# Patient Safety Monitor Journal

## Wildfire and smoke: Sharp HealthCare's fire plans

Last November, the innocently named Camp Fire killed over 80 people in California, making it the deadliest wildfire in the state's history. The fire destroyed 10,500 homes, filled the air with smoke for miles around, and burned an area the size of Chicago. The fire was just one of 6,228 that took place in California last year.

Nationwide, wildfires burned 8.5 million acres of land in 2018. For scale, that's as if all of Maryland, Delaware, and Rhode Island burned down with an extra 300,000 acres left over to burn down a few cities of your choice.

While the destruction last year was high, it wasn't abnormal. As climate change raises temperatures and brings more droughts and dry weather, experts say wildfires will become even more frequent and dangerous. This growing danger will require even more vigilance on the part of providers and hospitals, particularly in high-risk states like California, Colorado, Idaho, Montana, Oregon, Washington, and Wyoming.

San Diego County has been spared from this year's fires, says **Sharon Carlson, RN,** director of emergency preparedness at Sharp HealthCare. But that's not to say the health system has had no experience dealing with them. **PSMJ** spoke with Carlson about lessons learned from their previous brushes with wildfires, and how Sharp is preparing for the next one.

In 2007, San Diego County had a huge wildfire that forced several hospitals, nursing homes, and behavioral health hospitals to evacuate. Sharp HealthCare was one of the hospital systems to take in some of those patients. And the area suffered from a devastating wildfire in 2003, known as the Cedar Fire. During those times, Carlson says the largest problem wasn't the fire or evacuation. It was smoke.

"Smoke gets into your hospital, and you have to work with your engineering department and air handlers to make sure the filters are changed and the environment is safe for people to breathe," she says. "I think that is some of the stuff that Northern California is dealing with right now [in 2018]. The communities that are devastated by the wildfires are now surrounded by smoke. So they're dealing with increased asthma and [other respiratory problems]."

Her facilities are better protected from flame damage because they all sit in a very metropolitan area, she says. The buildings that surround them act as a buffer, and many are made from fireproof materials. However, it's different for wooded, rural counties.

"In Paradise, California [location of the Camp Fire] ... it was surrounding them and burning right through to their hospital because it's not a big city," she says. "Our risk for that happening is less than theirs—not that it can't happen."

**Wildfire prep no different**

What facilities need to remember, says Carlson, is that basic preparedness doesn't differ between urban and rural systems—not even for wildfires. You do a Hazard Vulnerability Analysis (HVA) to identify your risk factors, then rank those risks based on geography and location.

"We know in San Diego, wildfire and earthquake are always at the top [of risk factors]." she says. "We live in a state where there's earthquakes and where, it feels like, wildfires are becoming an everyday occurrence."

That said, she points out that their risk of actually being overrun with fire is lower than an area like Paradise or Northern California that's home to smaller, rural communities with a lot more brush, shrubs, and trees.

"It doesn't mean we're completely immune, and we know that," she says. "What we've done is beef up all of our communication processes—how we identify when there's been a wildfire, etc. That ties into our fire plan of how do we evacuate, when do we evacuate, what do we use, how do we transport patients—we plan for all of that."

**Lessons learned**

After the Cedar Fire in 2003, Carlson says Sharp HealthCare learned a lot of things about its emergency response plans. Primarily, it learned that it didn't communicate well with all the community, citizens, and other hospitals during the crisis. Since then, Sharp and other institutions in San Diego County have worked together to improve their emergency response plans.

“That takes us to 2018, and now we have a communications platform, a strong disaster coalition that consists of hospitals, clinics, nursing homes, public agencies, and emergency medical services,” she says. “We meet once a month, [and] what we’re looking at in those meetings is, ‘How are we doing on our planning? Let’s share some best practices, and let’s develop new processes if need be.’ ”

**Evacuation planning**
The coalition has two sub-committees working on best practices identification for a couple of emergency responses. Carlson works on the evacuation sub-committee. They’re reviewing current evacuation plans and will share the tools and practices with all the other hospitals and healthcare entities once they’re done. That will help make sure people are on the same page, she says.

“We have a program in San Diego called TRAIN [Triage by Resource Allocation for IN-patient]—a way to identify what kind of transportation your patient needs to be evacuated. For instance, if it’s someone in the ICU who has a ventilator to help them breathe and IVs and tubes coming everywhere, they aren’t going to be able to get out of bed and walk to a school bus to be evacuated,” she says. “We color-code our patients on a regular basis so if it’s 3 a.m. and you have to evacuate, we can say, ‘OK, I have 10 red patients.’ That immediately tells the people we work with on transportation that they’re going to need specialized ambulances [or whatever kind of transportation we need].”

Sharp also has an arrangement with local public health that if one of its hospitals has to evacuate, the hospital will share the TRAIN colors with assisting organizations: for example, “15 reds, 13 blues.” The other healthcare organizations will then arrange the transportation.

“Now that doesn’t mean we won’t go right away if we have to,” Carlson says. “If we have to go right away, we will. But we like to think that we can stay on top of it and nobody has to leave without a plan.”

Since her health system has multiple locations, it tries to relocate patients to other Sharp facilities before sending them elsewhere. It also helps that Sharp HealthCare owns a lot of its own vehicles, she adds—patient care vans, pickup trucks, cars, shuttle buses, and other things it uses every day for transportation.
“We’ve written those into the plan, and we have someone who oversees that and ensures that at the end of the day those vehicles are filled with gas, and those drivers have agreed to take calls,” she says. “That way if something happens at 2 a.m. and we need to move people or stuff or supplies or staff, we can activate those ourselves and move patient A to hospital A.”

**Communications**
To coordinate during a disaster, hospitals and local agencies in San Diego communicate using a platform called WebEOC. The system was how Carlson got regular updates about the 2018 fires.

“We all communicate on this platform,” she says. “Hospitals and clinics have their own [status] board, and utilities in town have a board [for] if there’s a gas line failure or something. If I knew there was a wildfire, I’d immediately look to WebEOC to see where the incident is, how close it is to my hospital, what are the fire experts saying about how it’s spreading, and what we need to do here.”

**Worried/well**
One of the things Sharp has learned, says Carlson, is to classify disaster victims. For example, it has a category called “worried/well.”

“We now know that people who are worried [for example] they have diabetes or heart disease, or they’re older and live alone and don’t have as many resources—they decide when they know something is happening, they’ll just go to the hospital because it’s safe there,” she says.

During a disaster, you don’t want facilities to absorb people in this category, she says. They take up space needed for sick or injured patients.

“What we’ve learned is that we have to do a medical exam assessment to make sure there isn’t a current medical issue,” she says. “But then we realize who these people are and can work with our county to determine where the shelters are and get transportation to move them to a shelter if they’re unable to stay at their home.”

**Educating employees**
One of the consequences of natural disasters is their impact on hospital staff. Often employees have to work worrying that the hurricanes, floods, blizzards, and fires they’re responding to are destroying their homes or putting their loved ones at risk.

In San Diego County, there is ongoing education to citizens on how to be prepared for a wildfire, says Carlson. That includes staff education about being responsible, having a fire plan or disaster plan at their home, and ensuring they have access to information on what they need to be prepared in their own home.

The education includes advice such as:

***Make a defensive perimeter around your home.***

“You have to keep some defensible space around your house [in case of fire],” Carlson says. “For example, I happen to live in an unincorporated area of San Diego. I own about an acre of land, and I have trees and whatnot. We’re always clearing brush to keep a defensible space around our house.”

***Have a personal disaster preparedness plan.***

Do staff have a disaster plan for their own home? Do they have extra water, flashlights, non-perishable food, and batteries? Is there gas in their cars at the end of the day, in case they have to evacuate in the night?

“I used to be one of those people who used to drive home on fumes and be like, ‘Oh, I’ll get it tomorrow.’ But what if it’s 3 a.m. and you have to leave?” says Carlson.

**TRAIN evacuation tool**

Carlson has graciously shared her facility’s Triage by Resource Allocation for IN-patient [TRAIN] tool with **PSMJ.** This matrix is used in disaster pre-planning and categorizes patients based on the kind of transportation they’ll need to be safely evacuated. The matrix was originally developed by the Lucile Packard Children’s Hospital at Stanford in Palo Alto, California and was shared with the California Hospital Association.

**Answering the call**

During the California fires, many healthcare workers stepped up to take care of patients before escaping the flames themselves. One nurse helped evacuate patients from a hospital before attempting to drive himself and two colleagues out of the fire zone, ending up back at the hospital. The director of admissions at a nursing home in Paradise, California, helped evacuate 91 patients—many of them with dementia or recovering from strokes—before driving through flames to safety with three residents in her car.

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