



OUR VISION:

Alaska Native people are the healthiest people in the world.

Air & Healthy Homes

Working with Tribal partners to address air quality and healthy homes issues in their communities





Wildfire Smoke and Indoor Air Quality





The Basics

- Smoke inhalation is bad for respiratory and cardiovascular systems
- Contains gases, toxic pollutants, and particulate matter (PM)
- More at risk: children, elders, those with respiratory & cardiovascular diseases, diabetes, and pregnant women



What is In The Smoke

Depending on what is burning

Examples:

- CO2 Carbon dioxide
- CO Carbon monoxide
- PM Particulate matter
- Benzene
- Formaldehyde
- PAHs Polycyclic aromatic hydrocarbons



Credit: Jen Burgess/IsolineStudios for BC Centre for Disease Control.

Health Impacts

Mild impacts:

- Irritation of the eyes, nose, and throat
- Headaches
- Runny nose & phlegm
- Cough and/or wheezing
- Fatigue

Serious impacts:

- Exacerbation of asthma & COPD symptoms
- Irregular heartbeat / heart palpitation
- Dizziness
- Chest pain
- Premature death in compromised respiratory or cardiovascular individuals

Health Impacts -Respiratory

Higher health risks come from the fine particulate matter (PM2.5) inhaled deep into the lungs and possibly the blood stream.



PM: a mixture of solid particles and liquid droplets found in the air. Can be made up of hundreds of different chemicals.

Health Impacts -Respiratory

Asthma Aggravation:

- Airway lining become swollen & red
- Mucus forms
- Muscles tighten



Swollen Airway

The Home Breathes



Source: https://iaq.works/ventilation/qa-home-ventilation-and-fresh-air-circulation/

Community Environment and Health

Wildfire smoke in the home

Wildfires emit particulate matter, VOCs, organic chemicals, and trace minerals. All end up in the home.



Smoke exposure could lead to lung irritation, aggravation of pre-existing conditions like asthma, and lung disease.



Community Environment and Health

What You Can Do

Talk to your health care provider (before & during)

- Seek assistance when needed
- Adequate supply of medications
- Monitor blood pressure if needed
- Obtain N95 mask (if available)
 - Get fit tested •
 - **Provides protection against** particles, does not filter out gases
 - May be problematic with people with heart & lung conditions

Reduce environmental triggers

- IAQ / Healthy homes precautions
- Jogging
- Limit outside exposure





Long-acting "controller" "Rescue" – short term

Possible Solutions

- Keep windows and doors closed
- Reduce activities that can pollute indoor air (vacuuming, candles, smoking, frying food)
- High risk patients should consult their provider, get needed prescriptions ahead of time
- Keep indoor air as clean as possible
 - Consider purchasing a portable HEPA air cleaner or make your own



Community Environment and Health

High Efficiency Particulate Air Cleaners (HEPA)

HEPA is a portable air cleaner that includes a filter or other air cleaning technology and a fan that propels air through that filter/air cleaner to remove the small, potentially harmful particles from the air.

The filters inside HEPA cleaners are often high quality filters that capture the most particulates in the air, and usually have a MERV rating of 16.

HEPA filters are optimal for cleaning air, but can be very expensive.

MERV ratings 11 and higher are sufficient for cleaning air.

Find certified air cleaning devices: <u>https://ww2.arb.ca.gov/list-carb-certified-air-cleaning-devices</u>





Do-It-Yourself Air Cleaner

1. Purchase a 20 inch box fan, and 20 inch high-efficiency particulate air (HEPA) grade furnace filter. Minimum efficiency reporting value (MERV) 11 filters will also work and can be purchased online.

2. Attach filter to fan with tape. Make sure arrow on filter is pointed away from the fan (*Image below is from the top of the fan and filter*).



3. Use the fan only when someone is in the room. Make sure it does not overheat.4. Replace filter when dirty.

https://www.youtube.com/ watch?v=ukyF2xm8cws



Conclusion

- Understand the Health Risks
 - Contains PM, CO, VOC...etc. depending on source.
 - Irritant in mild smoke
 - Serious for at Risk individuals.
- Understand how Indoor Air Quality is affected
 - House Ventilation
 - Smoke enters Natural, Mechanical, and Infiltration
- Discussed What You Can Do
 - Ensure you have enough medications
 - Close windows, use of HEPA Filters. HVAC Systems
 - Behavior
 - Limit exercise
 - Limit cleaning
 - Limit burning

