

## What is residential combustion?

Residential combustion refers to burning fuel inside of the home. This means burning methane (commonly referred to as “natural gas”), wood, propane, heating oil or other fuel to heat the home, heat water, dry clothes and cook food. Chances are, this applies to the communities you serve -- two thirds of U.S. households burn fuel in their homes.

Common home appliances that may burn fuel include:



Furnaces



Stoves



Woodstoves



Dryers



Water heaters



Fireplaces

## How does residential combustion contribute to air pollution?

Burning wood, natural gas, oil and other fuels inside of homes produces emissions that are harmful. Some types of appliances, including gas stoves, release their emissions directly into the home. Other appliances, such as gas furnaces and water heaters, release their emissions outside, where they contribute to outdoor air pollution and climate change.

Indoor levels of pollutants can be two to five times — and sometimes more than 100 times — higher than outdoor levels. Since most people spend about 90 percent of their time indoors, policies and practices that reduce indoor air pollutants are critical for protecting health.



## How does air pollution from residential combustion harm health?

Some pollutants that can result from burning fuel in homes include:

- Carbon monoxide, a dangerous gas that when inhaled can interfere with blood’s ability to carry oxygen from the lungs to the rest of the body
- Nitrogen oxides, a respiratory irritant that causes airway inflammation, coughing, wheezing and increased asthma attacks
- Particulate matter, also called soot, a mixture of microscopic solids and liquids that affects multiple body systems and can increase the risk of premature death
- Air toxics, including ammonia, formaldehyde, polycyclic aromatic hydrocarbons and volatile organic compounds, that can cause cancer, birth defects and other serious health harms

Outdoor exposure to air pollutants such as particulate matter, ozone, nitrogen oxides, carbon monoxide and air toxics contributes to premature mortality and increased risk of illness in children and adults, including asthma attacks, heart disease and stroke, COPD, lung cancer, type 2 diabetes, premature birth and respiratory infection. Children, older people, people with lung or heart diseases, individuals who are pregnant, people of color and people in low wealth communities face increased risk.



### **Spotlight: Woodstoves and fireplaces**

Burning wood in the home can greatly increase indoor levels of carbon monoxide, nitrogen oxides and air toxics. Wood stoves and fireplaces also release large amounts of deadly particulate matter. Woodburning contributes to unhealthy levels of outdoor pollution, too



### **Spotlight: Gas stoves**

Gas kitchen appliances can emit substantial amounts of carbon monoxide and nitrogen oxides, plus some particulate matter and polycyclic aromatic hydrocarbons .

A research review from the American Lung Association found that indoor exposure to pollutants from cooking on a gas stove can worsen asthma symptoms and reduce lung function in children.

### **What's the alternative?**

Electric stoves, furnaces, water heaters and dryers are clean, efficient and better for indoor air quality and resident health.

### **How can you help protect your patients and the communities you serve from indoor combustion pollution at home?**

Health professionals are trusted messengers. Talk to members of the communities you serve about the health harms of residential combustion. Here are some immediate steps people can take to reduce their risk from exposure to harmful pollutants:

- Make sure any and all fuel-burning appliances are in proper working order.
- Install carbon monoxide monitors.
- Whenever a gas stove is being used, always use ventilation - either a range hood that vents to the outside or an open window or both.
- For homes that rely on wood burning for heat or cooking, an air cleaning device that uses HEPA filtration can provide some protection from the soot and smoke.
- Reduce or eliminate unnecessary wood burning in the home.

### **Advocate for policies that protect health.**

Consider using your voice to help advance policies that reduce dangerous pollution from indoor combustion.

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