HEALTH EFFECTS OF WILDFIRE SMOKE

SCOPE OF THE PROBLEM
- Particulate matter (PM$_{2.5}$)
- Organic, inorganic compounds
- Vapors
- All of these can be rapidly, systemically absorbed through the lungs
- Increased impact in recent years

ACUTE PRESENTATION
- Approximately 3 days between exposure and presentation
- 10%-30% increase in all-cause respiratory presentation to ED and outpatient offices
- Other presentations: corneal abrasions, burns, sinonasal symptoms
- Respiratory symptoms of cough, dyspnea, chest discomfort
- Patients without a preexisting pulmonary Dx are more likely

WILDFIRE SMOKE AND ASTHMA
- Modest increase in exacerbations and hospitalizations
- Significant increase in asthma healthcare utilization
- Focus on symptom management
- Review asthma action plan with patients who have a diagnosis of asthma
- Confirm new diagnosis of asthma with spirometry when acute symptoms resolve

POTENTIAL MECHANISMS OF INJURY
- Inflammation and oxidative stress
- Alterations in immune responses and host defense

POSSIBLE LONG-TERM EFFECTS
- Increased upper airway and sinonasal disease and overall respiratory morbidity
- Cardiovascular morbidity and mortality

TREATMENT STRATEGIES FOR PULMONOLOGISTS
- Evaluate patient’s thermal injury if close to the fire and refer to ED for airway compromise.
- Consider carbon monoxide poisoning in patients exposed close to point of combustion.
- Consider acute asthma exacerbation in patients with underlying asthma history.
- De novo asthma-like symptoms require confirmation of the diagnosis with spirometry when acute symptoms resolve.
- Symptomatic relief should be directed at chemical irritation of the eyes, nose, throat, and respiratory tract.
- Advise patients with asthma or respiratory disease to stay indoors or relocate during wildfires.
- Advise patients to use N95 / KN95 masks outdoors.
- Medium to high exchange household air purifiers with HEPA filters and closed windows provide some benefit.