



Gas Stoves: Avoiding Harmful Impacts

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Pioneer Valley Asthma Coalition Meeting
Springfield Central Library Community Room
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What is the difference?

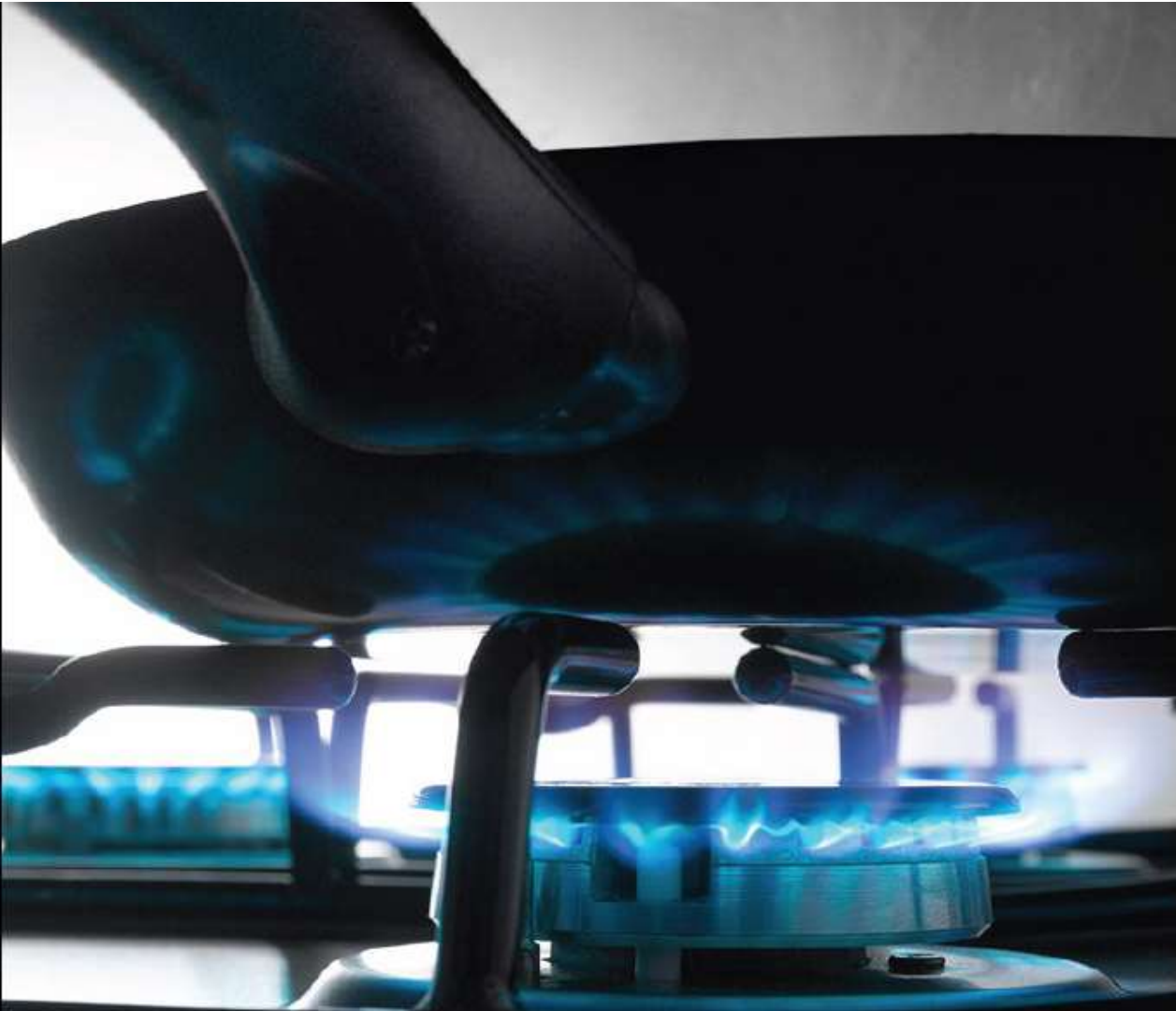
Gas Burners



Electric Stove



Natural Gas Stoves



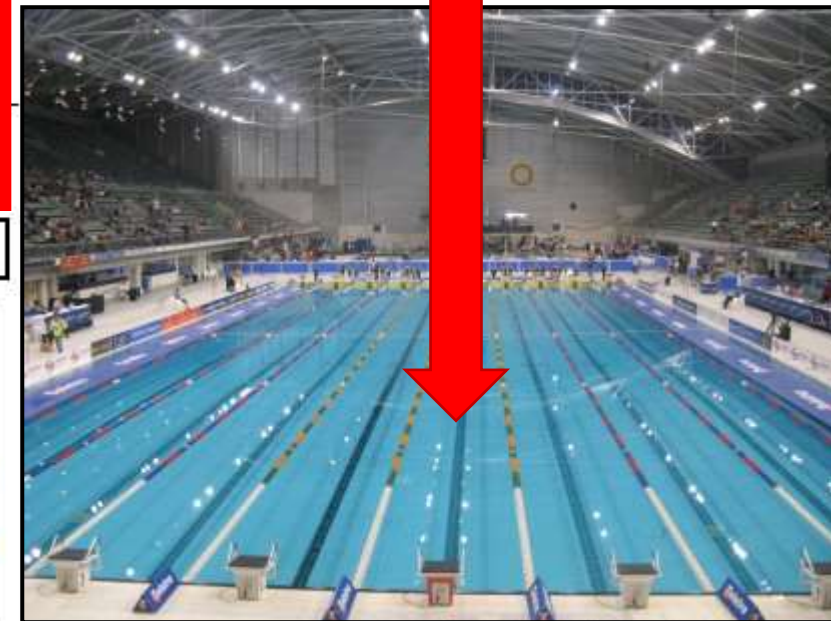
Used by a third of households.

**Release gases –
nitrogen dioxide and
carbon monoxide.**

Nitrogen Dioxide – why we care about it?

The **threshold limit value** is the level a worker can be exposed over a working lifetime without health effects.


**200 parts per billion =
200 drops in an
Olympic-sized pool**




1. Chemical Product and Company Identification	
Product Name: Nitrogen Dioxide	Trade Name: Nitrogen Dioxide
Product Use: Many.	
Chemical Name: Nitrogen dioxide	Synonym: Dinitrogen tetroxide, nitrogen tetroxide, NTO, nitrogen peroxide, red oxide of nitrogen
Chemical Formula: Mixture of NO ₂ & N ₂ O ₄ in equilibrium	Chemical Family: Nitrogen oxides

2. Composition and Information on Ingredients					
INGREDIENTS	% (VOL)	CAS NUMBER	LD ₅₀ (Species & Routes)	LC ₅₀ (Rat, 4 hrs.)	Threshold Limit Value
Nitrogen dioxide (Dinitrogen tetroxide)	100	10102-44-0	Not applicable.	88 ppm	200 ppb

3. Hazards Identification



Emergency Overview



DANGER! Toxic, oxidizing, corrosive gas and liquid under pressure. May be fatal if inhaled. May cause lung damage. May increase respiration and heart rate. Can cause eye and skin burns. Symptoms may be delayed. Vigorously accelerates combustion. Self-contained breathing apparatus and protective clothing must be worn by rescue workers.

Nitrogen Dioxide - outdoors and indoors



20 ppb nitrogen dioxide

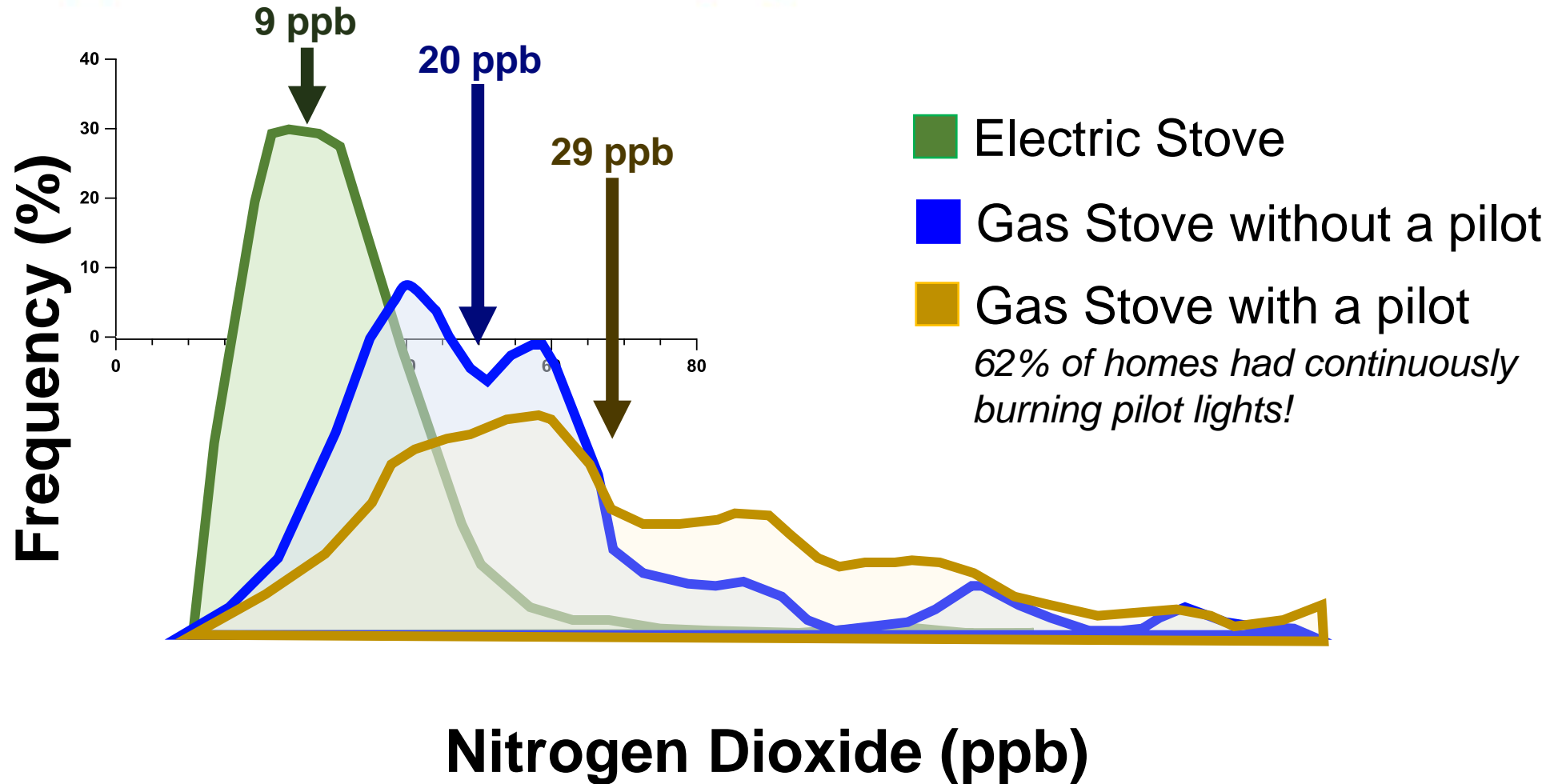


?? ppb nitrogen dioxide

Nitrogen Dioxide in Your Kitchen



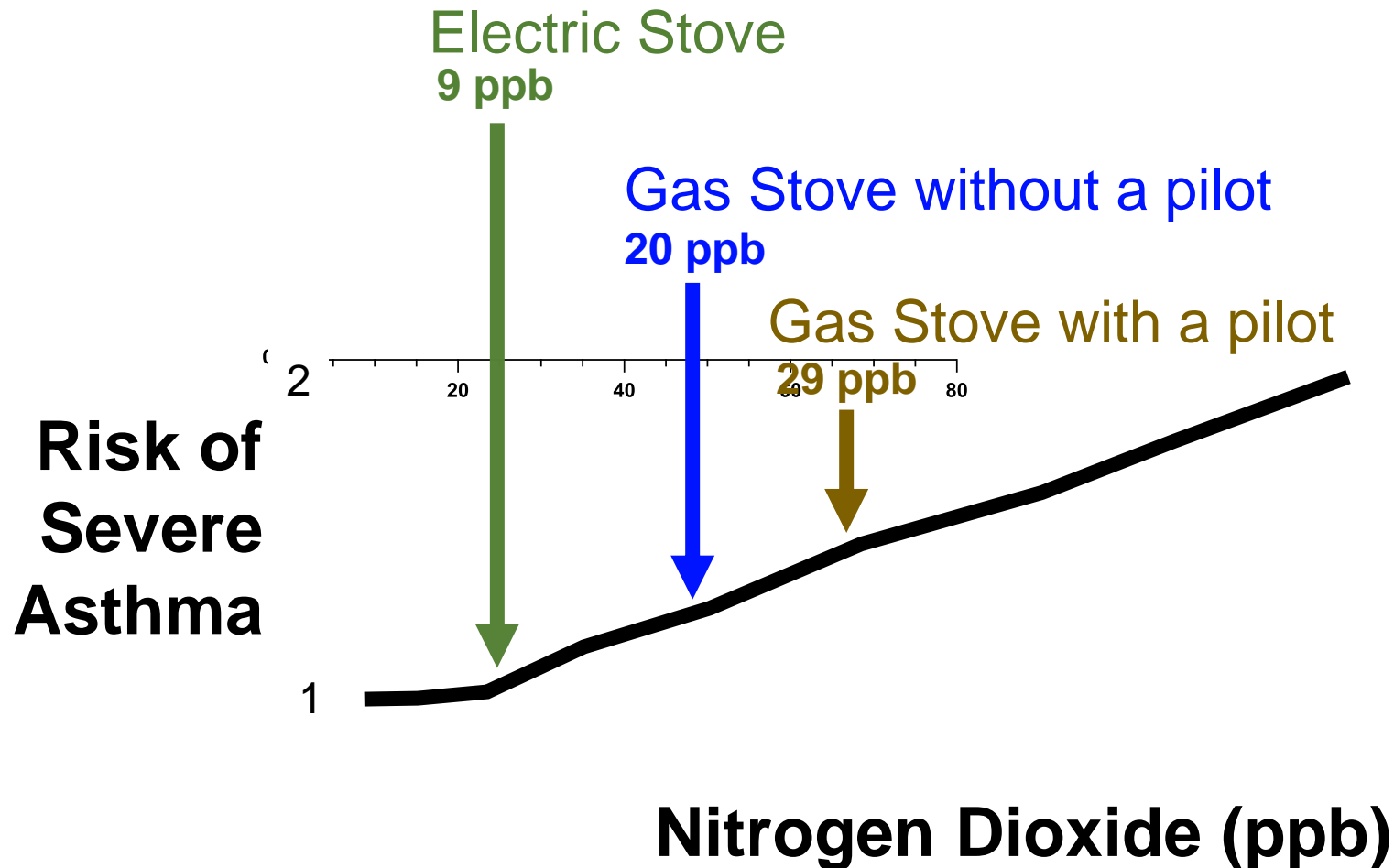
700+ children in CT and MA



Nitrogen Dioxide and Asthma Severity



1300+ children in CT and MA



Children at the greatest risk for more severe asthma are the ones living in homes with the highest levels of nitrogen dioxide.

Nitrogen Dioxide and Asthma Symptoms



1300+ children in CT and MA

For each 15 ppb increase in indoor levels of nitrogen dioxide, children taking asthma medication are ...

43% more likely to experience **chest tightness**

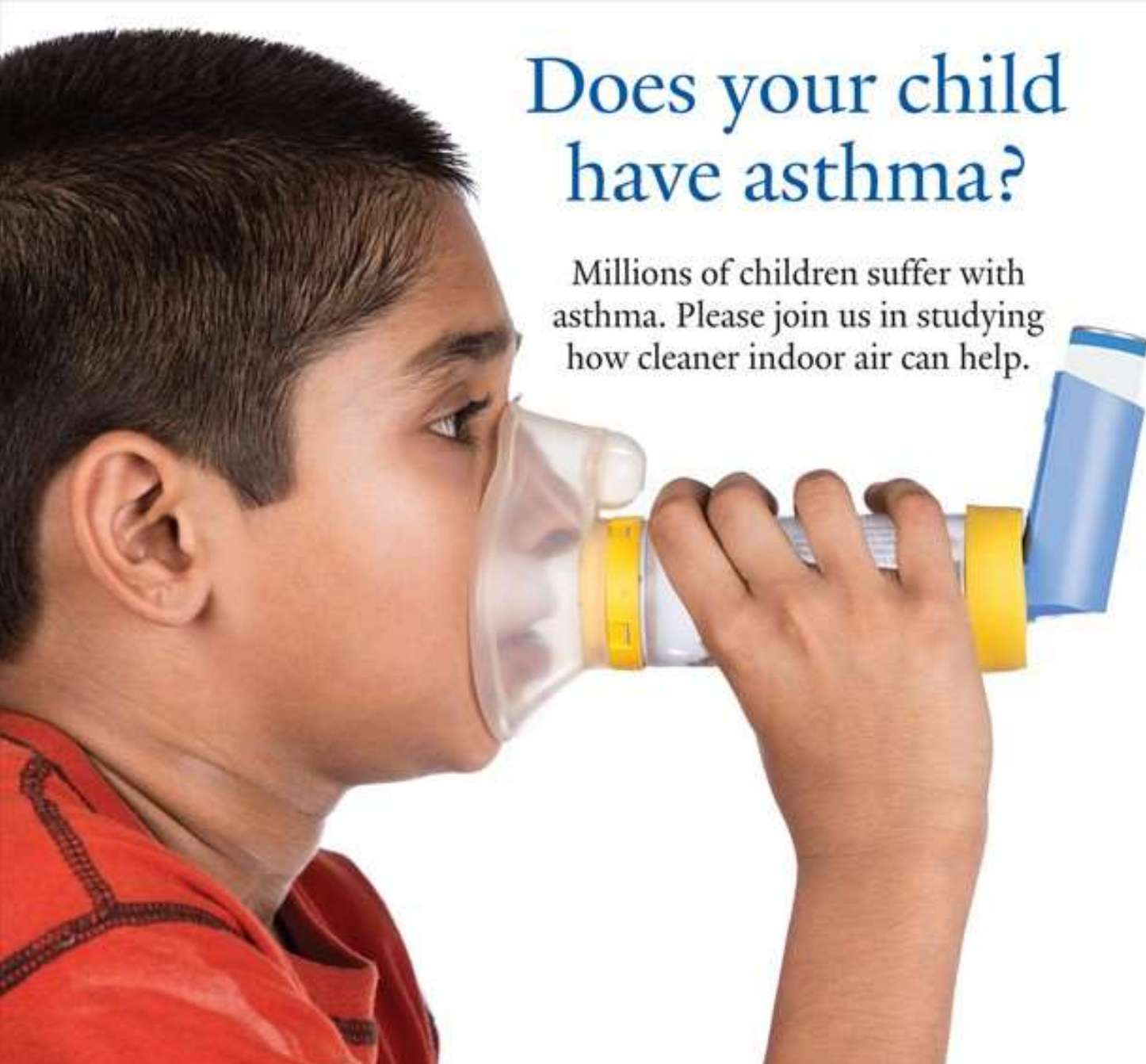
42% more likely to have **persistent cough**

58% more likely to **wheeze**



Does your child have asthma?

Millions of children suffer with asthma. Please join us in studying how cleaner indoor air can help.



Children's Air Pollution Study (CAPS)

If you have a 5 to 11 year old child with asthma, you may be eligible to participate in an 18-week clinical trial of indoor air cleaners. The study involves a brief phone screening, sampling of your home's indoor air, and home visits every 6 weeks to install a new air cleaner and collect information on your child's asthma symptoms and medication use.

Compensation of \$200 for full 18-week study

To learn more or to see if you are eligible, contact (203) 737-6469 or email CAPS@yale.edu.

Visit our website for more information:

<http://medicine.yale.edu/ysph/cpnee/projects/projects/caps.aspx>

I have a gas stove, what can I do?

Turn on any other ventilation.

Turn on your hood.

Change the filters in your hood.



Open a window while you cook.

Avoid using your stove for heat.

Use the rear burner

My hood is loud, is it really worth the hassle?



Test 1.

Boiling broccoli on the rear burner.

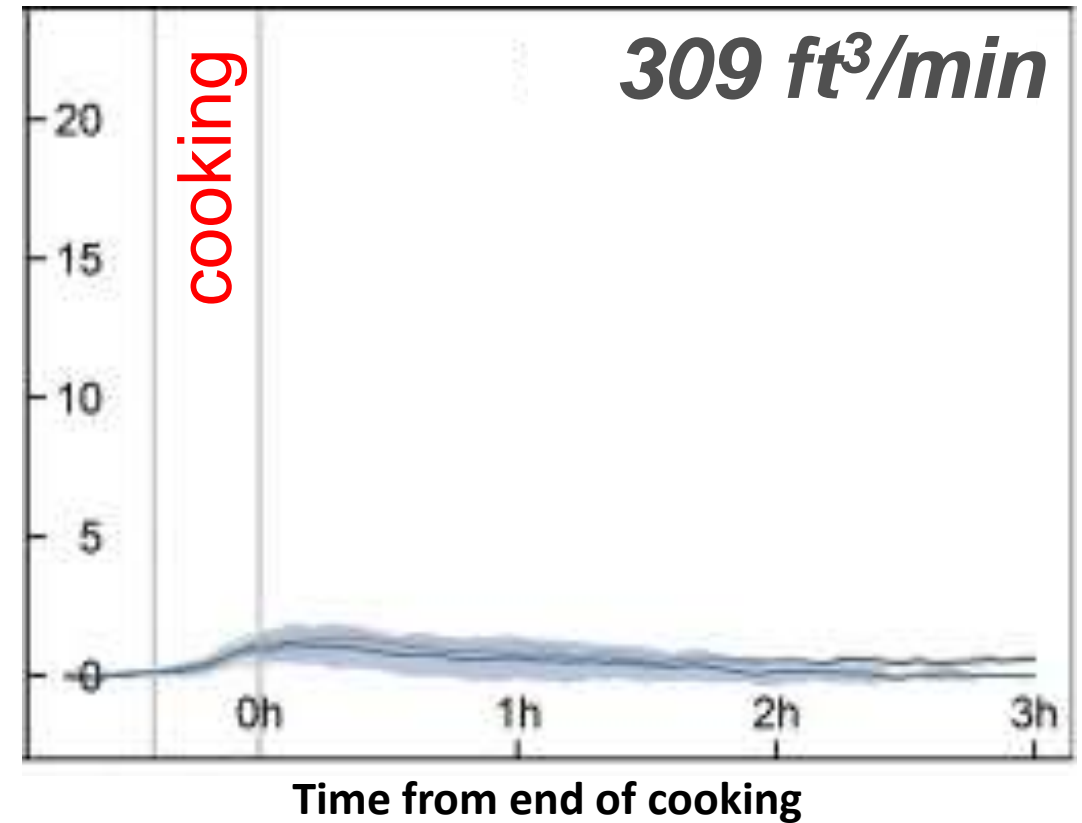
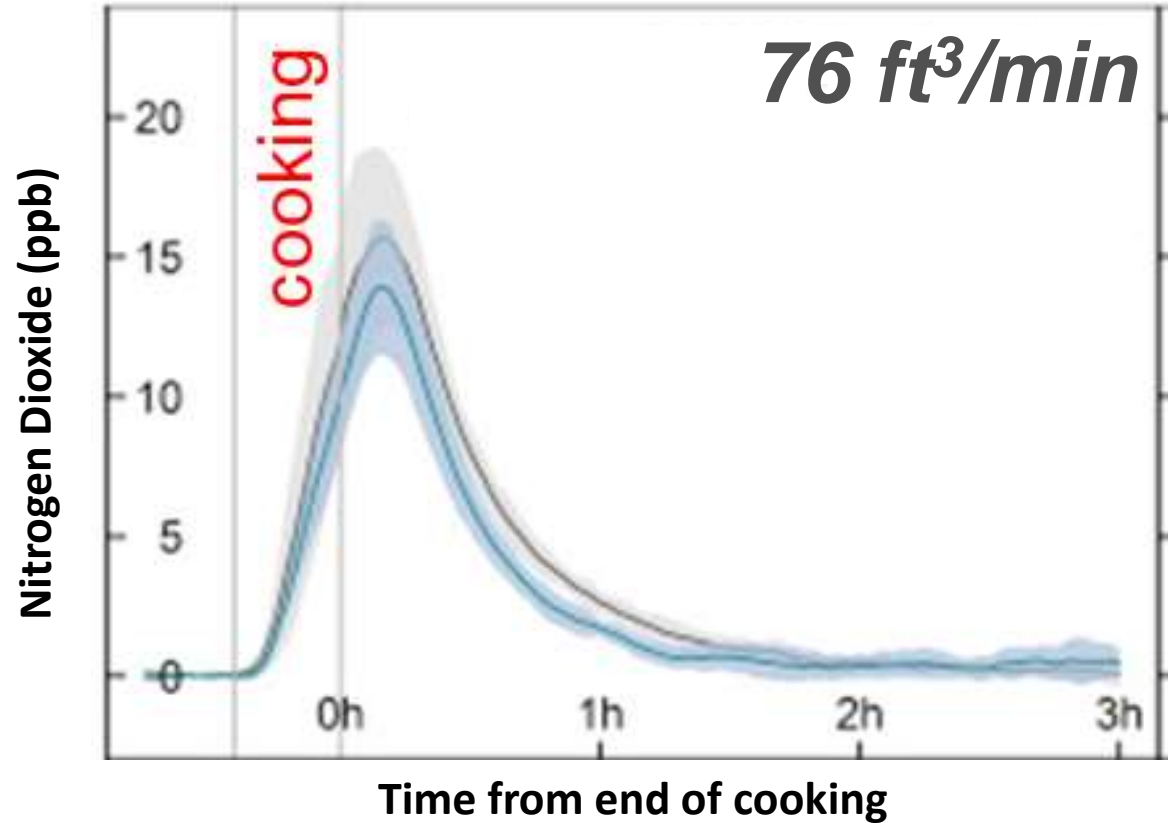


Test 2.

Frying hamburger patties on the front burner.

Hoods can work very well!

If you have a gas stove, use your hood and turn it to the **maximum setting!**



I need a new hood, which one should I get?

Low Cost (\$50)



*Single-speed fan with a stated exhaust airflow rate of **180 cfm***

Mid Range (\$190)



*Two speed settings and the unit specifications state exhaust airflow rates of **110 and 220 cfm***

Higher Cost (\$550)



*Four fan speeds; the unit specifications stated exhaust airflow rates were between **150 and 400 cfm**, of which the low, high, and maximum settings were tested.*