CHANGING CLIMATE'S DANGEROUS, 'COMPOUNDING' HEALTH EFFECTS
Study looks at impact of heat, fire, smoke on West Coast residents

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Body

Summers in the Inland Northwest are getting hotter, drier and likely more dangerous for public health.

This is what Claire Richards set out to study earlier this year, when she received funding for her project to learn how co-occurring power outages, extreme heat and wildfire smoke present a new public health threat to the West Coast.

The Washington State University College of Nursing assistant professor's initial research question has already been answered.

"What we were trying to look at is, is this happening now?" Richards said. "Now, it's a stupid question."

After a week under a "heat dome" and rolling blackouts, understanding the effects of ***climate change*** on public health in the Inland Northwest is clearly relevant.

Richards is from California, and she wanted to see if the blackouts that often occur thereduring wildfires were in store elsewhere in the West.

Her research, which was awarded funding under WSU's new faculty seed grant competition, will look at the extent to which the region is experiencing extreme heat, power outages and wildfire smoke and then look at what data exists - or not - to help identify solutions.

"The other piece of (the study) is to understand what is the state of our emergency readiness for power outages and co-occurring extreme weather events, and what are some of the low-hanging fruits and ways we can improve that readiness," Richards said.

Climate change has led to rising temperatures, as well as increasing the duration, intensity and frequency of heat waves.

"Our future will be characterized by more extremes, and in the state of Washington, our temperatures will go up and we'll have more humidity, which we're completely unprepared for," said Kristie Ebi, global health professor at the University of Washington. "Not that we're prepared for these temperatures."

Climate change's impacts on public health are felt particularly by those over the age of 65, the more than 2.5 million Americans who use electronic devices to stay alive and some people with underlying health conditions.

When heat waves or wildfires lead to power outages, oftentimes the best ways to combat heat or clean air, such as running fans, air conditioning or air purifiers, are nullified.

"You have these compounding effects like we're seeing in Washington with drought and extreme heat at the same time, which can reduce our power supply and increase our demand," Richards said. "It's kind of a perfect storm for power outages at the time when people need that electricity the most."

Heat waves usually lead todeaths, but it doesn't have to be that way.

"In terms of our current situation, the most important point is that all heat-related deaths are preventable," Ebi said. "People don't need to die in a heat wave, and we need to ensure that people have the information and services to keep their core body temperatures in a fairly narrow range that our bodies operate within."

So far, the Spokane County Medical Examiner's office has counted 11 deaths that could be related to heat exposure during last week's heat wave. At least three deaths due to environmental heat exposure were confirmed from last week.

The Spokane Fire Department, which typically sees four to five heat-related calls in an average June, received dozens of calls during the heat wave.

On June 28, the department responded to 18 cases of heat-related illness or conditions. That number grew by 15 cases the following day and by a dozen by midday Wednesday.

MultiCare Valley Hospital saw seven heat-related admissions during the first weekend of the heat wave, and 11 on June 29 alone.

Heat waves also account for many deaths that may not necessarily be deemed "heat-related" but were certainly heat-induced. Ebi said people with underlying health conditions that can be exacerbated by extreme heat are also vulnerable to heat waves.

"When you look at excess deaths, they come from a whole range of causes," Ebi said.

A 2020 study found that older adults, those who rely on electricity-dependent medical equipment, nursing home patients and those with underlying health conditions like respiratory, cardiovascular and renal disease are all at higher risk of adverse health outcomes during a power outage.

Heat-related deaths are preventable if you plan for them. Part of Richards' research willlook at what plans are in place to address ***climate change***-induced heat waves, power outages and wildfires.

One strategy to reduce harm to the people in communities that rely on electronic devices for their health is for public utilities to keep lists of customers in order to turn those households' power on first or preserve power where it is needed most.

Avista keeps track of its residential customers who have shared with the company that they rely on equipment in their home for their ongoing health, according to Casey Fielder, spokesperson for Avista. These customers who rely on electricity for their health were called before outages on Tuesday and Wednesday of the heat wave, Fielder said in an email.

Coordinating and responding to extreme heat events is vital to ensuring the most at-risk members of the community are served.

"There's some real challenges in thinking about how do we coordinate during an outage or an event happening where we need to get first responders to help people who may need it?" Richards said. "And how should that data exist, and how do we keep it updated?"

A nationwide study from University of Michigan researchers found that just 25% of those surveyed who use essential medical equipment that requires electricity had an alternate power source.

When the forecast heat wave arrived, public health guidance was for people to use air conditioning if at all possible. Cooling centers were opened up for day use around Spokane. But air conditioning is not a given in every Pacific Northwest household.

A 2015 survey from the U.S. Energy Information Administration found that 6 million housing units in the Pacific region, including Washington, Oregon, California, Alaska and Hawaii, do not have air conditioning. That's about a third of households in theregion without A/C.

Trying to coordinate and share information during outages and events is a part of the work of preparing for a heat wave or other potential emergency. Some cities have heat action plans, which address not only current heat waves but how to manage similar and likely more intense events in 20 years, Ebi said.

Research about public health impacts from ***climate change*** provides clues as to who is most impacted by extreme events. Structural and social determinants of health, from redlining to household income, impact low-income communities and communities of color the most. These same determinants also increase their exposure to events like last week's heat wave, Richards said.

Her study will look at these factors to assess who is most at-risk in future ***climate-change*** induced weather events and what potential "low-hanging fruit" solutions could be implemented to help these communities.

Historically discriminatory practices like redlining continue to impact Black communities and other communities of color in heat waves, Ebi said.

Communities that were redlined, in which residents were denied access to loans or insurance because they lived in an area deemed to be a poor financial risk, tend to have less tree canopy, which provides natural shade or have fewer upgrades to buildings.

Potential solutions include investing in construction that can withstand heat and intense ***climate*** events as well as planting trees in urban areas to provide shade in all communities, not just houses with yards. Studying exactly who and where events like last week's heat wave hit the hardest is vital to understanding what can be done to prevent adverse health impacts in the future, Richards said.

The question health researchers like Ebi and Richards seek to answer is what mitigation and preparation is necessary based on what we know ***climate change*** has in store.

"***Climate change*** is a stress multiplier and exacerbates current causes of inequities," Ebi said. "People who are poor and marginalized for a variety of reasons are the ones most severely affected, so as we think about how we're going to adapt to a very different future, how are we going to make sure we don't leave anybody behind?"

Notes

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