Air Pollution Damages Our Health

-68,000-250,000 premature deaths/year in the US\textsuperscript{1,2} 

\(~1\) in 5 premature deaths globally linked to burning fossil fuels\textsuperscript{3}


Climate Change and Air Pollution Relationships

Climate Change = GHG’s

• Carbon dioxide (CO₂)
• Methane (CH₄)
• Nitrous oxide (N₂O)
• Fluorinated gases

Air Pollution Health Impacts

• Particulate matter (PM2.5)
• (Ground level) Ozone
• Allergens
Ozone and PM 2.5

Systemic Inflammation
- Accelerated atherosclerosis
- Vascular disease
- Increase risk of heart attack
- Pre-term delivery, low birth weight

Pulmonary Inflammation
- Long term impacts on lung tissue and increase risk of developing asthma
- Short term impacts on exacerbations of respiratory diseases (COPD and Asthma)

Negative impacts on fetal and maternal health
Climate Change and Air Quality in Montana

Major air quality concerns in Montana

1. Ozone: A-Grade
2. Particulate matter: 10 counties- “F” Grade, 2 counties- “D”, 1 county- “C”
   - only 7 counties collect Ozone data; only 13 counties collect PM data

Missoula (City)
- When rated for Short Term PM: 7th worst in the country
- When ranked for annual PM: tied for 16th worst
- Most bad days due to forest fire smoke

American Lung Association State of the Air rankings -2020
Slide courtesy of Dr. Paul Smith, Ped Pulmonology, Missoula, MT
Wildfire-generated PM

- LFS PM2.5 levels were positively associated with asthma hospitalizations and emergency department visits.¹
- 2-8 times more hospitalizations from comparable wildfire-specific PM2.5 and non-wildfire PM2.5.²
- 2007–2012, 3.7% of preterm births in California attributable to wildfire smoke exposure.³
- Majority of smoke-attributable US mortality and morbidity occur east of ~100 degW.⁴

Montana has the highest proportion of premature deaths caused by wildfire smoke pollution among all states.
Wildfires and Lung Function

Seely Lake Fires
2017