

Montana residents are desperate for clean air, and they're calling me¹

My job is to manage air quality. This fire season, I'm just trying to help people breathe.



By Sarah Coefield

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MISSOULA, Mont. It's late August when I get a call from a grandmother. She lives in Seeley

Lake, and she's heard we have air filters that can help with smoke. She needs one for the baby's room. I explain we don't have any and tell her how to purchase one. She coughs and goes silent before asking how much they cost. Almost every person I talk to in Seeley Lake has this cough. The family doesn't have much money, she says, but she promises to order a filter for the child. The next day, the wildfire moves closer, and the county sheriff's office evacuates her neighborhood. I wonder if the filter will be there when the family returns home. I know the smoke will be.

As an air quality specialist with the county health department here, my job is to understand air pollution, control it as much as possible and help people protect themselves from its effects. I focus on smoke management: issuing permits for outdoor burns and updates about what to expect from the smoke when wildfires send it our way. In a typical wildfire season, my smoke-related responsibilities end when I hit "send" on twice-daily media updates.

If my job were only about fires and how the smoke moves, it would be simple. Not easy, mind you: Wildfire smoke is flashy and weird, and if anyone tells you they can reliably predict its behavior, they're lying. It's just that purely focusing on the science would be fun for a smoke nerd like me.

But in July, thunderstorms trekked across western Montana, igniting a ring of fires around Missoula County. One by one, they started blowing up, smothering small towns in smoke. The massive Rice Ridge Fire burns directly above the community of Seeley Lake, and every night, smoke fills the valley, building by the hour and creating dangerous breathing conditions the likes of which we have never seen. To our south, the Lolo Peak Fire sends daily smoke to the Bitterroot Valley, creating frequently hazardous, unbreathable air for its residents. Never have we seen so many wildfires so close to home for so many weeks.

As with most mountain valley communities, Missoula County's most worrisome and prevalent air pollutant is the fine particulate in wood smoke, so tiny it can enter your bloodstream when you breathe it in. It's a cumulative pollutant: The more you're in it, the worse it is for you. The

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particulate aggravates asthma symptoms and causes reduced lung function and wheeziness. It increases the risk of heart attack and stroke and can damage children's developing lungs. The elderly, people with heart or lung disease, pregnant women, and children are most at risk. Wildfire health studies are still part of a growing science, but we know the smoke is dangerous. We know there will be more emergency-room visits, more hospital stays and, probably, more deaths. We don't know its long-term health consequences, and no one knows what six weeks in the worst smoke we have ever seen will mean for the people in Seeley Lake.

At monitoring stations scattered around the county, we measure the mass of fine particulate in the smoke. The National Ambient Air Quality Standard for fine particulate matter averaged over 24 hours is 35 micrograms in a cubic meter of air. Our monitor in Seeley Lake is registering 1,000, as high as the machine goes. It was built without the expectation of ever measuring such concentrations.

When smoke descends on the valley, the world shrinks. Anything more than a block away disappears behind a white wall of smoke. The birds are quiet.

Smoke makes its way through door and window cracks. It follows ventilation systems into homes. Without a filtration system, the indoors provides no refuge. And in rural Montana, where air conditioning is rare, most residents open their windows at night to seek relief from the hot, stuffy summer air, even amid the smoke. The air warms enough in the afternoons to rise and take the smoke with it, providing a few precious hours of respite, but every night it descends, and every morning it stays longer in the valley than it did the day before.

In the absence of central air systems with filtration for fine particulates, the best defense against the smoke is a high-efficiency particulate air (HEPA) filter, which can reduce the fine particulate in a room by more than 99 percent. But while wildfire smoke has become increasingly common since 2000, HEPA room filters are not yet a standard feature in homes.

My audience is broad and under stress. As the fires burn, I hear from teachers, parents, coaches, health-care workers and retirees. They call asking where they can go to escape the smoke. They want to know how to protect themselves, what kind of room filters will work, should they wear a mask? They plead for filters I don't have. They ask questions I can't always answer. A child came home sick from school — why were the school windows open? The varsity team is expected to play soccer in the smoke — why hasn't the game been canceled?

There is smoke inside the Seeley Lake clinic. The nurses are sick. A patient in the clinic said the smoke makes him want to die. A baby who has been sick in the hospital is being discharged, and her family doesn't have money for a filter. An asthmatic grandmother living in Seeley Lake just got custody of her 1-year-old grandson, but she's sick from the smoke and worried for the child. A housebound couple has survived pneumonia three times this year, and the husband is on oxygen. They are a mile from the fire. Please help, they ask.

I try.

Some requests are easier than others. I track down school athletic directors to make sure the people arranging soccer games follow the correct guidance. I pull up a map and figure out how close the cleanest air is. I look at weather patterns and models and make projections about when the smoke is likely to clear or worsen. I explain the different health categories for smoke. I share

information about HEPA room filters and explain how they can help create a safe space in a home.

But the smoke in Seeley Lake thickens on a daily basis. I talk to my supervisors, and we send out an official recommendation that residents leave the area until the smoke clears. Few take our advice. Few have anywhere to go.

I call the director of Climate Smart Missoula, which has launched a pilot project to provide HEPA room filters to the elderly, and plead for help. They come through with 25 filters for clinic patients. I call state agencies and ask for money to buy filters and am left empty-handed. We call the Seeley Lake and Lolo elementary schools and ask if they have filtered air for their students. They don't. We raid our health department budget and purchase 40 HEPA room filters for the schools. Climate Smart Missoula orders 45 more, hoping that someone will step in to fill the bank account it just emptied. When children's health is at risk, the director explains, you don't wait on details.

I call my contact at the American Lung Association, and she immediately contacts headquarters. They have some money. But I send them to the next county over, where, for now, the need is greater. I start fielding calls from surrounding counties asking how we found money, how we decided where the filters should go. I send them what information I have.

I start shuffling filters or trying to find filters on a near-daily basis — five for a clinic, three for a tiny school by the Lolo Peak Fire. There's an elementary school in Condon where 23 students are sitting in smoke so thick that visibility has dropped to less than half a mile; we send them eight. One day, I receive three requests for filters I don't have — two for babies and one for a choking elderly couple. I take their information and promise to try to help. And then I put my head in my hands and weep.

Throughout it all, I send out updates about the smoke: where it's going, how bad it will get, how people can protect themselves. I sprinkle the updates with dumb smoke jokes and asides and dark humor, because it's my survival mechanism and maybe it will help others. People tell me it does.

But every night, while I lie in my bed with my filter gently whirring beside me, I know there are vulnerable people sleeping unprotected.

And I know — in another year, in another valley — the smoke will be back. I take comfort knowing that when it does, we won't have to scramble. After weeks of frantic activity, playing catch-up and pleading for money, the health department has entered a new era of wildfire smoke response. We've laid the groundwork to protect our communities from smoke — educating the public, creating space spaces for vulnerable residents, building a cache of filters — and we've seen our efforts expand throughout western Montana. We live in a fire-adapted ecosystem, and, out of necessity, we're becoming a smoke-adapted community. The valley rain and mountain snow are coming. We will stop and breathe the clean air. And then we will get ready for next year.

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