

Season Change and Indoor Air: Protecting Respiratory Health

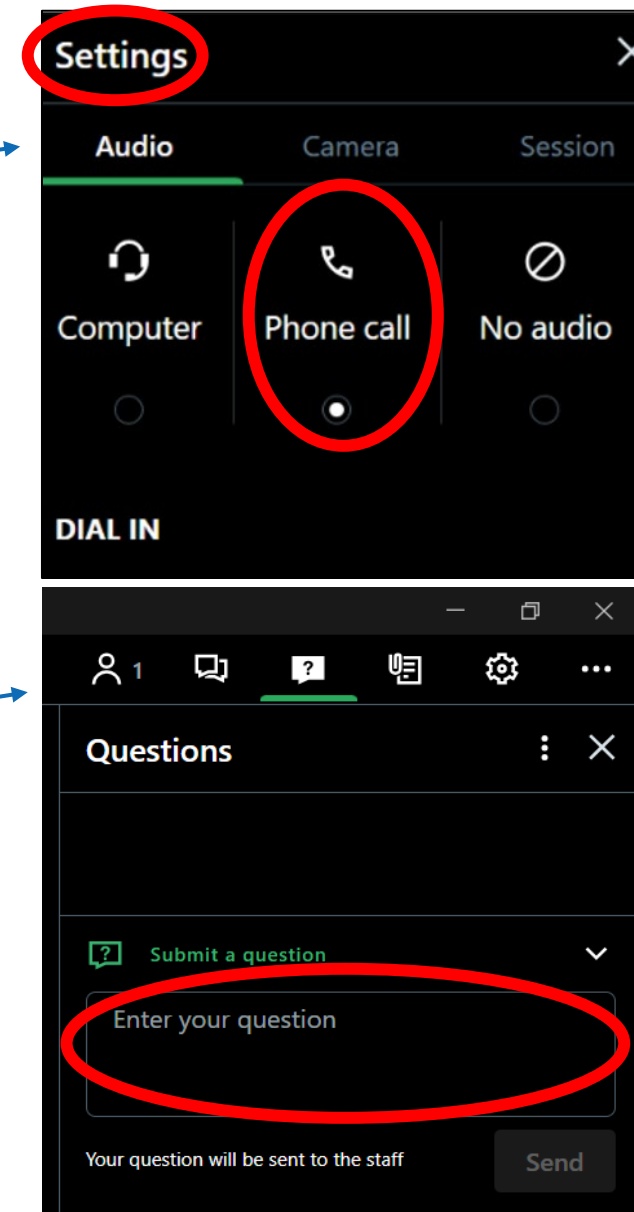


Hosted by the U.S. Environmental Protection Agency (EPA)

June 24, 2026

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Emergency Preparedness, Response and
Recovery and Asthma



Agenda



- I. Welcome and Introductions 5 minutes**
- II. Framing the Webinar 15 minutes**
 - A. Indoor Environmental Solutions for Respiratory Health*
 - B. Purpose of Today's Webinar*
 - C. Season Change and Indoor Air: Protecting Respiratory Health*
- III. EPA's Resources for Season Change and Indoor Air: Protecting Respiratory Health..... 5 minutes**
- IV. Featured Speakers: Season Change and Indoor Air: Protecting Respiratory Health..... 35 minutes**
- V. Facilitated Expert Panel Discussion 30 minutes**

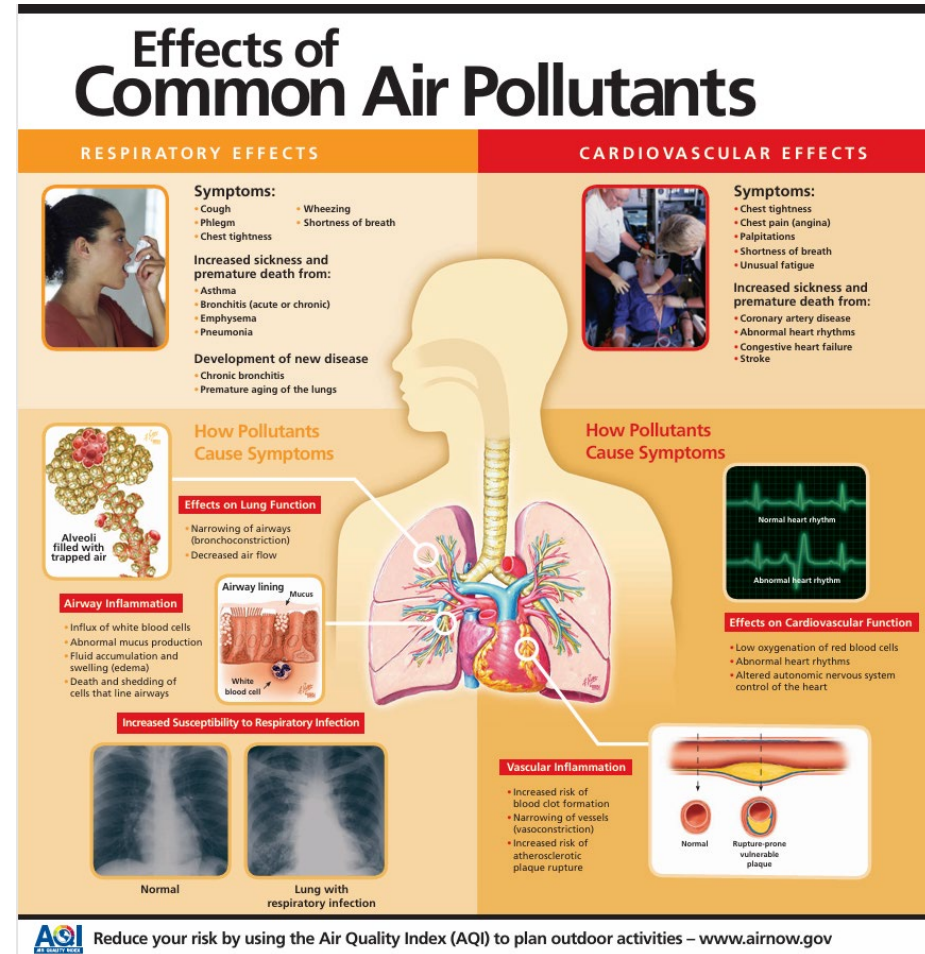
Season Change and Indoor Air: Respiratory Health



Framing the Webinar

When seasonal temperature and outdoor pollutant levels are rising:

- Indoor environments become the first line of defense.
- Indoor environments can be a refuge for people with respiratory health risks.
- Indoor air can be managed to protect health with simple, proven techniques.



[Patient Exposure and the Air Quality Index](#) | U.S. EPA

Indoor Environments Are Critical to Respiratory Health

Purpose of Today's Webinar

- Describe seasonal outdoor air pollution spikes related to respiratory health risks.
- Share knowledge to reduce health risks from high outdoor exposures.
- Present indoor environmental solutions.
- Provide resources to help health care professionals, households, building managers, schools and community leaders to prepare indoor environments before seasonal pollution events occur.



[Ozone and Your Patients' Health: About this Course | U.S. EPA](#)

Season Change and Indoor Air: Respiratory Health



High Outdoor Air Pollution Levels Impact Respiratory Health

- Health impacts of ozone:
 - Asthma, COPD and cystic fibrosis exacerbations
- Health impacts of pollen:
 - Allergic rhinitis (hay fever) and asthma exacerbations
- Both lead to:
 - Increased medication use, emergency visits and hospitalizations

AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

[Air Quality Index Basics | AirNow.gov](https://www.airnow.gov)

Season Change and Indoor Air: Respiratory Health



Impacts to Indoor Air Quality (IAQ) and Health

- Those most at risk from seasonal outdoor air pollution:
 - Children
 - Older adults
 - Outdoor workers
 - People with respiratory conditions like asthma and COPD
 - People with seasonal allergies



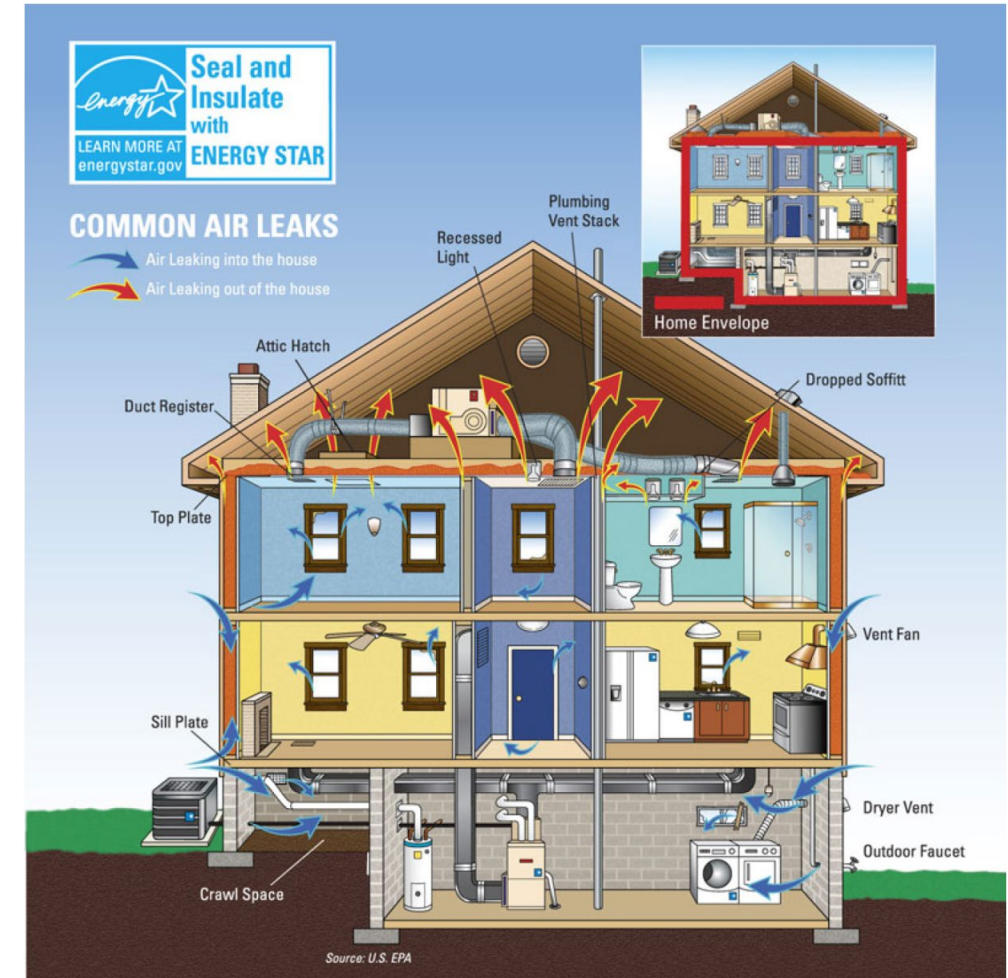
[Pollen | National Institute of Environmental Health Sciences](#)

Season Change and Indoor Air: Respiratory Health



How Exposures Happen Indoors

- Natural ventilation through open windows and doors.
- Infiltration (gaps around windows doors, building envelope leaks).
- Mechanical ventilation that draws in outdoor air.
- Tracked in (by shoes and clothing).



Season Change and Indoor Air: Respiratory Health



Indoor Air Can Be Actively Managed

- When outdoor pollution levels are high:
 - Close windows and doors.
 - Open windows only to maintain ventilation and temperature during activities (e.g., cooking) or events (e.g., heatwaves) that impact IAQ.
 - Use AC with HEPA filtration.
 - Close outdoor air intake, if available.
 - For ozone, use activated carbon filters.
 - Avoid ozone-generating air cleaners.



Figure 3. This image shows an example of a typical portable air cleaner installation.

Season Change and Indoor Air: Respiratory Health



Filtration Matters

- HEPA removes particles (pollen).
- Higher MERV filters (13+ and HEPA) improve air quality.
- Match air cleaners to room size (**Clean Air Delivery Rate**).

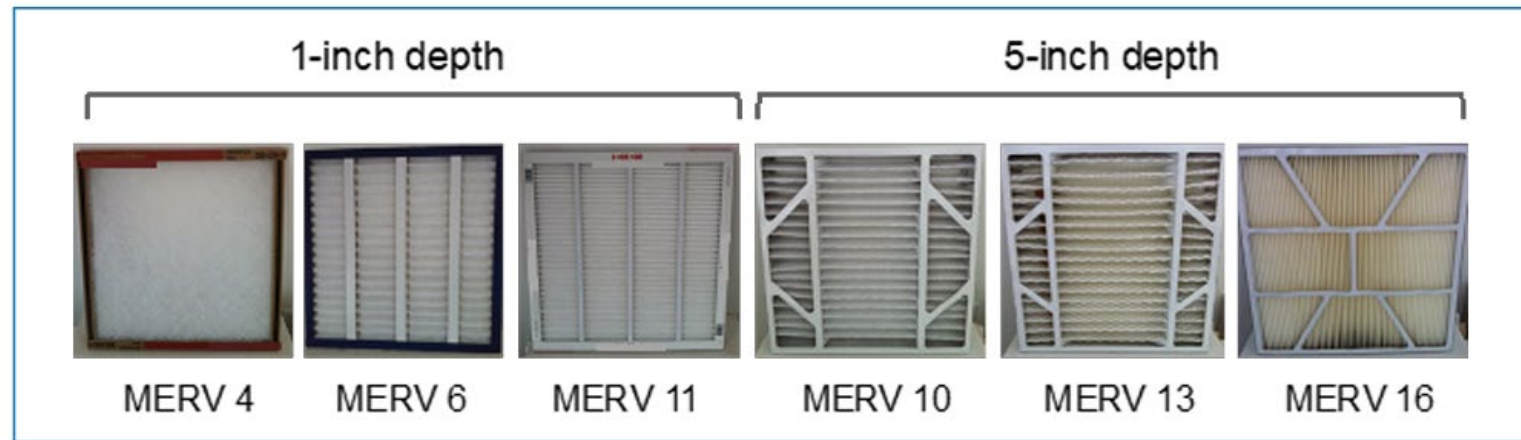


Figure 4. Example of several commercially available residential fibrous media air filter products for central in-duct applications.
Image credit: Brent Stephens.

Season Change and Indoor Air: Respiratory Health



Use AirNow for Everyday Awareness

- Stay informed with AirNow.gov.
- Check AQI daily for ozone and particulate matter forecasts.
- Keep up to date with local weather stations for pollen forecasts.
- Plan outdoor activities accordingly.
- Adjust indoor strategies if needed.
- Use the AirNow Flag Program in schools.

Air Quality and Outdoor Activity Guidance for Schools

Regular physical activity — at least 60 minutes each day — promotes health and fitness. The table below shows when and how to modify outdoor physical activity based on the Air Quality Index. This guidance can help protect the health of all children, including teenagers, who are more sensitive than adults to air pollution. Check the air quality daily at www.airnow.gov.

Air Quality Index	Outdoor Activity Guidance
 green GOOD	Great day to be active outside!
 yellow MODERATE	Good day to be active outside! Students who are unusually sensitive to air pollution could have symptoms.*
 orange UNHEALTHY FOR SENSITIVE GROUPS	It's OK to be active outside, especially for short activities such as recess and physical education (PE). For longer activities such as athletic practice, take more breaks and do less intense activities. Watch for symptoms and take action as needed.* Students with asthma should follow their asthma action plans and keep their quick-relief medicine handy.
 red UNHEALTHY	For all outdoor activities , take more breaks and do less intense activities. Consider moving longer or more intense activities indoors or rescheduling them to another day or time. Watch for symptoms and take action as needed.* Students with asthma should follow their asthma action plans and keep their quick-relief medicine handy.
 purple VERY UNHEALTHY	Move all activities indoors or reschedule them to another day.

Season Change and Indoor Air: Respiratory Health



Take Aways

- Seasonal outdoor air pollution events are increasing.
- Indoor air is a critical protection strategy.
- Simple actions reduce risk:
 - Be aware of outdoor air conditions.
 - Adjust indoor environments for appropriate protection.

Consider Outdoor Air Quality

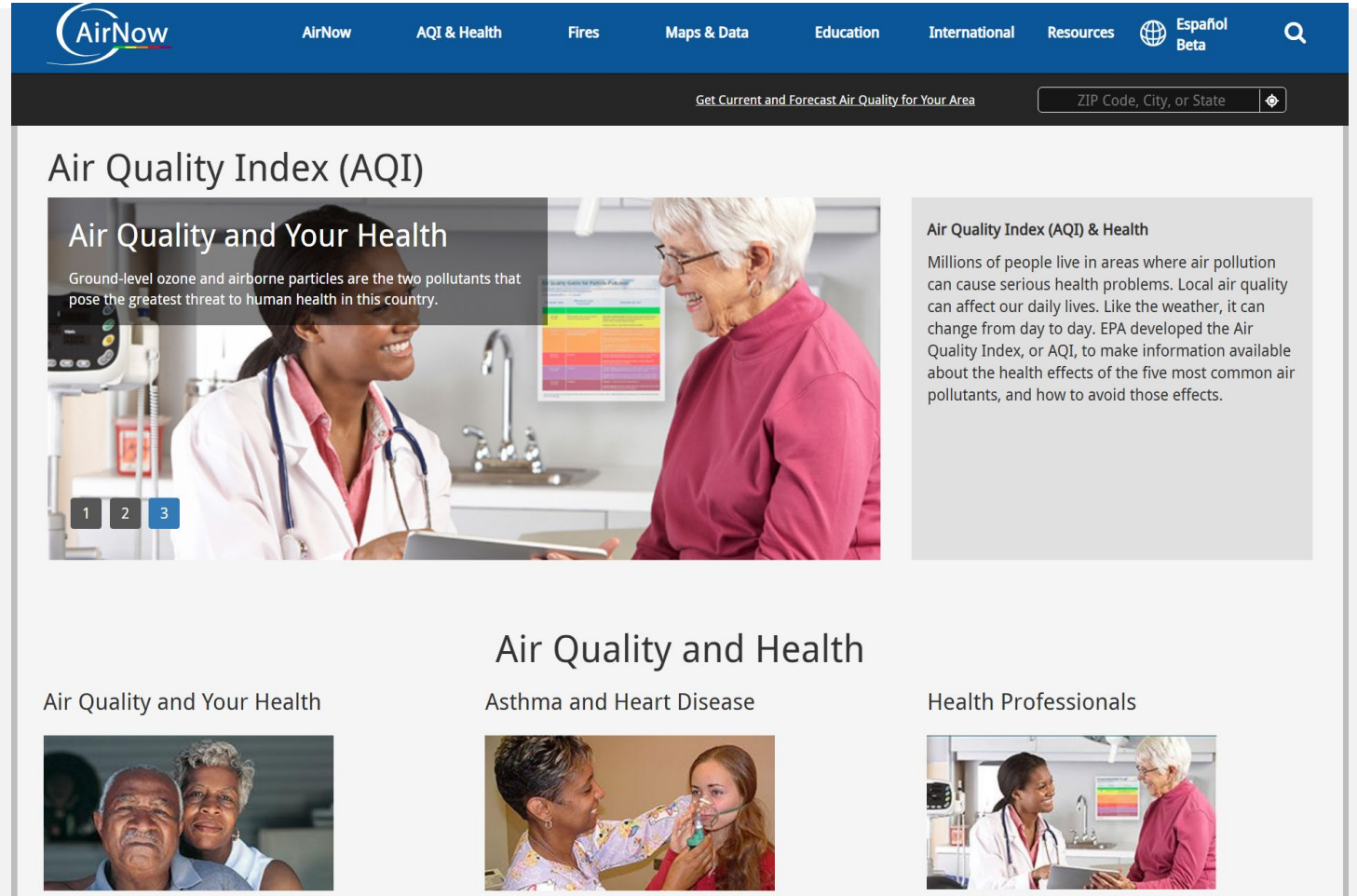


- Learn about [pollution in your community](#) and check outdoor air quality at [AirNow.gov](#). Outdoor air pollution can impact IAQ.
- Be smoke ready. Purchase air cleaners and extra filters before wildfires start and create a [clean air room](#). During fires, check air quality at [fire.airnow.gov](#) or local news.

EPA's Season Change and Indoor Air: Respiratory Health Resources

AirNow

EPA's AirNow provides real-time Air Quality Index (AQI) forecasts to help plan activities and protective steps before outdoor pollution levels become unhealthy.



The screenshot shows the AirNow website interface. At the top is a dark blue navigation bar with the AirNow logo and links for AirNow, AQI & Health, Fires, Maps & Data, Education, International, Resources, and a language toggle for Español Beta. Below the navigation bar is a search bar with the text "Get Current and Forecast Air Quality for Your Area" and a field for "ZIP Code, City, or State". The main content area features a large banner titled "Air Quality Index (AQI)" with a sub-header "Air Quality and Your Health". The banner includes a photo of a doctor talking to an elderly woman and a text box stating: "Ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in this country." To the right of the banner is a text box titled "Air Quality Index (AQI) & Health" which explains that millions of people live in areas where air pollution can cause serious health problems and that the AQI was developed to make information about the health effects of the five most common air pollutants available. Below the banner are three smaller sections: "Air Quality and Your Health" with a photo of an elderly couple, "Air Quality and Health" with a sub-header "Asthma and Heart Disease" and a photo of a woman using an inhaler, and "Health Professionals" with a photo of a doctor talking to a woman.

www.airnow.gov/air-quality-and-health

Air Quality Index (AQI)

EPA Resources for Learning and Action



AirNow

EPA recommends checking the AQI daily and adjusting ventilation, outdoor air intake, air cleaning and outdoor activity based on current conditions.

www.airnow.gov/aqi

Air Quality Index (AQI) Basics

What is the U.S. Air Quality Index (AQI)?

The U.S. AQI is EPA's index for reporting air quality.

How does the AQI work?

The U.S. Air Quality Index (AQI) is EPA's tool for communicating about outdoor air quality and health. The AQI includes six color-coded categories, each corresponding to a range of index values. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 or below represents good air quality, while an AQI value over 300 represents hazardous air quality.

For each pollutant an AQI value of 100 generally corresponds to an ambient air concentration that equals the level of the short-term national ambient air quality standard for protection of public health. AQI values at or below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is unhealthy; at first for certain sensitive groups of people, then for everyone as AQI values get higher.

The AQI is divided into six categories. Each category corresponds to a different level of health concern. Each category also has a specific color. The color makes it easy for people to quickly determine whether air quality is reaching unhealthy levels in their communities.

AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
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Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

www.airnow.gov/aqi/aqi-basics

Air Quality Flag Program

EPA Resources for Learning and Action



AirNow

The Flag Program helps schools and communities to use color-coded flags to communicate daily AQI and prompt actions like moving indoors when advised.

The screenshot shows the AirNow website's 'Education' section. The header includes the AirNow logo and navigation links: AirNow, AQI & Health, Fires, Maps & Data, Education, International, Resources, and a search icon. A search bar prompts users to 'Get Current and Forecast Air Quality for Your Area' by entering a ZIP Code, City, or State. The main content area is divided into three columns:

- Air Quality Classroom Curriculum**: Accompanied by an image of four diverse students. The list includes:
 - Coloring Page
 - Activity Sheet (Grade K)
 - Activity Sheet (Grades 1-2)
 - Activity Sheet (Grades 3-5)
 - Bird's Eye View Lesson Plan (Grades K-5)
 - What's Up There Besides Air (Grade 5)
 - Air Strips Lesson Plan (Grades 6-8)
 - Particulate Pollution Paper Wad Game (Grades 6-8)
 - Field Testing for Ozone Lesson Plan (Grades 9-12)
 - Whirling Swirling Air Pollution 9-12 and Adult
- Educational Resources**: Accompanied by an image of a cityscape with a sun labeled 'SUNLIGHT'. The list includes:
 - Virtual Flag Display
 - Morning Announcements
 - Air Quality Animations and Games for Students
 - Air Quality Resources For Teachers
 - Why is Coco Orange? Book
 - Poster for Schools
 - Build Your Own Particle Sensor
 - Generate: The Game of Energy Choices
 - EnviroAtlas Interactive Educational Materials
- Additional Resources**: Accompanied by an image of children playing hopscotch. The list includes:
 - Girl Scout Activity Booklet
 - EPA's Environmental Education Center
 - EPA: Protecting Children's Environmental Health

The footer contains the text 'AirNow.gov - Home of the U.S. Air Quality Index', a link to 'Home | Site Map | Contact Us | Accessibility', and social media icons for Facebook, X, RSS, and Email.

www.airnow.gov/air-quality-flag-program/schools

Air Cleaning Allies Infographic

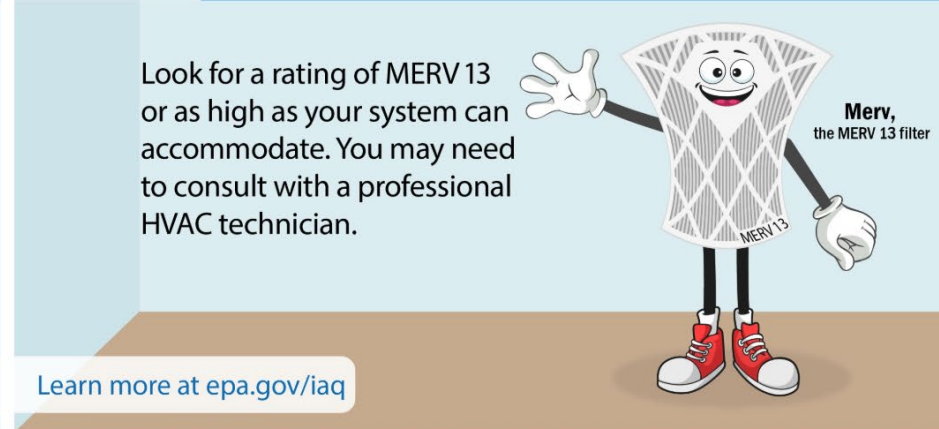
EPA Resources for Learning and Action



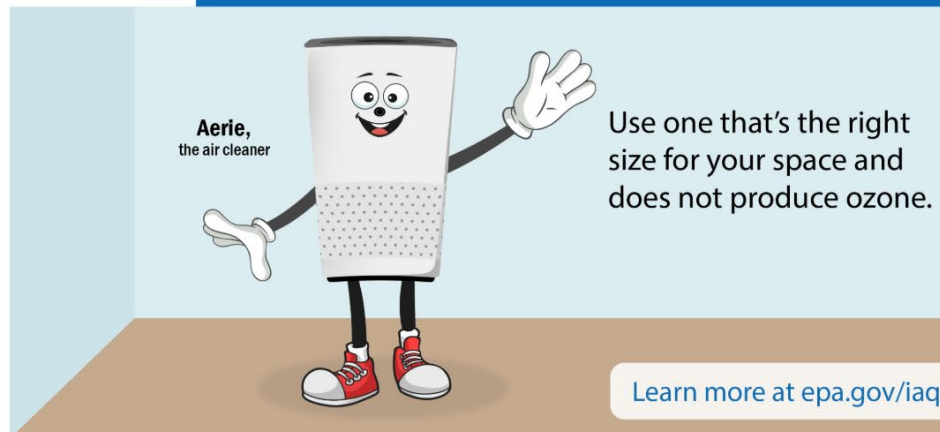
Meet Your Air Cleaning Allies!



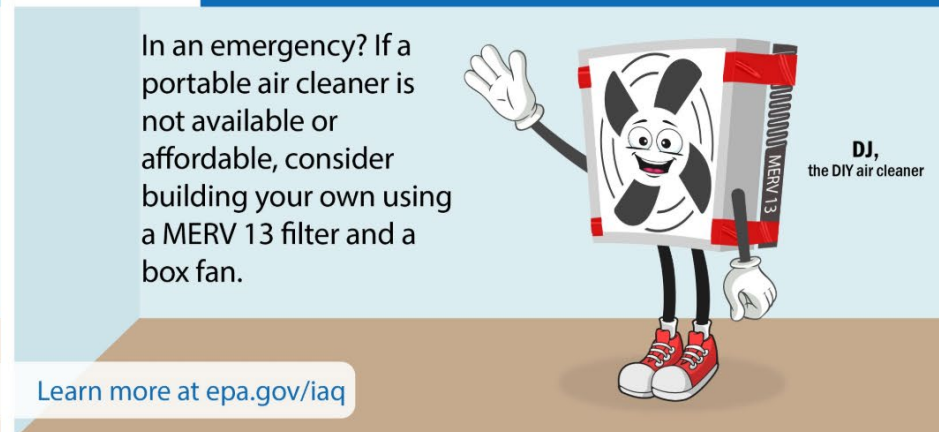
High-Efficiency HVAC Filters



Portable Air Cleaners



DIY Air Cleaners



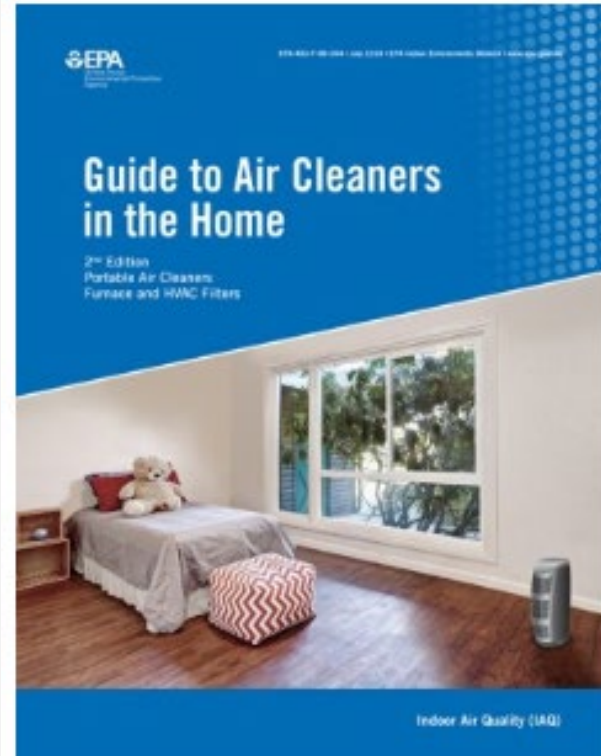
Air Cleaning Guidance Document

EPA Resources for Learning and Action



Guide to Air Cleaners in the Home (2nd Edition)

This short consumer guide covers portable air cleaners and furnace or HVAC filters. It includes tips for selecting a portable air cleaner, furnace filter, or HVAC filter.



Tips For Selecting a Portable Air Cleaner, Furnace Filter, or HVAC Filter



[Guide to Air Cleaners in the Home | U.S. EPA](#)

Ozone Generators Web Page

EPA Resources for Learning and Action



Web Pages

EPA has web pages on ozone generators to avoid, reliable air cleaners and steps to protect indoor environments for health. Find guidance for selecting air cleaners, monitoring outdoor air and ventilating with filtration during high outdoor air pollution events.

Learn more at www.epa.gov/iaq

Improving Your Indoor Environment

Did you know we spend about 90% of our time indoors?

Levels of air pollution indoors can be as high, and sometimes higher, than outdoor levels. Indoor Air Quality (IAQ) can affect anyone's health, but older adults, children, and people with health conditions like asthma and heart disease can be more vulnerable.

Learn about indoor air pollution and the steps that you can take to improve your indoor environment.

Indoor Air and Health are Connected - Take Action



- Learn how reducing indoor contaminants may improve health. Tour the [IAQ Demo House](#).
- Ventilate! When outdoor air quality and weather permit, open doors and windows. Run kitchen and bathroom exhaust fans when cooking and showering.
- Consider a high-efficiency [air filter](#) for your HVAC system and/or a [portable air cleaner](#) that does not intentionally emit ozone.
- Control indoor moisture to prevent [mold](#). Fix water leaks and keep humidity levels between 30-50% by ventilating or using a dehumidifier if necessary.
- Install and inspect [carbon monoxide](#) and smoke alarms.
- Declutter, wipe dust with a damp rag, and vacuum to help reduce [asthma triggers](#), allergens, pests, and pollutants.
- If you rent, inform your landlord right away about indoor air quality or water concerns. You may also consult Environmental Law Institute's [Indoor Air Quality Guide for Tenants](#).

Vent Your Combustion Appliances



- Vent all combustion appliances to the outside. Combustion appliances like heaters, stoves, and dryers can produce [dangerous pollutants](#) in your indoor air.
- Have your combustion appliances (like wood heaters and gas stoves) inspected annually and follow manufacturer instructions. Appliances that are not working properly can produce dangerous pollutants like [carbon monoxide](#).
- Never use a cooking stove to heat indoors and never use a fuel powered generator indoors, even during [power outages](#).

Consider Outdoor Air Quality



- Learn about [pollution in your community](#) and check outdoor air quality at [AirNow.gov](#). Outdoor air pollution can impact IAQ.
- Be smoke ready. Purchase air cleaners and extra filters before wildfires start and create a [clean air room](#). During fires, check air quality at [fire.airnow.gov](#) or local news.

Reduce Chemical Pollution Indoors



- Minimize the indoor use of cleaners, pesticides, perfumes, and other household and personal chemical products.
- Use less toxic cleaning products like mild soap and water. Look for products with EPA's [Safer Choice](#) label.
- Follow product label instructions, don't mix chemicals, and ventilate when painting, cleaning, sanitizing or disinfecting.
- Use non-chemical methods like [integrated pest management](#) whenever possible to manage pests. Avoid using pesticide sprays and foggers.
- Avoid [smoking](#) or using e-cigarettes indoors. If you live in multi-unit housing, consider advocating for a smoke-free policy in your building.

Check for Lead and Radon



- Test for [lead](#) in your home or school if it was built before 1978 and consult with your child's healthcare provider for advice on blood lead testing.
- Test your home or school for [radon](#) and fix if needed. Exposure to radon is the 2nd leading cause of lung cancer in the U.S.



Scan this QR code with your smartphone camera to view [this document](#) online



Scan here to visit EPA's [Indoor Air Quality](#) site, including resources for schools



May 2022

Introducing Our Speaker-Panelists

Facilitated Expert Panel Discussion



Allison J. Burbank, M.D., FAAAAI
Associate Professor of Pediatrics, Division of
Allergy & Immunology
Associate Program Director, Allergy &
Immunology Fellowship Program
University of North Carolina School of Medicine



Brent Stephens, Ph.D.
Professor and Department Chair
Arthur W. Hill Endowed Chair in Sustainability,
Department of Civil, Architectural, and
Environmental Engineering
Illinois Institute of Technology



Mike Van Dyke Ph.D., CIH
Associate Professor, Department of
Environmental and Radiological Health
Sciences
Colorado State University

Season Change and Indoor Air: Clinical Implications

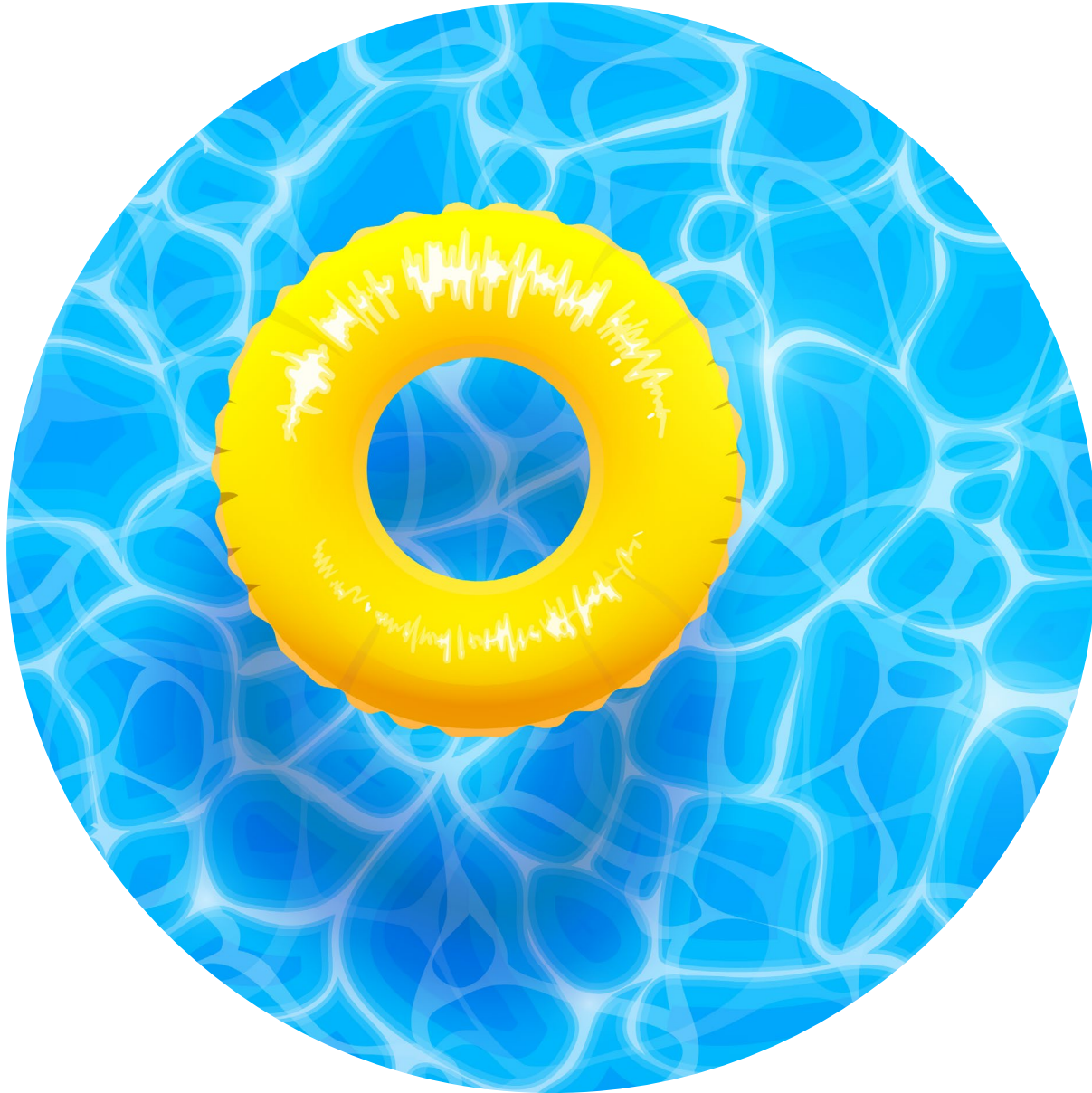
Allison J. Burbank, M.D.

Associate Professor of Pediatrics

Division of Allergy & Immunology

Department of Pediatrics

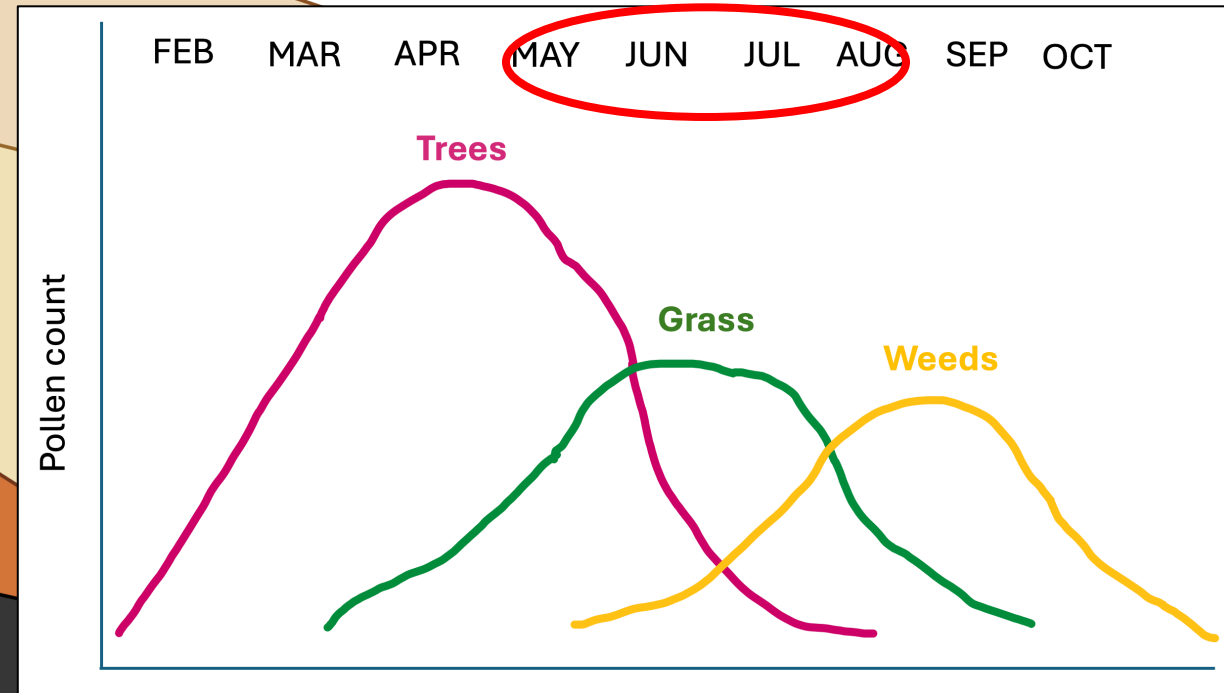
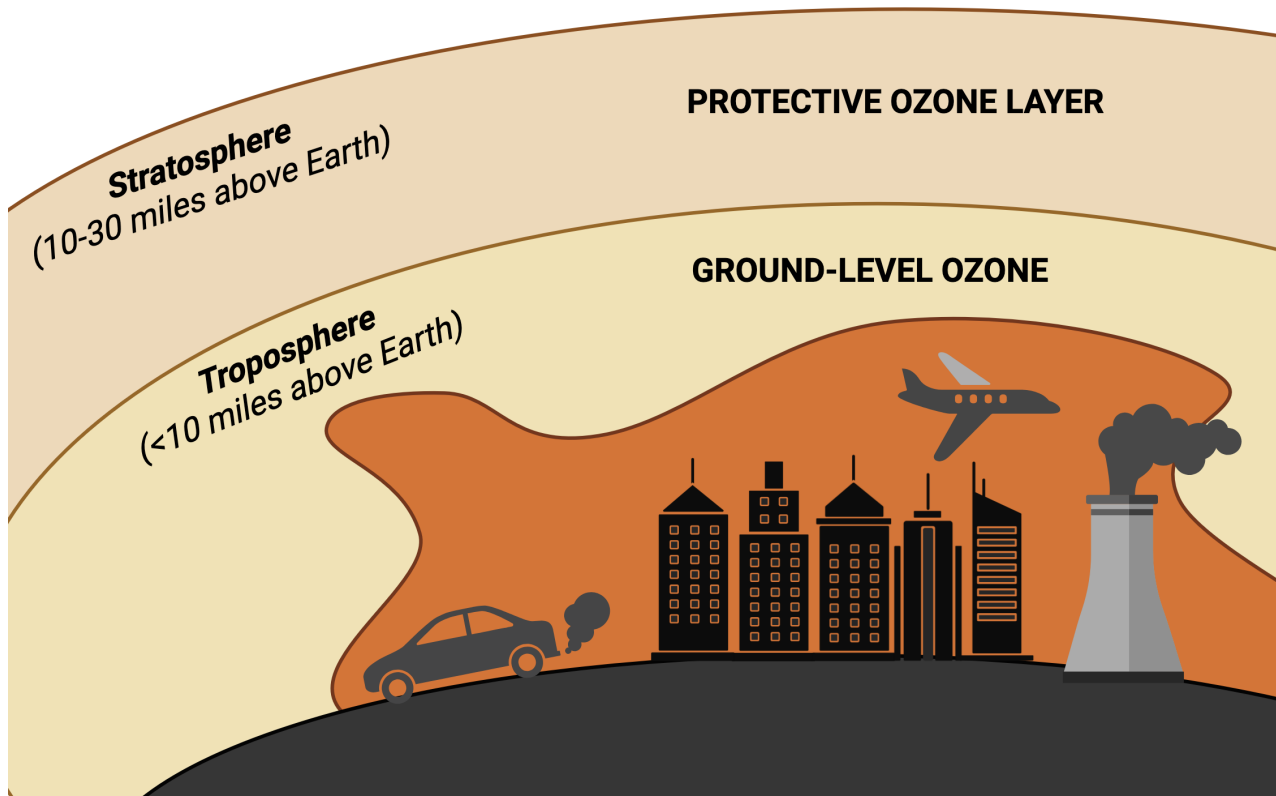
University of North Carolina Chapel Hill School of Medicine

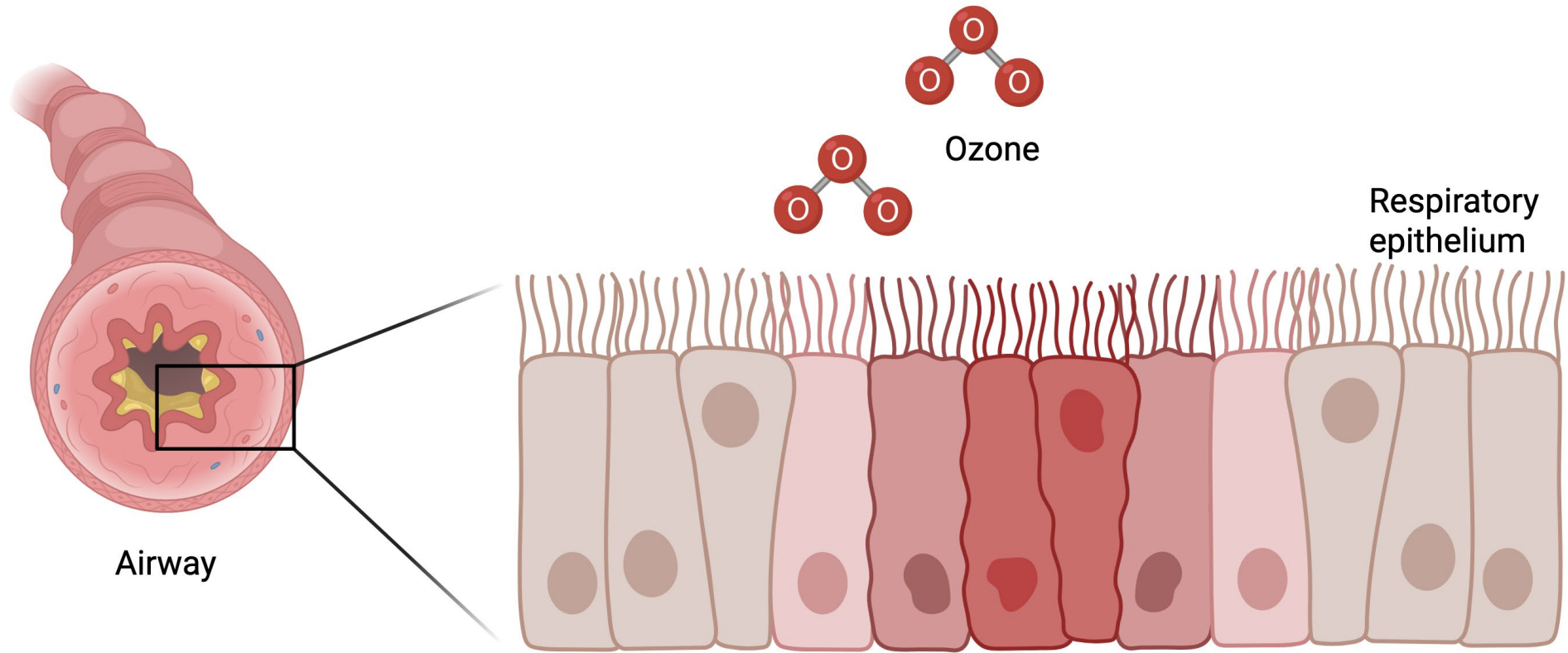


After surviving respiratory virus season, it's finally summer!

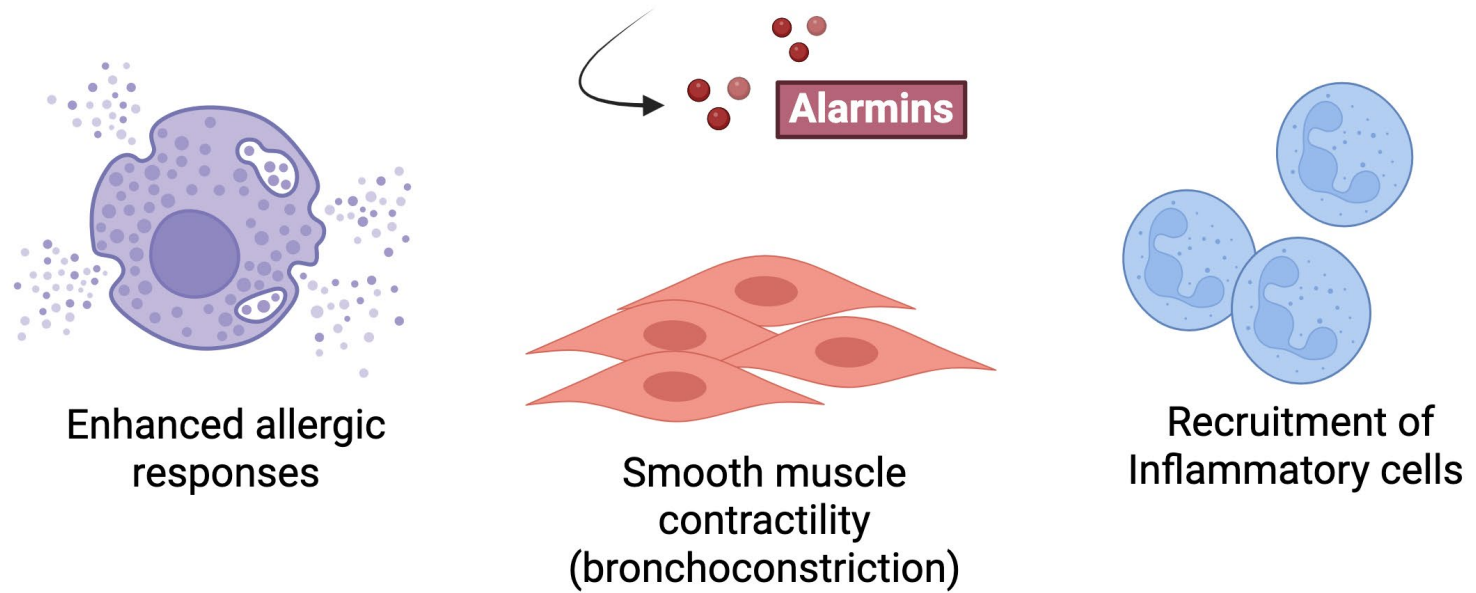
- Lower prevalence of respiratory viruses mean that summer can be a season with reduced exacerbations of chronic respiratory diseases like asthma and COPD.
- However, warming temperatures are accompanied by new threats for people with asthma and COPD.

As temperatures rise, exposure to ozone and allergen increase.





Ozone-Induced Lung Injury



Ground-Level Ozone

Oxidative stress, airway inflammation, enhanced allergic responses

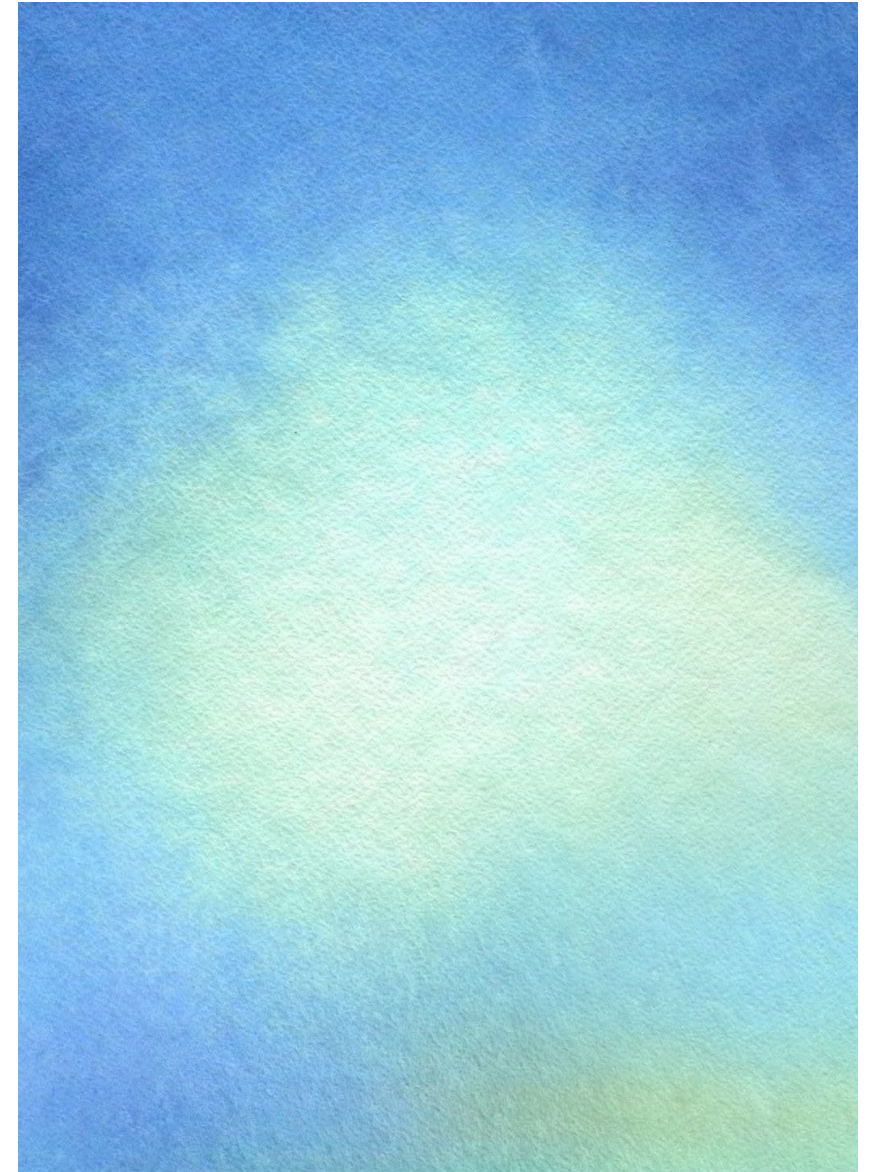
Increased respiratory symptoms: cough, shortness of breath, chest tightness and pain with inspiration

Acute decrease in lung function

Increased frequency of asthma exacerbations, as well as ED visits and hospitalizations for asthma, COPD, and pulmonary infections (strongest effect in summer months)

High-risk groups: children, elderly, people with pre-existing lung disease, smokers

Evidence of harm even at levels below the current EPA standard of 70 ppb



Summer Allergy Season

Grasses
Trees (*earlier*)
Weeds (*later*)

High pollen levels are linked with:

- Increased frequency of asthma exacerbations
- ED visits
- Hospitalizations

Co-exposure
to extreme heat,
ozone and allergen

Synergistic
interaction that
amplifies risk

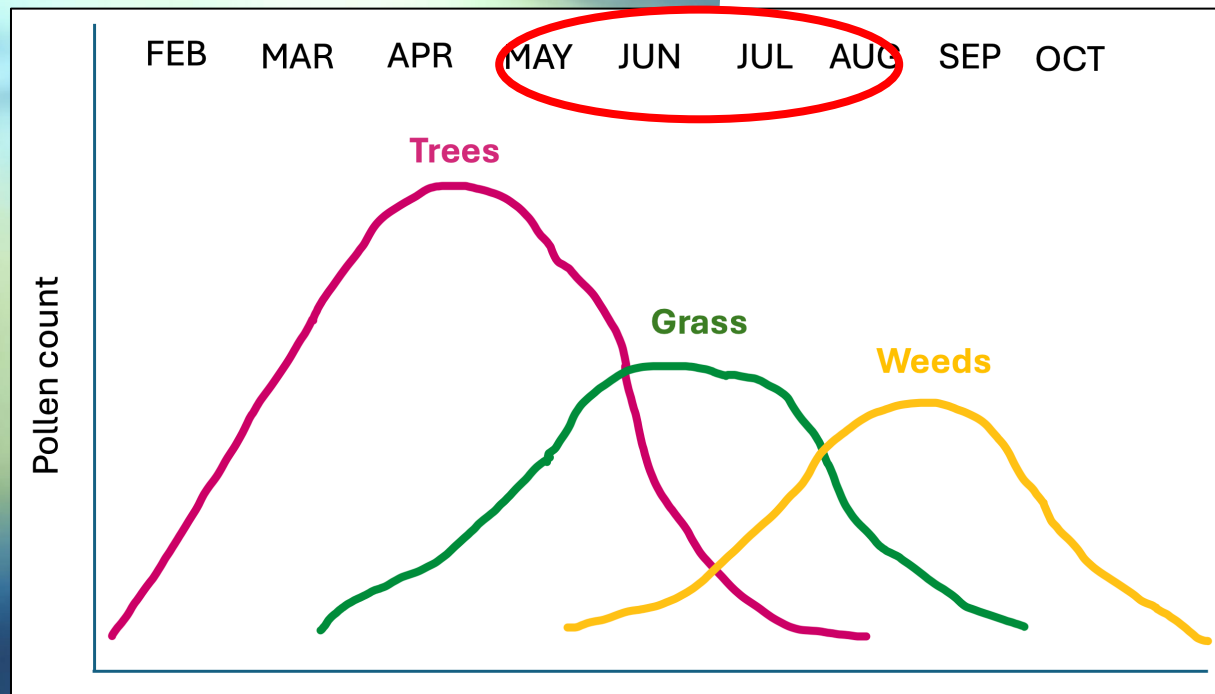
Ozone primes
airways for enhance
allergic response to
allergen

Lappe et al., 2023:

26-year study in Atlanta area: 1–8% increase in asthma ED visits per SD increase in pollen concentration

De Roos et al., 2020:

Children with asthma in Philadelphia, 38% increased odds of asthma exacerbation with grass pollen concentrations >99 percentile



Reducing Individual Risk

- Modify activities — reduce intensity and duration of outdoor exercise on high ozone / high allergen days
- Use of portable HEPA air cleaners with activated carbon filters to remove ozone
- Follow a personalized asthma action plan, including taking daily asthma controller medications and allergy medications if prescribed
 - Pair with exposure reduction
- Consider allergen immunotherapy; anti-alarmin (TSLP) therapy?
- Antioxidants — diet, Vitamin C/E supplements

Indoor Environmental Controls for Seasonal Pollution Episodes

Brent Stephens, Ph.D.

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advancing energy, environmental, and sustainability
research within the built environment
at Illinois Institute of Technology



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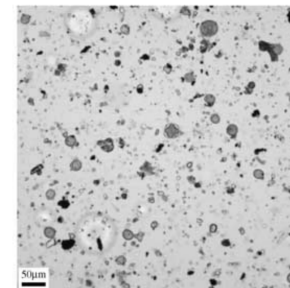
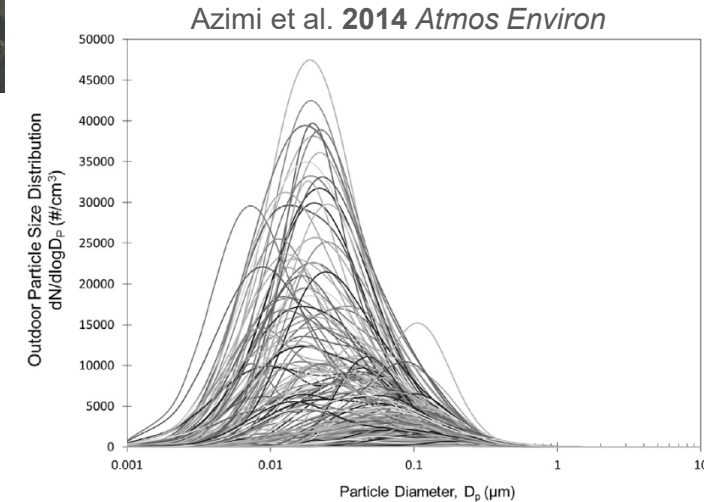
Indoor exposures to seasonal ambient air pollution

Seasonally-varying/episodic outdoor pollutants that can enter indoors:

- Ambient ozone (O_3)
 - Highly reactive with building materials
- Ambient particulate matter ($PM_{2.5}$, PM_{10} , UFPs)
 - Includes wildfire smoke
 - Wide range of particle sizes (<10 nm to ~10 μm)
- Ambient allergens (e.g., pollen)
 - Large particles (>10 μm)
 - Fragments in smaller PM



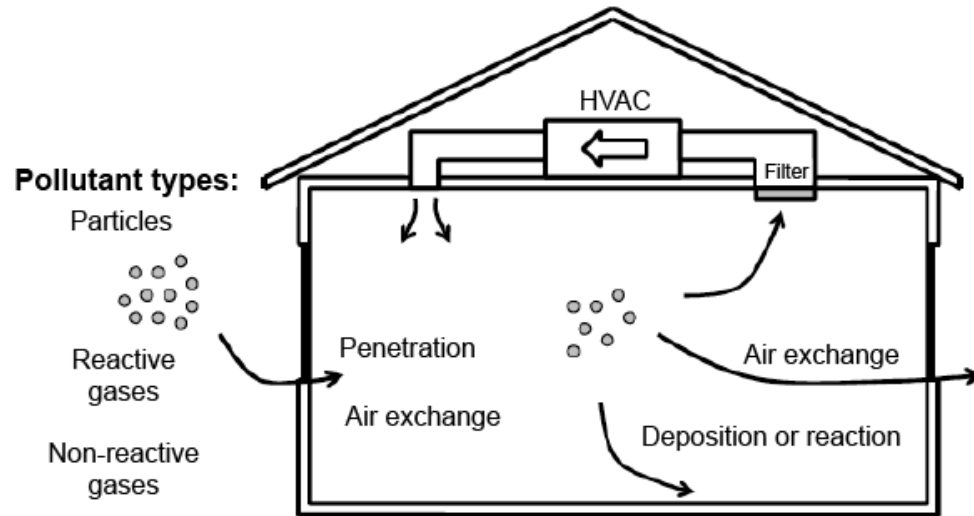
stateofglobalair.org



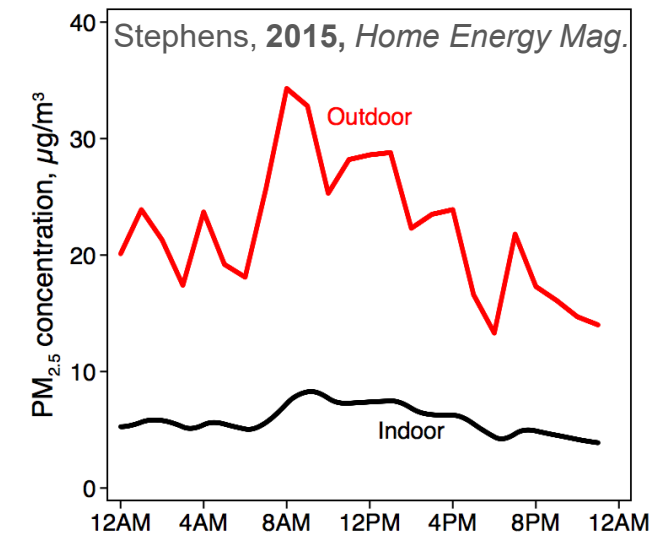
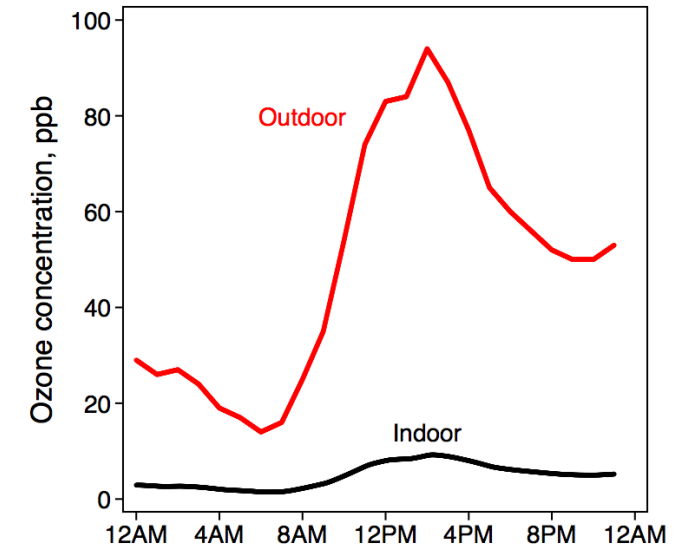
Ronneberger et al.,
2002 *Aerobiologia*

Ormstad, 2000 *Toxicol*

Indoor exposures to seasonal ambient air pollution



$$\left. \frac{C_{in}}{C_{out}} \right|_{\text{No indoor sources}} = F_{inf}$$



Common infiltration factors (F_{inf})

- Ozone: <0.1 to >0.5
Nazaroff and Wechsler, **2021**, *Indoor Air*
- PM_{2.5}: 0.1 to 1 | Ultrafine particles: <0.1 to 0.6
Chen and Zhao, **2011**, *Atmos Environ*; Stephens, 2015, *Sci Technol Built Environ*
- Wildfire PM_{2.5}: $F_{inf} \downarrow$ but $C_{in} \uparrow$
Liang et al., **2021**, *PNAS*
- Pollen: < 0.1 to > 0.7
Richards, **1954**, *J Allergy*; Menzel et al., **2016**, *Indoor Air*

Factors: Building envelopes, window opening, mechanical ventilation (filtration)

Infiltration (and control) of ambient ozone (O₃)

- O₃ reacts with building envelopes and indoor surfaces as it infiltrates indoors
- Some O₃ remains indoors, but reaction byproducts are also of concern for health
- Solutions:
 - Keep windows/doors closed (reduces air infiltration)
 - Filter incoming mechanical ventilation air stream (mitigates before O₃ enters indoors)
 - Run portable air cleaners with sorbent media (mitigates O₃ once indoors)
- Challenges:
 - Filters and portable air cleaners are not commonly tested for ozone removal
 - Rule of thumb: “Lots of carbon”

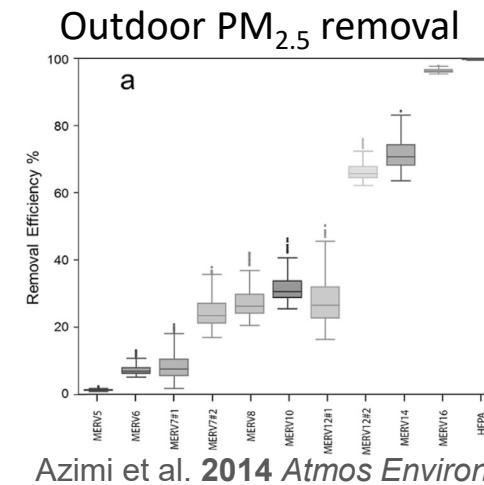
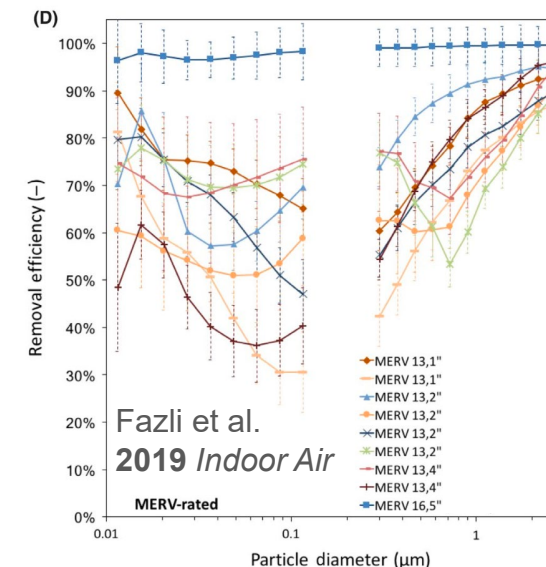
Weschler and Nazaroff, 2023, *Environ Sci Technol*

Impact of filter properties on ozone removal performance.

Property	Value	Device	Ozone removal efficiency (%)	
			70 ppb	500 ppb
Depth and Composition	2", pure carbon	A1	33	21
	4", pure carbon	A2	34	23
	2", blend	E9	31	20
	4", blend	E10	37	24
Carbon loading	Low (215 gsm)	C5	36	24
	High (485 gsm)	C6	60	46
Carbon source	Coconut shell	D7	85	83
	Coal	D8	84	63

Infiltration (and control) of ambient PM

- Particles pass through building envelopes (and filters) with varying efficiency.
 - Particle size (diameter) is key
- Solutions:
 - Keep windows/doors closed (reduces air infiltration)
 - Filter incoming mechanical ventilation air stream (mitigates before PM enters indoors)
 - Indoor filtration (mitigates PM once indoors):
 - Run portable air cleaners with high-efficiency filter media (high CADR and low noise)
 - Run central forced air heating and/or cooling fans with higher efficiency in-duct filters (high MERV)
- Challenges:
 - Portable: Not all air cleaners labeled with CADR
 - In-duct: MERV $\neq$ MERV, pressure drop, installation
 - Rules of thumb:
 - Higher CADR/higher MERV is more effective
 - Deeper bed filters have less airflow resistance



Infiltration (and control) of ambient allergens

- Allergens can also enter inside from outside.
 - Pollen grains generally larger particles with low penetration efficiency
- Solutions:
 - Keep windows/doors closed (reduces air infiltration)
 - Indoor filtration (mitigates allergens once indoors)
- Challenges:
 - Large particles result in dust exposures
 - Harder to control with indoor air cleaning

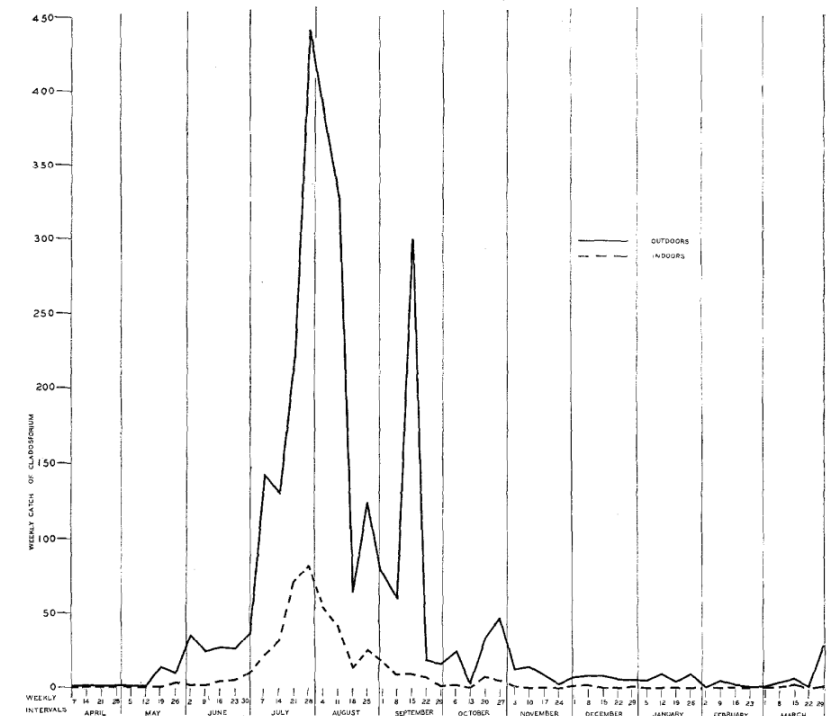
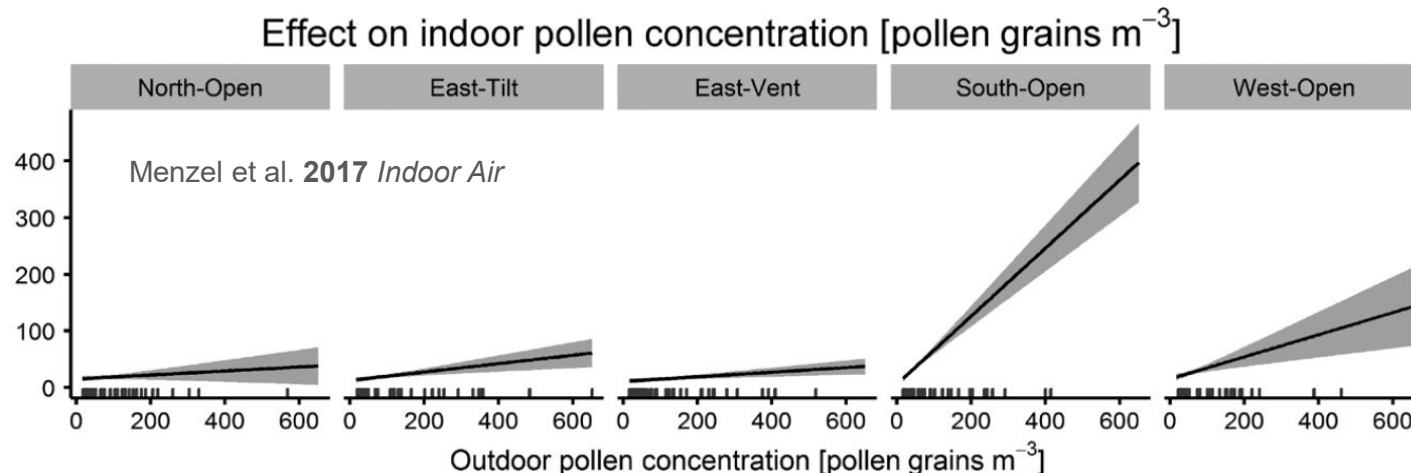
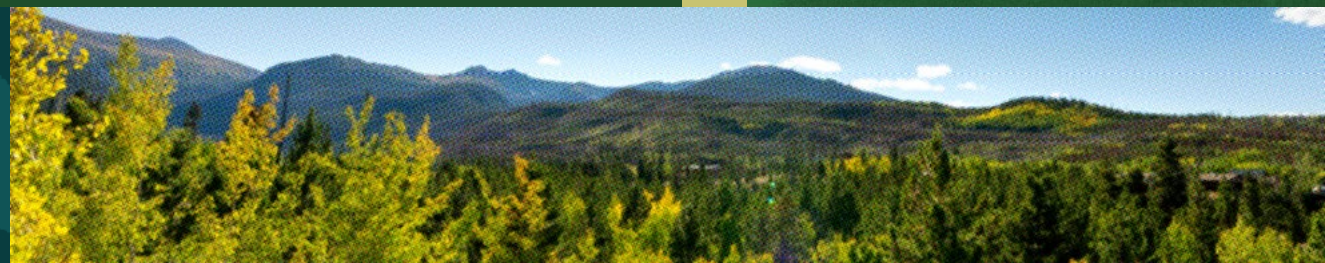


Fig. 3.—The seasonal variation in *Cladosporium* incidence. The graph is plotted at weekly intervals, each point representing the *Cladosporium* catch on six successive daily pairs of plates.

Richards 1954 *J Allergy*

Indoor Air: Community Interventions

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What can communities do about indoor air?

Barriers

- Few regulations that specifically address indoor air quality (IAQ)
- Enforcement of building codes varies by jurisdiction
- Building code enforcement indirectly addresses IAQ
- Varying resources of homeowners and renters
- Budget constraints of public buildings (schools, community centers)
- Community scale IAQ interventions prohibitively expensive

Opportunities

- Large number of organizations involved in community and public health
- Large number of organizations involved in housing
- Many individuals with health concerns potentially due to indoor air

Voluntary, engaged network

- Develop a network or coalition of local organizations and individuals with interest and resources in health and housing
- Coalition members could include:
 - Physicians, researchers
 - Local health departments
 - Housing departments/authorities
 - Code enforcement
 - Weatherization
 - Low-income energy assistance programs
 - Legal aid organizations
 - Hospital system community health workers
 - School districts, school nurses
 - Air quality professionals
 - National partners (EPA, HUD)
 - National organizations
 - National Center for Healthy Housing
 - Asthma Community Network



Community Asthma Coalition

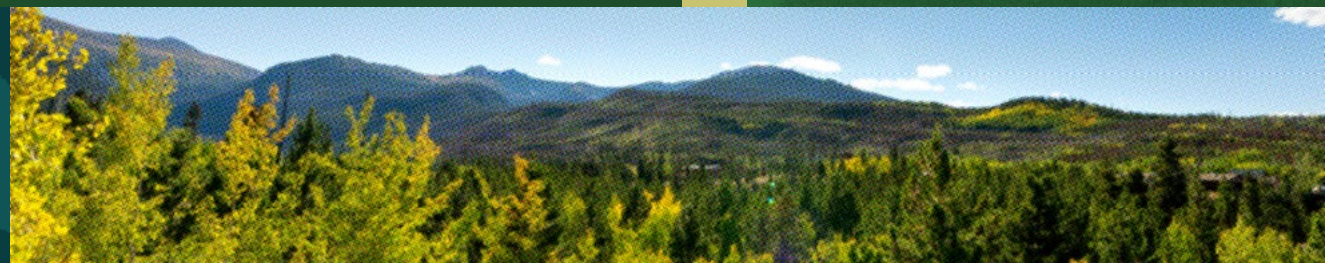
- Share resources
 - Understand the abilities and limitations of each partner
 - Identify funding sources for individual and community interventions
- Solve individual problems
 - Bring issues to meetings
 - Use email list to solicit solutions
- Partner on Incremental policy progress
 - IAQ in building codes and code enforcement
 - Improved air quality in schools
 - Access to community health/environmental professionals for asthma patients



Community Actions: Education and Messaging

- Conduct asthma and IAQ training (classroom)
 - Community health workers
 - Code enforcement
 - Health department/sanitation
- Develop and disseminate education materials (action oriented, multiple delivery methods — written, social media, etc.)
 - Improving indoor air quality
 - Reducing indoor asthma triggers
 - Reducing the effect of outdoor pollution (wildfires, pollen, ozone, etc.)
- Provide guidance on air quality messaging for asthma patients
 - Consistent messaging in centralized location with links to patient education resources
 - Work with local news media
 - Network of air quality and asthma experts for media
 - Emergency resources: shelters, cooling centers, N-95 masks

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Season Change and Indoor Air: Protecting Respiratory Health

Facilitated Expert Panel Discussion



Thank You for Attending!