

[LOGOS]

[March X, 2023]

Dear Member of Congress,

As physicians, nurses, and other health and public health professionals from across the nation, we are writing to share science-based information about health effects associated with gas stove pollution, and to voice support for the Consumer Product Safety Commission's plan to investigate and address these threats to health.

Concern about harmful air pollutants from gas stoves has recently burst into the news, but gas stove pollution has been documented and studied for decades. Since at least 1976, more than four dozen peer-reviewed studies have connected gas stoves with unhealthy air quality in homes and with health harms like asthma. For example, a 2013 meta-analysis of 41 studies found children living in homes with gas stoves to be at a 42 percent increased risk of having current asthma and at a 24 percent increased risk of developing asthma over their lifetimes.¹

This growing body of scientific evidence and medical studies indicates that gas stove pollution may expose tens of millions of people to harmful levels of air pollution in their homes—levels that would be illegal outdoors under national air quality standards. In response, major medical and health associations including the American Medical Association² and the American Public Health Association³ have passed resolutions or proposed policy statements declaring gas cooking a public health concern.

About 35 percent of US households—more than one-third—cook primarily with gas, according to US Energy Information Administration data from 2015.⁴ The fuel burned in those stoves is methane, and combustion of methane produces pollutants known to harm human health, including nitrogen dioxide, carbon monoxide, and particle pollution, among others.

Nitrogen dioxide (NO₂) is one of only six harmful pollutants for which the U.S. EPA is required to set national ambient air quality standards (NAAQS). In homes with gas stoves, short- and long-term concentrations of NO₂ can reach levels higher than those outdoor air standards.⁵ Exposure to NO₂ can aggravate respiratory diseases, particularly asthma, leading to coughing, wheezing or difficulty breathing, hospital admissions, and emergency room visits; longer exposures to elevated concentrations may contribute to the development of new cases of asthma.⁶ Recent peer-reviewed research estimated that nearly 13 percent of childhood asthma cases in the United States can be linked to having a gas stove in the home.⁷

Besides asthma, nitrogen dioxide has been linked to severe illnesses such as chronic obstructive pulmonary disease (COPD).^{8,9} Research also suggests that exposure to elevated

levels of NO₂ may be linked to effects on other organ systems, including cardiovascular effects, diabetes, cancer, and reproductive effects.¹⁰

Carbon monoxide (CO) can be fatal at high levels of exposure. Levels in homes with gas stoves are likely to reach only low levels of CO. People with coronary heart disease, however, are vulnerable to low levels of CO exposure, as they may not be able to provide an adequate flow of oxygenated blood to the tissues.¹¹

Particulate matter is particularly dangerous because it can settle in the lungs and start a cascade of inflammatory reactions causing heart and/or lung disease. When particulate matter is small enough, the tiny particles pass directly into the bloodstream and accumulate in blood vessels and brain tissue increasing the risk of heart attack and stroke and impairing lung functioning. Older adults, babies, children, and people with heart or lung diseases are most likely to experience health effects caused by particulate matter pollution.¹²

In addition to these combustion-related pollutants, gas stoves have been shown to pollute the air even when the stove is not in use:

Methane may leak from stoves when burners are turned off.¹³ Because methane is a highly potent greenhouse gas, this contributes to climate change and its associated harmful effects, such as intense heat waves, extreme storms, flooding, expansion of vector-borne diseases and more.

Benzene, a carcinogen, also leaks from stoves, according to a study published in October 2022.¹⁴ The Department of Health and Human Services (DHHS) has determined that benzene causes cancer in humans. Specifically, long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.¹⁵ The lead author of the report compared the threat posed by leaks of benzene from gas stoves to secondhand smoke.¹⁶

Gas stove pollution may also manifest as an **Environmental Justice** issue. Lower-income households may be at higher risk of exposure to gas stove pollution due to living in smaller, more crowded homes. These factors, plus inadequate stovetop ventilation, have been shown to contribute to elevated concentrations of NO₂ in lower-income, multifamily buildings.¹⁷ In addition, children of color are disproportionately affected by asthma: More than twice as many African American non-Hispanic children have asthma (15.7 percent), compared to about 7.1 percent of white non-Hispanic children.^{18, 19}

Given the widespread use of gas stoves, the severity of the health threats associated with them, and the large number of Americans vulnerable to those health threats, the issue calls for meaningful action. The Consumer Product Safety Commission is launching an

investigation, including a public Request for Information, into the health risks of gas stoves and potential solutions. We the undersigned urge you to encourage the CPSC to study gas stoves' health threats, inform the public of its findings, and take action as appropriate. We also ask that you ensure the CPSC is granted the budgetary support necessary to continue its important work.

Signed,

[health and public health professionals]

¹ Lin W, Brunekreef B, Gehring U. Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children. August 2013. International Journal of Epidemiology, Volume 42, Issue 6. <https://doi.org/10.1093/ije/dyt150>

² --. American Medical Association House of Delegates (A-22). A22-refcmte-d-repot-annotated. Page 16. <https://www.ama-assn.org/system/files/a22-refcmte-d-report-annotated.pdf>

³ --. American Public Health Association. Proposed Policy Statements. <https://apha.org/Policies-and-Advocacy/Public-Health-Policy-Statements/Proposed-Policy-Statements>

⁴ US Energy Information Administration. "Residential Energy Consumption Surveys (RECS)," May 2018. <https://www.eia.gov/consumption/residential/data/2015/hc/php/hc3.6.php>.

⁵ US Environmental Protection Agency, Washington, DC. 2016. Integrated Science Assessment (ISA) For Oxides of Nitrogen – Health Criteria (Final Report, 2016). <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879>

⁶ US Environmental Protection Agency, Washington, DC. Basic Information about NO₂. <https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects>

⁷ Gruenwald T, Seals B, Knibbs L, Hosgood HD. Population Attributable Fraction of Gas Stoves and Childhood Asthma in the United States. Int J Environ Res Public Health. 2022 Dec 21;20(1):75. doi: 10.3390/ijerph20010075.

⁸ Health Canada. Residential Indoor Air Quality Guideline: Nitrogen Dioxide. 2015. <https://www.canada.ca/en/health-canada/services/publications/healthy-living/residential-indoor-air-quality-guideline-nitrogen-dioxide.html>

⁹ US Environmental Protection Agency, Washington, DC. Integrated Science Assessment (ISA) For Oxides of Nitrogen – Health Criteria (Final Report, 2016). <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879>

¹⁰ US Environmental Protection Agency, Washington, DC. 2016. Integrated Science Assessment (ISA) For Oxides of Nitrogen – Health Criteria (Final Report, 2016).

<https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879>

¹¹ US Environmental Protection Agency, Washington, DC. Quantitative Risk and Exposure Assessment for Carbon Monoxide – Amended. July 2010.

<https://www.epa.gov/sites/default/files/2020-07/documents/co-rea-amended-july2010.pdf>

¹² Centers for Disease Control and Prevention. Particle Pollution.

https://www.cdc.gov/air/particulate_matter.html#:~:text=Particle%20pollution%20%E2%80%94%20a%20called%20particulate,Soot

¹³ Lebel E, Finnegan C, Ouyang Z, and Jackson B. Methane and NO_x Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes. *Environmental Science & Technology* 2022 56. DOI: 10.1021/acs.est.1c04707

¹⁴ Lebel E et al. Composition, Emissions, and Air Quality Impacts of Hazardous Air Pollutants in Unburned Natural Gas from Residential Stoves in California. October 2022. *Environmental Science & Technology* 2022 56. <https://pubs.acs.org/doi/full/10.1021/acs.est.2c02581>

¹⁵ Centers for Disease Control and Prevention. Emergency Preparedness and Response. Facts about Benzene. <https://emergency.cdc.gov/agent/benzene/basics/facts.asp>

¹⁶ O'Mary, L. WebMD. October 21, 2022. "Gas Stoves Can Emit High Levels of Cancer-Causing Benzene: Study." <https://www.webmd.com/cancer/news/20221021/gas-stoves-can-emit-high-levels-of-cancer-causing-benzene#:~:text=Gas%20Stoves%20Can%20Emit%20High%20Levels%20of%20Cancer%20Causing%20Benzene%3A%20Study,-Written%20by%20Lisa&text=Oct.,PhD%2C%20the%20lead%20study%20author.>

¹⁷ Adamkiewicz G et al., "Moving Environmental Justice Indoors: Understanding Structural Influences on Residential Exposure Patterns in Low-Income Communities." *American Journal of Public Health*. 2011, <https://www.ncbi.nlm.nih.gov/pubmed/21836112#>.

¹⁸ Zahran H et al., Vital Signs: Asthma in Children – United States, 2001 – 2016. Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report. February 9, 2018. <http://dx.doi.org/10.15585/mmwr.mm6705e1>.

¹⁹ Centers for Disease Control and Prevention. 2017. Summary Health Statistics: National Health Interview Survey: 2015. Table C-1. <http://www.cdc.gov/nchs/nhis/shs/tables.htm>.