



AGA Response to NPR Story: How gas utilities used tobacco tactics to avoid gas stoves regulations

October 2023

NPR published [How gas utilities used tobacco tactics to avoid gas stove regulations](#) on October 17, 2023, which includes a number of unsubstantiated claims about the health impacts of natural gas appliances. Outlined below are the claims made in the article and responses to each.

Claim: "A 1992 analysis by Duke University and EPA researchers found that children in a home with a gas stove have about a 20% increased risk of developing respiratory illness. A 2022 analysis showed 12.7% of childhood asthma cases in the U.S. can be attributed to gas stove use in homes."

Response: Federal health and safety agencies have not identified specific health or safety issues or studies supporting policies for regulating unvented combustion appliances or their use since changes to the safety standard for unvented heaters were made in the North American standards for safety in the 1980s and testing and labeling for NO₂ emissions were implemented in the 1990s.

Gas stove design has changed significantly over the intervening decades – citing research from 31 years prior has no more value for determining the emissions of modern gas stoves than it would for any other vehicle or appliance. Since this study was conducted, general air quality has dramatically improved thanks in part to improvements in appliances, continuous operation pilot lights have been phased out of gas stoves, and the cubic footage of the average American home has increased dramatically in the intervening years. The 1992 study was a meta-analysis that did not collect new data. A study conducted a year later in 1993 by Dr. Jonathan Samet, dean of the Colorado School of Public Health, which did collect data, found no connection between respiratory illness and the presence of a gas stove.

Claim: A 2022 analysis showed 12.7% of childhood asthma cases in the U.S. can be attributed to gas stove use in homes."

Response: The 2022 analysis by Gruenwald et al. conducted no new research. The authors included individuals from RMI (formerly the Rocky Mountain Institute) and Rewiring America. Both organizations are explicitly devoted to promoting building electrification. The researchers have stated on the record that their paper does not demonstrate a causal relationship between gas stoves and asthma. This study ignored countervailing literature, including a study that collected data from more than 500,000 children in 47 countries and "detected no evidence of an association between the use of gas as a cooking fuel and

either asthma symptoms or asthma diagnosis." The authors also ignored their own search of peer-reviewed manuscripts since 2013, where they found "none reported new associations between gas stove use and childhood asthma specifically in North America or Europe." This analysis is neither conclusive nor independent.

The 2022 analysis, Gruenwald *et al.* (2023), calculated population attributable fractions (PAFs) of childhood asthma in nine states and the United States as a whole due to gas cooking based on the reported North American- and European-specific risk estimates for gas cooking and current asthma in the Lin *et al.* (2013) study, and estimates of the percentage of homes with gas stoves from a 2019 American Housing Survey (AHS). However, most of the studies analyzed by Lin *et al.* (2013) have major methodological limitations and their results lack consistency. As such, summary estimates from these studies should not have been used as the basis for a PAF calculation. Further, the Gruenwald *et al.* study calculated the 13 percent value by combining data from North America and Europe. However, the data in Lin *et al.* demonstrate that North America has no statistically significant risk of asthma. Moreover, the data shows that in none of the regions studied was there a statistically significant relationship between NO₂ (which comes from combustion of natural gas) and asthma.

And Gruenwald ignored other studies that did not find an association, such as the IASSAC study of 512,000 school children that found no association. For these reasons, the results of the Gruenwald *et al.* (2023 223-0321) study do not have merit and provide no evidence regarding the percentage of children's asthma that could be attributed to gas cooking.

Hasselblad *et al.* [92] narratively described the design and finding of each of the 11 reviewed studies and tabulated the main study characteristics and results; Lin *et al.* [93] also tabulated the main study characteristics and results. Yet, there was no systematic study quality evaluation in either meta-analysis to determine the impact of individual studies' methodological limitations on the interpretation of their respective results or the quantitative evidence synthesis results for the literature as a whole. A study quality evaluation is now recognized as an essential component of systematic reviews and meta-analyses. As neither meta-analysis assessed study quality, they could not fully address whether any statistically significant associations were likely causal.

Claim: There is an "association between the use of gas stoves, indoor nitrogen dioxide levels and asthma."

Response: While combustion emissions from gas ranges, ovens, and cooktops can contribute to some degree to emissions of recognized pollutants, there are no documented risks to respiratory health from natural gas stoves from the regulatory and advisory agencies and organizations responsible for protecting residential consumer health and safety. The Federal Interagency Committee on Indoor Air Quality (CIAQ), which is comprised of two dozen federal agencies led by the U.S. Environmental Protection Agency (EPA), routinely addresses indoor air quality issues of public importance. The CIAQ has not identified natural gas cooking emissions as an important issue concerning asthma or respiratory illness. Furthermore, the U.S. Consumer Product Safety Commission and EPA do not present gas

ranges as a significant contributor to adverse air quality or health hazard in their technical or public information literature, guidance, or requirements.

Any alleged association between the presence of a natural gas cooking appliance and increases in asthma in children is not supported by data-driven investigations covering actual appliance usage, emission rates, exposures, and the control of other factors that are well-established for contributing to asthma and other respiratory system threats. A study published in the *Journal of Global Epidemiology* in 2023 by Li et al. is the first systemic review of epidemiology literature to include an in-depth evaluation of study heterogeneity and study quality. This study found that a large proportion of studies to date are subject to multiple sources of bias and inaccuracy and concluded that “the epidemiology literature is limited by high heterogeneity and low study quality and, therefore, it does not provide sufficient evidence regarding causal relationships between gas cooking or indoor NO₂ and asthma or wheeze. We caution against over-interpreting the quantitative evidence synthesis estimates from meta-analyses of these studies.”

Additionally, according to the study “*Cooking Fuels and Prevalence of Asthma: A Global Analysis of Phase Three of the International Study of Asthma and Allergies in Childhood (ISAAC)*,” which analyzed 512,707 primary and secondary school children from 108 centers in 47 countries, there is “no evidence of an association between the use of gas as a cooking fuel and either asthma symptoms or asthma diagnosis.”

Claim: “Hoods above gas stoves are not powerful enough to remove the nitrogen dioxide.”

Response: Ventilation is a well-documented method of improving indoor air quality. A cooking range hood that exhausts to the outdoors, where feasible, can improve indoor air quality by removing the byproducts of cooking like steam, smoke, grease, and heat.

Claim: “Within the last year, the AGA continued funding research that focuses on and amplifies uncertainties.”

Response: The natural gas industry has provided funding to independent subject matter experts to develop data-driven scientific analysis and studies using transparent methodologies to inform and educate regulators about the safety of gas cooking appliances and ways to help reduce cooking process emissions, regardless of heating source, from impacting indoor air quality. Our focus is on the facts and independent analysis. The available body of scientific research, including high-quality research and consensus health reviews conducted independently of industry, does not provide sufficient or consistent evidence demonstrating chronic health hazards from natural gas ranges. A systematic review by Li *et al* was published in *Global Epidemiology* on April 18, 2023, entitled [“Gas Cooking and Respiratory Outcomes in Children: A Systematic Review.”](#) The systematic review was funded by the American Gas Association (AGA). AGA was not involved in the drafting of this paper and the authors had sole responsibility for the contents and professional opinions offered. The systematic review thoroughly examined 66 epidemiology studies. The authors concluded that there is not sufficient evidence to demonstrate causal relationships between gas cooking and indoor NO₂ and asthma and wheeze in children.

Claim: “From the wellhead where gas is produced, through pipelines and to the burner where gas is combusted, the infrastructure leaks methane and worsens climate change.”

Response: Thanks to the extensive efforts of natural gas utilities to decrease emissions, emissions from natural gas utility distribution systems have declined 70% since 1990. Increased use of natural gas is responsible for more than 60% of cumulative CO2 emissions reductions in the U.S. power sector, according to data from the Energy Information Administration.