



Applying Lessons Learned to Hospital Evacuation

ABSTRACT

In 2018, ASPR TRACIE interviewed staff from Kaiser Permanente Hospital Santa Rosa in California (including Dr. Joshua Weil, the incident commander at the time) who shared their experiences [evacuating the facility during the 2017 wildfires](#) that decimated many employees' homes in addition to thousands of acres. For this issue, Dr. Weil and Dr. Susan Fitzgerald shared how they had incorporated lessons learned from the 2017 wildfires into plans they executed in 2019 when faced with a similar scenario.

■ John Hick (JH)

Thank you for taking the time to meet with us. Please describe your roles both in 2017 and during the 2019 Kincade Fire.

■ Joshua Weil (JW)

For eight years, I served as Kaiser Permanente (KP) Santa Rosa's Assistant Physician Chief for Hospital Operations. It was in that capacity that I was in the command center during the 2017 wildfire. In May 2019, I stepped down from that role and in December, I took on the role of Emergency Management Lead Physician. I continue to practice emergency medicine full-time. During the Kincade wildfire, I was engaged at the command center as a consultant and content expert, given my past experience.

■ Susan Fitzgerald (SF)

I work clinically in Santa Rosa as an Emergency Management Physician half-time. I also work regionally, in disaster planning and training, with our Regional Emergency Management Team in KP Northern California (KP NCAL). In 2017, I was involved in the evacuation along with Josh and played a supportive role in the command center and hospital. Following the 2017

experience, we developed evacuation training materials, along with an evacuation toolkit, which is in the final stage of development. I keep a set of these materials at home for training. In 2019, I brought them in with me and KP Santa Rosa ended up using those materials to help with the actual evacuation.

■ JH

Let's compare and contrast your experiences in 2017 and 2019. For example, who made the decision for the full-scale evacuation, and how was that communicated out to staff? We know in 2017, the threat was rapidly evolving and there wasn't much time to make the decisions.

■ JW

In 2017, I was the Incident Commander for the evacuation event. As you point out, things evolved very quickly. Within a matter of hours, we went from "There's a fire in the area" to "There's a fire on our doorstep." In 2017, the on-site fire Incident Commander was not advising us to evacuate—we were told to shelter in place. But with the fire literally a couple hundred yards off our property, I made the decision, in conjunction with other hospital leaders in the room, to evacuate because the hospital was under imminent



threat. It was something none of us had experienced. Even communications were different in 2017. Initially we weren't even sending out messages to "hold" because it didn't seem that there was a message to give until it was actually time to go. Dr. Fitzgerald was on scene then, out amongst the staff and first responders, helping to mobilize staff and prepare patients, while I was in the command center.

Read more about the 2017 evacuation in the Exchange article [The Last Stand: Evacuating a Hospital in the Middle of a Wildfire](#).

ISF

In 2017, the first lesson learned was make sure you are truly ready at home to leave your house quickly along with the people, animals, and personal belongings you are most concerned about. I also had to get through a roadblock to get to the hospital. Luckily, I had my KP ID and they let me through, so that was the second lesson learned. I got to the hospital and it was filled with smoke; the fire was directly next door. Pretty quickly after the decision was made to evacuate, a cadre of police officers showed up to help us out. Our hospital command center staff teamed with these police officers and went floor to floor to stage the non-ambulatory patients for transport downstairs, and then conducted sweeps on every floor to make sure all rooms and areas were empty. We didn't have enough wheelchairs, so we used rolling office chairs for non-ambulatory patients who were able to sit up safely in these chairs. We staged the gurney, wheelchair, and office chair patients next to the elevator. We were fortunate the majority of our patients were stable that day; we only had two Intensive Care Unit patients and one intermediate-level care infant, and they were evacuated separately by their critical care teams. Another helpful thing we did was ask all staff—both clinical and non-clinical—to assign themselves to one patient each so we could visually monitor and interact with all patients. These staff could also advocate for the patients and help move their gurneys and chairs to facilitate evacuation.

IJW

It's important to note that these people can be non-clinical. In some cases, non-clinical staff notified clinical staff that "their" patients were having trouble and it was addressed quickly.

In 2017, we used private vehicles and city buses to evacuate more ambulatory patients to another KP facility in Marin County. At first, we didn't have enough ambulances, and those we did have were used to transport more critical patients. There was also confusion about whether city buses could leave Santa Rosa and Sonoma County. This is a good thing to discuss and plan for ahead of time.

ISF

It's important to be aware of and plan with your county agencies, as well as the other hospitals in your area—and realize resources may be spread thin depending on the disaster. In the case of the 2017 evacuation, one of our neighbor hospitals was closer to the encroaching fire, and as a result, had to evacuate first. When we started our own evacuation slightly later, ambulance resources were scarce.

IJW

We also didn't have an evacuation tagging system. We made it up on the fly; we used our secure KP cell phones to take pictures of patient's wristbands. This was another lesson learned that we incorporated into the evacuation toolkit Dr. Fitzgerald alluded to, and we now have more comprehensive tags that account for a variety of patient considerations.

ISF

Another thing the tags help with is knowing what each patient needs for the safest possible transport, including things like oxygen, intravenous fluids, medications, or isolation precautions. This protects the patient as well as the other patients and staff in the area.

We were fortunate in that we had a lot of staff and providers to help with our evacuation, as they were no longer working on the evacuated units. That said, many had to leave quickly to evacuate their own homes and families.

Another lesson we learned was about prioritization. Traditionally, we are taught to evacuate the most ambulatory and least sick patients first, and to save the most critical for last. What we found, however, is that evacuation for all patients started at the same time. Of course, it took longer for the non-ambulatory and critical care patients to be evacuated. We also learned that critical care staff and providers are most likely going to stay with their critical care patients and are most likely to be the ones to help them evacuate.



I JW

Things were very different in 2019. We opened the command center days before the fire became an issue. The county mandated evacuation for 250,000 residents and ordered us to evacuate the hospital while the fire was still miles away.

In 2017, we completely closed, evacuated, and took offline two out of three major hospitals in the area. We know that reopening a hospital that has been fully shut down is extremely challenging. In 2019, we used what we called a “controlled transfer process” in anticipation of evacuating, which made the evacuation easier. What we realized after the 2017 fires is that if we had “decompressed” but kept minimal operations open (e.g., the emergency department) and kept patients who were most susceptible to decompensation with movement in place, we could continue to serve some of the needs of the community during the crisis and we wouldn’t have to formally “re-open.” We could have come back online much faster. This would not have been an option in 2017 but may be so in the future.

I SF

As conditions started to deteriorate, we began to identify patients most stable for transfer, and to locate inpatient beds in our other KP Northern California hospitals. We began this “controlled transfer” process early on. As the situation progressed, and evacuation became more likely, we looked more closely at who was left and how we could ensure their safety during the likely evacuation. At that point, we pre-staged for evacuation. We learned that your process doesn’t have to be “all or none.” You can go ahead and stage for evacuation—fill out the evacuation tags and prepare to evacuate—and best-case scenario, you’ve wasted some paper. Although you may encounter some staff anxiety when you make the decision to break out those tags, I honestly feel that our staff was more reassured than worried by the presence of the evacuation tags and planning; it showed we had a clearly defined process in place that everyone could follow.

I JH

Knowing that most healthcare facilities use electronic health records (EHRs), and you can’t necessarily “grab the chart on the way out,” what key elements of information do you want to be sure accompany patients when evacuating a facility?

I JW

Years ago, one of our emergency management team members created an EHR evacuation printout that is a couple of pages long. In 2017, as we prepared to

evacuate, we made sure staff knew how to print them out. Unfortunately, there was a glitch in the system, and one of the reports printed out about 500 pages.

I SF

The regional emergency management team has actually done a lot of work over the years with our EHR to make it more user-friendly in disaster scenarios including evacuation and surge.

The evacuation toolkit we used in 2019 is made up of the vendor-created tags and tracking system and we created very brief job action sheets (e.g., for bedside registered nurses to use when prepping patients for evacuation) and checklists (e.g., unit leader, transport). They are Hospital Incident Command-like materials but are specific to rapid evacuation. We’ve also added directions for setting up the staging area in a way that makes it both easier to identify and track patients pre-evacuation, and easier to locate them when it’s their turn to be transported out of the medical center. This approach came directly from our 2019 experience—while we had everyone tagged and staged, we didn’t group patients by destination, and this added time to the already rushed process. We are currently working with our vendor to tailor this toolkit to all KP NCAL facilities.

I JH

You mentioned that you are using tags for patient tracking—how do you use EHR and your tools to close the loop to ensure that patients go where they are supposed to?

I SF

KP has 21 medical centers in Northern California and in both 2017 and 2019, our KP NCAL Regional Command Center helped coordinate that process for us. In 2017, we primarily used our KP-provided (secure) cell phones and the printouts of EHR to manually track patients. The regional staff worked closely with us to support patient tracking. In 2019, we used the evacuation tags and tracking system.

I JW

Something else to note about 2017 is that most of our patients went to one KP facility with few exceptions. In 2019, we dispersed them between several facilities. The new tag system that is part of the toolkit allowed us to reconcile records and patients more quickly.

I JH

What are the key safety issues command staff need to be aware of for staff and patients during an evacuation?



ISF

First and foremost, be aware of the environment itself. You need to be able to maintain an environment of care that is as safe as possible given the event. That means controlling access to the medical center and keeping doors shut if there's a lot of smoke in the air. Communication is another key area—it's really where everything starts and ends. It's hard to know exactly what to communicate when, as you don't want to create panic, but you must inform people and ensure the message goes out widely throughout the entire hospital to all staff, providers, patients, and family members.

Of course, as you're getting patients down the stairs or in the elevators, you are going to do everything you can to keep them as safe as possible, with as much care as possible. And when you get them to transport, whether by car, bus, or EMS, do whatever you can to give your staff the tools they might need to care for patients. This helps with both actual patient safety and the psychological safety of staff and providers. For example, in 2017, we put providers and additional supplies on every bus, and I served as a consult / medical control resource for staff on the buses.

Suggested Supplies for Buses Used in Evacuation

- IV supplies
- Nitroglycerin
- Lorazepam
- Levetiracetam
- Albuterol
- Furosemide
- Acetaminophen/ibuprofen
- Narcotic pain medications



I JW

I agree; communication is key. In 2017, I really struggled with how much to communicate from the command center, but I learned that people just wanted to feel engaged and informed. In 2019, I made rounds through the hospital and talked to people on every floor to make sure they knew how to operate equipment, print out tags, contact transportation to request buses, and the like.

Another lesson we learned was when to open the command center. In 2017, the hospital was inundated with smoke and patients were complaining about it. We continued operating normally, and it wasn't literally until my house burned down and our vice president called me right before her house burned down, that we opened the command center.

Fast forward to 2019, the fires were many miles away from us, and there was no immediate threat. We opened the command center nearly five days before we had to evacuate the hospital. This made a big difference. When you run a code, sometimes the hardest thing is announcing that we're running a code, but once you take that step, people know what to do. Opening the command center is a similar decision point, but once it's done, people have the position and framework from where to work.

ISF

It really does free your mind to think differently, acknowledge the severity of the event, and then follow those pre-determined disaster management steps.

I JW

Another thing I would reiterate is practice and drill. It helps people perform better. From an administrative perspective, review the systems you have, make sure you have practical plans to follow in similar situations. In 2017 we learned we didn't have a good evacuation toolkit, so we spent the past two years creating one.

ISF

I want to second that. Test your plan, fix it, and test it again. We held an evacuation drill about eight months after the 2017 evacuation and that was very helpful, as we were able to use much of what we learned in the 2019 Kincade Fire shortly thereafter.

I JW

In 2017, Dr. Fitzgerald was very aware of the need to support the staff who lost their homes and continued to work in crisis mode. She ensured that we brought in staff from other facilities to support Santa Rosa staff, allowing those of us affected by the fire to take some time to address what was happening for us personally.



I JH

If you had a wish list of items hospitals need to prepare for future evacuations, what would be on it?

I SF

Yearly, comprehensive drills with our facility, the community, county, and surrounding medical centers. The more we practice and communicate, the better we'll get and the more we'll learn. You can also start with smaller tabletop discussions in your department or medical center-- anything is better than nothing. Work both together and on your own to think through actions your department and medical center can take during disaster events.

I JW

My wish list would include more robust, real-time communication systems between all entities. We were able to have some back-channel communications through the county, but less so with other hospitals and transport providers.

It sounds simple, but we were better prepared in 2019 because we incorporated the lessons we learned in 2017. It's hard to do because you have daily operations to manage but making the time and space to drill and practice, and address what is challenging you in exercises will lead you to be better prepared when a real crisis happens. ■

