Be Smart and Breathe Easy

Asthma And Allergy Foundation of America
New England Chapter
Be Smart and Breathe Easy Program, developed by the Asthma And Allergy Foundation of America New England Chapter, is an asthma education program for inner-city school nurses and custodial staff working in Boston Public Schools (BPS).

The goal of the program is to improve outcomes for students with asthma in BPS. The program aims to reduce school absenteeism due to asthma, reduce asthma triggers in schools, and increase understanding of disease management and treatment.
Rising Asthma Rates

- Americans diagnosed with asthma continue to rise
- 34 million Americans have been diagnosed with asthma in their lifetime in the US
- 7 million are children under 18 yrs
Every Year in the US, asthmatics have:

- 2 million emergency room visits
- 500,000 hospitalizations
- 4,000 deaths
- 12.8 million missed school days
- Nearly 10.1 missed workdays

Healthcare costs for asthma: estimated about 30 billion a year
According to the World Health Organization, there were 380,000 deaths in 2015 due to asthma.

Healthcare costs due to asthma (including lost days from work and school) was estimated at $81.9 billion in 2013.

Disease inequity continues to contribute to the socio-economic burden of asthma in all age groups in the U.S. and worldwide.
What is Asthma?
Asthma is Not:

- Acute bronchitis
- Chronic bronchitis
- Emphysema
- Cystic fibrosis

= COPD
Chronic Obstructive Pulmonary Disease
A **chronic** disease of the airways in the lungs.

Cannot be cured **but can** be treated and controlled.
A disorder of the bronchial tubes in which the airways narrow too much and too easily, resulting in wheezing, chest tightness, and shortness of breath.

A chronic inflammatory disorder of the bronchial tubes.
Causes of Asthma

1. **Partly Hereditary**
   Tends to run in families

2. **Partly Environmental**
   *Indoor air quality* due to tobacco smoke, mold, dust mites, cockroaches, pet dander and others and *outdoor air quality* due to pollution, pollen, ragweed, and others can contribute to asthma
The Bronchial Tree

NORMAL LUNG
- Muscles relaxed
- Lining normal

INFLAMED LUNG
- Muscles tightened
- Lining swollen

NORMAL AND ASTHMATIC AIRWAY

Airways and the Bronchial Tree
Symptoms of asthma may include:

- Shortness of breath
- Chest tightness
- Wheezing
- Coughing
Asthma and Environmental Triggers
Asthma Triggers

Many things, called **asthma triggers**, can make asthma worse.

Knowing and avoiding your asthma triggers will help you better manage asthma.

Asthma Triggers
Indoor Environmental Triggers
Dust Mite

Under microscope in museum
Dust Mite Allergen

• Microscopic Arthropod
• Thrive in Hot, Humid Places
• Feed on Human Skin Flakes
• Waste Products & Decaying Mite Bodies are Airborne

Sources:
• Carpets, drapes, upholstered furniture, pillows
Main allergen is produced by the sweat glands (sebaceous glands)
Also in the fur, saliva, and urine

Cat allergen is:
- Pervasive, can linger in homes for months
- Sticky and adheres to drapes, furniture, rugs, floors, walls
- Lightweight and can float in the air for hours

The allergen can be carried around on clothing, thereby spreading it at school, work, church, etc.
Dog Allergen

- The allergen is present in dog dander *not* fur.
- There is no difference whether the dog has long or short hair (i.e. can be as allergic to a Chihuahua as you can to a Cyberian Huskie).
- No breed is *non-allergenic.*

Even Poodles, Wheaten Terriers, and Shih Tzu (thought to be hypoallergenic), will likely induce allergy symptoms in sensitive individuals upon continuous exposure.
Tobacco & Second Hand Smoke (SHS):

- Can trigger asthma
- Is a mixture of smoke from cigarettes, pipes, cigars and the smoke breathed out by a smoker
- Can travel through air ducts, cracks in floors and walls, stairwells, hallways, elevator shafts, plumbing, electrical lines, and open windows (especially in multi-unit structures)

**Research funded by the U.S. National Institute on Drug Abuse (NIDA), found that SHS has a direct and measurable impact on the brain similar to that of actually smoking. PET scans reveal just 1 hr of SES in an enclosed area allows nicotine to reach the brain and bind to receptors normally targeted by direct exposure to tobacco smoke. URL: http://consumer.healthday.com/Article.asp?AID-652532**
Third-hand smoke is a term for the chemicals, gases, and other toxins left behind in hair, carpets, sofas, clothes and other materials long after a cigarette is put out.

- Third-hand smoke can make asthma worse.
- Young children are also at an increased risk of swallowing or breathing in these toxins because they spend more time closer to floors and other surfaces.
The body parts and droppings of rodents and roaches contain allergens.

Asthmatic children and adolescents allergic to mice experience more illness due to asthma than their counterparts.

Pests, like human beings, need food, water, and shelter to survive:

- **Food sources**: various foods and their crumbs, paints, wallpaper pastes, and book bindings.
- **Water sources**: sweating pipes, standing water, and any moist items or areas.
- **Hiding places**: cracks, cardboard boxes, newspaper, and grocery bags.
Strong odors can irritate the airways and trigger asthma.
Indoor Mold
(Aspergillus – under carpets)

Mold spores are carried in the air and can trigger asthma
Poor indoor air quality due to environmental hazards in schools has been linked to increase asthma and allergy, absenteeism due to illness, and poor academic performance in children.

Common contributors to poor indoor air quality in schools include:

- Inadequate Heat, Ventilation, and Air-Conditioning (HVAC) systems.
- Organic Vapors / Volatile Organic Compounds (VOCs)
- Rodents, pests, mold spores, and other pollutants.
- Moisture and other leakage issues.
- Toxic cleaning chemicals.
Outdoor Environmental Triggers
Tree Pollen

Tree pollen (March – June)

Oak tree pollen grains
Grass Pollen

Grass pollen (June – July)

Grass pollen grains
Weed pollen (Aug – Oct)

Ragweed pollen grains
Outdoor Mold
(Alternaria)

Mold spores
(Mar – Nov)
Harmful substances and emissions from industry, factories, buses, etc. can pollute the air, contributing to global warming and its associated health consequences.

Pollution is common in Inner-Cities, especially in densely populated areas and can trigger asthma.
Other Common Triggers
Other Common Triggers

- Medications like aspirin and NSAIDS
- Sulfites in food products (wine, dried fruits, packaged products)
- Clutter
Managing Asthma?
While a complex relationship exists between asthma severity and control of asthma, recent research clearly demonstrates:

- Optimal asthma management requires a multi-pronged approach.
- Improved disease management utilizing medication and environmental control results in improved asthma outcomes for all age groups.
Managing Asthma
Multi-Pronged Approach

Involves:

- Asthma Severity / Control
- Asthma Medications
- Lung Function & Peak Flow Monitoring
- Asthma Action Plan
- Environmental Control
Diagnosing Asthma

Sometimes diagnosing asthma can be straightforward, other times it involves investigation:

• Medical history
• Physical exam
• Spirometry
• Other test (chest X-ray, methacholine challenge, and others)
Classification of Asthma Symptoms

- **Mild Persistent**
  - Asthma symptoms occur infrequently, ≤ twice a week. Nighttime awakenings occur ≤ twice a month. Peak flow is within the normal range (more than 80% of the average normal value for persons of the same age, height, and gender). Asthma flare-ups are relatively brief (lasting less than an hour) and infrequent.

- **Mild Intermittent**
  - Asthma symptoms occur > twice a week but < than every day. Nighttime awakenings occur > twice a month, but < every week. Peak flow is usually within the normal range. Asthma attacks may interfere with normal activities.

- **Moderate Persistent**
  - Daily asthma symptoms, daily use of the quick-acting bronchodilator for relief of asthma symptoms. Nighttime awakenings occur > once a week. Peak flow is reduced, as low as 60% of normal. Exacerbations may occur two or more times/week and may last for days.

- **Severe Persistent**
  - Continual asthma symptoms with frequent nighttime awakenings due to asthma. Breathing tests (peak flow) are < 60% of normal and vary by > 30% over the course of the day. Asthma flare-ups are very common, perhaps several times a day.

Stepwise Approach for Managing Asthma in Children 5-11 Years of Age

**Figure 4-1b. Stepwise Approach for Managing Asthma in Children 5-11 Years of Age**

**Step 1** Preferred: 
SABA PRN

**Step 2** Preferred: 
Low-dose ICS

Alternative: 
Cromolyn, LTRA, Nedocromil, or Theophylline

**Step 3** Preferred: 
Low-dose ICS + LABA

Alternative: 
Cromolyn, LTRA, or Theophylline

OR 
Medium-dose ICS

**Step 4** Preferred: 
High-dose ICS + LABA

Alternative: 
High-dose ICS + either LTRA or Theophylline

**Step 5** Preferred: 
High-dose ICS + LABA + oral systemic corticosteroid

Alternative: 
High-dose ICS + either LTRA or Theophylline + oral systemic corticosteroid

**Step 6** Preferred: 
High-dose ICS + LABA + oral systemic corticosteroid

Alternative: 
High-dose ICS + either LTRA or Theophylline + oral systemic corticosteroid

**Quick-Relief Medication for All Patients**

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments in 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Increasing use of SABA or use > 2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

**Key:** Alphabetical order is used when more than one treatment option is listed within either preferred or alternative therapy. ICS, inhaled corticosteroid; LABA, inhaled long-acting beta<sub>2</sub>-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta<sub>2</sub>-agonist

**Notes:**

- The stepwise approach is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- Theophylline is a less desirable alternative due to the need to monitor serum concentration levels.
- Step 1 and step 2 medications are based on Evidence A. Step 3 ICS + adjunctive therapy and ICS are based on Evidence B for efficacy of each treatment and extrapolation from comparator trials in older children and adults—comparator trials are not available for this age group; steps 4–6 are based on expert opinion and extrapolation from studies in older children and adults.
- Immunotherapy for steps 2–4 is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults. Clinicians who administer immunotherapy should be prepared and equipped to identify and treat anaphylaxis that may occur.
2008
Stepwise Approach for Managing Asthma in Youths ages 12+ and Adults

Step 1
Preferred:
- SABA PRN

Alternative:
- Cromolyn, LTRA, Nedocromil, or Theophylline

Step 2
Preferred:
- Low-dose ICS + LABA
- Medium-dose ICS

Alternative:
- Medium-dose ICS + either LTRA, Theophylline, or Zileuton

Step 3
Preferred:
- Medium-dose ICS + LABA

Alternate:
- Medium-dose ICS + either LTRA, Theophylline, or Zileuton

Step 4
Preferred:
- High-dose ICS + LABA

Step 5
Preferred:
- High-dose ICS + LABA + oral corticosteroid

Step 6
Consider Omalizumab for patients who have allergies

Assess control

Each step: Patient education, environmental control, and management of comorbidities.

Steps 2–4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma (see notes).

Quick-Relief Medication for All Patients

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.
Bronchodilators (relievers/rescue)
- Short-acting bronchodilator

Antiinflammatories (controllers)
- Inhaled corticosteroids
- Long-acting bronchodilators
- Leukotriene modifiers
- Theophyllines
- Biologics (anti-IgE therapy)
Respiratory Inhalers
Biologics

Biologics are reserved for difficult to treat asthma and do not always work for everyone. Current biologics approved for use in the treatment of difficult to control asthma include:

- **Omalizumab (Xolair)**
  Binds with free IGG
  Approved for ≥ 6 yrs

- **Benralizumab (Fasenra)**
  For severe eosinophilic asthma, ≥ 12 yrs
  Given every 4 weeks x 3, then every 8 weeks

- **Mepolizumab (Nucala)**
  For severe eosinophilic asthma
  Approved for ≥ 12 yrs

- **Reslizumab (Cinqair)**
  Approved for ≥ 18 years old with severe asthma
  20 minute IV infusion
Nebulizers are used to deliver asthma medication in a mist form.
Asthma Management (Epi-Pen and Epi-Pen Jr.)

- Disposable, pre-filled automatic injection devices with a single dose of epinephrine for **allergic emergencies**. (Requires a prescription)
- If an individual shows signs or symptoms of an allergic emergency, inject the prescribed EpiPen or EpiPen Jr. immediately, then call 911 and seek immediate medical attention.

**Signs of an allergic emergency may include:**

* closing of the airways
* Swelling of the lips and tongue
* Numbness/tingling of the lips and tongue
* Itching
The Peak Flow Meter is a device used to measure how fast air comes out of the lungs.

**Used to**: diagnose asthma, assess asthma severity, and track changes in asthma symptoms and asthma medications.

The Personal Best Number, determined by age, height, and gender, is needed when monitoring lung function.
Asthma Management
Normal Peak Flow Values in Children
Asthma Management

Normal Peak Flow Values in Adults

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These values are the normal average values for individuals of a given age, and height.

Click here to calculate a "normal" value for a healthy person of a given age and height.
# Asthma Action Plan (AAP)

**Massachusetts Asthma Action Plan**

**Name:**

**Date:**

- **Birth Date:**
- **Doctor/Nurse Name:**
- **Doctor/Nurse Phone #:**

**Patient Goal:**

- **Parent/Guardian Name & Phone:**

**Important! Avoid things that make your asthma worse:**

**Personal Best Peak Flow:**

**GO – You’re Doing Well!**

Use these daily controller medicines:

<table>
<thead>
<tr>
<th>MEDICINE/ROUTE</th>
<th>HOW MUCH</th>
<th>HOW OFTEN/WHEN</th>
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**CAUTION – Slow Down!**

Continue with green zone medicine and add:

<table>
<thead>
<tr>
<th>MEDICINE/ROUTE</th>
<th>HOW MUCH</th>
<th>HOW OFTEN/WHEN</th>
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</table>

**DANGER – Get Help!**

Take these medicines and call your doctor now.

<table>
<thead>
<tr>
<th>MEDICINE/ROUTE</th>
<th>HOW MUCH</th>
<th>HOW OFTEN/WHEN</th>
</tr>
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</table>

**GET HELP FROM A DOCTOR NOW!** Do not be afraid of causing a fuss. Your doctor will want to see you right away. It’s important! If you cannot contact your doctor, go directly to the emergency room and bring this form with you. DO NOT WAIT.

Make an appointment with your doctor/nurse within two days of an ER visit or hospitalization.

**Doctor/NP/PA Signature:**

**Date:**

**Parent/Guardian Signature:**

**Date:**

**SEE BACK OF SCHOOL COPY FOR STUDENT MEDICATION ADMINISTRATION AUTHORIZATION**

**ADAPTED FROM NH PUBLICATION (7/2001)**

**White Copy: Patient/Parent**

**Green Copy: Provider**

**Yellow Copy: School/Other**

**Asthma and Allergy Foundation of America**

**NEW ENGLAND CHAPTER**
Asthma Management Environmental Control

Consideration in the School Environment

• Allergen avoidance measures
• Integrated pest management (IPM)
• Environmental tobacco smoke (ETS)
Reducing Dust Mite Exposure

- Wash or remove stuffed animals
- Remove upholstered furniture from the classroom
- Use scatter/area rugs in place of large carpeting
- Use a HEPA filter air cleaner if possible
Reducing Animal Dander Exposure

- Airborne pet allergens increase fivefold when the pet is in a room
- Removal of the animal is the most effective measure
- Keep furry animal out of the classroom
- HEPA filter air cleaners can reduce the airborne concentrations pet allergens
Reducing ETS

• Important to adopt a smoke free environment in schools. **Use strong, personalized message:**
  “Quitting smoking is the best thing you can do for your health and the health of your family”

• Encourage staff and others who smoke to quit.
• Make available information on smoking cessation programs where appropriate.
• Increase ventilation in schools
Reducing Pests Exposure

Integrated Pest Management (IPM)

Prevention-based approach to controlling cockroaches, rodents and/or other pests known to trigger asthma.

IPM measures include:

- Sealing all cracks in walls, floors and ceiling (sites of entry for pests)
- Using traps (roach motel, mice traps, bait, etc.)
- Eliminating food and water supply
- Keeping food or snacks in airtight containers
- Ensure trash cans are emptied daily
Reducing Fumes and Strong Odors

- Avoid using cleaning products with strong odors.
- Avoid using perfumes, scented lotions, hairsprays around allergic individuals.
- Avoid air fresheners, plug-ins and other scented materials in the classroom.
- Avoid arts and crafts materials with fragrances and fumes.

Alternatively:
- Use green cleaners subscribed by BPS
- Use natural air fresheners (i.e. white vinegar and water, lemon juice and water)
Reducing Mold Exposure

- Limit plants in the classroom.
- HEPA filters can be used to remove particles from the air.
- Increase ventilation in areas where mold is an issue.
- Use non-toxic cleaner and/or 5% bleach solution (non-chlorine bleach and water) for cleaning mild mold issues.
Use HEPA air cleaners to remove particles from the air.
• Ensure HVAC systems are maintained regularly.
• Increase ventilation in areas where mold is an issue.
• Use non-toxic cleaners.
• Use non-toxic pest control measures as with IPM instead of chemical agents for issues of pest infestation.
• Use non-toxic school supplies.
Reducing Pollen Exposure

- Keep windows closed on peak pollen days, use air conditioner as necessary. See [www.pollen.com](http://www.pollen.com) for daily pollen count.

- A HEPA air cleaner will remove pollen that has entered the school.

- Conduct lawn/garden maintenance when children are not in school.
• Clear areas of clutter; sort by “keep, toss, donate.”
• Hold a day to declutter; ask custodian for extra garbage bags.
• Share or donate excess school supplies.
• Keep like items together.
• Use clear storage bins to store school supplies.
• Recycle, Recycle, Recycle!

Source: www.unclutter.com
Recycling

**Adopt a school-wide recycling program**

- Ensure recycling receptacles are appropriately marked, i.e. paper, plastic, cardboard, etc.
- Place recycle bins in a visible and convenient area to encourage use.
- Encourage staff and students to play their part in recycling activities.
Nyssa is in the 5th grade now and very excited to be back in school this year. Last year, her 5th grade teacher told her she would have the opportunity to spend time with her helping out the 3rd and 4th graders with reading and during recess. Nyssa was looking forward to it all summer long.

As the school year got underway, Nyssa received her “duties” for the school year. She was to read exciting books, both old and new to the 3rd grade students as well as help out with play at recess with the 4 grade students. Nyssa continued with her “duties” but 1-2 times a week (usually on Tuesday and Friday) she ended up in the nurses office with shortness of breath and wheezing, needing to use her inhaler.
Case Study
What is going on?

Q1. What could be causing Nyssa’s symptoms?
Q1. What do we know?

Q2. What is happening on Tuesdays and Fridays?
Case Study
Let’s Investigate?

On Tuesday Nyssa participates in huddle reading with the 3rd grade students. She enjoys sitting in the reading area because it is cozy with the soft carpet and pillows. The children also enjoys watching the hamster run around on its wheel. However, after beginning to read one of her favorite books, her throat begins to itch. By the time she finishes the book, she has to go to nurse's office where she receives a nebulizer treatment.

On Thursday, Nyssa leads the 4th grade class in play activities outside. She enjoys running around playing tag and leap frog and other games with the children. However, within a 10 min she almost always begins to feel tired and has to stop. Even after resting for a few minutes it is hard for her to catch her breath and she ends up in the nurse’s office with a nebulizer treatment.
Q2. What could be causing Nyssa’s symptoms?
Case Study Action!

- Review AAP and asthma medications
- Contact Parent, Physician
- Encourage Nyssa to use a PFM, review numbers
- Remove class pet from reading area
- Ensure area rugs are cleaned often
- Encase pillow in hypoallergenic covers
- Remove dust in reading area, especially the old books
Asthma is a chronic disease of the airways in the lung.

Asthma has two parts:

- Inflammation
- Bronchospasm

Asthma cannot be cured but can be treated and controlled.
Asthma attacks are caused by triggers such as:

- Dust
- Dander
- Mold
- Cleaning Products
- Mice, cockroaches
- Cigarette Smoke

Optimal asthma management involves:

- Medication use
- Proper environmental changes
- Peak flow monitoring
- Use of an asthma action plan
Can you “Outgrow” Asthma?

- No, asthma is a **chronic disease**, which means it is always there.
- Asthma symptoms may come and go over time, but the condition of asthma is always there.
- Some young children may experience less asthma symptoms as they get older, but recurrence of asthma is typical, especially in children with severe asthma.
- Remission of adult asthma is rare (<10%).
Helpful Links

3. Partners Asthma Center (PAC) – Brigham and Women’s Hospital  [www.asthma.partners.org](http://www.asthma.partners.org)

American Academy of Allergy, Asthma, & Immunology
American College of Allergy, Asthma
American Lung Association
Asthma and Allergy Foundation of America
National Institutes of Health
The National Heart, Lung and Blood Institute
Sources


National Institute of Allergy and Infectious Disease: *Focus on Asthma*. Available at [http://niaid.nih.gov/newsroom/focus/asthma01/basics.htm#stats.accessed](http://niaid.nih.gov/newsroom/focus/asthma01/basics.htm#stats.accessed). 7-14-03.


Sources

The EPA Blog. Indoor Air Quality in Schools – Concerns and Need for Low-Cost Solutions.  
www.blogepa.gov. 2015

The Green Flag Program, The Center for Health, Environment and Justice. Falls Church VA.  

Special acknowledgements to the following individuals for their contributions:

Elizabeth Klements, MS, PPCNP-BC, AE-C, Asthma Clinical Practice Specialist, Boston Children’s Hospital

Tolle Graham, Labor Environmental Coordinator, Massachusetts Coalition for Safety and Health-MassCOSH
For more information, please contact:
Asthma and Allergy Foundation of America, New England Chapter

25 Braintree Hill Office
Park, Suite 200, Braintree, MA 02184
Visit: www.asthmaandallergies.org
Contact AAFA New England at: 781-444-7778