multidisciplinary emergency response teams and networks across regions.

Richard H. Hart, MD, DrPH, president of Loma Linda University Health, highlights how his institution responded to California state structural seismic requirements for hospitals. Years of study and planning led to a significant decision to focus on structural integrity and build new facilities that not only will meet the state requirements, but also will meet the exigencies of technological and healthcare requirements. His institution adopted policies and plans that focus on being "ready for the 'Big One'."

David Lubarsky, MD, MBA, vice chancellor of human health sciences and CEO at the University of California, Davis, describes lessons learned during his institution's heroic response to the severe challenges presented by the 2018 Camp Fire in California. Both patients and front-line employees faced compromising environmental conditions, including poor air quality. This experience underscored the importance of "advance work to nurture and engage employees" in the institution's mission that will develop the kind of team skills necessary to ensure continued delivery of critical patient care services.

Earthquakes and fires provide the ultimate test of the quality, durability, and soundness of a disaster preparedness and crisis management plan. It is critical to debrief after each and every event, record lessons learned, and feed that information back into disaster preparation and crisis management planning. I hope the knowledge shared in this issue of *Leadership Perspectives* contributes to efforts at your institution.

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LEADERSHIP PERSPECTIVES

Crisis Management: Earthquakes and Fires

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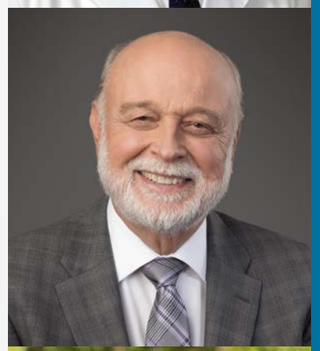

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Emergency response to disasters, such as earthquakes and fires, is one of the ultimate challenges to healthcare systems, due to the immediate need to deliver care under extremely adverse conditions, including disruption of communication, lack of basic services, and a reduced workforce—all of which can be affected during a disaster.

The 1985 earthquake that struck Mexico City is an especially relevant example. In just over a minute, tremors caused severe city-wide devastation in which at least 5,000 people died, 100,000 buildings crumbled (including three major hospitals), and about five million residents were left without electricity or potable water. Then, remarkably, thirty-three years later, on exactly the same day, another earthquake struck the city. The damage and loss of life was less, nonetheless major challenges remained, such as reduced communication, hampered access due to traffic, collapsed buildings, lack of information regarding victim whereabouts in the first hours, and patients shuttled from hospital to hospital.

However painful these events have been, they have also shown the importance of social response, disaster preparation and response kits (including food and water for first aid respondents), and the commitment of the healthcare workforce despite their own fears and vulnerability. Mexico City's experiences show that while disasters are tragic, they can still be a valuable opportunity to learn and create preparedness plans and emergency response teams that are better and stronger.

A particular need that we identified during disaster response has been to provide adequate care for critically ill patients, for whom a lack of intensive care specialists and/or equipment can affect the outcomes. Over the past decade, we have strengthened a multidisciplinary team that responds during emergencies and disasters. The team, which includes intensive care specialists, nurses, infection control specialists, and psychologists, supports hospital responses to disasters in their regions while strengthening their local capabilities.

The establishment of these teams has produced other positive outcomes, including the opportunity for new networks among healthcare professionals across the regions and the development of new guidelines and training materials, including online courses, which we hope will lead to better results for patients—even in the most remote areas of the country. Crisis management that includes investing in preparedness, taking care of the healthcare workforce, and paying attention to capacity surge will improve effective responses during natural catastrophes.

> "Over the past decade, we have strengthened a multidisciplinary team that responds during emergencies and disasters."

Richard H. Hart, MD, DrPH
President
Loma Linda University Health

Planning for the "Big One." Loma Linda University Health sits near two major seismic fault lines in inland Southern California. We have also endured a series of drought years, rendering our hillsides and forests susceptible to massive fires. Despite these continuing challenges, our most recent tragedy was the San Bernardino terrorist shooting in 2015, two miles from our campus. As the only Level 1 trauma center in the Inland Empire of Southern California, disaster preparedness is high on our planning agenda.

The State of California has established strong seismic requirements for its hospitals. The first "deadline" was in 2014, but too many institutions were unable to meet this date, so it slid to the end of 2019. More than 40 hospitals are not in compliance, so alternative strategies are urgently being discussed. Some older facilities may close rather than retrofit, though the latest proposal is to allow hospitals to have temporary facilities to assemble in their parking lots if an earthquake renders the structures unusable.

After years of study on various options for Loma Linda, and an initial trial at retrofitting our current 50-year-old, 540 bed "clover-leaf" towers, we made a major decision to build a new structure adjacent to our current building. After intense debate on what the future of healthcare will look like, the balance between inpatient and outpatient services, and what new technologies may emerge, we determined the size, location, proximities, and relative space for each clinical discipline. This represented the best consensus we could reach from a broad coalition of clinicians, administrators, and architects debating each issue.

The design team came up with a creative architectural strategy that sits our new one million square foot hospital, begun in 2016, on 126 "base isolators." These enable the building to remain relatively stationary, while the ground shifts up to four feet in either direction during an earthquake. These large concave/convex plates connect to huge "shock absorbers" that are designed to return the building to its original position after an earthquake. A dry "moat" surrounds the hospital that will allow all external connections to shear during a quake. We are still debating whether to add the final design element for "vertical" stabilization—a series of springs supporting each base isolator that can allow for up and down motion as well. Construction will be completed by the end of 2020, and we expect to be ready for the "Big One."

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David Lubarsky, MD, MBA
Vice Chancellor of Human Health Sciences, Chief Executive Officer
University of California, Davis

The 2018 Camp Fire in California, which killed 88 people and caused an estimated $16.5 billion in damage, tested UC Davis Health in unprecedented ways. As just one example, the fire inundated our campuses for several days with severely compromised air quality. We had to weigh the need for essential staff to come and carry on the work in healthcare with considerations for the health of those workers themselves.

Throughout the crisis, a priority concern for us remained with the well-being of our patients and students, two groups that were dependent on us for guidance and counting on us to make the right decisions on their behalf. One very practical question was whether to call in fourth-year medical students, who are essential to the provision of care on a team, when we closed the medical school but were keeping the hospital open.

Given the unprecedented scope and impact of the Camp Fire, we found ourselves forced to make ad hoc decisions about staffing on a day-to-day basis. Some aspects of our history and culture proved very helpful in that regard. We knew, for example, that we could rely on front-line staff to make critical decisions about which staff were essential. Further, our culture embodies a remarkable ethic of volunteerism, and we found that our people wanted very much to step up to do whatever was necessary to enable continued delivery of critical patient-care functions, including volunteering to serve beyond their traditional roles.

With the benefit of hindsight, we have drawn several important lessons from these experiences. First, greater specificity must be established in advance delineating who are essential staff for each potential emergency. Some services are not essential day one but also cannot be unattended for a week. Similarly, we need more robust policies regarding issues such as assigning paid time-off under extenuating circumstances. Second, no degree of advance planning can fully prepare a complex organization such as ours for all the potential consequences of an unprecedented event such as the Camp Fire. While planning for such events is of paramount importance, just as important is the need for leadership to communicate well and to remain flexible in executing planned strategies as circumstances evolve, keeping confusion to a minimum. Finally, advance work to nurture and engage employees in our institution's mission can help create camaraderie that could prove invaluable next time we face a crisis of the scope of the Camp Fire.

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