Guest column

https://missoulian.com/opinion/columnists/air-quality-is-matter-of-life-death/article_e0784903-b46d-53c7-9684-e2a2ee2f5975.html

Air quality is matter of life, death

DOUG COFFIN Oct 4, 2017

KURT WILSON, Missoulian

The summer of 2017 is one that got away for Montanans who love outdoor fun, but the disruption to normal life from the choking smoke that blanketed much of our state went beyond that. Residents of Seeley Lake and other Montana communities lived for months with evacuation orders that scrambled their lives and risked their homes and livelihoods. To grasp the extent of this summer's wildfires, consider that the 1 million acres of Montana that burned would cover about 1,565 square miles, or a half-mile wide strip of land along Interstate 90 from Seattle to Boston.

While the welcome autumn rains have ended this year's smoke season, scientists predict we can expect more of the same as climate change continues to take hold in Montana. Our challenge is adapting to a new normal where formerly "1 in 500-year" storms, floods, fires and droughts now occur regularly.

The health risks from exposure to smoke-filled air this summer were real and extensive. Indeed, part of adapting to climate change is understanding how exposure to wildfire smoke affects our health. Consider that breathing "unhealthy" (red zone) levels of fine particles is commensurate with constantly breathing second-hand cigarette smoke; and worse than breathing the notorious air in Beijing, China. For residents of Seeley Lake and other communities, who often experienced "hazardous" air this summer, their particulates intake was equal to continuously smoking an unfiltered cigarette.

The noxious effects on our respiratory system occur when the fine particles (PM2.5) from wildfire smoke penetrate deeply into our lungs with each breath, bypassing the cilia and other defense mechanisms that usually trap larger air pollutants. These deeply inhaled particles then contribute to severe respiratory infections (pneumonia), chronic obstructive pulmonary disease (COPD), asthma and underdeveloped lungs in children.

Wildfire smoke affects our cardiovascular system as well. When fine particles enter the cardiovascular/circulatory system, they dramatically amplify the progression of inflammatory conditions like type II diabetes, dyslipidemia, and coronary artery disease that cause heart attacks. Likewise, the increased blood pressure accompanying hypertension and greater blood clotting potential can cause stroke. Research on smoke and PM2.5 also shows increased rates of lung cancer and cataracts in women.

For many Montanans, the quality of our air is about more than outdoor recreation — it's a life or death matter. The "sensitives" are those among us who have allergies, asthma, heart disease or hypertension. Mortality rates for these people substantially increase when the air is rated "unhealthy." Exposure to "hazardous" air is a severe threat: It is no exaggeration to say that susceptible individuals exposed for long enough may die. Prolonged exposure to high particulate levels can also affect people with inflammatory disorders such as arthritis or irritable bowel syndrome, causing severe and disabling pain.

Age is also a significant risk factor. Montana's 180,000 (ages 0-17,18 percent) children, 220,000 seniors (older than 65, 22 percent) and 70,000 pregnant women (7 percent) are especially vulnerable to smoke exposure. Then, when we include those people with chronic illnesses, a whopping 60 percent of all Montanans face moderate to severe health risks when wildfire smoke deteriorates our air quality.

Human's success as a species, with all our associated activities, has changed the earth and its climate, obviously affecting Montanan's health and livelihood on a regular basis. The eastern hurricanes and the western wildfires with smoke-filled air in 2017 should remind everyone that climate change is truly one of the greatest challenges to the human race. We must adapt to a climate-changed life in the urban-wildland interface with smart, integrated forest-ecosystem management. Finally, our health care system must focus on respiratory and cardiovascular fitness because, after all, our life depends on it.

Douglas Coffin is a professor of molecular genetics at the University of Montana, a former Montana legislator, and a part-time resident of Seeley Lake. The opinions expressed here are his own and not representative of official UM policy.