

Implications of the California Wildfires for Health, Communities, and Preparedness

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On June 4 and 5, 2019, four entities within the National Academies of Sciences, Engineering, and Medicine—the Forum on Medical and Public Health Preparedness for Disasters and Emergencies; the Roundtable on Population Health Improvement; the Roundtable on the Promotion of Health Equity; and the Roundtable on Environmental Health Services, Research, and Medicine—held a workshop titled “Implications of the California Wildfires for Health, Communities, and Preparedness” at the Betty Irene Moore School of Nursing at the University of California (UC), Davis. The purpose of the workshop was to explore the population health, environmental health, emergency preparedness, and health equity consequences of increasingly common and increasingly strong wildfires, particularly in California. Although the committee was not charged with a specific transportation-related objective, the role of transportation emerged during the workshop. This article highlights parts of the report that discuss transportation as related to wildfire-related issues.

California and other wildfire-prone Western states have experienced a substantial increase in the number and intensity of wildfires in recent years. Eight of the 10 largest wildfires in California have occurred since the year 2000. Wildfires and other disasters can be particularly devastating for vulnerable communities (1). Members of these communities tend to experience worse health outcomes from disasters; have fewer resources for responding and rebuilding; and receive less assistance from state, local, and federal agencies.

Above: The health implications of wildfires—which have been on the rise in California since 2000—were the focus of a 2019 National Academies of Sciences, Engineering, and Medicine workshop.



Implications of the California Wildfires for Health, Communities, and Preparedness: Proceedings of a Workshop is available at <https://www.nap.edu/catalog/25622>.

Health and Medical Responses

In California, the Emergency Medical Services Authority (EMSA) works with the Department of Public Health to provide the Emergency Support Function, which is the public health and medical response to disasters. During disasters, the 911 response is overwhelmed quickly in rural areas, remarked EMSA Director Howard Backer. California has about 40 ambulance strike teams—five ambulances plus a lead vehicle—that can come from other jurisdictions to work in the field for 3 days without having to go back to their home base.

California also has a national ambulance contract, which often is used in the Southeastern United States to respond to hurricanes but has been used rarely in California. “We had ambulances and wheelchair vans and buses and all levels of transportation staged,” commented Backer. “[It is possible to] call them up and they pick up people in an orderly fashion—that is, when [the medical services staff] have time.”

During the Camp Fire in Northern California—the most destructive and expensive fire in California history—there was not enough time. For example, when the hospital in Paradise, California, was evacuated, hospital employees, fire personnel, and visitors loaded patients in any available vehicle, in addition to local ambulances, because the ambulance strike teams could not reach the hospital in time.

Getting Services to Vulnerable Populations

After a wildfire, many low-wage workers do not have access to unemployment or other safety net programs. Schools may be closed for weeks, which means that children in need of food do not get free breakfasts or lunches. Domestic workers and service workers can lose their jobs after their workplaces are destroyed. Landslides and closed roads can make it extremely difficult for some people to get to their jobs. In the case of a 2017 fire in Ventura and Santa Barbara counties: “To go to Santa Paula, a city about 60 miles northwest of Los Angeles, you can take

the airplane into Santa Barbara Airport or you can take the ferry [to Santa Barbara], but the ferry was \$30. Again, folks are left without viable modes of transportation,” explained Genevieve Flores-Haro, director of the Mixteco-Indigena Community Organizing Project. One of several policy changes she noted that could improve preparedness, response, and recovery included infrastructure for transportation.

Studies of Wildfire Effects

The National Institute of Environmental Health Sciences of the National Institutes of Health has a mechanism for time-sensitive research, which Irva Hertz-Picciotto, director of the UC Davis Environmental Health Sciences Center and a professor of public health sciences at the UC Davis School of Medicine, and colleagues used to examine effects associated with the fires. These effects, which included exposures, health impacts, and needs, were studied using an online survey, a study of a cohort of pregnant women and mothers and their children, and a door-to-door survey.

The study found that respondents reported a wide variety of needs both

immediately and one week after the fire, including transitional housing, clothing, safe drinking water, medicine, cell phone service, electricity, heat, hot water, sleep, breathing masks, and transportation.

Connecting Emergency Management with Human Services

The Administration for Children and Families (ACF) in the Department of Health and Human Services serves communities and families that are at crisis or live in crisis every day. According to Bryon Mason, Deputy Director of ACF, the office partners with the Federal Emergency Management Agency when there is a major disaster declaration under the Stafford Act. This federal law brings federal natural disaster assistance for state and local governments in carrying out their responsibilities to aid citizens.

One of the resources deployed by the Stafford Act is the immediate disaster case management program. The intent of the program is to connect disaster survivors to resources, whether faith-based, non-governmental, state, local, or federal. In

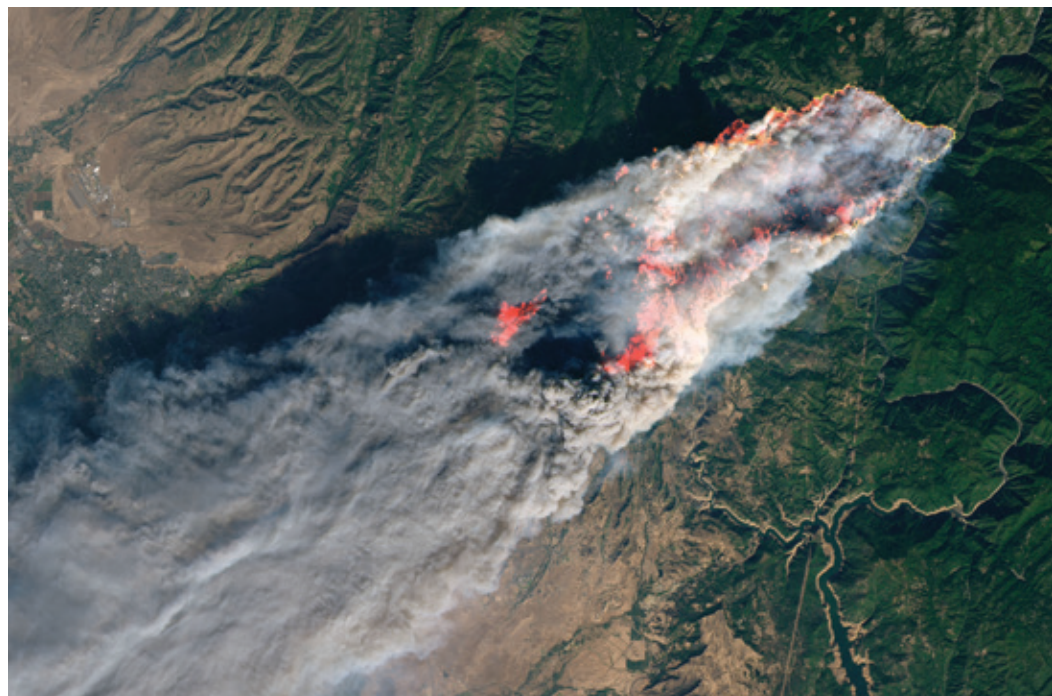


Photo: Joshua Stevens/NASA Earth Observatory

The 2018 Camp Fire in northern California forced a massive evacuation of the surrounding area.



Photo: Eddie Siguenza/U.S. Army National Guard

U.S. Army National Guard servicemembers prepare to assist evacuees at a recreation center in Petaluma, California, during the October 2017 wildfires.

the case of the Camp Fire, for example, Mason’s office had interacted with more than 6,000 survivors by the time of the workshop, connecting them with resources like food, housing, clothing, and transportation.

Hertz-Picciotto pointed to major efforts to develop skills in people who are not mental health professionals for dealing with people who have mental health symptoms because of the traumas they have experienced in the counties affected by wildfires in California.

For example, many of the people who evacuated during a 2017 fire in Napa and Sonoma counties were driving through flames on both sides of their cars and worrying that their tires were going to catch fire or melt. “There’s not a lot of roads going in and out of some of those towns in Napa and Sonoma, and they’re not very wide. Some people were on the road for hours hoping that they were not going to get trapped in their car. The degree of trauma was enormous,” Hertz-Picciotto noted.

Burn-Disaster Response

According to Dai et al. (2), the frequency of burn disasters rose substantially between the years 1990 and 2000 and the years 2001 and 2015. National disaster austerity guidelines outline what people can do if they face a shortage of burn supplies. Disaster triage tables provide guidelines for immediate care, triage algorithms, and acute transportation guidelines. The result has been substantial progress in communications networks with funding for disaster preparedness, equipment, local

infrastructure, and education for providers, observed Tina Palmieri, assistant chief of burn surgery at Shriners Hospital for Children of Northern California and director of the UC Davis Regional Burn Center. Even as the number of disasters in the world has increased, she noted, the number of reported deaths has declined.

Conclusion

The increasing incidence of wildfires, especially in the western half of the United States, poses many challenges to communities. Multifaceted responses at the local, state, and federal levels are necessary to ensure that communities’ needs are met in the short term—immediately after the fire—and in the longer term, which can often be years after the fire. Along with needs related to aspects of the environment, rebuilding communities, public health, and emergency preparedness, addressing transportation and infrastructure-related issues is key to helping to prevent future wildfires, fighting them while they are happening, and rebuilding communities and people’s lives after the fires.

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