

How Kaiser Permanente manages at burning edge of climate change

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Nothing pierces through the noise like your child's scream.

That was the sound that echoed through the smoky airwaves aglow with the flames of the Tubbs Wildfire in California, a state where millions live through the summer and fall months at the burning edge of climate change.

That dreadful cry stretched from one end of a telephone conversation to the other—to a phone held by Joshua Weil, MD, on duty that fateful 2017 night as the assistant physician-in-chief at Kaiser Permanente Medical Center in Santa Rosa.

The wildfire, which started in Napa County, California, destroyed nearly 6,000 structures and many homes in Santa Rosa. The fire burned nearly 40,000 acres and killed at least 22 people in Sonoma County.

Dr. Weil, an emergency physician with the Permanente Medical Group, had heard shortly before 1 a.m., that the fire was within a couple of miles of his Santa Rosa home. He alerted his wife, Claire Mollard, to begin gathering their computers and awaken their 15-year-old daughter Sophie.

For Mollard, a veterinarian, the noise of the approaching fire was the most impressive. It sounded "like a monster," she says.

The fire was coming down the hill and starting to surround the family home. Mollard had deposited the two family dogs in their sport-utility vehicle. But she felt compelled to make one more trip into the family's pitch-black home to attempt a rescue of the family cat, leaving Sophie in the car.

Showing a patient an X-ray of an injured ankle, Dr. Weil was interrupted by a phone call. A neighbor

who lived a couple of houses away, not knowing Dr. Weil was on duty, was calling for him to leave home immediately.

Dr. Weil called his wife's cellphone, and his daughter answered—screaming. So well trained at assessing emergency situations, there was little Dr. Weil could do but remind Sophie to breathe.

Wall of smoke

The screaming went for what seemed like an eternity—perhaps a minute—as Mollard drove blind through a wall of smoke, over fallen trees, surrounded on each side of the road by fire. Eventually, Dr. Weil's wife and daughter made it through and headed to what seemed like a safe place—the hospital where Dr. Weil was on duty that night.

“It was agonizing,” Dr. Weil says. “That was the worst part. Once I knew they were out, I was able to start working again and by 2 a.m., when we opened the command center, I was able to compartmentalize again. I didn't think about the things we'd lost at that time,” though he held to the hope that the family cat who Mollard couldn't locate had somehow survived.

And the situation at the hospital demanded his full attention. The fire was closing in.

At about 3:30 a.m., the incident commander for the fire department came into the hospital and said the words Dr. Weil will always remember: “We're making our last stand.”

All that separated Kaiser Permanente Santa Rosa Medical Center from the raging wildfire was a dry creek bed and last two rows of trailers from a nearby trailer park.

“I was hospital incident commander that night, but I had to make decisions based on what I knew in a context I'd never experienced before,” Dr. Weil says. The question: Whether to evacuate the hospital?

“If there's one building that's built to handle everything possible in place to survive a fire, it's a hospital—and to move patients puts them at risk,” he says.

“We drilled. We practiced. But nobody had ever planned to go from a surge event, to evacuating in an hour, to the fire knocking on your door in ways that you couldn't imagine.”

Speedy evacuation

The fire incident commander was not recommending evacuation at that point. But to Dr. Weil, evacuating now was safer than waiting until the situation was even more emergent.

“If they come in and say, ‘The fire’s jumped that line,’ now with the fire coming down on the building we’d have to try and evacuate,” he says. So Dr. Weil made the call to make the move sooner despite some fear that he was making a mistake.

“In retrospect, it was clearly the right call but in the moment,” Dr. Weil says, though he had moments of doubt.

“I had never been through anything like that before.”

Within three hours, Dr. Weil and his colleagues at the Kaiser Permanente Medical Center were able to safely move 122 patients to a nearby Kaiser Permanente hospital. The process was somewhat chaotic, but thanks to Kaiser Permanente’s EHR, care for the patients was minimally disrupted.

Dr. Weil again was involved in evacuating the hospital during last fall’s Kincade Fire in Northern California. By that time, the disaster preparedness and response procedure were better managed in response to what, sadly, has become a new normal.

Kaiser Permanente Northern California coordinated the response regionally. The Permanente Medical Group is an AMA Health System Program partner.

“We’re not doing this alone,” Dr. Weil says. “We have a regional command center up and running in Oakland, with lots of experts” to help achieve a controlled transfer of patients.

“We have a 21-hospital system, with 9,000 physicians and tens of thousands of nurses, so it was different in ’17 than in ’19,” Dr. Weil says. “We were more proactive. We started spreading the wealth of the number of hospitals we started sending patients to—not sending them en masse to one facility. ... We could do it in a more coordinated fashion. So it was a huge plus to have the resources in the regional command center.”

In a *Harvard Business Review* article, Kaiser Permanente Northern California Region leaders wrote that developing a turnkey command center is one of the system’s keys to building a “resilient emergency response operation.” Other essentials include opening a command center before the

threat becomes acute, identifying interdependencies and activating resources, and incremental actions before full evacuation is required.

Read more about how Kaiser Permanente prepares for disasters.

In this *JAMA* audio interview, Ted Muller, MD, emergency department director in Paradise, California, discusses his experience with the 2018 Camp Fire.

Climate change's rising toll

At an education session at the 2019 AMA Interim Meeting, internist and climate change expert Nitin S. Damle, MD, said there has been a 4%–6% rise in “forest fires, droughts, heat waves and extremes of weather” since 1980.

“Every part of the country will be affected one way or the other by climate change,” Dr. Damle said.

The AMA has adopted policy that recognizes the reality of climate change, including its health consequences, and encourages physicians “to work with local and state health departments to strengthen the public health infrastructure to ensure that the global health effects of climate change can be anticipated and responded to more efficiently.” The AMA also supports climate change education across the continuum of medical education.

For Dr. Weil, the impact of climate change is far from a theoretical prospect. He has seen it and felt it, as have his patients. His house and the family cat did not survive the 2017 Tubbs Fire.

“There is very much this change in the fire patterns,” Dr. Weil says. “It’s not just that we have some hotter weather, but more extended periods of time with dry weather. ... We have these red-flag days happening more frequently, then when something happens the power line goes down and there’s an increased fire danger. The evidence is pretty strong that climate change is driving the increased frequency of these events.”

Short of disastrous wildfires and hospital evacuations, the local power utility has more frequently shut down its power lines to prevent even worse outcomes.

“What happens when the power goes out? You lose power in your home. This is a financial hardship on people. You can’t go to school. You lose refrigeration. How sustainable is that? All those things add up and make it a tougher place to live,” Dr. Weil says.

Read about the perspective of infectious diseases physician Stephen Parodi, MD, associate executive director at the Permanente Medical Group at Kaiser Permanente in Northern California. He wrote a column in *The New York Times*, “When ‘Do No Harm’ Means Evacuating Hospitals in California

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