American Lung Association.

NEW YORK STATE | Children's Asthma Initiative
Asthma Management in Schools

Breathing Easier:

Indoor Air Quality & Asthma Management in Schools

October 24, 2024

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Manager, Health Promotion

American Lung Association

- Founded in **1904**, the American Lung Association, is the **oldest voluntary health organization** with offices nationwide

- **Mission:** To save lives by **improving lung health** and **preventing lung disease**, through research, education and advocacy

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NEW YORK STATE

Children's Asthma Initiative

AIM:

- improve asthma-related health outcomes
- promote health equity
- address health-related social needs (HRSN)

Key Interventions

Project BREATHE NY Asthma QI

Asthma Management in Schools & SBHCs

Home-Based Asthma Services

Asthma Workforce Development

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Asthma Management in Schools

- **Educational resources & technical assistance** to schools, youth-serving organizations, and SBHCs
- **Training** for all school personnel on understanding asthma and supporting students
- **Asthma self-management education programming** for students with asthma

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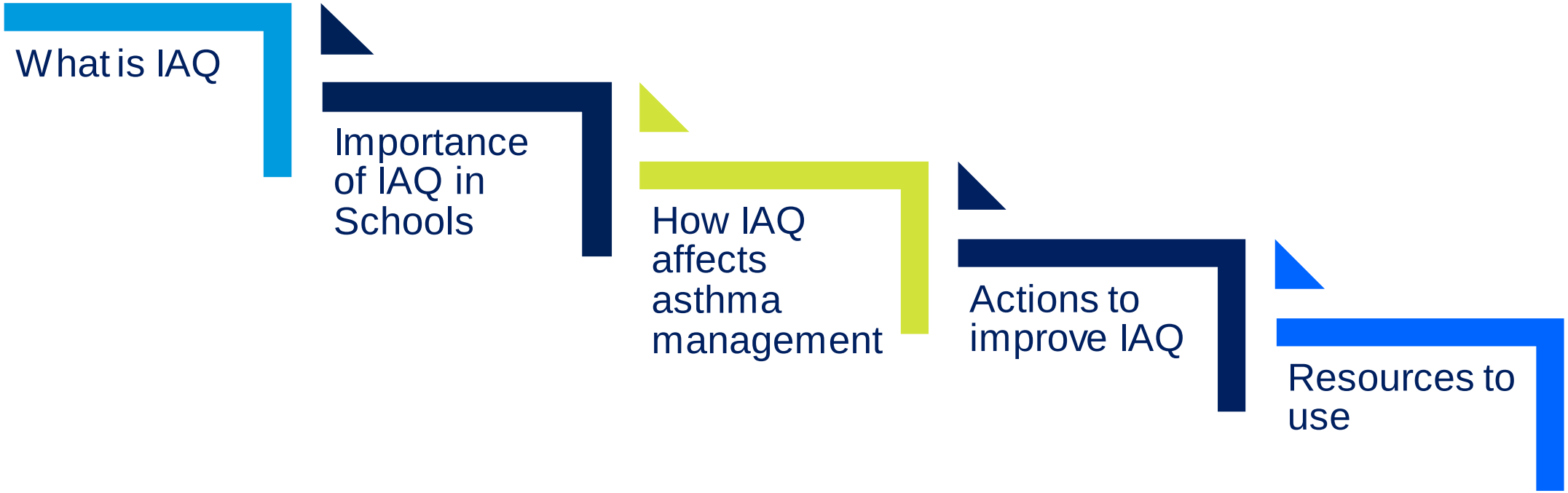
What We Will Discuss



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IAQ & Asthma

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What is Indoor Air Quality (IAQ)?

Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. Understanding and controlling common pollutants indoors can help reduce your risk of indoor health concerns.

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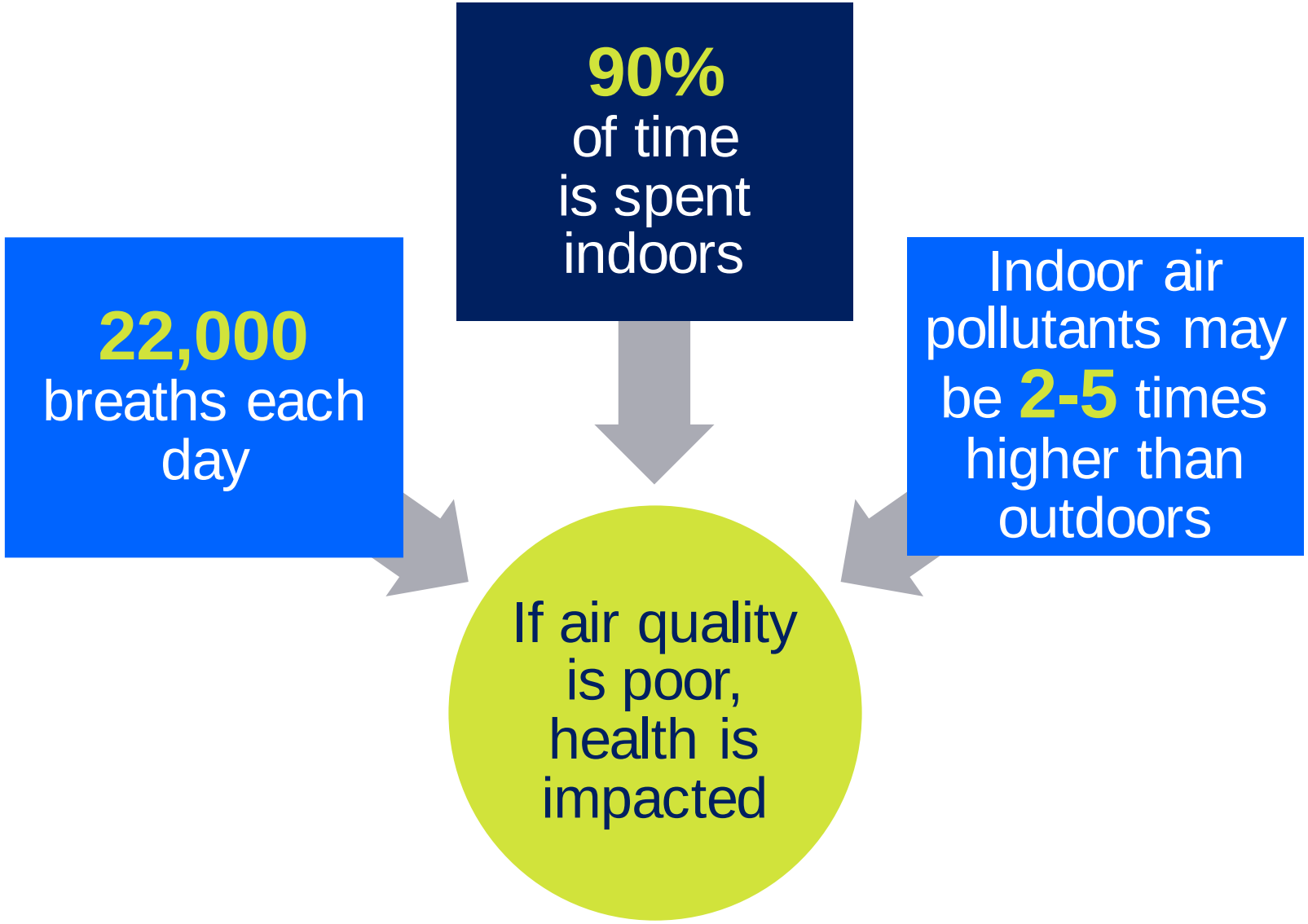
We Are What We Breathe



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Vulnerable Populations

Older Adults

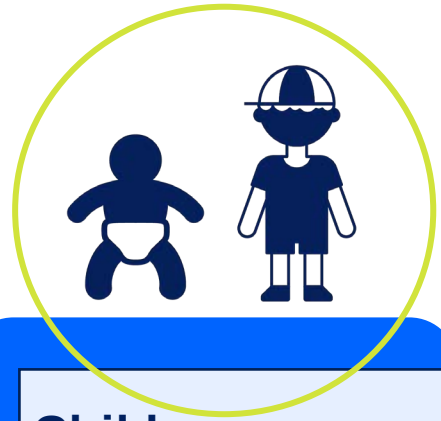
- More long-term health conditions
- Defense systems don't work as well
- Less able to combat the effects of pollutants

Individuals who are pregnant

- Indoor pollutants, even at low levels, may be associated with adverse birth outcomes

People with pre-existing health conditions

- High risk of exacerbations or complications from their disease



Children

- Breathe more rapidly, absorb more pollutants
- Live closer to the ground, where pollutant concentrations can be higher

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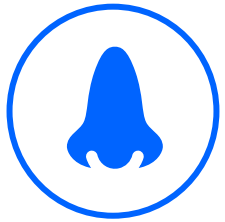
Health Effects of Poor IAQ

Health effects can be felt shortly after exposure, years later, and at any point in between.

We don't yet know how long (exposure) or how much (dose) is needed to produce a specific health problem.



Short-term effects:

- Headaches
- Dizziness and fatigue
- Irritation of eyes, nose, throat
- Shortness of breath
- Chest Tightness

Long-term effects::

- Heart disease
- Cancer
- Respiratory disease
- Asthma and Allergies

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Asthma is a chronic inflammatory disease of the airways

Symptoms & Triggers

- Asthma **symptoms** include **wheezing, coughing, shortness of breath, and chest tightness**
- Common **triggers** for children at school often include allergens like **dust mites, mold, and pollution**
- Recognizing these factors is crucial for effective asthma management

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Asthma is one of the most **common chronic conditions** among children and adolescents in the US

- Currently affecting **1 in 12** children
- On average, in a class of 30, **3 students** will have asthma
- Leading cause of **school absenteeism**

Asthma management requires a team effort

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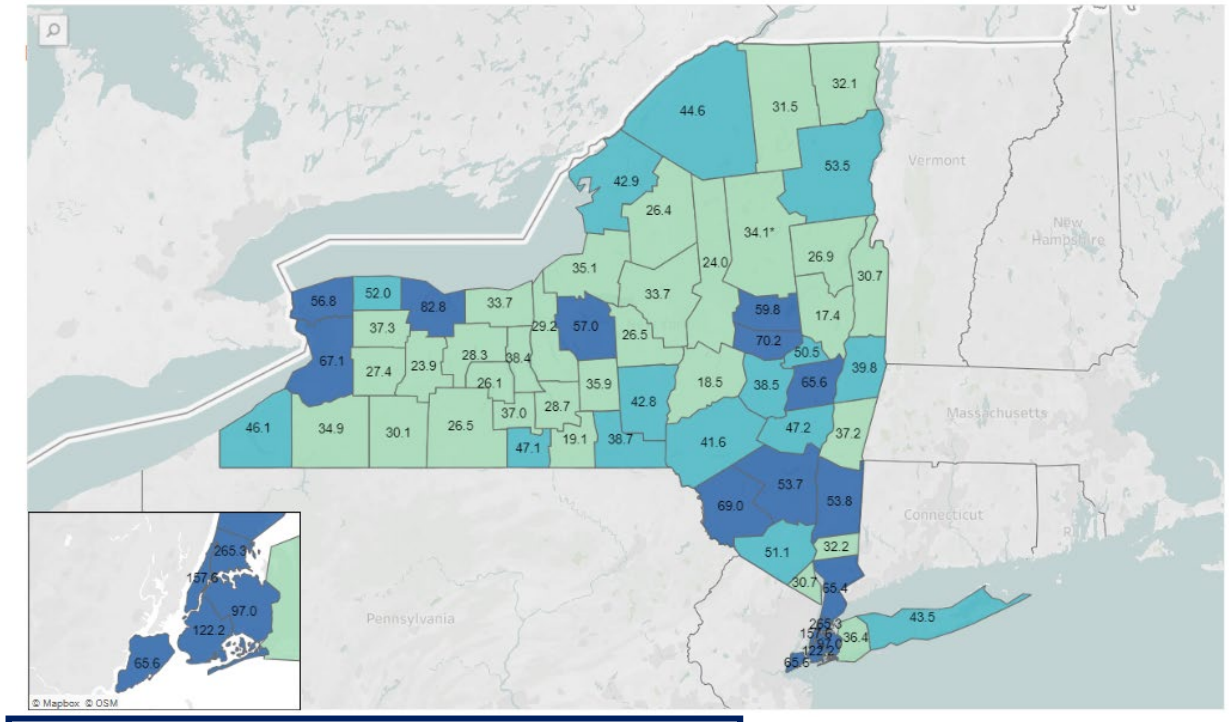
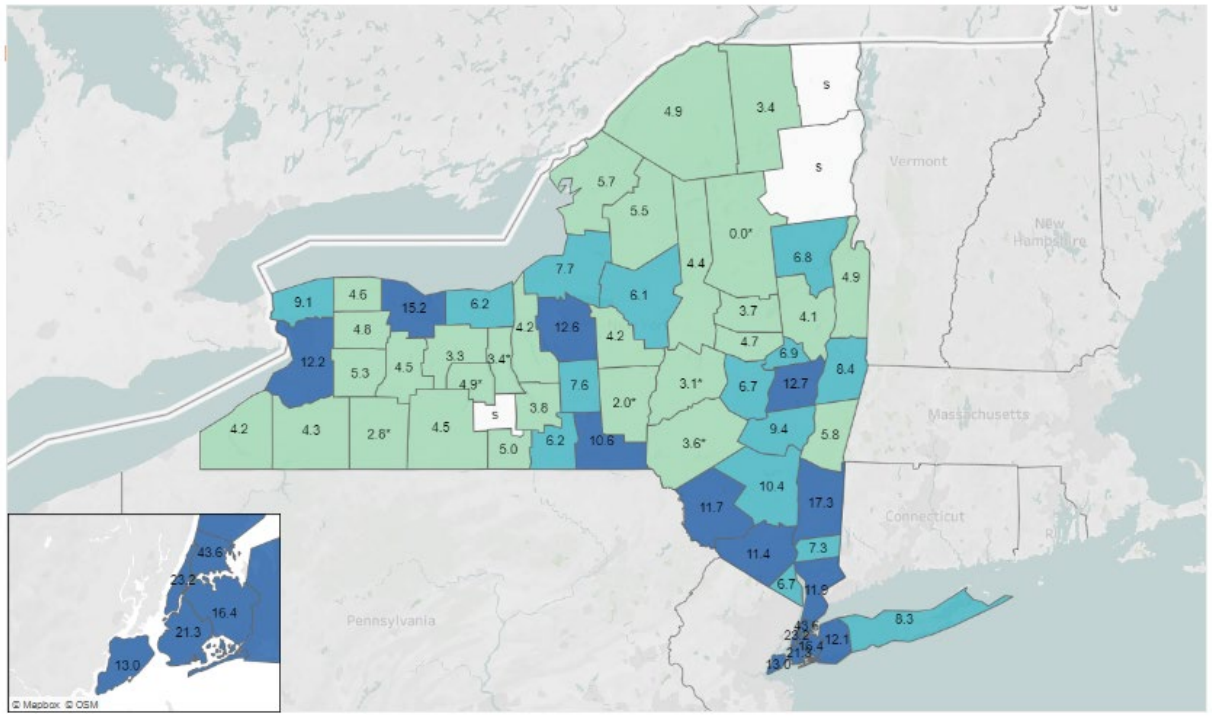
Asthma Prevalence Ages 0 - 17: New York State

Asthma ED Visit Rates Per 10,000



Asthma Hospitalization Rates Per 10,000



Scan the QR code to visit the **NYS DOH Asthma Data Dashboard**

Quartile (Q) Distribution

Low Concern	Q1 - Q2: 0.0 -< 6.1
Moderate Concern	Q3: 6.1 -< 10.6
High Concern	Q4: 10.6 - 43.6
Suppressed	s: Data suppressed (s)

[NYS Asthma Dashboard link]

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Indoor Air Quality in Schools

Scan to watch video

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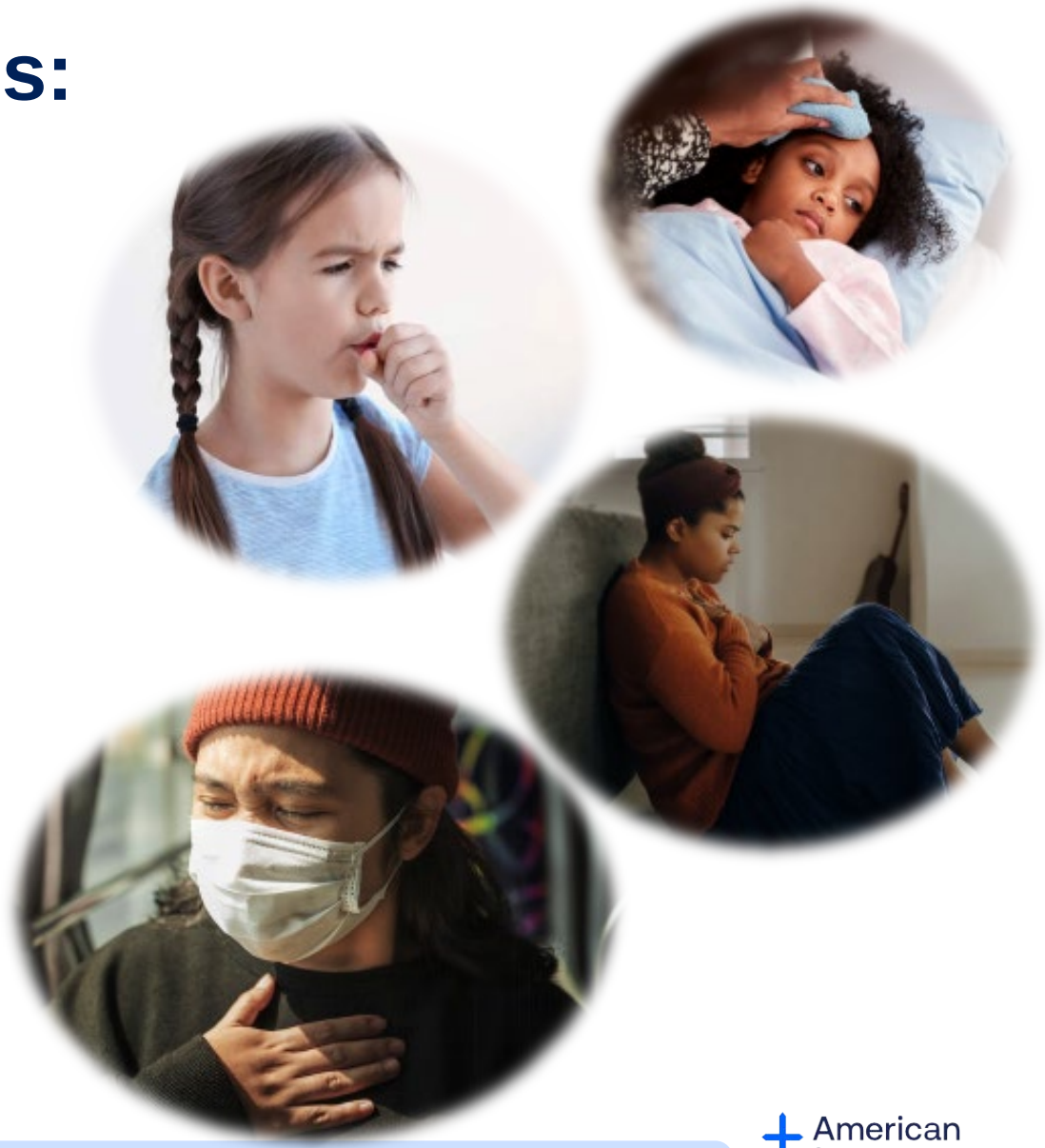
IAQ Impact on asthma in schools:

Exacerbation of Symptoms

Poor indoor air quality among students with asthma ***will***:

- increase asthma symptoms
- cause more frequent asthma episodes
- increase hospital visits
- aid in transmission of viruses and bacteria
- lead to more school and workdays missed



Long-term Health Effects

Chronic exposure to indoor air pollutants can lead to the **progression of asthma** and other respiratory diseases

Schools must prioritize air quality to protect students' lung health in the long run

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IAQ Challenges in Schools

Aging Infrastructure

Many schools are housed in aging buildings

Old structures:

- lack proper insulation and ventilation
- trap pollutants
- outdated heating and cooling systems
- Costly repairs

High Occupancy Rates

Schools often face high occupancy rates, with many classrooms filled to capacity

This **congestion** can cause:

- inadequate ventilation
- increase levels of various indoor pollutants
- Increase of respiratory infections, further complicating asthma management in schools

Diverse Pollutant Sources

IAQ can be compromised by various sources of pollution including:

Internal pollutants: *dust, mold, volatile organic compounds (VOCs) from cleaning products, and emissions from classroom activities*

External pollutants*: traffic and industrial areas can infiltrate school buildings*

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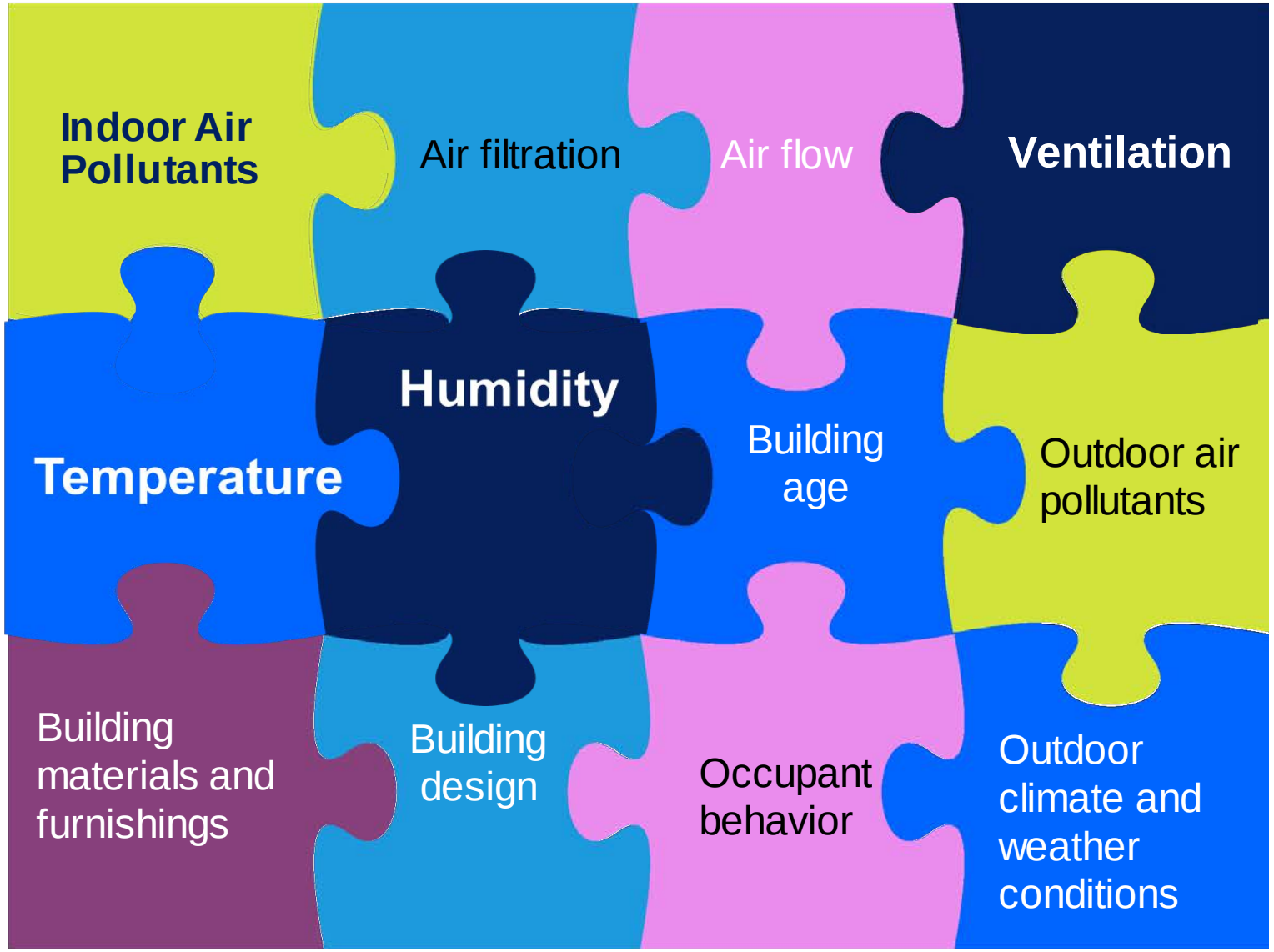
Variables that Impact Indoor Air Quality



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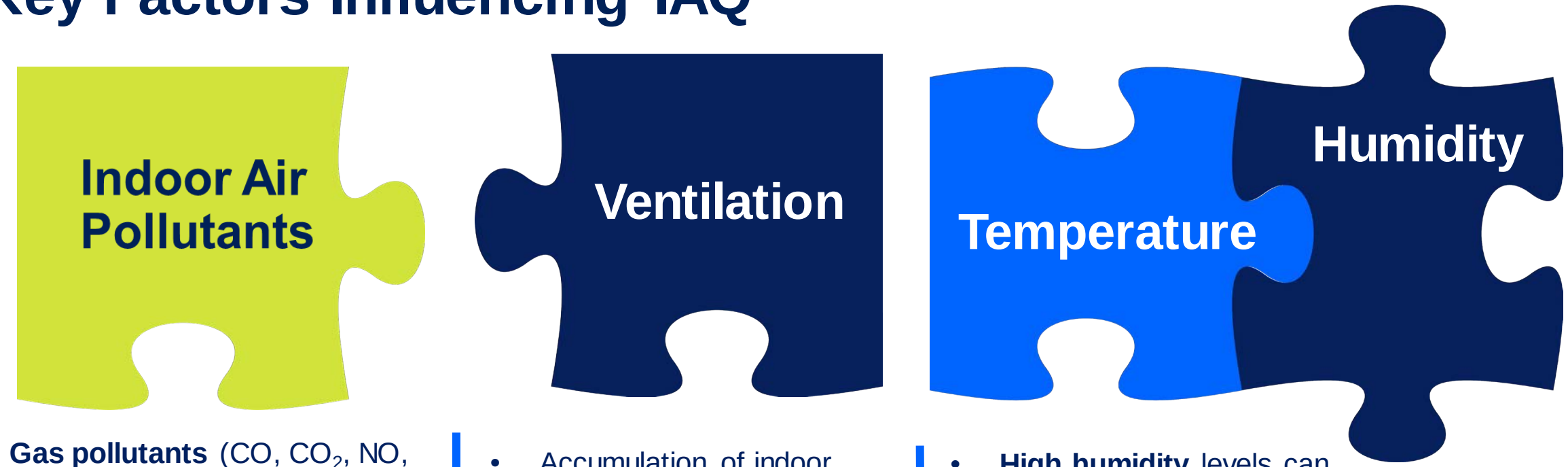
Key Factors Influencing IAQ



- **Gas pollutants** (CO, CO_2, NO, Radon)
- **Biological pollutants** (mold, pests, pets, bacteria, viruses)
- **Particulate Matter** (PM) (dust, cooking fumes, smoke, aerosols
- **V**olatile **O**rganic **C**ompounds (chemicals)

- Accumulation of indoor **harmful pollutants**, will **negatively impact air quality**
- **Proper ventilation** is *vital*

- **High humidity** levels can contribute to mold growth and dust mites, both of which **can trigger asthma episodes**
- Maintaining a **controlled temperature** and **humidity** level is *essential* for health

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Improving Indoor Air Quality: The 3 Step Approach

1. Source Control	• Eliminate or reduce the source of pollutant(s)
2. Ventilation	• Increase ventilation to dilute pollutant(s)
3. Air Cleaning	• Clean the air to capture pollutant(s)

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10 Action Steps to Improve IAQ

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1. Reduce dust mites' exposure

Up to 80% of children with asthma are allergic to dust

Dust mite

- Keep humidity levels low (under 50%)
- Place good quality, commercial grade doormats (walk off mats, grills) at all entrances
- Reduce clutter or consider using enclosed storage bins

- ★ Remove carpet and rugs, if possible
- ★ Vacuum weekly with HEPA vacuum (99.97% efficient)
- ★ Damp dust and mop (not dry!)

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2. Maintain comfortable temperature

High Temp:

- Increase concentrations of some pollutants
- Reduce student learning

Low Temp:

- Inflame lungs
- Inhibits circulation
- Increase risk of asthma episodes and infections

Recommendations:

Summer: Keep temperature between **73 - 79** degrees Fahrenheit

Winter: Keep temperature between **68 - 75** degrees Fahrenheit

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3. Maintain comfortable humidity

High Humidity (>50%):

- Moist air
- Mold
- Dust mites and cockroaches
- Transmission of certain bacteria and viruses

Low humidity (<30%):

- Dry air
- Discomfort (*dry skin and, respiratory track*)

Recommendations:

Keep humidity range between 30-50%

If too humid:

- Repair leaks
- Increase ventilation
- Dehumidification
- Quick dry and/or remove wet materials

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4. Ensure good air flow

Proper ventilation keeps the air fresh and healthy indoors.

Ventilation helps to:

- Control humidity
- Dilute odors and pollutants harmful to human health

Ventilation works best if paired with keeping known sources of air pollution out of the building.

Not a solution for high levels of indoor air pollution.

Recommendation:

Opening windows and doors when weather and safety conditions allow to increase outdoor air flow

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5. Proper use of air cleaners

Portable air cleaners, aka “air purifiers,” effectively filter the air in a single room.

HEPA air cleaners must be appropriate to the size of the room.

“DIY” filter box fans can be a low-cost, effective alternative.

- Materials needed:
  - ✓ 20” x 20” box fan 2007 or newer
  - ✓ MERV 13 20” x 20” filter
  - ✓ Clamps, duct tape, or bungee cords

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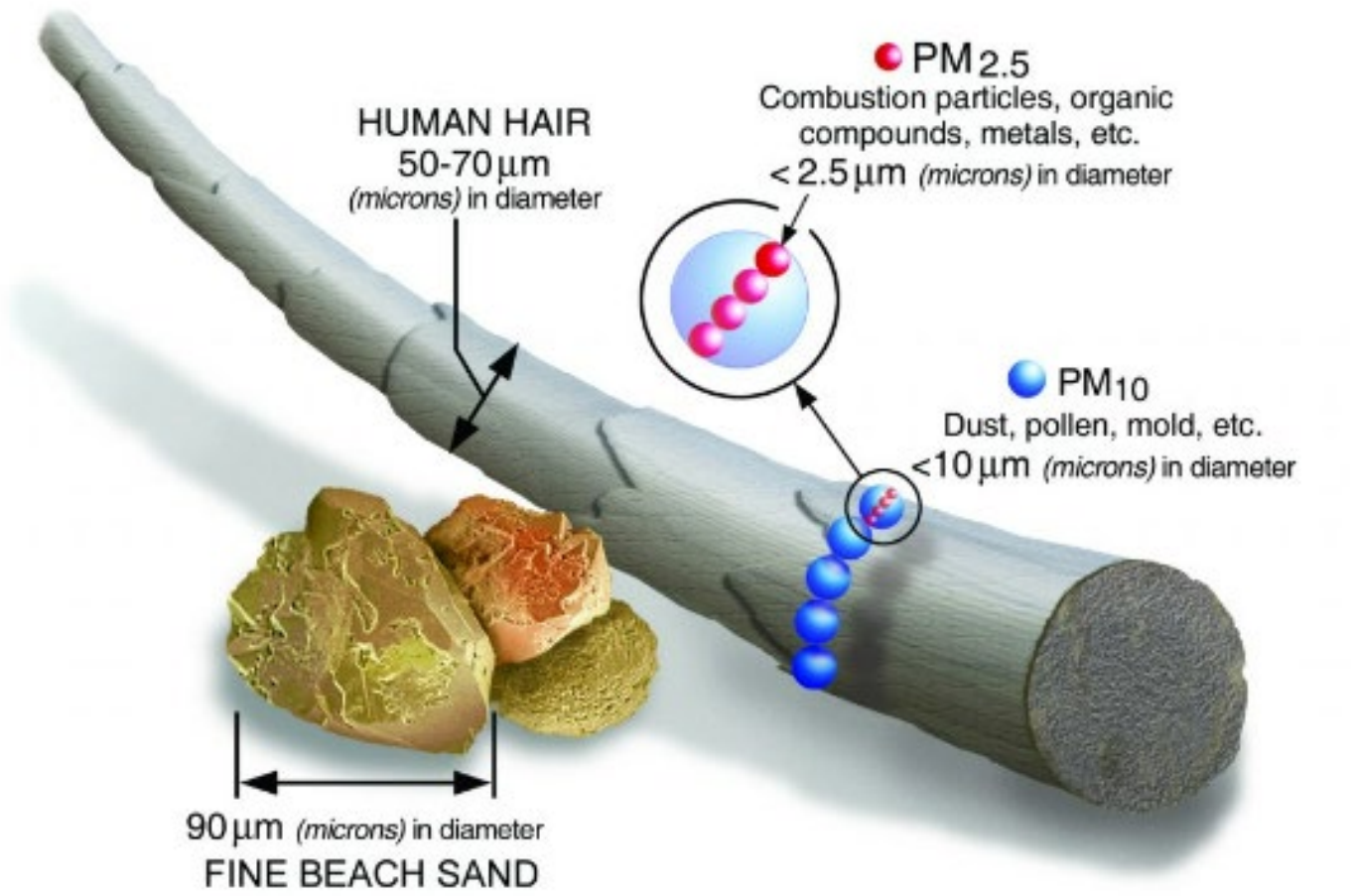
6. Reduce particulate matter in the classroom



Size comparisons for PM particles

- **PM 2.5 is a #1 IAQ hazard**
- Examples found in schools: *Smoke, pollen, mold spores, bacteria, viruses, chalk dust, tobacco and e-cigarette smoke, construction dust, wildfires*

Recommendation:
Keep windows closed if you are by a highway

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7. Air out/off gas (VOC's)

Volatile Organic Compounds, or VOCs:

- Gases that vaporize at room temperature (aka "**off-gassing**")
- **VOCs** are higher indoors than outdoors
- **Short-term exposures**: causes headaches, dizziness, nausea and eye and respiratory irritation.
- **Long-term:** linked to cancer and can affect the liver, kidney and nervous system

Recommendations

- **Eliminate** air fresheners, strong fragrances
- **Avoid** using products that contain VOCs (labeled with *Caution, Warning, Danger, Poison*)
- **Use alternatives:** use lower VOC options (paints)
- **Store away** from air intake
- **Ventilate:** open doors and windows

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8. Ensure idle-free zones

Diesel expose children:

- to unhealthy concentrations of pollutants
- daily irritation of asthma, leading to an increase in the severity and frequency of asthma episodes

Recommendation:

Ensure school buses do not idle near the school where exhaust can come into the building (CO and PM exposure)

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9. Reduce fragrances, scents, and odors

Fragrances (VOC's) can cause allergic reactions and trigger asthma symptoms in some individuals

Recommendations:

- No perfumes, scented hand lotions, harsh chemicals, room fresheners
- Use classroom and cleaning supplies that are fragrance-free, low-odor, or "low-VOC" (e.g., low-odor dry erase markers)
- Select products with the EPA's Safer Choice Program label

SAFER CHOICE
Meets U.S. EPA Safer Product Standards™
epa.gov/saferchoice

*If you **must** use a product with fragrance, **increase ventilation.***

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10. Conduct regular IAQ monitoring

Efforts to create healthy school environments should encompass a variety of strategies and policies within schools

Recommendations:

- Conduct IAQ assessments to track levels
- EPA's The Key Drivers for Effective School IAQ Management

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Benefits of Healthy IAQ

Asthma Management

Maintaining healthy indoor air quality can:

- reduce asthma symptoms and triggers
- improved respiratory health among students with asthma

Students Performance

Healthy IAQ contributes:

- increase physical well-being
- increase cognitive performance
- improved academic achievement

Good indoor air quality contributes to healthier indoor environments and better student outcomes

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Additional Actions to Improve Asthma Management

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NYS Asthma Management in Schools & School-Based Health Centers (SBHCs) Programs

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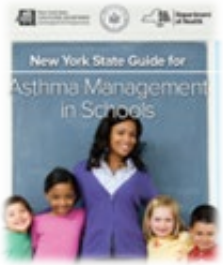
Asthma Management in Schools

Asthma Self-Management Education programming for students with asthma

- Open Airways for Schools
- Kickin' Asthma
- "Let's take control of Asthma" Flipchart
- SBHC Asthma Project



New York State Guide for Asthma Management in Schools (adopting **policies supportive of asthma control)**

Training for all school personnel on understanding asthma and supporting students

Educational resources & technical assistance to schools, youth-serving organizations, and SBHCs

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Role of Stakeholders

1. School Administration
   - are responsible for creating policies that promote healthy environments
   - allocating resources towards necessary improvements
2. School Personnel
   - actively monitor air quality issues
   - reporting concerns to administrators
3. Parents/Caregivers
   - advocate for better IAQ measures in schools
   - support initiatives promoting a healthier environment for all students

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Next Steps and Resources

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Next Steps:

Schools:

- **Maintaining healthy indoor air quality** is crucial for effective asthma management in schools
- **Key strategies** include improving ventilation, monitoring air quality, and involving all stakeholders in the process
- EPA's **"The Key Drivers for Effective School IAQ Management"**

Asthma Management:

- Please **ensure that school personnel** receive or have access to **Asthma Self-Management Education Training** (ASME)
- **Engage schools and districts** in building **comprehensive ASME for students** with asthma and adopting policies supportive of asthma control (NYS AMS Guide)
- **Expand sustainable delivery** of ASME – *Flip Chart, Open Airways for Schools, and Kickin' Asthma*

*Schools must **prioritize these initiatives** to ensure a safe and productive learning environment*

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Let’s Get Started

School Health Policy Index

*“adopting **policies supportive of asthma control**”*

School Health Policy Index Link

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Educational Opportunities

Find these and other courses at lung.training

SCAN ME

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Resources

Asthma Resource Library (Click Link Here)

This interactive library includes videos, toolkits, worksheets, infographics and other resources for individuals with asthma and their caregivers.

NYSCAI Website
(Click Link Here)

Find everything from educational opportunities, trainings, school-specific materials/hand-outs, and ways to get involved.

AMS Mini-Bytes
(Click Link Here)

NYS Asthma Management in Schools, online modules focused on expanding ASME in schools and SBHCs.

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Resources (con't)

Learn

- Lung.org/Clean-Air
  - Lung.org/Clean-Air/At-home
  - Lung.org/Clean-Air/At-work
  - Lung.org/Clean-Air/At-school
- Lung.org/Radon
- Lung.org/Residential-Combustion

Take Action

- WAMHE.org
  - DIY Healthy Home Check-up assessment
- Lung.org/Radon
  - Purchase Radon test kit
- Lung.org/clean-air/stand-up-for-clean-air
- 1-800-LUNGUSA

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Resources (con’t)

Learn

Scan me

Downloadable booklet from the American Lung Association can be found online:

[Indoor Air Quality in Schools Guide | American Lung Association]

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Questions?

Let’s work together to help and support children with asthma!

Melesha Brissett, MPA

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Email: Melesha.Brissett@Lung.org

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