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EDITOR'S PICK

## Public Health: Wildfire smoke Q&A

**AMBER JOHNSON** Lewis and Clark Public Health

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**A**nd so it begins.

The Horse Gulch fire marks the beginning of fire season in Lewis and Clark County. We are immensely grateful to the firefighters and first responders who are working tirelessly in their efforts to protect human and animal life and property. Our hearts are also with the family of the fallen pilot, Juliana Turchetti. Even one life is too many lost.

Anyone who has lived in the American West for the last 15 years is pretty used to wildfire season by now. Wildfire smoke is something that is always there in the summer; it comes and goes. Unless you drive or fly far away, you can't run from it.

Wildfire smoke is everywhere and lies outside a typical resident's circle of control. So, it is no wonder that people get used to it and they get complacent about it. After all, you can't filter life; it must go on.

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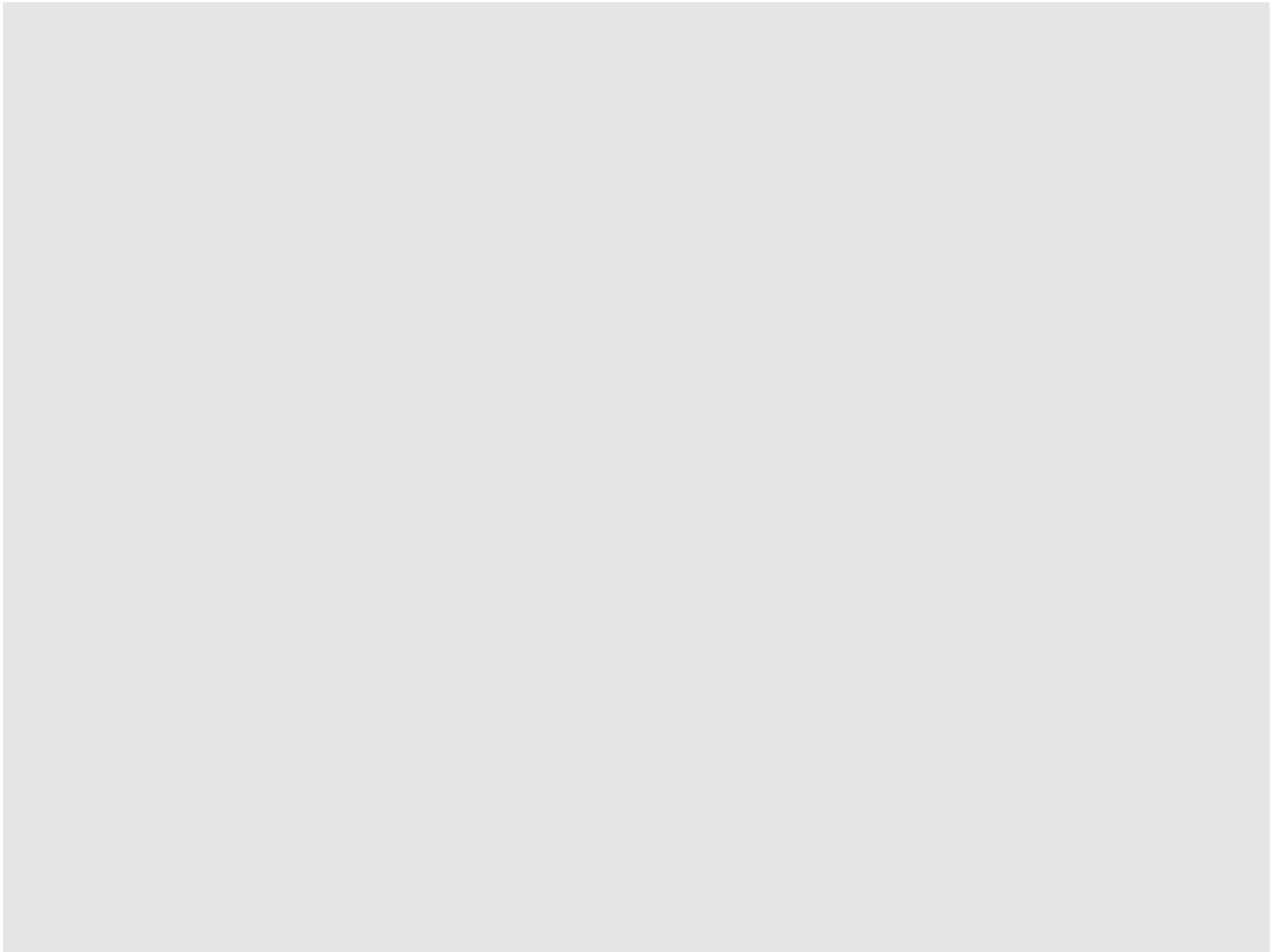


Amber Johnson

Photo provided

However, there are little things people can do on a regular basis to reduce their exposure to harmful and chronic air pollution.

I sat down with Lewis and Clark Public Health Environmental Health Specialist Jay Plant and Epidemiologist Valerie Stacey to talk about wildfire smoke and poor air quality – why it is harmful and how to protect ourselves and our families.



Lewis and Clark Public Health

# Q&A

**“So, talk to me about poor air quality. Why is this a public health concern?”**

**Val:** “When scientists talk about exposure to smoke, whether it is wildfire smoke or other smoke, it is usually about the size of the particulates. Particulates are microscopic particles of solid or liquid matter suspended in the air.”

**Jay:** “And there are two main sizes of particulates that we are concerned about and monitor on an hourly basis. The first is PM<sub>10</sub>, which is short for particulate matter, sized 10 microns or less. Things like road dust.”

**“So, tiny?”**

**Val:** “Very very tiny. About the size of mold or pollen spores in the air. That’s the stuff, when there is a lot of it, that irritates eyes and makes throats scratchy.

**Jay:** “The other category is PM<sub>2.5</sub>.”

**“Even smaller?”**

**Jay:** “Yes, even smaller. And that size of particulate is the biggest health concern, because it is small enough to make it into your lung tissue. And then it gets trapped there.”

**“Is it trapped in your lungs forever?”**

**Val:** “I don’t know about forever, but if it is there long enough, through prolonged and chronic exposure, it can create long-term health issues.”

**Jay:** “Not to be a downer, but particulates are only one of the things to be concerned about. Wildfire smoke is also creating a storm of chemicals released into the air, things like carbon monoxide, formaldehyde and acrolein. It’s a toxic swamp and slurry of health hazards, causing symptoms like headaches, fatigue and visual impairment.”

**“Yikes. And what are some of the long-term health issues?”**

**Jay:** “Chronic exposure to smoke and chemicals can cause a variety of respiratory or cardiovascular diseases such as COPD, asthma, heart failure and even lung cancer.

**“Are there high-risk populations that need to be especially cautious during wildfire season?”**

**Val:** “Yes, people that are particularly vulnerable to poor and hazardous air quality are the elderly, young kids, pregnant people and those with pre-existing health conditions like asthma.”

**Jay:** “Surprisingly, or not so surprisingly, people’s mental health is also impacted by wildfire smoke.”

**Val:** “Indeed, exposure to harmful levels of wildfire particulate and chemicals is a stress on the whole body, brain included. You’re not getting enough oxygen. Natural sunlight is gone. People are dealing with a visible health threat; they are stressed and can’t go outside for fresh air or exercise. The psychological impacts of air pollution are very real.”

**“Moving on to prevention. What can someone do to keep themselves safe during wildfire season?”**

**Val:** “I think everyone that lives in this area should have multiple air filters in their house.”

**Jay:** “And not just any filter. Most portable air cleaners are rated according to their clean air delivery rate (CADR). The higher the CADR, the more particles the air cleaner will remove and the larger the area it can serve. Portable air cleaners often achieve a high CADR rating by using a high-efficiency particulate air (HEPA) filter.”

**Val:** “High quality HEPA filters can be built into new construction HVAC systems. Furnaces can be equipped with HEPA filters also. That brings up a couple serious challenges for many residents. One, many area residents live in old and leaky homes. And two, quality filters can be expensive.”

**“Okay, so what can someone do if they live in an old leaky house and they don’t have hundreds or thousands of dollars to spend on air filters?”**

**Jay:** “The good news is that with a little bit of elbow grease and \$20, residents can construct their own HEPA filter. All they need is a box fan and a square HEPA filter – both items that you can find at a local supply store.”

**Val:** “Though if you do have two or three hundred extra dollars, there are some nice quality HEPA air filters that can be purchased online or at local retail stores. When purchasing a filter, you also want to think about the size of your room. Large filters for large rooms, small filters for small rooms. A tiny filter in a huge room isn’t going to make a big impact on indoor air quality.”

**“Speaking of indoor air quality. Are filters the only answer?”**

**Jay:** “We also encourage residents to reduce other sources of indoor air pollution. Those include cigarette smoke, frying/broiling foods, and burning incense and candles. If you have air conditioning, use it. And don’t forget to close your windows and doors!”

**Val:** “But let’s be honest, not everyone has the luxury to keep everything sealed up and turn on the AC. Many residents don’t have air conditioning in their old and leaky homes and apartment buildings. When it’s 90 degrees outside and insanely hot inside and you’re trying to sleep, an open window seems like the only livable option. And this is when those air filters are important tools.”

**“Last (cheeky and leading) question. Should I go for a long jog during a wildfire event?”**

**Jay:** “Ha! No. By limiting your outdoor activities during a wildfire event, you are limiting your prolonged exposure to harmful particulate and chemicals. Stay inside.”

**Val:** “We encourage residents to create at least one “clean room” in their home where they can hunker down and enjoy indoor activities until the air quality improves.”

**“Thanks Val and Jay! Anything else I should know?”**

**Val:** “Just do the best you can. Progress over perfection. Your long-term health and that of your children is worth small efforts.”

**Jay:** “Also, visit our website and download our air quality app. Our main monitoring station is located at Rossiter School, and it runs 24/7. We get an hourly concentration of PM2.5 readings, and those reports are automatically updated to our app on an hourly basis.”

### **Air Quality in the Helena Valley - Lewis & Clark County ([lccountymt.gov](http://lccountymt.gov))**

**Val:** “While we highly recommend use of the digital app, there is also a hotline residents can call for air quality updates. That number is 406-447-1644. Our hotline is updated every day as conditions change.”

**Jay:** “And if you have further questions about air quality related issues, don’t hesitate to contact me. Call me at 406-447-8358 or email me at [\*\*jplant@lccountymt.gov\*\*](mailto:jplant@lccountymt.gov).”

*People are asking how they can help firefighting efforts. The best donation to support disaster response and recovery is a financial donation to trusted nonprofit organizations engaged in disaster operations. Consider donating to the Helena Area Community Foundation, which will distribute those funds to our local COADs (Community Organizations Active in Disaster): **<https://helenaareacommunityfoundation.org>**. A donation to the Rural Fire Council can also be made at **<https://montanaradio.com/406-gives>**. In addition, if you want to contribute water, Gatorade or snacks, please take donations directly to Safeway at 611 N Montana Ave.*

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