



Gas Stove Omissions

**RETAILERS ARE FAILING TO WARN
CONSUMERS ABOUT THE HEALTH
RISKS OF COOKING WITH GAS**

WINTER 2024

U.S. PIRG
Education Fund

Gas Stove Omissions

**RETAILERS ARE FAILING TO WARN
CONSUMERS ABOUT THE HEALTH
RISKS OF COOKING WITH GAS**



WRITTEN BY:

Abraham Scarr, U.S. PIRG Education Fund

WINTER 2024

ACKNOWLEDGMENTS

The author would like to thank the PIRG staff and volunteers for survey collection. Thanks also to Tony Dutzik, Elizabeth Riddlington, Emily Scarr, Mark Morgenstein and Andre Delattre for editorial support.

The author bears responsibility for any factual errors. The views expressed in this report are those of the authors and do not necessarily reflect the views of our funders.

© 2024 U.S. PIRG Education Fund. Some Rights Reserved. This work is licensed under a Creative Commons Attribution Non-Commercial No Derivatives 3.0 Unported License. To view the terms of this license, visit creativecommons.org/licenses/by-nc-nd/3.0.

U.S. PIRG
Education Fund With public debate around important issues often dominated by special interests pursuing their own narrow agendas, U.S. PIRG Education Fund offers an independent voice that works on behalf of the public interest. U.S. PIRG Education Fund, a 501(c)(3) organization, works to protect consumers and promote good government. We investigate problems, craft solutions, educate the public, and offer meaningful opportunities for civic participation. For more information, please visit our website at www.uspirgedfund.org.

Layout: To the Point Collaborative, tothepointcollaborative.com

Cover image: Stove by [RhodesJ via Flickr](#), CC 2.0

Contents

EXECUTIVE SUMMARY	4
KEY FINDINGS	5
INTRODUCTION	6
AMERICAN FAMILIES LIVING WITH HAZARDOUS GAS.....	8
GAS INDUSTRY MISINFORMATION CAMPAIGN	10
FROM THE RETAIL FLOOR	11
ONLINE SALES PROVIDE MORE OPTIONS BUT STILL FAIL TO PROTECT CONSUMERS.....	14
THE RETAILER OPPORTUNITY	18
APPENDIX I: METHODOLOGY & SURVEY RESULTS	20
APPENDIX II: HEALTH STUDIES ON GAS STOVE POLLUTION	21

Executive summary

LONG-SIMMERING CONCERNS about the health hazards of gas stoves reached a boiling point in 2023. While media outlets covered new scientific research, the U.S. Consumer Product Safety Commission (CPSC) initiated a [formal public inquiry](#) into “gas stove hazards and potential solutions,” and investigative reporters [documented](#) how the gas industry has employed “Big Tobacco’s tactics” for decades to obfuscate the overwhelming scientific evidence of health harms from cooking with gas.

Photo: [Mark Bonica via flickr](#), CC 2.0



Cooking with gas.

While the explosion of media attention over the past year introduced many Americans to the problem, many likely remain confused because of the decades-long campaign by the gas industry to obscure the facts. Even though the CPSC took an initial step this year with its inquiry, indoor residential air quality remains largely unregulated by any federal agency.

As a result, many consumers may rely on salespeople at major appliance stores for answers to key health and safety questions when purchasing a new stove. That means retailers have a significant opportunity to help educate their customers on the health risks of cooking with gas. For example, a groundbreaking new [study](#) just this year attributed 1 in 8 childhood asthma cases to gas stove pollution.

U.S. PIRG surveyed the country’s three largest home appliance stores for the second year in a row to find out what information consumers are getting at the point of sale. Secret shoppers were sent to Lowe’s, Home Depot and Best Buy at 62 locations in 11 states.

We expected that heightened visibility of the issue would have prompted these retailers to more proactively alert customers to gas stove pollution or at least be able to answer basic questions regarding the problem. Unfortunately, our investigators found little had changed on the sales floor. Much like the results of our 2022 survey, the 2023 survey found that retail staff frequently failed to warn shoppers about the potential health risks of cooking with gas, the proper role of external ventilation and opportunities to improve indoor air quality with electric alternatives.

While the survey used a modest sample size compared to the total number of retail appliance stores in the nation, the results showed a clear and concerning trend in how these products are being marketed to the public.

KEY FINDINGS

Retailers and sales associates are failing to warn shoppers about the well-established health risks of cooking with gas.

Retail sales staff provided limited, often false information to our researchers.

- 76% of store associates denied or failed to share information about the health risks of using a gas stove.
- Only 24% of staff surveyed shared accurate information about the dangers of gas stove emissions.
- 16% of sales staff recommended gas even when a secret shopper expressed health concerns.

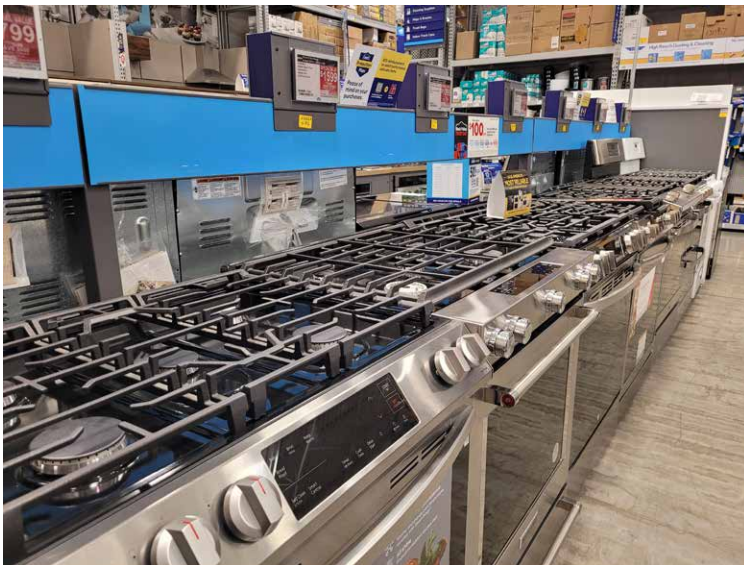
Gas stove ventilation lacking on the sales floor

- 80% of store associates said externally venting range hoods were not necessary to protect health.
- 69% of stores visited didn't showcase externally venting hoods next to gas stove displays. Most locations kept these ventilation hoods off to the side, often in separate parts of the store.

Electric alternatives often were not on display

- 37% of surveyed stores didn't feature induction cooking appliances on the showroom floor.

Photo: Staff



Gas stoves on display on the retail floor.

Introduction

THE GAS STOVE has long been a fixture of American life and is currently used in roughly two in five households across the country. As a result of decades of gas industry marketing, many people, including professional chefs, favor methane gas-fueled kitchen appliances to electric stoves or induction cooktops.

However, a substantial body of scientific evidence — from recent groundbreaking

[research](#) to [decades-old warnings](#) — has found gas stoves routinely expose often unwitting families to dangerous levels of indoor air pollution. This includes everything from deadly carbon monoxide to asthma-linked nitrogen dioxide and cancer-causing formaldehyde and benzene.

Since last year's report, [Gas Stoves and Your Health](#), the news media has significantly ramped up its coverage of the issue. The health risks of gas stoves became regular [kitchen-table fodder](#), reaching its broadest audience in decades.

Photo: [Paintzen via flickr](#), CC 2.0



A gas stove with external ventilation.

The CPSC helped kickstart the recent national debate when it signaled a willingness to set health-protective standards for gas stoves. The independent, federal consumer watchdog has since requested [public feedback](#) on the hazards of and potential solutions to gas stove pollution, drawing thousands of [comments](#) including from many highly concerned [health groups](#).

Emboldened consumers filed class action lawsuits against major companies that make gas stoves, including [GE](#), [Samsung](#), [LG](#), [Sub-Zero](#), [Wolf Appliance](#) and [Whirlpool Corp.](#) Plaintiffs argued that manufacturers hid the negative health impacts of their gas-burning products. In some cases, litigants contended that pollution from gas stoves could have been addressed with better product design.

The gas industry and its supporters in Congress quickly pushed back on the idea that stoves should be regulated to protect public health. Members of Congress [inaccurately framed](#) the issue as an attempt by the White House to take away Americans' gas stoves, introducing legislation to block action on limiting stove pollution, such as [H.R. 1615](#), the Gas Stove Protection and Freedom Act, and [H.R. 1640](#), the Save Our Gas Stoves Act.

The Gas Stove Protection and Freedom Act, for example, which passed the house this summer, would prevent the CPSC from

using federal funds to regulate gas stoves as a hazardous product or setting product safety standards that would make them significantly more expensive. Similarly, the Save Our Gas Stoves Act would block the Department of Energy from adopting new efficiency rules for gas stoves.

Consumers may eventually play the decisive role when it comes to cooking with gas. Recent polling suggests that people, [especially parents](#), are significantly concerned about the health impacts of methane gas pollution in homes when they know the facts.

American families living with hazardous gas

AMID THE DEBATE over setting health-protective standards, scientific evidence has continued to mount in recent years that gas stoves emit high levels of indoor air pollutants. These health-harming emissions include everything from asthma-linked [nitrogen dioxide](#) to carcinogenic [formaldehyde](#).

This year, researchers at Stanford University [published a groundbreaking study](#) that found gas stoves are also filling homes with dangerous levels of the known carcinogen benzene, chronic exposure of which increases the risk of leukemias and lymphomas. [The report](#), published in the journal *Environmental Science & Technology*, looked at homes in California

Photo: [Ben Dalton via flickr](#), CC 2.0



Nitrogen dioxide pollution from gas stoves is linked to asthma.

and Colorado, finding hazardous benzene emissions from gas stoves not only often exceeded well-established health benchmarks but spread throughout homes, lingering even in bedrooms for hours at a time.

The findings come on top of a 2022 [study](#) from Harvard University that found samples of consumer-grade methane gas in the Boston metropolitan area contained at least 21 different federally designated hazardous air pollutants, including hexane, toluene and benzene.

Use of cooking fuels, such as methane gas, have also been linked to developmental delays in early childhood, most recently in a [first-of-its-kind study](#) published this year in the journal *Environmental Research*. The authors tracked thousands of mothers and their children across New York State, finding a connection between the use of fuel-burning stoves and [delays](#) in gross motor skills, [communication](#) and social development.

Researchers are also starting to document the health benefits of replacing gas stoves with electric alternatives. A review of more than 750,000 Ecuadorian households [published](#) this summer in the journal *Proceedings of the National Academy of Sciences* found a nationwide program promoting the use of induction cooktops caused a drop in respiratory-related and overall hospitalization rates.

While the scientific evidence piles up, researchers have known for decades about the potential dangers of cooking with gas. A [meta-analysis](#) of 41 studies from around the globe between 1977 and 2013 found children living in a home with a gas stove are 42 percent more likely to experience asthma symptoms.

A 2022 [study](#) published in the International Journal of Environmental Research and Public Health reaffirmed these long-standing concerns about the link between gas stoves and respiratory ailments. Researchers found that nearly 13 percent of childhood asthma cases in the United States can be attributed to the use of gas stoves. Those rates were even higher in states where gas stoves are more prevalent, such as New York (19%), California (20%) and Illinois (21%).

Meanwhile, overhead ventilation can help reduce levels of dangerous pollution but is no panacea. Research has shown that many range hoods [don't effectively improve indoor air quality](#), often just recirculating air inside a home. Even exhaust systems that vent emissions outdoors often fail to capture all pollution. A [2012 study](#) from Lawrence Berkeley National Laboratory, for example, sampled 15 different cooking exhaust devices, finding the products often didn't work as advertised and routinely removed less than half of the pollutants emitted by gas burners.

Many people don't even turn on their ventilation hoods, frequently complaining about the noise from overhead fans. A [2020 study](#) of California homes found that range hoods were used for meals just 36% of the time in houses and 28% in apartments.

Pollutant	Health Impacts
Nitrogen dioxide	increased inflammation of the airways, worsened cough and wheezing, reduced lung function, increased asthma attacks, cardiovascular harm
Carbon monoxide	tightness of the chest, headache, fatigue, dizziness, nausea, brain and heart toxicity, low birth weight, death
Formaldehyde	respiratory and skin irritation, coughing, wheezing, nausea, cancer
Particulate matter	increased asthma attacks, bronchitis, increased risk of heart attack, death
Benzene	dizziness, headaches, skin and respiratory irritation, blood disorders and increased risk of cancers like leukemia

Figure 1: Health impacts of gas stove pollutants.

Gas industry misinformation campaign

PERHAPS THE MOST shocking revelation about gas stoves in 2023 came from a [Climate Investigations Center report](#) detailing industry efforts to systematically obscure scientific health concerns dating back to the 1970s.

The [damning probe](#) used numerous historical archives — including from the U.S. Library of Congress, The New York Times and U.S. National Archives and Records Administration — to show how the gas industry used Big Tobacco’s playbook to avoid health-protective standards, confuse the science and sway public opinion.

The investigation revealed that after EPA researchers raised concerns on the hazards of breathing nitrogen dioxide from gas stoves, industry leaders consulted with Hill & Knowlton, a leading public relations firm for tobacco companies.

Executives with the firm told the gas industry to launch “massive, consistent, long-range public relations programs,” recommending tactics similar to those the firm deployed for the tobacco industry, according to the investigation.

The American Gas Association reportedly paid for its own competing health studies at Battelle Laboratories, a private facility known for working with cigarette companies and the Council for Tobacco Research. Not surprisingly, the published research funded by the industry found no association between gas stoves and

respiratory illness, and industry affiliations were undisclosed.

The gas industry then paid consultants to attack scientific studies critical of gas stoves throughout the 1980s, successfully blocking regulatory and legislative action, according to the investigation. This practice continues today, with [paid experts](#) testifying without stating their industry affiliation.

Still, American viewpoints could now be shifting as the scientific evidence around the health risks of gas stoves reaches more consumers. [Recent polling](#) from Morning Consult suggests that many people who own gas stoves — including nearly 60 percent of parents — are interested in cleaner alternatives after learning of the asthma risks associated with gas stove use.

Similarly, after learning about the harmful effects of gas, more than 70% of adults said they would choose an electric stove or induction cooktop for their next purchase, according to a [survey](#) from Data for Progress. And more than two-thirds of adults said they support giving federal regulators more authority to crack down on harmful emissions from gas stoves.

However, without common-sense standards such as warning labels, many American consumers still aren’t getting accurate information on the sales floor — a key space for spreading public awareness. This year’s survey results painted a stark picture of customer experiences across the country.

From the retail floor

Photo: Staff

IN OCTOBER AND NOVEMBER 2023, WE CONDUCTED SECRET SHOPPER SURVEYS

at the three largest appliance retailers in the country — Lowe’s, Home Depot and Best Buy. Surveyors visited 62 locations across 11 states in an effort to determine:

- What information is being shared on gas stove pollution?
- What information is being provided on ways to limit health risks?
- How are induction ranges being marketed?

Each surveyor asked the following questions of sales staff:

- Should I worry about gas stove pollution?
- Do I need an external venting hood if I’m getting a gas stove?
- How does induction work?

Each surveyor also reported the following details about the design of sales floors:

- Where are gas stoves located, such as their proximity to vent hoods?
- Where are the electric stoves and induction cooktops located?
- What marketing materials are on display?

While this is a small sample size compared to the total number of Lowe’s, Home Depot, and Best Buy locations across the nation, the surveys reveal consistent trends on how these products are marketed in stores.



Surveyors often found ventilation in a separate section.

A lack of good information about health impacts from gas stoves common among sales staff

- When asked about the health risks of cooking with gas and ventilation needs, only 24% of the sales staff across all three brands shared any information about indoor air pollution from gas stoves.
- 76% of store associates said that gas stoves were perfectly safe or that they were not aware of health issues with



Gas stoves were often displayed with no or less effective ventilation technology.

gas stove emissions. Numerous store associates went out of their way to provide information that was inaccurate and often politically charged, claiming that health concerns were “overblown” or part of a “targeted fear campaign.”

- o “He explicitly said, ‘There’s no air pollution from gas stoves, nothing to be worried about ... don’t need a vent.’”
– Lowe’s in Pennsylvania
- o “The employee directly assured me that the concerns were ‘overblown’ and there was no health impact from gas stoves.”
– Best Buy in New Jersey
- o “When I raised the issue of pollution, health problems from gas, the sales person said, ‘What you are hearing is a highly targeted fear campaign.’”
– Lowe’s in Massachusetts

- o “When I asked if I should be concerned about [health impacts], he said that ‘the big thing to be concerned about is the price of gas.’”
– Home Depot in New York
- o “[Sales staff] began to talk down to or get annoyed at me when I mentioned potential health issues with stoves, saying, ‘That’s something that people talk about, but gas stoves have been around children for a long, long time, and there’s been no negative, residual effects.’”
– Best Buy in Pennsylvania

Expertise on ventilating gas stoves severely lacking

- 80% of sales staff said an externally venting range hood was not necessary to protect health. We gave credit for this question whether the associate said it helped alleviate pollution, was required by government rules or for any other reason.
- While sales staff often indicated that ventilation was a good idea to deal with smoke and burned food, fewer than one in five said it was necessary and none distinguished its specific relevance for gas stoves.
 - o “[Sales staff] said, ‘Needing a vent hood doesn’t have anything to do with whether your stove is gas or not, most people have one regardless of stove type.’”
– Home Depot in Washington
 - o “‘They’re always finding something to get people to worry about,’ [sales staff said]. ‘Think about it: how much time is it actually on for?’”
– Home Depot in Pennsylvania

- o “She said, ‘You should always use a hood while cooking, even with an induction or electric stove.’”
– Lowe’s in Colorado
- o “He said, ‘Both gas and induction can cause food to smoke so you should get a vent hood either way.’”
– Best Buy in California

Ventilation hoods for gas stoves often not on display

- 69% of stores visited did not display externally venting hoods next to gas stoves. Where stores did present ranges with ventilation, the equipment was often internally recirculating microwave-mounted models, which are less effective at removing harmful emissions.
 - o “[The vent hoods] were way in the back, away from the stoves on a shelf. I had looked around for them but couldn’t find them. Finally, I had to ask someone where they were.”
– Lowe’s in New York
 - o “Most vents were displayed in a separate section. Many gas and electric ranges had microwaves above, some of which had vents.”
– Home Depot in Pennsylvania
 - o “Vent hoods were nowhere to be found. An employee was unable to direct me to them.”
– Lowe’s in Pennsylvania
 - o “I asked about hoods, and they said they were located way in the back.”
– Lowe’s in Maryland
 - o “A few [gas stoves] had the microwave version above, but the separate vent hoods were down a whole separate aisle, and not all gas stoves had the microwave version above them.”
– Home Depot in Alaska

Clean alternatives to gas stoves frequently not promoted

- 37% of stores surveyed did not have induction cooktops on the showroom floor.
- 16% of sales staff recommended gas over induction, even when the secret shopper voiced concerns about pollution.
 - o “When I asked the employee if they have [induction models] on the floor, he said, ‘No,’ that I should look online for the one I want.”
– Home Depot in New York
 - o “There was one induction stove out of 57 stoves on display. The vast majority were gas.”
– Lowe’s in Pennsylvania
 - o “No induction models [were] on the floor, but they had some listed in their store directory.”
– Home Depot in Washington
 - o “The salesperson explained that ‘They aren’t very popular, and they are expensive.’”
– Lowe’s in Pennsylvania

None of the stores had general signage on the sales floor with basic information about the different technologies. However, some of the stoves themselves provided details and comparisons about specific functions.

Given that the floor signage directed consumers to visit their online stores, below is an analysis of the guidance and information found on retailer websites.







Online sales provide more options but still fail to protect consumers

THE SURVEYS reviewed the [brick and mortar](#) marketing of cooktops and ranges at Lowe's, Home Depot and Best Buy locations across the country, but all three retailers also have major e-commerce operations. Surveyors were often instructed to look online for more information.

At the time of our review, all three websites are set up similarly. Ranges and cooktops can be viewed in the "appliance" section and can be viewed in a variety of different ways, including by fuel source, finish and features. It is easy to find induction, electric or gas options. Each site has some form of "buying guide" or page that compares and contrasts various range features, including fuel source.

However, none of the websites make it obvious that gas stoves should be used with ventilation, and none of the websites highlight the healthy air benefits of electric or induction cooking. Both [Home Depot](#) and [Lowe's](#) incorrectly indicate that a range with downdraft venting "eliminate[s] the need for a range hood." In a "Frequently Asked Questions" section at the bottom of the Lowe's [page](#) on gas ranges, an answer includes "Ducted range hoods, which release smoke outside the kitchen, are the best option for a gas stove," falling short of saying external ventilation is necessary or indicating the health risks of not ventilating properly.

REGULARLY BOUGHT TOGETHER

					
\$249.00 579.00 SAVE 34%	\$1,099.00 1,666.00 SAVE 34%	\$199.00 529.00 SAVE 33%	\$998.00 1,399.00 SAVE 28%	\$109.00	\$1,098.00 1,499.00 SAVE 26%
★★★★☆ 1424	★★★★☆ 2265	★★★★☆ 14	★★★★☆ 389	★★★★☆ 65	★★★★☆ 291
Samsung 19-cu ft 1000-Watt Over-the-Range Microwave with Sensor Cooking...	Samsung 27.4-cu ft Side-by-Side Refrigerator with Ice Maker (Fingerprint Resistant...	Samsung 30-in 350-CFM Convertible Stainless Steel Under Cabinet Range Hoods...	Samsung Bespoke 7.0-cu ft Stackable Steam Cycle Smart Electric Dryer (Silver Steel)...	GE 30-in Gas and Electric Range Filler Trim Kit (Black Slate)	Samsung Bespoke 7.0-cu ft Reversible Side Swing Door Stackable Steam Cycle Smar...
Add to Cart	Add to Cart	Add to Cart	Add to Cart	Add to Cart	Add to Cart

An example from Lowe's [website](#).

You Might Also Need



Wall Ovens



Over the Range Microwaves



Range Hoods



Cooktops



Range Parts & Accessories



Pots & Pans



Cleaning Supplies



Appliance Power Cords

An example from Home Depot's [website](#).



Protect your major appliance.

★★★★★ (2,988)



3-Year Standard Geek Squad Protection

\$139.99

About \$3.89/mo.



5-Year Standard Geek Squad Protection

\$204.99

About \$3.42/mo.

[Learn more](#)

Best-selling items to go with it

< [Microwave](#)

[Wall Oven](#)

[Cooktop](#)

[Range Hood](#)

[Wine Cooler](#)



An example from Best Buy's [website](#).

On all three websites, range hoods are sold in a different section than ranges and cooktops. Each website will generate recommendations of other products to consider when looking at a specific product. When looking at a specific gas range, range hoods were included on every site, but not in a manner that suggests that proper ventilation is necessary to safely operate the stove. For both Home Depot and Lowe's, range hoods are displayed along with other products like refrigerators or microwaves. Best Buy includes a "complete your kitchen" link which, when clicked, provides recommendations for many products. Our researcher had to scroll through to the second page of recommended products to find range hoods, in between cooktops and wine coolers.

In their shopping guides or comparison pages, all three store websites highlight many of the benefits of induction cooking, including energy efficiency, temperature precision and safety. However, none of them highlight the indoor air quality benefits. Best Buy was the only store on whose website our researcher found references to air quality. One was in a "Buying A Range" textbox at the bottom of the main ranges shopping page, in reference to the benefits of ventilation when operating any range, regardless of fuel source. The [link](#) embedded in the reference goes to a page for shopping for heating and air quality products. The other was on Best Buy's "[Range Hoods & Downdraft Ventilation](#)" page, which notes that "perhaps the biggest benefit" of a range hood is that it "helps maintain better indoor air quality." The text box goes on to state that it is not "a tool to keep you safe in the kitchen."

Buying a Range

Cooking with an oven range.

Also known as a kitchen stove, a range is an appliance that combines an oven with a [cooktop](#). It keeps all the heating and cooking activities in close proximity, especially when you combine a stove range with an [over-the-range microwave](#).

Oven ranges are the perfect appliance for those who like to cook multi-dish meals or those who need to conserve space in the kitchen. You can take the meat you're browning on the burner and move it right into the oven for roasting or quickly check on a [baking dish](#) by turning on the oven light while you're stirring sauce in the pot on the stove.

Most building codes require a ventilation system for both your oven and kitchen range, but when you choose an oven range, you only need one ventilation system to cover both. A [range hood](#) or over-the-range microwave with a built-in vent can collect and disperse airborne grease, baking odors, excess moisture and smoke externally to improve the [air quality](#) in your home. Plus, you get to keep all your appliance hookups in one location instead of separating them for an isolated cooktop and a [wall oven](#).

Screenshot from BestBuy [website](#)

Benefits of having a kitchen hood.

Perhaps the biggest benefit of a range hood is how it is designed to capture and remove smoke, steam, cooking odors and airborne grease particles generated during cooking, which helps maintain better indoor air quality. Even though it technically isn't a [tool to keep you safe in the kitchen](#), having a stove hood vent is one of the best things you can do to promote safety in the kitchen.

Stove and oven hoods also reduce heat and humidity in your kitchen, which is highly beneficial since cooking produces so much of it. This not only makes it more comfortable, but it also helps prevent the buildup of moisture that can lead to mold and mildew. If this is a concern, you can also always get extra [dehumidifiers](#) for your kitchen and home.

Finally, every kitchen exhaust fan will be more beneficial if it is properly installed. If you need any assistance with installation, feel free to let the professionals handle it and contact Best Buy's [appliance delivery, installation and repair services](#). This way, you'll only have to worry about what ingredients you need for your next delicious meal.

Screenshot from the Best Buy [website](#)

The retailer opportunity

THESE SURVEYS REVEALED several opportunities for retailers to do a better job of protecting their customers from gas stove pollution, especially as manufacturers are not currently required by the CPSC to include warning labels. Lowe's, Home Depot, Best Buy and other retailers of stoves, ranges and cooktops can and should take the following steps to better protect their customers from the health risks associated with methane gas:

- **Train sales people to answer questions about indoor air pollution and gas stoves.** Most of the sales staff surveyed for this report were unaware, denied or downplayed the health risks of gas stove pollution. Few were able to provide comprehensive information about the

Photo: Staff



An induction range on the retail floor.

topic or advice on the need for proper ventilation that exhausts pollution outside of a home. All retailers of gas stoves should implement a training program to educate their workforce about how to talk to customers about the issue. Retailers can partner with organizations that have expertise on the subject matter and training experience, such as [Physicians for Social Responsibility](#).

- **Package and display ventilation hoods in a way that makes it clear such devices are intended for use with gas stoves.** Retailers should feature vent hoods above or near ranges on the sales floor in a way that makes it obvious they are meant to go together. There should also be customer education materials that suggest what type of vent hood is necessary for specific ranges and why. Online, retailers should make it easier for customers to see suggested vent hood options for each specific range, as well as a guide to ensure customers understand how to properly vent outdoors.
- **Ensure that brick and mortar stores have induction ranges or cooktops available for display.** Given that it is a new technology for many Americans, people may be more comfortable with considering induction if they can see it in person to get a better feel for how it works. A [recent analysis](#) found that consumers were more likely to buy new technology when it's available in box stores. Video tutorials on how to use induction cooking technology could benefit consumers.

- **Design signage, labels and customer education materials that promote the relative health advantages of cooking with electric stoves and induction cooktops.** Retailers should highlight the benefits of non-gas appliances on the showroom floor and online.
- **Promote local, state and federal rebates, as well as tax credits for electric stoves and cooktops both in stores and online.** The Inflation Reduction Act provides several incentives that can help Americans replace polluting gas equipment, including potential rebates for electric stoves and induction cooktops, as well as any electrical upgrades that might be necessary for the installation. Retailers should also provide information about similar opportunities from states and local governments.
- **Retailers should call for federal agencies such as CPSC to take action on gas stove pollution.** In addition to retailers taking the above steps to ensure consumers understand the risks of gas stove pollution, these companies can also call for strong, meaningful health-protective standards and awareness campaigns from federal regulators.

Appendix I: Methodology & survey results

IN OCTOBER AND NOVEMBER 2023, we surveyed a sampling of the three largest appliance retailers in the country — Lowe’s, Home Depot and Best Buy. We visited 62 locations in 11 states, including Massachusetts, Alaska, New York, Pennsylvania, North Carolina, Illinois, Colorado, Texas, California, Oregon and Washington.

Surveyors were asked to observe:

- The general arrangement of products on the sales floor
- The location of gas stoves, especially in relation to vent hoods
- The location of electric and induction stoves
- Information provided by marketing materials

Surveyors were instructed to ask sales staff:

- I’ve heard that gas stoves may emit pollutants that can be harmful to health, especially for kids. Is that something I should worry about?
 - If sales staff answered yes: Do you offer methods to reduce this harm?
- If I’m getting a gas stove, do I need an external venting hood?
- How does induction work?

Surveyors were asked to report on the following*:

- Did the employee you spoke to recognize concerns or share information about indoor air pollution from gas stoves?
- Did the employee share that an external venting hood was necessary to protect health?

- Did the employee encourage or suggest a gas stove over induction?

**We counted each valid “yes” or “no” answer for each question and calculated the percentages using the total number of valid answers for the question. Surveyors could also provide additional information, such as the quotes listed in the section on Survey Findings.*

Were gas stoves displayed right beside vent hoods?

- Total answers: 61
- Yes: 31.1%
- No: 68.9%

Did they have induction stoves on the floor?

- Total answers: 62
- Yes: 62.9%
- No: 37.1%

Did the employee you spoke with recognize concerns or share information about indoor air pollution from gas stoves?

- Total answers: 59
- Yes: 23.7%
- No: 76.3%

Did the employee share that an external venting hood was necessary to protect health?

- Total answers: 60
- Yes: 20.0%
- No: 80.0%

Did the employee encourage or suggest a gas stove over induction?

- Total answers: 57
- Yes: 15.8%
- No: 84.2%

Appendix II: Health studies on gas stove pollution

THE FOLLOWING IS A SAMPLING OF HEALTH STUDIES AND OTHER INFORMATION SOURCES ON GAS STOVE POLLUTION

Indoor air pollution exposure and early childhood development in the Upstate KIDS Study published in the journal *Environmental Research* by State University of New York at Buffalo in *October 2023* <https://doi.org/10.1016/j.envres.2023.116528>

Burning Questions: A history of the gas industry's campaign to manufacture controversy over the health risks of gas stove emissions published by the Climate Investigations Center in *October 2023* <https://climateinvestigations.org/report-gas-industry-campaign-to-manufacture-controversy-health-risks-of-gas-stove-emissions/>

Gas and Propane Combustion from Stoves Emits Benzene and Increases Indoor Air Pollution published in the journal *Environmental Science & Technology* by Stanford University in *June 2023* <https://pubs.acs.org/doi/10.1021/acs.est.2c09289>

Climate and health benefits of a transition from gas to electric cooking published in the journal *Proceedings of the National Academy of Sciences* by Arizona State University in *January 2023* <https://www.pnas.org/doi/10.1073/pnas.2301061120>

Population Attributable Fraction of Gas Stoves and Childhood Asthma in the

United States published in the journal *Environmental Research and Public Health* by RMI and Albert Einstein College of Medicine in *December 2022* <https://www.mdpi.com/1660-4601/20/1/75>

Composition, Emissions, and Air Quality Impacts of Hazardous Air Pollutants in Unburned Natural Gas from Residential Stoves in California published in the journal *Environmental Science & Technology* by PSE Healthy Energy in *October 2022* <https://pubs.acs.org/doi/10.1021/acs.est.2c02581>

Emission characteristics of formaldehyde from natural gas combustion and effects of hood exhaust in Chinese kitchens published in the journal *Science of the Total Environment* in *September 2022* <https://www.sciencedirect.com/science/article/abs/pii/S0048969722037111>

Home is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User published in the journal *Environmental Science & Technology* by Chan School of Public Health in *June 2022* <https://pubs.acs.org/doi/10.1021/acs.est.1c08298>

Studying the Optimal Ventilation for Environmental Indoor Air Quality published by the National Center for Healthy Housing in *April 2022* <https://nchh.org/research/stove-iaq/>

Factors Impacting Range Hood Use in California Houses and Low-Income Apartments published in the journal *Environmental Research and Public Health* by Lawrence Berkeley National Laboratory in *December 2020* <https://www.mdpi.com/1660-4601/17/23/8870>

Health effects from gas stove pollution published by RMI, Mothers Out Front, Physicians for Social Responsibility and Sierra Club in *May 2020*. <https://rmi.org/insight/gas-stoves-pollution-health>

Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California published by the University of California at Los Angeles Fielding School of Public Health in *April 2020*. <https://ucla.app.box.com/s/xyzt8jc1ixnetiv0269qe704wuw0ihif7>

Cooking with Gas Can Harm Children: Cooking with gas stoves is associated with increased risk of childhood respiratory illnesses, including asthma published by Mothers Out Front and HEET in *July 2019* <https://heet.org/wp-content/uploads/2019/07/Gas-can-harm-children-July-15-2019-Final.pdf>

Pollutant Concentrations and Emission Rates from Scripted Natural Gas Cooking Burner Use in Nine Northern Californian Homes published by Lawrence Berkeley National Laboratory in *October 2016* <https://escholarship.org/uc/item/859882pw>

Human Health Risk Assessment for Ambient Nitrogen Dioxide published by Health Canada in *May 2016* <https://www.canada.ca/en/health-canada/services/publications/healthy-living/human-health-risk-assessment-ambient-nitrogen-dioxide.html>

Pollutant Exposures from Natural Gas Cooking Burners: A Simulation-Based Assessment for Southern California published in the journal *Environmental Health Perspectives* by Lawrence Berkeley National Laboratory in *January 2014* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888569/>

Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children published in the journal *Epidemiology* in *August 2013* <https://web.archive.org/web/20221121013440/https://academic.oup.com/ije/article/42/6/1724/737113>

Performance of installed cooking exhaust devices published in the journal *Indoor Air* by Lawrence Berkeley National Laboratory in *November 2011* <https://onlinelibrary.wiley.com/doi/10.1111/j.1600-0668.2011.00756.x>