

HEALTH IMPACTS

of Cooking with Gas



What is the Global Cooksafe Coalition?

The Global Cooksafe Coalition (GCC) is an unprecedented alliance of public health, climate, aid and development organizations, billion-dollar property developers and leading chefs, joining forces to call for universal access to safe, sustainable cooking. GCC founding members and corporate partners support the phase-out of gas from our kitchens, and urgent action to ensure low income communities around the world benefit from the renewable energy revolution.

Cooking with gas is harmful for our health

Cooking with gas causes indoor air pollution that harms our health. For example, gas cooking releases toxic pollutants into our kitchens and homes.

Electric cooking solutions like electric pressure cookers and induction cooktops provide a much safer, healthier way to cook.

Key Facts

- When in use, gas cooking can cause indoor air pollution to far exceed outdoor air quality guidelines.
- Even when not in use, gas cooking leaks poisonous chemicals into homes.
- Cooking with gas has asthma risks comparable to secondhand cigarette smoke.
- Children are particularly vulnerable to the health impacts of gas cooking.
- Low-income households and communities are at higher risk from the health impacts of gas cooking.

“Gas stoves leak methane and other air pollutants even when they’re not being used.”

HEALTH IMPACTS OF COOKING WITH DANGEROUS FUELS

1 Gas cooktops can cause indoor air pollution to far exceed outdoor air quality guidelines.

- In a 2020 report, researchers at the Rocky Mountain Institute, found that “there is a significant and solvable health problem in plain view: gas stoves may be exposing tens of millions of people to levels of air pollution in their homes that would be illegal outdoors under national air quality standards.”¹
- Another dangerous health risk from gas cooking is carbon monoxide (CO) exposure. This invisible gas is undetectable by humans and is produced by the incomplete combustion of fuels. In homes without gas stoves, average CO levels are between 0.5 and 5 ppm. In homes with gas stoves, recorded levels of CO near poorly adjusted stoves are as high as 30 ppm or even higher.



2 Gas cooking leaks toxic chemicals into homes, even when stoves are off.

- Three-quarters of methane emissions occurred while stoves were turned off.² Researchers found leaking gas in a huge diversity of stoves, ranging over 18 different brands and aged from three to 30 years old.
- Harvard University’s T.H Chan School of Public Health found unburned gas leaks contain 21 different hazardous air pollutants.³
- A 2022 study by PSE Healthy Energy found additional health risks associated with gas stove leaks. Unburned gas contains harmful air pollutants, including toluene, hexene, xylenes, and benzene – a pollutant linked to anemia, reproductive disorders, and various forms of cancer.



3 Cooking with gas has proven health dangers comparable to secondhand cigarette smoke.

- The effect of gas cooktops on the burden of childhood asthma is comparable to the impact of passive smoking in the household.⁴
- Strong evidence exists for a relationship between long-term exposure to nitrogen dioxide and the development of asthma in children.⁵
- The American Medical Association has passed a resolution warning physicians, health care providers and the public that cooking with gas causes indoor air pollution and increases the risk of childhood asthma.⁶

“Cooking with gas causes indoor air pollution and increases the risk of childhood asthma, according to the American Medical Association.”



4 Children are particularly vulnerable.

- Children have higher breathing rates and physical activity, a smaller lung-to-body ratio and still-developing respiratory and immune systems, making them particularly vulnerable to exposure to fossil fuel pollutants.⁷
- Even low levels of NO₂ pollution in the home—well below US EPA’s standards for outdoor air quality—exacerbate symptoms among asthmatic children, and that symptoms grow progressively more severe as NO₂ concentrations rise.⁸

5 Low-income households are at higher risk.

- Research has found that lower income houses can be at higher risk for the negative health consequences of cooking with gas.
- Factors, including smaller unit size, more people inside the home (occupant density), and inadequate stove top ventilation, contribute to elevated concentrations of NO₂ in lower-income, multi-family buildings.⁹

“I don’t want to breathe any extra nitrogen oxides, carbon monoxide or formaldehyde. Why not reduce the risk entirely? Switching to electric stoves will cut greenhouse gas emissions and indoor air pollution.”

- Stanford University professor Dr Rob Jackson

➡ **Read about how safer electric solutions are increasingly cost-effective in low income countries where solid fuels cause millions of deaths from air pollution each year. [Electrifying Equity Factsheet.](#)**

Sources

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- 3 Drew R. Michanowicz et al., “Home Is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User,” *Environmental Science & Technology* 56, no. 14 (2022): pp. 10258-10268, <https://doi.org/10.1021/acs.est.1c08298>.
- 4 “Kicking the Gas Habit: How Gas Is Harming Our Health,” Climate Council, May 6, 2021, <https://www.climatecouncil.org.au/resources/gas-habit-how-gas-harming-health/>.
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- 6 <https://www.ama-assn.org/system/files/a22-refcmte-d-report-annotated.pdf>
- 7 <https://rmi.org/insight/gas-stoves-pollution-health/#:~:text=Gas%20stoves%2C%20particularly%20when%20unvented,exacerbating%20respiratory%20conditions%20like%20asthma>.
- 8 Belanger et al. Household levels of nitrogen dioxide and pediatric asthma severity. *Epidemiology*. 2013 Mar; 24(2): 320–330.
- 9 Gary Adamkiewicz et al., “Moving Environmental Justice Indoors: Understanding Structural Influences on Residential Exposure Patterns in Low-Income Communities,” *American Journal of Public Health*. 2011, www.ncbi.nlm.nih.gov/pubmed/21836112.
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- 11 Linet al. Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking. *International Journal of Epidemiology*, Volume 42, Issue 6, December 2013
- 12 “State of Global Air.” *Health Impacts of Ozone* | *State of Global Air*, www.stateofglobalair.org/health/ozone. Accessed September 23, 2022.

FACTS & FIGURES

Gas leaks contain 21 different hazardous air pollutants, including benzene, toluene, ethylbenzene and hexane.¹⁰

Children living in a home with gas stoves have a 42% increased risk of having current asthma.¹¹

Methane, the primary component of gas, is not only a potent greenhouse gas, but also a precursor of ground-level ozone, which contributed to an estimated 365,000 deaths globally in 2019.¹²

