



ADVANCING INTEGRATED HEALTHCARE

Asthma Essentials ECHO®

Session Topic: Assessing & Managing Environmental Triggers

Facilitator: Pat Flanagan, MD

Faculty Presenter(s): Jim Ginda, MA, RRT, AE-C, FAARC

Case Presenter(s): Marie Habershaw, RN

Date & Time: December 14th @ 730am

PLEASE NOTE: Project ECHO case consultations do not create or otherwise establish a provider-patient relationship between any clinician and any patient whose case is being presented in a project ECHO setting

Care Transformation Collaborative of RI

Welcome

- This session will be recorded for educational and quality improvement purposes
- Please do not provide any protected health information (PHI) during any ECHO session



Mute your microphone when not talking.



Limit distractions as best as possible.



Use reactions & the raise hand feature.



Engage and turn your camera on if you are able.



Use the chat to ask introduce yourself, ask questions and share resources.



Engage - ask questions, offer feedback, provide support.

Agenda

Time	Topic	Presenter
7:30 – 7:35 AM	Welcome/Announcements	Pat Flanagan, MD
7:35 – 8:00 AM	Didactic Presentation	Jim Ginda, MA, RRT, AE-C, FAARC
8:00 - 8:05 AM	Presentation Questions	All
8:05 - 8:25 AM	Case Presentation & Discussion	Marie Habershaw, RN
8:25 – 8:30 AM	Wrap up; Evaluation	Michelle Mooney, MPA

Today's Faculty

Jim Ginda is a registered respiratory therapist, a certified asthma educator, and a Fellow of the American Association for Respiratory Care. He received an Associate in Applied Science degree in respiratory therapy from the Community College of Rhode Island, and continued his studies at Rhode Island College as a biology major while working full-time as a respiratory therapist. He went on to earn a Bachelor of Science degree in health studies from Western Michigan University, and a Master of Arts degree in health studies from the University of Alabama.

Jim has presented at educational conferences nationwide in sixteen states. He served on the Rhode Island Public Policy Committee for the American Lung Association and has been a speaker for asthma educator and community health worker training programs, Better Breathers groups, and the Lung Health Expo. Jim has advocated for environmental and lung health issues before the Providence City Council and committees of the Rhode Island General Assembly. He provided congressional testimony in Washington, DC as an invited witness for a U.S. Senate Joint Subcommittee hearing on Air Quality and Children's Health.

Disclosures – Jim Ginda

Monaghan Medical Corporation Speakers Bureau – has received speaking honoraria in support of independent educational lectures at state respiratory care professional society conferences.

Kent Hospital – employed as manager of respiratory care. Views are not necessarily those of Care New England and its affiliates.

Care Transformation Collaborative of Rhode Island – asthma core planning committee and Asthma Essentials Echo® faculty

Learning Objectives

- Asthma – Genetics & Environment
- Exploring our Environment – where we live, learn, and work
- Detectives assessing and managing environmental triggers
- Understand some of the available resources for reference

Quick Review – What is Asthma?

- A chronic *lung* disease – it doesn't go away, but is manageable
- Airflow obstruction that is reversible
- Genetics *and* environment play a role in asthma
- Increased airway responsiveness to a variety of stimuli
 - AHR – Airway *Hyper* responsiveness
 - Some of the stimuli are environmental – particularly in allergic asthma
- ***To the extent we can identify and manage individual triggers, we may be able to lessen the burden of disease***

Allergic Asthma (Extrinsic Asthma)

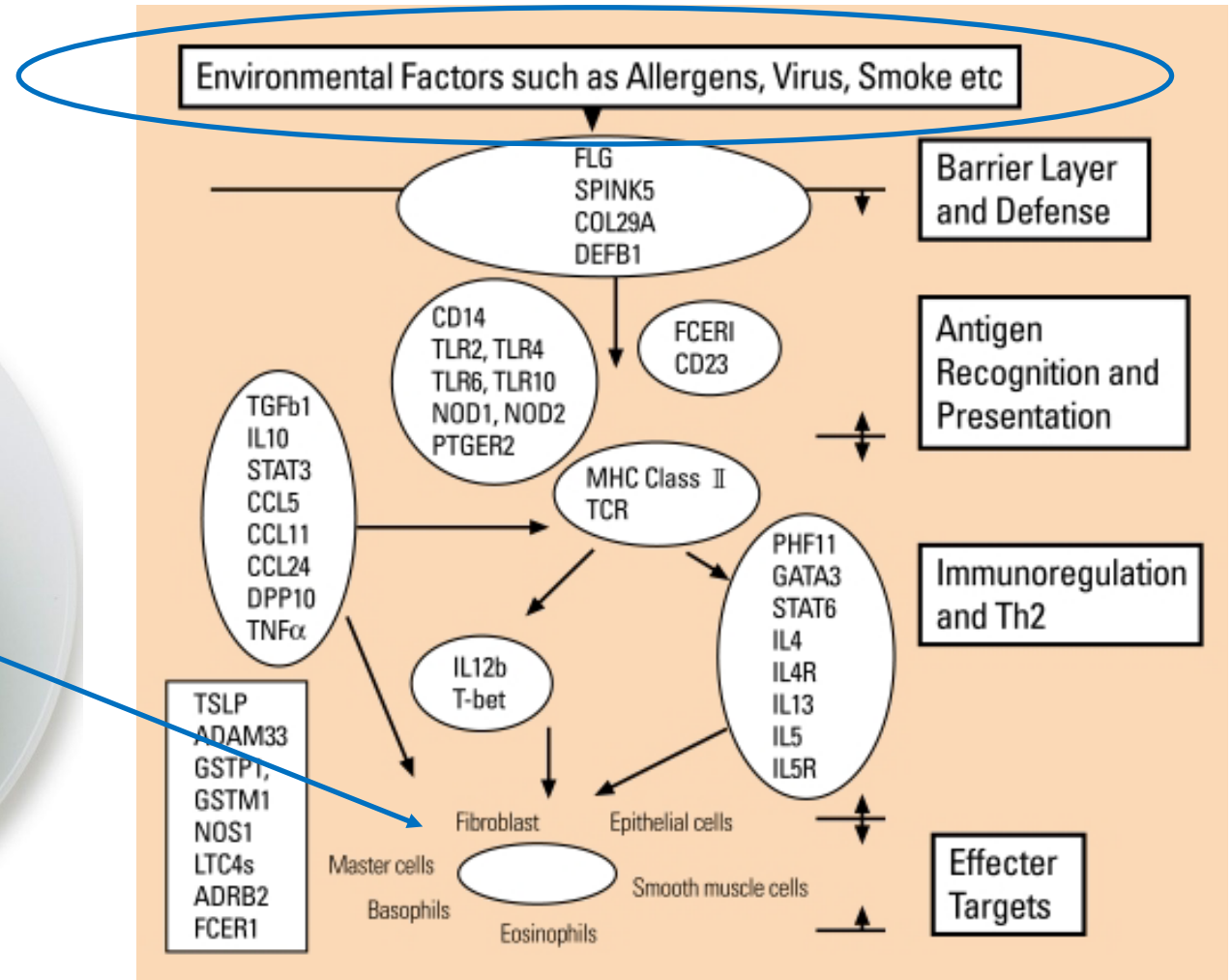
- Extrinsic – “something originating from or on the outside”
- Allergic sensitization – outcome of a **complex interplay** between the **allergen and the host in a given environmental context**
- First barrier encountered is the mucosal epithelial layer (*airway lining*)
- Allergic inflammatory diseases are accompanied by increased permeability of the epithelium
- More susceptible to environmental triggers

Genetics & Environment

We can't choose our parents, and sometimes our environment either!



Genetics – alphabet soup!



Sensitization and Allergy

Here are some specifics for geeks like me! 😊

- Most commonly IgE-mediated inhalant allergen exposures
 - Produced in response to antigen (*sensitization and allergy*)
- Causes of **symptoms in someone with asthma** (*asthma attack, loss of control*)
- Causes of **features of asthma** (*interactions with immune system over time*)
 - Acute irritant-induced asthma – (*very heavy irritant exposure*)
 - Chronic irritant-induced asthma – (*repeated high exposures*)
 - Can induce persistent or permanent changes (*inflammation and AHR consistent with asthma*)

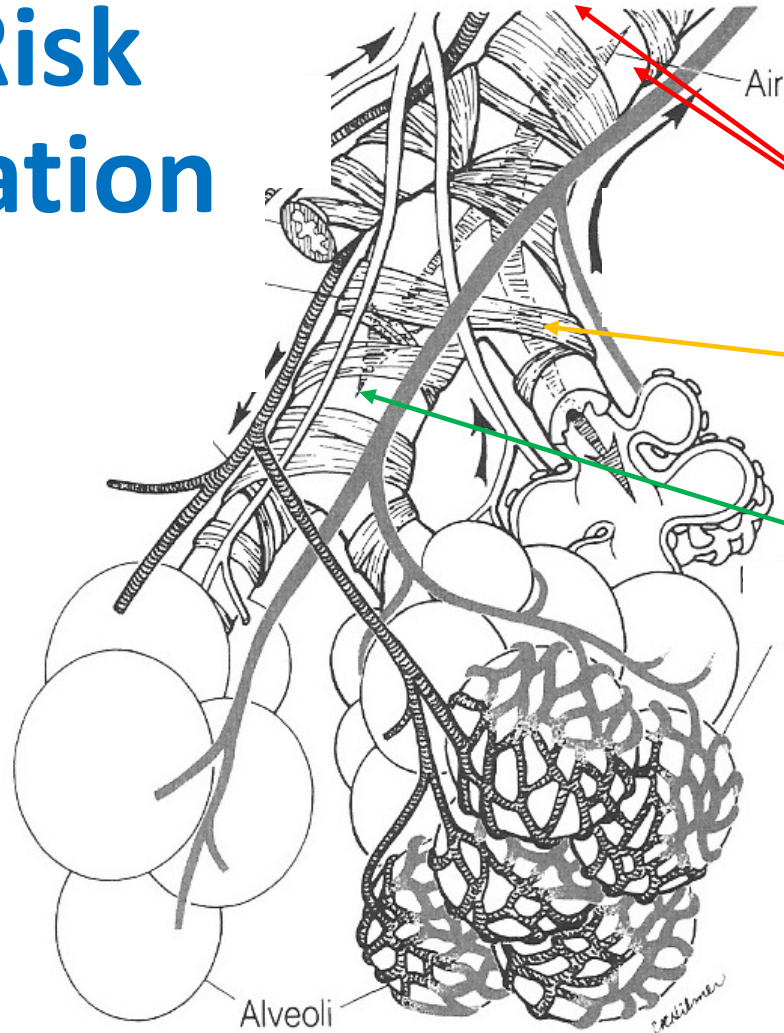
Asthma Relationship Status: It's Complicated

- **Relationship between allergen exposure and sensitization is complex**
 - Likely influenced by the timing, dose, and route of exposure, as well as individual genetic predisposition
- Cat and dust mite studies – inconsistent relationship
 - Protective effect with a bell shaped dose-response relationship
 - Early life cat ownership increased risk of cat sensitization vs protection against specific sensitization vs no association
- Heterogeneity – *dis-similarity*
- Allergen exposure can confer either an increase in risk, or protection, or have no effect (*age, study design, high-risk vs population-based*)

Trying to Simply the Complex

- Identification of specific triggers
 - Careful history, symptom diary
 - **Good detective work may take time to identify triggers, patterns, contributing factors**
 - Avoidance and Reduction
- Good medical care and asthma control
- **Seek out and address socio-economic barriers**
- Total IgE & specific IgE
- Allergic desensitization *if/when* medically appropriate
- Variable response – **consider individual patient trajectory**

High-Risk Population



The Asthma “Triple Threat”

1. **Inflammation** – swelling of walls of airways
2. **Bronchospasm** – chest “tightness” & wheezing – pulling on the shoestring around airways
3. **Secretions** – mucous/phlegm – can clog up the pipes

Patient Effects:

- Airway narrowing
- Increased work of breathing
- Perception of difficulty breathing
- Difficulty doing ordinary tasks or exercise

Environment

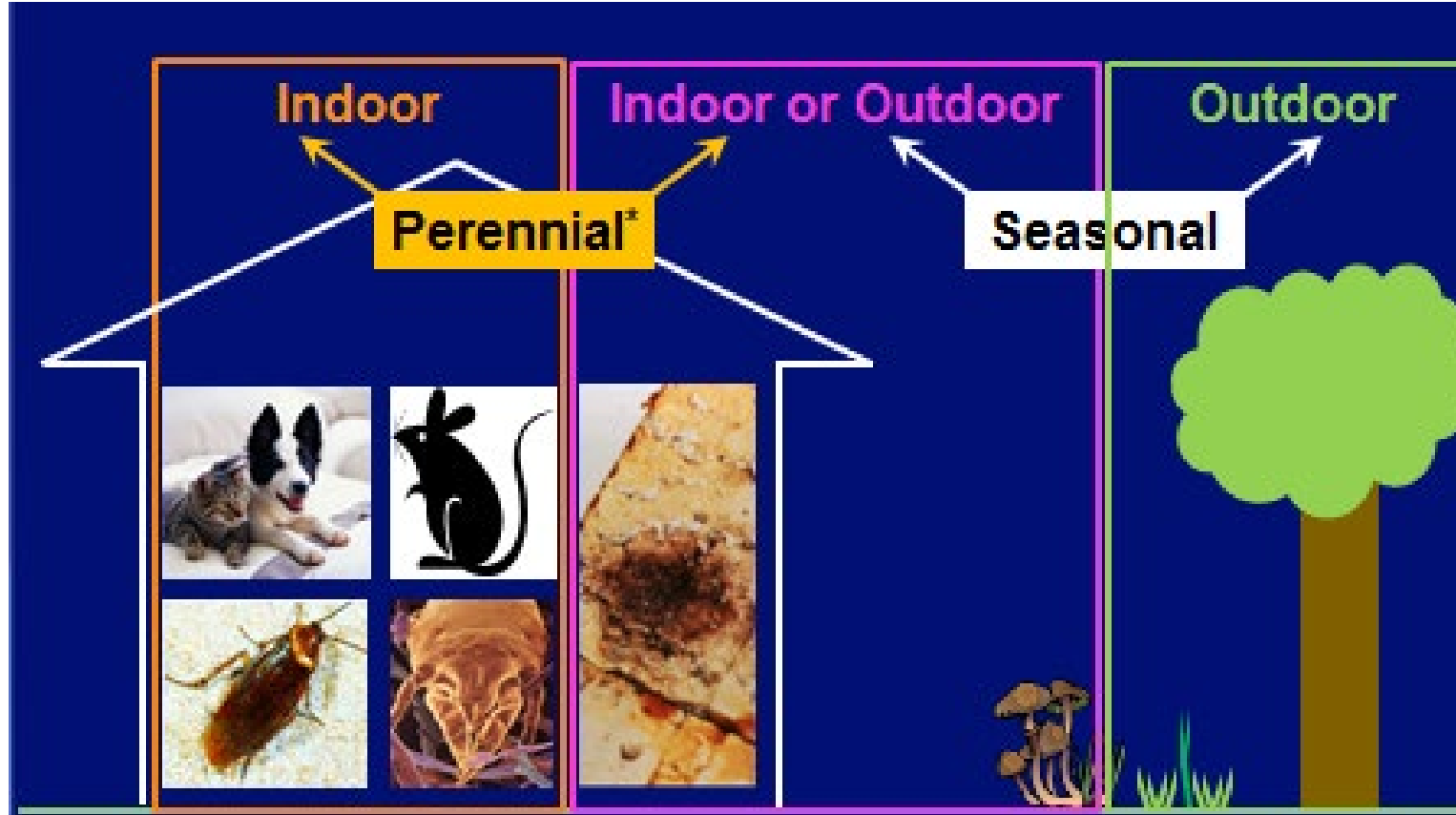
– Where we Live, Learn, & Work

*The COVID-19 pandemic messed this up a bit!

Environmental Triggers

- **Assessing** – We *can* play detective with trying to help asthmatics identify unique individual triggers that affect them
- **Managing** – What is within our control to neutralize their effects
 - Elimination and avoidance where possible
 - Reduce exposure
- **Not ready, shoot, aim** – ripping apart house – one size fits all approach – **can be costly and ineffective**
- **Let's look at some of these things together to learn about detective work!**

Environmental Allergic Triggers



Indoor Environment – Mostly Perennial

- Can be “seasonal” patterns, i.e. during school year, holiday home visits
- Environmental tobacco smoke
- Mold
- Dust mites
- Pests
- Pets – animal dander
- Combustion byproducts
- Cleaning chemicals
- Building materials

Indoor Allergen Mitigation

- Allergy mitigation should only be addressed when there is evidence of positive skin test or symptoms to exposure.
- Based on the type of allergen and exposure, a specific strategy can be used to mitigate exposure.

EPR - 4 Most Recent Focused Updates

- Indoor Allergen Mitigation Primary and Secondary Targets

TABLE IIIA. Examples of allergen mitigation interventions and their targeted allergens

Intervention assessed in studies in the SR	Allergen			
	Animal dander	Dust mites	Cockroaches	Mold
Acaricide		++		
Air filtration systems and air purifiers	++	+	+	++
Carpet removal	++	++		+
Cleaning products (eg, bleach)				++
HEPA vacuum cleaners	++	+	+	++
Impermeable pillow and mattress covers		++		
Integrated pest management	+*		++	
Mold mitigation				++
Pet removal	++			

SR, Systematic review.

++ Primary target allergen(s) for the intervention.

+ Secondary target allergen(s) for the intervention.

*Dander from rodents.

TABLE IIIB. Summary of certainty of evidence on allergen mitigation interventions

Intervention assessed in studies in the SR	EtD table number	Evidence on use as a single-component strategy for allergen mitigation (certainty of evidence)	Evidence on use as part of a multicomponent strategy for allergen mitigation (certainty of evidence)*
Acaricide	IV	†	Intervention makes no difference (moderate certainty of evidence)
Impermeable pillow and mattress covers	V	Intervention makes no difference (moderate certainty of evidence)	Evidence favors intervention (moderate certainty of evidence)
Carpet removal	VI	†	Intervention makes no difference (low certainty of evidence)
Integrated pest management (for cockroaches and mice)	VII	Evidence favors intervention (low certainty of evidence)	Evidence favors intervention (low certainty of evidence)
Air filtration systems and air purifiers	VIII	Intervention makes no difference (low certainty of evidence)	Intervention makes no difference (moderate certainty of evidence)
HEPA vacuum cleaners	IX	†	Evidence favors intervention (among children only; moderate certainty of evidence)
Cleaning products	X	†	†
Mold mitigation	XI	†	Evidence favors intervention (low certainty of evidence)
Pet removal	XII	†	†

SR, Systematic review.

*Combination of interventions used in the multicomponent studies varied, and the Expert Panel cannot identify or recommend any particular combination of strategies as optimal at this time.

†Evidence was insufficient for the Expert Panel to assess the intervention.

Allergen Mitigation Strategies

Key Takeaways:

- Can be used in individuals of all ages with asthma of all levels of severity
- Tailor to the individual based on their allergy symptoms, sensitization, and exposures
- Consider allergen testing when appropriate, before committing to specific allergen mitigation strategies that may be burdensome (*but inequities in access to specialists and allergen testing*)
- At a minimum, take a clinical history of symptoms and exposures for all individuals with asthma to help determine the need for allergen mitigation
- Allergy testing (with a skin prick or allergen-specific IgE test) may have false-positive and false-negative results, and certain allergens (eg, dust) may also act as irritants
- **For those whose symptoms worsen on exposure to specific aeroallergens, consider mitigating that aeroallergen even if the individual's test result is negative**
- Use multi-component strategies other than IPM, which is considered a single-component strategy

Indoor Environment

- Environmental tobacco smoke (*elimination, containment, reduction*)
- Mold (*moisture, light, ventilation, plant soil, mildewcide*)
 - ***Never mix cleaning agents together***
- Dust mites (*materials, bedding, furnishings, barriers*)
- Pests (*exclusion, food sources, targeted treatment, cleanup*)
- Pets (*outdoors, area exclusion, removal, compromise*)
- Combustion byproducts (*source reduction, ventilation*)
- Chemicals (*substitutes, ventilation*)
- Building materials (*alternatives, planning, removal ?*)



Ashley Ginda, PharmD, RPh, AAHIVP, BCPS

Inseparable – Management of triggers may involve compromise!

Key Takeaways For Individual Patients:

- Consider the complexity of the patient population and the limitations of the evidence
- Consider the severity of a patient's asthma, the small benefit, and the extent of previous symptoms and exacerbations when recommending allergen mitigation interventions
- Allergen mitigation interventions may be expensive or difficult for patients to use or maintain
- Consider the cost implications of certain interventions, especially among those with limited financial resources
- **Assess the magnitude of the potential value of an intervention in improving an individual's asthma outcomes**
- **Four critical outcomes**
 - **Exacerbations**
 - **asthma quality of life**
 - **asthma control**
 - **asthma symptoms**

DeVries Urban Entomology Lab at University of Kentucky

Zachary DeVries, PhD
Department of Entomology, University of Kentucky

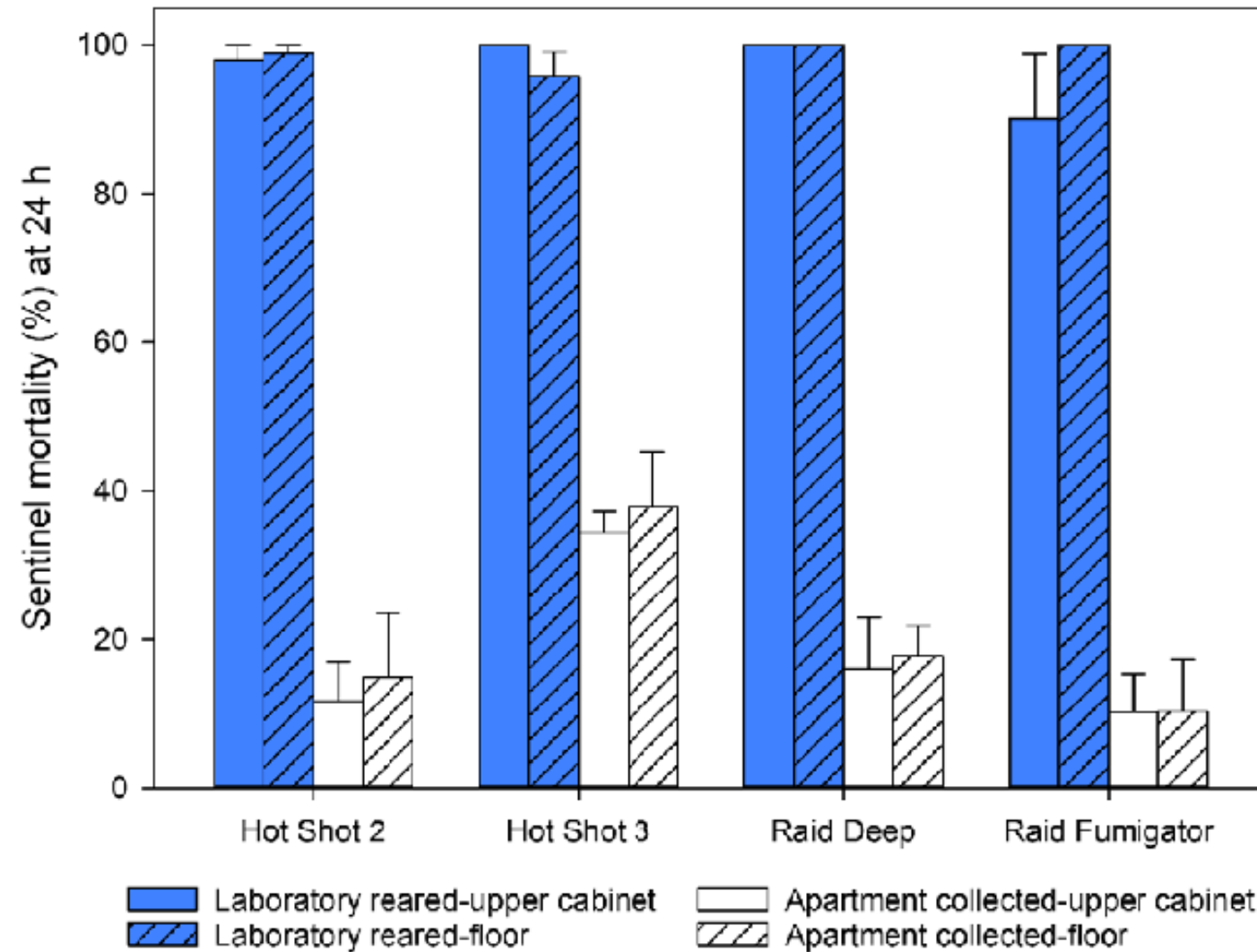
- 1) How urban/indoor pests function and behave
- 2) Improve indoor integrated pest management (IPM) strategies
- 3) **Improving human health and quality of life through pest management**

Cockroaches:

- 1) Control and allergen mitigation
- 2) Novel strategies to improve adaptability and sustainability of IPM efforts in affordable housing
- 3) Effects of cockroach control and environmental parameters on cockroach allergens



Cockroaches – Foggers



- **Foggers (Bug bombs) are ineffective and can be toxic**
 - Pyrethroids – class of fast-acting insecticides, and some contain piperonyl butoxide – chemical that prevents roaches from metabolizing the insecticide
- **20 homes, total release foggers**
 - 4 different commercially available products, 5 different apartment complexes, with moderate to severe German cockroach infestations, estimated cockroach populations in 20 homes
 - Monitored populations at 2 weeks and one month, and **no decline** in pre-treatment estimates
 - Four to six hours after the bug bombs were deployed, again swabbed floors, kitchen surfaces, walls and cabinets and found average insecticide **residues increased 600 times baseline levels** on all horizontal surfaces.
 - **One month later 34% still has residues higher than baseline**
- **Treated 10 additional homes with commercially available gel bait or a professional grade gel bait**
 - **Targeted applications with a syringe in small amounts directly where roaches hide**
 - **Effective at 2 and 4 weeks in eliminating roach populations in the 10 homes**

Bed Bugs – Potential Environmental Asthma Trigger

- Common bed bug (*Cimex lectularius* L.) – pest species that lives in close proximity to humans
- Following a blood meal, bed bugs deposit fecal material indoors
- Contains a variety of compounds, including histamine – serves as component of their aggregation pheromone, (*chemical attraction messenger*)
- **Histamine** is a pivotal mammalian immune modulator
- **Recently shown to be present in high concentrations in household dust from homes infested with bed bugs**
- No difference in histamine excretion among laboratory & recently home-collected bed bug populations
- **Histamine excretion continued for at least 14 d post-feeding, with the highest amount of histamine excreted 3–4 d after a bloodmeal**
- **Remediation for infestations best left to a professional**

Building Materials



Moisture – Complex or Simple



Beyond a leak, the concern is mold growth

Managing Water Intrusions

- Find and stop source
- Sometimes easy – sometimes not so much
- Replace wet materials
- Standing water

Water in the Air

- Too little, too much, or just right
- Relatively inexpensive digital humidity gauge
- 30-50%
- Dehumidifiers
- Energy Star – Utility Rebates
- Proper ventilation

Detective work hard, and fix was complex – needed help

Detective Work Easy – Fix Easy



Detective Work Easy – Fix Was Complex





- This was a lower level family room and bedroom space.
- I did the demo work and cleanup and needed pro builder help
- What if a patient/family did not have the capacity for the necessary work?
- **Environment and living conditions matter with asthma!**

Environmental Risk Mitigation – Home & Workplace



PPE, Filtration, Air-Handling Systems

N-95: N= Non-Oil, 95% of particles $0.3 \mu\text{m}$
(fit-check / fit-test)

High-efficiency particulate air (HEPA) filter:
>99.97% of particles $> 0.3\mu\text{m}$ at a specified flow rate

MERV: Minimum efficiency reporting values
 $0.3 - 1\mu\text{m}$, $1 - 3 \mu\text{m}$, $3 - 10 \mu\text{m}$

Remediation in Home: Individual vs Pro – Consider scope, abilities, resources, safety – risk-benefit ratio

Living Conditions at Home, School, & Work

*Most vulnerable may have very little control & adaptive capacity



Occupational Asthma

- Environmental conditions in the workplace
- Potential for workplace-related symptoms
 - Indoor Perennial Ex: Sensitivity to Fragrances
 - Outdoor Seasonal or Perennial Ex: Landscaper with symptoms
 - Environmental aerosol particles, VOCs, & viruses
- Patterns of symptoms in relation to exposure
- Documentation of previous pulmonary function and work-related changes
- Workers may get used to it but families may notice changes or symptoms

Indoor & Outdoor Triggers

- Environmental Conditions in Homes, Schools, & Workplaces
 - Building Codes
 - Energy Efficiency
- 2005 American Housing Survey
 - 53% rated homes as 8, 9, or 10, even though houses had severe problems

Go Outside and Get Some Fresh Air!

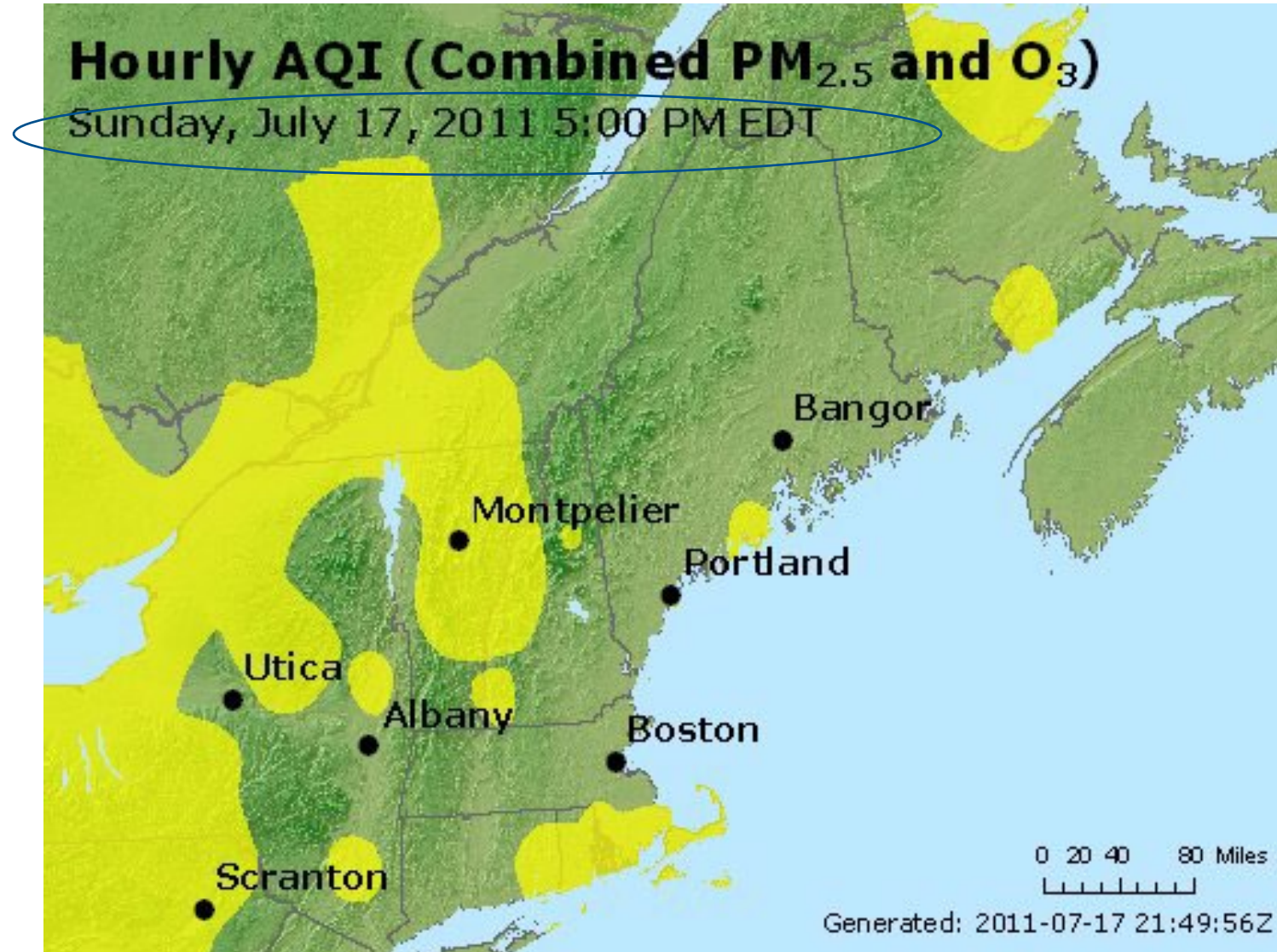
Child with Asthma

“I want to talk briefly about Ozone Alert Days. I feel most people do not understand how this affects kids with asthma. On these days, I can’t run around outside. I may not even be able to spend ANY time outside.”

“I need to be in air conditioning for the most part on these days. I get frustrated when this changes my plans for the day. Sometimes these alerts last for many days.”

“Unless you have asthma yourself it might be hard to understand what an asthma attack feels like... I would personally describe it as a feeling of drowning.”

“You need to know that I love school. It was really hard for me during 5th grade when I missed 27 days of school.”





Jim's Outside Picture –
Ozone Alert Day
Unhealthy for Sensitive Groups!



[Air Quality Index \(AQI\) | AirNow.gov](http://AirNow.gov)

[Local News/Weather Stations](#)

Weather Extremes – Wildfire Smoke, Mold, Pollen



Extreme Drought - August 18, 2022

The Providence Journal

ports Entertainment Lifestyle Food Readers Choice USA TODAY Obituaries E-Editio

Watch as flood waters close Interstate 95 in Providence

Traffic was brought to a standstill on Labor Day as flood waters inundated I95 through Providence.

TMX
 Published 9:01 p.m. ET Sept. 5, 2022

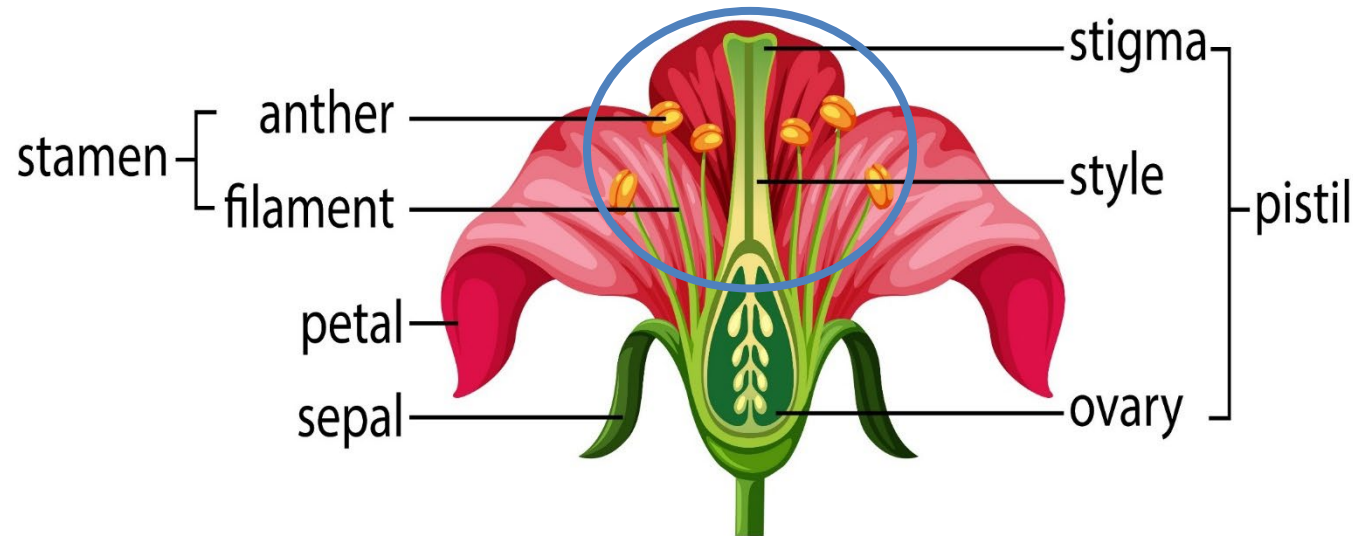
Historic Flooding – 18 Days Later

September 5-6, 2022

- Coventry
5.08 inches 11:24 a.m. Tuesday, Sept. 6
- Warwick
4.73 inches 6 a.m. Tuesday, Sept. 6
- Cranston
11.06 inches 10:02 a.m. Tuesday, Sept. 6
- Providence
8.31 inches 7 a.m. Tuesday, Sept. 6

National Weather Service

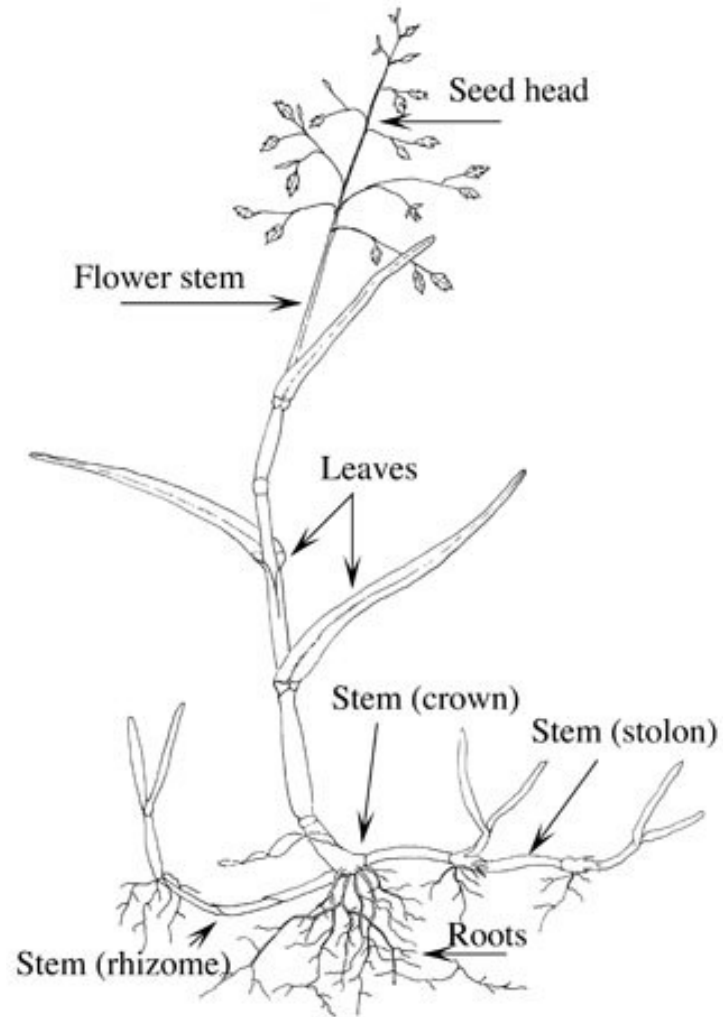
Seasonal Flower & Tree Pollens



- Pollen grains are produced in the anther – sticky part on stigma where pollen adheres after pollination
- Seasonal patterns with asthma/allergy symptoms or exacerbations can be a clue

**Weeds can be flowering or grassy (I didn't add a specific weed slide so I mentioned it here)*

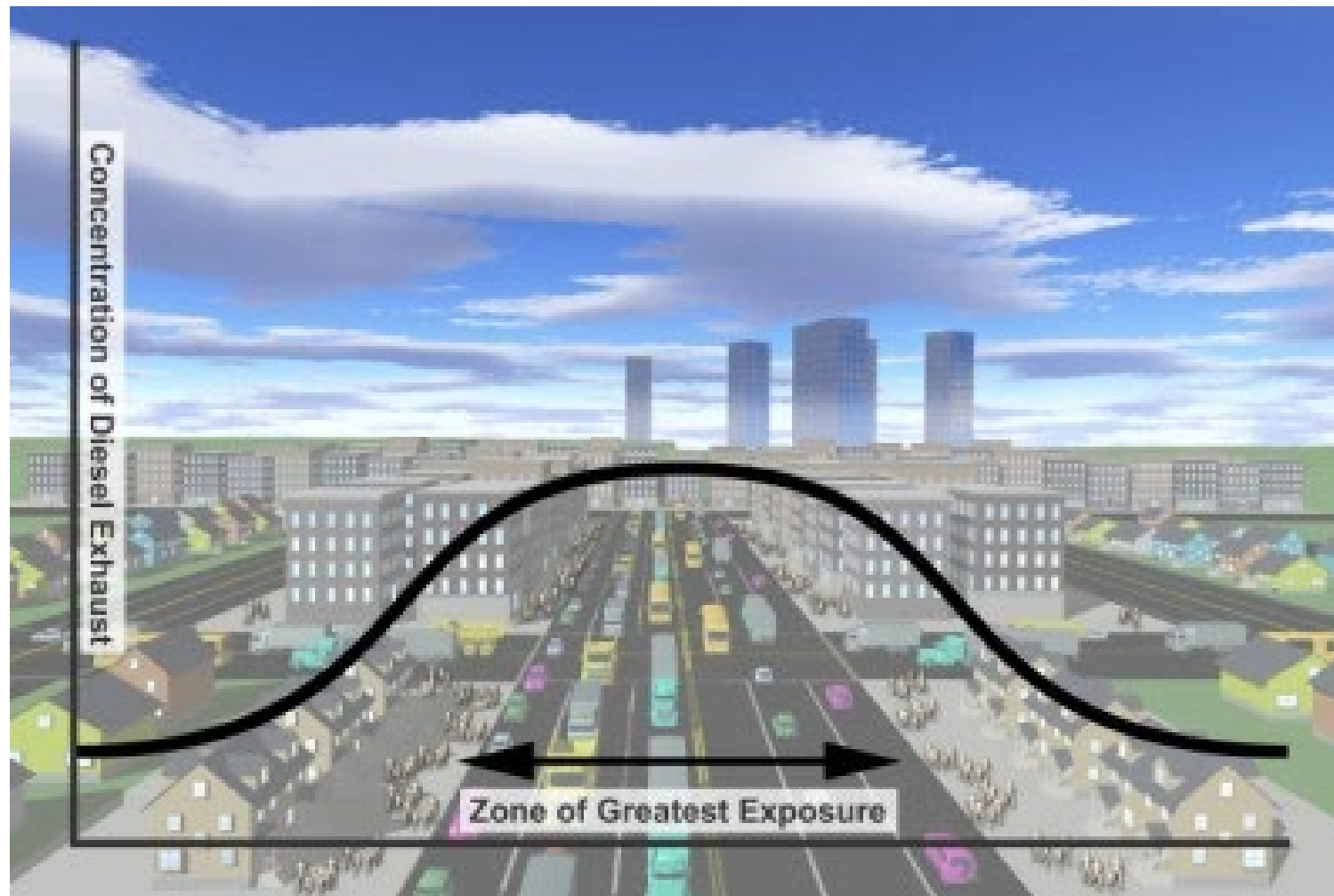
Grass Pollen



- All grasses are wind-pollinated
- No need for flower petals or fragrance
- Produce more pollen
- **The paradox – stay indoors or caution mowing lawn with grass allergies, *but* keeping lawn mowed can help!**

*Oral Allergy Syndrome (OAS) – certain grasses, trees, ragweed, and mugwort pollens are **cross-reactors** with similar proteins contained in fruits, vegetables, peanuts

Perennial Environmental Triggers



Importance of Socio-Economic Factors in Asthma

- Pediatric Patient Asthma-Related ED Visits in RI from 2005-2009 & Associations with SES
- Examine effects of short-term exposure to ambient concentrations of ozone and PM 2.5 on Pedi ED visits for asthma and URI's, and whether strength of association was modified by SES
- Real increases in relative risk for children enrolled in Medicaid and living in high poverty neighborhoods
- Automobile exhaust, heavily traveled I 95 & I 195 road associations

Effect of early life exposure to air pollution on development of childhood asthma

- Total of 3,482 children (9%) were classified as asthma cases.
- Observed a statistically significantly increased risk of asthma diagnosis with increased early life exposure to CO, NO, NO₂, PM₁₀, SO₂, and black carbon and proximity to point sources.
- Traffic-related pollutants were associated with the highest risks.
- “These data support the hypothesis that early childhood exposure to air pollutants plays a role in development of asthma.”

Environmental Triggers – Cold Air

- Exercise Induced Bronchospasm (EIB)
- Symptoms during exercise
- Cold, dry air
 - Ice skaters
 - Cross-country skiers
 - Shoveling snow
- High minute ventilation
- Different than seasonal asthma triggers with outdoor sports, or poorly controlled asthma
- History from athlete and family
- Diagnostic tests/Response to SABA pre-Rx

Resources

- US EPA Indoor Air Quality
 - [Interactive Tour of the Indoor Air Quality Demo House | US EPA](#)
 - [Text Version of the Indoor Air Quality House Tour | US EPA](#)
- Do My Own Pest Control
 - <https://www.domyown.com>
- How to Get Rid of Roaches Cockroach Treatment Guide
 - [How to Get Rid of Roaches - Kill Cockroaches - DoMyOwn.com](#)
- Do My Own Roach Control Page
 - [Roach Bait & Cockroach Bait | Roach Gel Baits & Stations | DoMyOwn.com](#)
- Cinnamon for House Plant Mold and Fungus Gnats (?)
 - <https://houseplantheaven.net/will-cinnamon-hurt-houseplants/>
- Money Pit Home Improvement – Professional Home Inspector General Advice & Articles
 - <https://www.moneypit.com/>
- **I crowded a lot more stuff on the next resources slides intentionally if helpful for later reference...**

(No commercial endorsement of above sites or products is intended – for illustrative example only)

Resources - Monitoring Indoor Humidity Levels

THE HOME DEPOT You're shopping **Coventry** Delivering to **02816**
 ● OPEN until 9 pm

humidity gauge

All Departments **Home Decor, Furniture & Kitchenware** DIY Projects & Ideas Project Calculators

37 Results

Get It Fast

In Stock at Store Today
 Coventry & nearby stores

Next-Day Delivery

Department


Outdoors

- Home Weather Stations
- Thermometers & Hygrometers
- Outdoor Thermometers
- Outdoor Hygrometers
- Plant & Soil Monitoring
- + See More

Kitchen

Electrical

Best Seller 1.4k



AcuRite Digital Humidity and Temperature Comfort Monitor
 Model# 00619HD
 ★★★★★ (786)
\$24²⁰

Pickup
 6 in stock at Coventry

Delivery
 Scheduled

583

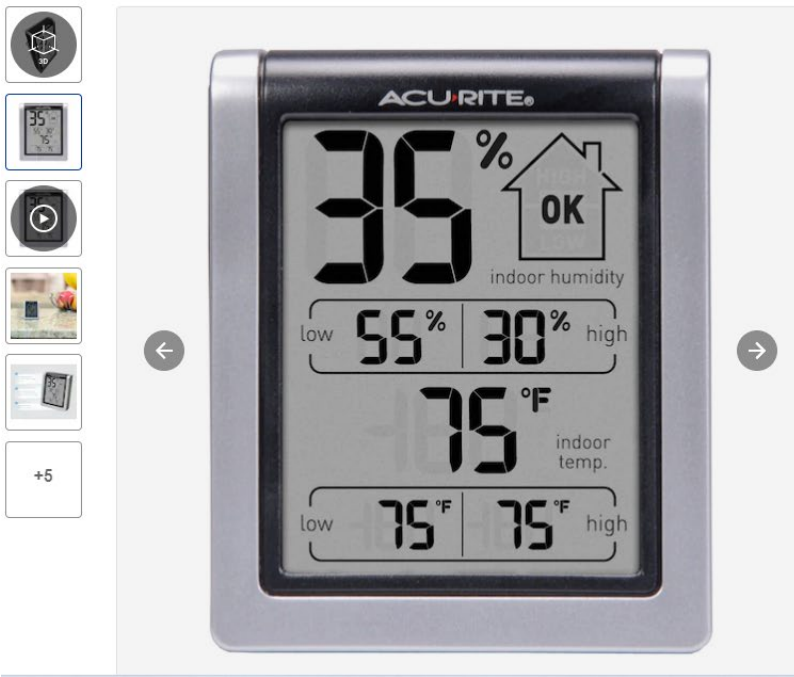


AcuRite Digital Humidity and Temperature Comfort Monitor
 Model# 00613
 ★★★★★ (329)
\$12²⁶

Pickup
 Free ship to store

Delivery
 Free

AcuRite Digital Weather Station
 Item #2668695 Model #00632SBL
 Shop AcuRite ★★★★★ 56



♡ **\$11.98**

- Maintain the right room temperature and humidity levels: this hygrometer is perfect to pair with humidors or humidifiers
- Simple, easy-to-read display: easily see a snapshot of current conditions at a glance with this temperature gauge and humidity sensor
- Daily high and low indoor temperature and humidity levels: easily understand your range of conditions in any room with this home thermometer and humidity...

Hurry, Low in Stock

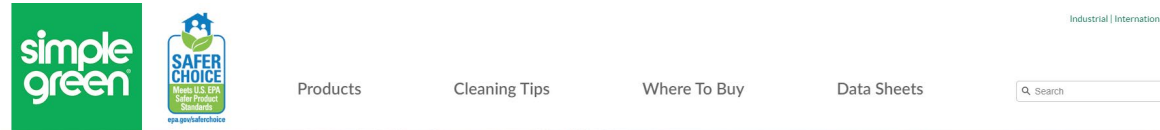
1 **Add to Cart**

Free Store & Curbside Pickup
 Ready tomorrow | 3 In Stock at **Warwick Lowe's**
 Aisle 29 | Bay 18

Delivery to 02920
 Free with \$45 Order
 Get it by Tue, Nov 22

(Examples at Local Home Stores – No Commercial Endorsement Intended)

Resources – Mold and Mildew Control



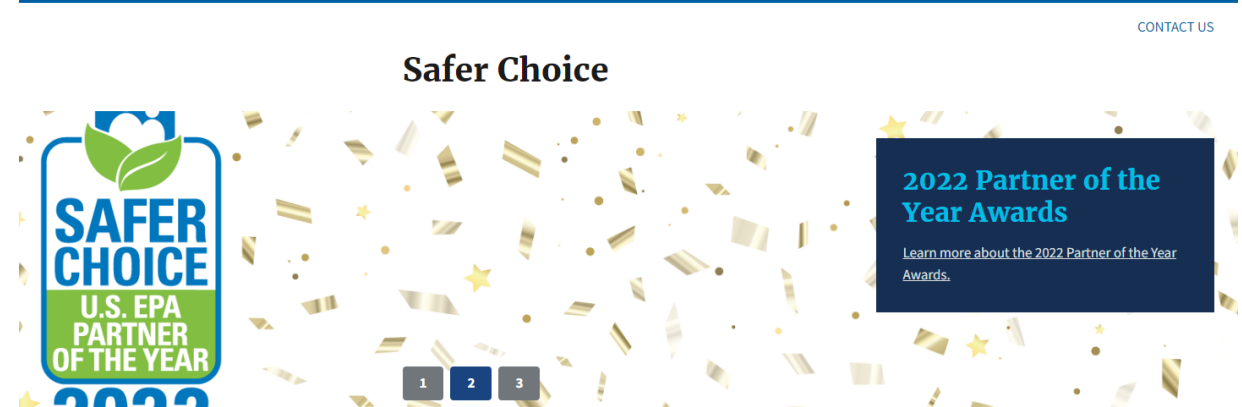
Mold appears in dark, damp areas and can spread quickly if it's not properly eliminated. Not only is it unsightly, it is also bad for your health – mold releases microscopic spores that cause allergic reactions, runny noses and sneezing, as well as irritating odors.

At 2 oz. per gallon, Simple Green d Pro 5 will effectively inhibit the growth of mold and mildew and the odors caused by them when applied to hard, non-porous surfaces.

MOLD AND MILDEW CONTROL DIRECTIONS:

- Apply use-solution to hard, non-porous surfaces, thoroughly wetting the surfaces, with a cloth, mop, sponge, sprayer or by immersion.

An economical example, that meets EPA Safer Choice standard, and is available at home stores – **no product endorsement is intended.**



[Safer Choice en español](#)

Safer Choice helps consumers, businesses, and purchasers find products that perform and contain ingredients that are safer for human health and the environment. Safer Choice is an [EPA Pollution Prevention \(P2\) program](#), which includes practices that reduce, eliminate, or prevent pollution at its source, such as using safer ingredients in products.

<https://www.epa.gov/saferchoice>

Resources – Pest Control

- Example of Commercial Baits

(Examples at Local Home Stores – No Commercial Endorsement Intended)

Resources – Pest Control

Identify Inspect Treat Prevent

How to Get Rid of Roaches

Cockroach Treatment Guide

By DoMyOwn staff

Print Article

OVERVIEW What Does a Roach Treatment Program Include?

Learn the Best Way to Kill Roaches on Your Own



Getting rid of roaches involves more than just spraying an insecticide or putting down a bait or dust. Roaches get into everything, multiply rapidly, and can survive for several months without food and up to two weeks without water. These little pests definitely pose a challenge, but with the proper tools and [roach killer products](#), you can learn how to get rid of cockroaches by following this roach management program.

To get rid of roaches, follow these 3 easy steps:

- Clean to get rid of roaches' hiding places and remove food and water sources. This is one of the most important steps to get rid of roaches.
- Use professional grade roach control products to get rid of an infestation. A combination of an insecticide to kill active cockroaches, bait to eliminate hidden roaches, and an IGR to prevent them from reproducing is necessary for a complete roach treatment.
- Monitor cockroaches with glue boards. It can take anywhere from 3 weeks to 6 months to completely eliminate roaches.

Great Information Site & Examples of Pro-Grade Gel Bait

Roach Bait

Roach bait is the most effective way to control a roach population within a home. Roaches consume the bait and transfer the active ingredient to other roaches, spreading the bait throughout the infestation quickly for fast knockdown. Baits also have different attractants that can be rotated to prevent roaches from tiring of the bait.

View Roach Bait Treatment Guides & Videos

1-24 of 33 results

Sort By Featured

Shipping Zip Code: 30093

Categories

Roaches
Roach Bait

Filter By

Brands
Alpine
Maxforce
Vendetta
InVict
Advion
See More

Price Range

Under \$40 (31)
Under \$60 (37)
Under \$80 (39)
Over \$100 (1)

Average Rating

★★★★☆ & Up (29)
★★★★☆ & Up (27)
★★★★★ (6)

Feature

Liquid

Compare



DoMyOwn

Pro Pick

Maxforce FC Magnum

★★★★★ (373)

\$11.99

Free Shipping!

Multiple sizes available

A professional insecticide gel bait that has five times the Fipronil of other baits plus it kills roaches on contact.

Compare

Compare



DoMyOwn

QUICK VIEW

Pro Pick

Advion Cockroach Gel Bait

★★★★★ (1899)

\$31.98

Free Shipping!

A professional roach gel bait with a new active ingredient that rivals the popular Maxforce Roach baits.

Compare

Compare



DoMyOwn

Pro Pick

Alpine Cockroach Gel Bait
Rotation 2 Reservoir

★★★★★ (82)

\$35.33

Free Shipping!

Multiple sizes available
A professional gel bait insecticide that controls roaches in commercial and residential areas and lasts up to 30 days.

Compare

Resources – Pest Control

- **Example of a Professional-Grade, Perimeter Exterior, or Crack/Crevice Targeted Indoor Treatment**

Product Overview

“Bifen IT insecticide is comparable to the very popular [Talstar](#). Bifen IT contains 7.9% [bifenthrin](#) which is an insecticide and termiticide that provides excellent control of over 75 insect pests, leaves a long-lasting residual for up to 3 months, is odorless, non-staining, dries clear and is safe around children and pets when used as directed.”

“Bifen IT and the other bifenthrin products can be used both indoors and outdoors, on lawns and ornamentals, and even in food-handling areas of commercial establishments.”

“One quart of Bifen IT insecticide yields 32 to 96 gallons.”

Not for use as a broadcast across interior surfaces.

NOT for Fruit & Vegetable Gardens

Application * See label for complete application instructions

Pet safe Yes, if used as directed on label - Safe when dry

Formulation Professional Product Group 3 Insecticide

NOT FOR SALE TO PR, CT, NY, VT (Restricted To Licensed Applicators Only)

EPA Registration 53883-118

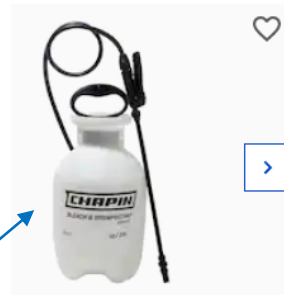
Safety Data Sheet:

[Bifen IT SDS.pdf \(domyown.com\)](#)

***Example only – not specific advice or endorsement!**

Consider benefit/risk and consult a licensed pest applicator for specific advice/solutions

Resources – Pest Control



Chapin
1-Gallon Plastic Handheld Sprayer
Model #20075

★★★★☆ 300

- 1-gallon translucent tank with funnel top for easy filling and cleaning
- For mold remediation, disinfecting, and cleaning
- Compatible with bleach solutions and fungicides

FAST FREE SHIPPING On Your Entire Order*

Ask A Pro: 866-581-7378 Mon-Fri 9am-5pm ET Contact Us



Search product, pest, weed, etc.

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Pest Control | Lawn & Garden | Animal Care | Equipment | Subscriptions | Sale | How-To Resources

Customize Your Own DIY Pest Control Program- Starting at \$9.98/month* + Free Shipping »

Home / Insecticide Concentrates





Bifen IT

★★★★☆ 1,377 Reviews | 600 Q&A

\$25.35 - \$260.80

Free Shipping*

Compare

Size / Description	Price/Ea.	Qty
 pint (16 oz) Buy 2 or more: \$30.97 each	\$33.01	0 + -
 bottle (4 oz) Buy 2 or more: \$23.42 each	\$25.35	0 + -
 quart (32 oz) Buy 2 or more: \$41.52 each	\$43.64	0 + -
 3/4 gallon (96 oz) Buy 2 or more: \$53.90 each	\$55.77	0 + -



\$15.98

Free Pickup / Curbside
Ready within 3 hours | 2 in Stock at Cranston Lowe's

Delivery to 02920
Free with \$45 Order
Get it by **Thu, Nov 10**

1

Warwick
OPEN until 9 pm

Delivering to 02886

What can we help you find today?

Home Decor, Furniture & Kitchenware | DIY Projects & Ideas | Project Calculators | Installation & Services

Home / Outdoors / Garden Center / Pest Control / Insect Control / Insect Killers / Bug Killer Spray

Ortho

Home Defense 1 gal. Insect Killer for Indoor & Perimeter2 Ready-To-Use Trigger Sprayer

★★★★☆ (10083) Questions & Answers (594)



5.8k

\$9.97

- Creates a bug barrier
- 1 gal. ready-to-use trigger
- For indoor and outdoor air
- View More Details

Warwick Store
✓ 165 in stock Aisle 53,

Product Weight (oz.): 128 oz
24 oz | 128 oz | 176 oz

Spray Application Type: Trigg
Pump | Trigger

Store Pickup
Pickup Today
FREE

165 in stock at Warwick
Check Nearby Stores

*Examples only – no specific advice or endorsement intended!
Consider benefit/risk and consult a licensed pest applicator for specific advice/solutions

Resources – Dust



CLEANING WITH MICROFIBER MAKES CLASSROOMS ASTHMA-SAFER FOR ALL

The California Department of Public Health's Work-Related Asthma Prevention Program (WRAPP) has begun its second year of a pilot project to help schools clean classroom desks and counters with microfiber cloths. Microfiber is a highly effective cleaning tool that is also safer for asthma. WRAPP conducted year 1 of the Cleaning for Asthma-Safe Schools Microfiber Pilot Project during the 2016-2017 school year. This fact sheet shares the knowledge gained from the 20 California schools and school districts that participated in the project.

It is well recognized that some cleaning products and disinfectants can cause or trigger asthma. This is one of the reasons for the national movement among schools to reduce their use of cleaning and disinfecting chemicals. Routine cleaning with microfiber safely removes dirt and germs without the use of chemicals or disinfectants (disinfectants are pesticides). Page two discusses disinfectants and provides additional resources.

- permanent markers), or other grime with a microfiber cloth and water.
- Use a microfiber cloth with hand soap and water for tougher cleanup jobs like grease, some permanent markers, and pen marks.

STORING AND WASHING MICROFIBER

If cloths are only lightly soiled, you can rinse them for re-use. Once soiled, wash microfiber with a mild detergent. Air dry or machine dry at a low setting, and wash separately (without other materials like cotton cloths) to maintain effectiveness. Pilot sites stored microfiber cloths in various places including in each classroom, in

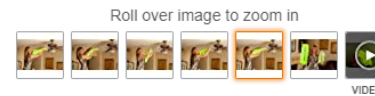


Photo: teacher using a microfiber cloth

[Cleaning with Microfiber Makes Classrooms Asthma-Safer for All \(ca.gov\)](http://ca.gov)

HEPA Vacuum Considerations:

- Stages of Filtration
- Bag/Bagless Designs
- Initial Cost (Accessibility) & Ongoing Costs (Filter Bags)
- Multi-component intervention ?



FanbladeCleaner Ceiling Fan Duster 100% Microfiber

Brand: FanbladeCleaner
★★★★★ 530 ratings

Price: **\$17.95** Get **Fast, Free Shipping** with Amazon Prime
FREE Returns

Get \$100 off instantly: Pay \$0.00 upon approval for the Amazon Store Card.

- The FanBladeCleaner is made of thick plush microfiber material.
- All of your dust is captured inside the apple green FanBladeCleaner.
- There is NO secondary mess to clean when you are done.
- Easy to clean, use it over and over.
- Machine washes over 1000 times!

Customer ratings by feature

Sturdiness ★★★★★ 4.8
Easy to clean ★★★★★ 4.7
Easy to use ★★★★★ 4.6

[See all reviews](#)

[Amazon.com: FanbladeCleaner Ceiling Fan Duster 100% Microfiber : Health & Household](https://www.amazon.com/FanbladeCleaner-Ceiling-Fan-Duster-100-Microfiber-Health-Household)

[Allergy Covers | Bed Bath & Beyond \(bedbathandbeyond.com\)](http://bedbathandbeyond.com)



WHAT PRODUCT IS RIGHT FOR YOU?

FEATURES	Allergy Care™ Cotton Zippered Encasement	Allergy Care™ Organic Cotton Zippered Encasement	Private Luxury Zippered Encasement	BedBug Solution™ Elite Zippered Encasement	BedBug Solution™ Vinyl Mattress or Box Spring Zippered Waterproof Mattress Encasement	BedBug Solution™ Hybrid Quilted Zippered Waterproof Mattress Encasement
Dust Mite Protection	✓	✓	✓	✓	✓	✓
Bed Bug Protection	✓	✓	✓	✓	✓	✓
Other Allergen Barrier	✓	✓	✓	✓	✓	✓
Waterproof	✓	✓	✓	✓	✓	✓
Breathable	✓	✓	✓	✓	✓	✓
Protects against mold and fungi	✓	✓	✓	✓	✓	✓
Hot water Washable	✓	✓	✓	✓	Wipe Clean	✓
Fire Retardant	✓	✓	✓	✓	✓	✓
Manufacturers Limited Lifetime warranty	✓	✓	✓	✓	✓	✓

[Allergy Store | Allergy Control Products & Supplies](http://allergystore.com)

***Illustrative examples only – no specific product advice or retail endorsement intended!**

Resources – Air Purifiers

- I could not do this justice in the timeframe, but I find this to be an excellent and unbiased overview of air purifiers:
 - Air Purifier Buying Guide - Updated August 1, 2022 – available to review without subscription
 - <https://www.consumerreports.org/appliances/air-purifiers/buying-guide/>
- There are tabletop and larger, up to whole home solutions, with variable costs, designs, and minimum efficiency reporting values (MERV). Here is another excellent review from the EPA
 - <https://www.epa.gov/indoor-air-quality-iaq/what-merv-rating>
- So there are a lot of “it depends” considerations
- In general, avoid (or use caution with) ozone-generating devices

Questions?

Thank you for your participation.
I hope this was worthwhile for you!

jginda@verizon.net



ADVANCING INTEGRATED HEALTHCARE

Asthma Essentials ECHO[®] Case Presentation

PLEASE NOTE: Project ECHO case consultations do not create or otherwise establish a provider-patient relationship between any clinician and any patient whose case is being presented in a project ECHO setting

Care Transformation Collaborative of RI

Announcements & Reminders

Next Session Date:	January 11, 2023
Topic:	Working with Community Partners <i>Daniel Fitzgerald, MPH, ICPS and Ashley Fogarty, MPH</i>
Case Presenter:	<i>Marjorie Carges, MD - Coastal Medical Bald Hill Pediatrics</i>

CME Credits

(currently available for MDs, PAs, Rx, RNs and NPs)

- CME Credits – Please request session credits when filling out the evaluation at the end of the meeting.
- Evaluation/Credit Request Form:
<https://www.surveymonkey.com/r/M9VJ8LT>

The AAFP has reviewed ‘ECHO Series Focused on Best Practices and QI,’ and deemed it acceptable for AAFP credit. Term of approval is from 09/16/2022 to 09/16/2023. Physicians should claim only the credit commensurate with the extent of their participation in the activity. NPs and RNs can also receive credit through AAFP’s partnership with the American Nurses Credentialing Center (ANCC) and the American Academy of Nurse Practitioners Certification Board (AANPCB).