



Wildfires in the Western US Climate and Health Rapid Response Summary and Lessons Learned

Top Line

Anthropogenic driven climate change is resulting in longer, more severe wildfire seasons. Wildfire smoke and its effects on health is an emerging area of study, and much remains unknown. Evidence does point to adverse health outcomes related to exposure, particularly in vulnerable populations like asthmatics. In the absence of high quality evidence to direct population level recommendations, clinicians should provide guidance to patients on an individual level, taking into account their risk factors including COPD and asthma. Wildfire smoke and air pollution in general may have a silver lining - with such a visible indicator of climate change in the form of wildfire smoke, it is becoming harder for people to deny the reality of climate change (and of environmental influences on health).

Framing the problem: the relationship between climate change and wildfires

- Climate change as we know it is a relatively new phenomenon for human civilization. It is occurring on a historically unprecedented scale and at a historically unprecedented rate.
- Due to drought and other factors, there is evidence that wildfire seasons across the globe have become more intense and lasted longer in recent years, due to anthropogenic climate change.

Wildfires and their impacts on human health

- Wildfire smoke contains multiple primary (CO, NO₂, PAHs, VOCs, and PM) and secondary pollutants (PM, O₃)
- Primary health categories studied in relationship to wildfire smoke are: respiratory health (asthma exacerbations, lung function in non-asthmatics - immediate and delayed effects-, association between wildfire smoke and infections such as pneumonia, influenza, and COVID-19), cardiovascular health, birth outcomes, and mental health impacts. Certain populations are more susceptible than others. The strongest evidence of linkage to date is for asthma exacerbations.
- The long-term health effects of exposure to wildfire smoke pollutants remains largely unknown.

Role of public health

- The reality of poor air quality forces more nuanced messaging on the part of physicians and public health departments accustomed to promoting the general health benefits of outdoor physical activity.
- Current public health messaging surrounding wildfire smoke is: directed at the general public, inherently imprecise, and of questionable benefit. More research is needed (eg. on genetic risk of individuals of processing smoke).

- In the meantime, individual sensitivity to pollution should be a primary guide for activity recommendations, especially for special populations such as children with asthma, adults with advanced COPD.
- With regard to masks as a solution, only well-sealing N95s keep out wildfire smoke and are impractical (to say the least) for strenuous exercise for all ages.