Overcoming Treatment Barriers in Inner City Asthma Children

Elliott Attisha, DO
Henry Ford Health System, Department of Pediatrics,
School-Based & Community Health Program
HANK – Health Alliance for Neighborhood Kids
Agenda

1. Background
2. Provider and Patient Education
3. Tools
4. Our Initiative
5. Closing Thoughts
Asthma Data

• Most common chronic disease of childhood
• In the US, 7 million children under 18 have asthma
  – 1 out of 10 school-age children
  – More than half with at least one asthma attack in last year
• Disproportionately higher number of asthmatics in low income, inner city environments.

National Asthma Control Initiative
Across the country, 13 million missed school days each year due to asthma!

Source: National Asthma Control Initiative
A Quick Fix?

• Implementing evidence-based clinical practice guidelines for asthma has demonstrated effectiveness.

• Challenges
  – getting most clinicians to implement guideline-based care for their asthma patients
  – Getting patients to adhere to their treatment plan

National Asthma Control Initiative
Provider Team
Asthma Literacy
Checklist

- Basic understanding of asthma, including physiology
- A proper office note
- Understanding and knowing how to address triggers
- Use of available tools such as ACT
- How to classify severity and control of asthma
- Understanding asthma medications and the Step Therapy approach
- Knowing how to build an education and action plan
- Understanding concept of teach back and promotion of self-management
- Ensuring adequate patient follow-up
6 priority messages of the National Asthma Control Initiative

- Use inhaled corticosteroids
- Use asthma action plans
- Assess asthma severity
- Assess and monitor asthma control
- Schedule follow-up visits
- Control environmental exposure
Asthma Triggers

- Dust
- Hot or Cold Air
- Odors & Perfume
- Cleaning Products
- Colds and Viruses
- Weather Changes
- Mold
- Food Allergies
- Pollen
- Dogs
- Mold
- Pollen
- Colds and Viruses
Childhood Asthma Control Test

ACT

Childhood Asthma Control Test for children 4 to 11 years.

Today's Date:__________________
Patient's Name:________________

The test will provide a score that may help the doctor determine if your child's asthma control plan is working or if changes need to be made.

How to take the Childhood Asthma Control Test:

Step 1: Add the number of each answer in the box provided.
Step 2: Add the box scores for the total.
Step 3: Have your child complete the questionnaire.
Step 4: Take the test to the doctor to discuss your child's total score.

Have your child complete these questions:

1. How is your asthma today?
   - Very good
   - Good
   - Fair
   - Poor
   - Very poor

2. How often is your asthma problem worse than usual:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

3. How often do you miss school:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

4. How often does your asthma prevent you from doing your usual activities:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

5. How often does your doctor prescribe medication:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

6. How often do you need to use your inhaler:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

7. How often do you need to use your inhaler:
   - Never
   - Once a year
   - Once a month
   - Once a week
   - Every day

Please complete the following questionnaires:

1. During the past 4 weeks, how often did your child wake up during the night because of asthma?
   - Never
   - Once a month
   - Once a week
   - Every day

2. During the past 4 weeks, how often did your child wake up during the night because of coughing?
   - Never
   - Once a month
   - Once a week
   - Every day

3. During the past 4 weeks, how often did your child wake up during the night because of colds?
   - Never
   - Once a month
   - Once a week
   - Every day

4. During the past 4 weeks, how often did your child wake up during the night because of allergies?
   - Never
   - Once a month
   - Once a week
   - Every day

5. How often did your child wake up during the night because of asthma?
   - Never
   - Once a month
   - Once a week
   - Every day

If your score is 18 or less, your asthma may not be controlled as well as it could be. Talk to your doctor.

FOR PHYSICIANS:

The ACT is:

- A simple, 5-question tool that is self-administered by the patient
- Clinically validated by specialist assessment and spirometry

Severity, Control and Step-Therapy

### Severity, Control and Step-Therapy

#### Components of Control

<table>
<thead>
<tr>
<th>Classification of Asthma Control (≥12 years of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Controlled</td>
</tr>
<tr>
<td>Symptoms</td>
</tr>
<tr>
<td>Nighttime awakenings</td>
</tr>
<tr>
<td>Interference with normal activity</td>
</tr>
</tbody>
</table>

#### Components of Severity

<table>
<thead>
<tr>
<th>Classification of Asthma Severity (≥12 years of age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermittent</td>
</tr>
<tr>
<td>Symptoms</td>
</tr>
<tr>
<td>Interference with normal activity</td>
</tr>
</tbody>
</table>

#### Stepwise Approach for Managing Asthma in Youths ≥12 Years of Age and Adults

1. **Step 1**: Patient education, environmental control, and management of comorbidities. Consider corticosteroids.
2. **Step 2**: Leukotriene antagonist or monotherapy. Consider biologic therapy.
3. **Step 3**: Preferred: Medium-dose CS + ICS. Preferred: High-dose CS + ICS and/or biologic therapy. Additional: Medium-dose CS + ICS, medium-dose CS + leukotriene antagonist, or biologic therapy.
5. **Step 5**: Access control.
6. **Step 6**: Step down if possible.

Each step should be reviewed weekly and adjusted accordingly. Quick Relief Medication for All Patients:
- Symptomatic treatment depends on severity of symptoms. Up to 3 treatments at 20-minute intervals are needed. Symptomatic treatment may be needed.
- Use of SABA 10–15 days a week for symptoms leading to the presentation of EDs generally indicates inadequate control and the need to step up treatment.

EPR-3 (8/28/07): p326-343
Program developed by Michigan asthma and practice redesign experts to help clinicians make diagnosis and care decisions based on the EPR-3 asthma guidelines, and incorporate the tools below into their everyday practice.

- Questions About Your Breathing
- Asthma Control Test™ (ACT™)
- Asthma Diagnosis Tool
- Asthma Patient Follow-Up Tool
- Stepwise Approach to Managing Asthma
# ASHMA DIAGNOSIS TOOL

Consider the diagnosis of asthma if patient states any of the following:

- Family history of asthma, allergies or eczema
- Symptoms occur seasonally
- Symptoms when near chemicals, dusts, fumes at work
- Symptoms worsened by URI lasting longer than ten days, smoke, allergens or exercise

**AND SPIROMETRY DEMONSTRATES OBSTRUCTION AND/OR REVERSIBILITY BY AN INCREASE IN FEV₁ OF 12% OR MORE AFTER BRONchodilATOR.**

Rule out co-morbid conditions. If in doubt, consult with an asthma specialist.

## HIGHEST LEVEL OF CHECKED BOX = SEVERITY LEVEL

<table>
<thead>
<tr>
<th>INTERMITTENT</th>
<th>MILD PERSISTENT</th>
<th>MODERATE PERSISTENT</th>
<th>SEVERE PERSISTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SYMPTOMS:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 2x/week</td>
<td>More than 2x/week, not daily</td>
<td>Daily</td>
<td>Throughout the day</td>
</tr>
<tr>
<td>NIGHTTIME AWAKENINGS:</td>
<td>Less than 2x/month</td>
<td>More than 2x/month</td>
<td>More than 1x/week, often nightly</td>
</tr>
<tr>
<td>INTERFERENCE W/NORMAL ACTIVITY:</td>
<td>None</td>
<td>Minor limitation</td>
<td>Extremely limited</td>
</tr>
<tr>
<td>SHORT-ACTING B₂-AGONIST USE:</td>
<td>Less than 2 days/week</td>
<td>More than 2 days/week but not daily or more than 1x/day</td>
<td>Daily</td>
</tr>
<tr>
<td>LUNG FUNCTION:</td>
<td>FEV₁ more than 80% pred.</td>
<td>FEV₁ more than 80% pred.</td>
<td>FEV₁ less than 60% pred.</td>
</tr>
<tr>
<td><strong>EXACERBATIONS REQUIRING ORAL STEROIDS:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All ages: 0-1/year</td>
<td>Age 0-4: more than 2 in 6 months or more than 4 wheezing</td>
<td>All ages: more than 2/year episodes/year lasting more than 1 day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exacerbations of any severity may occur in patients in any severity category.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frequency and severity may fluctuate over time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TREATMENT STEP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>√ All ages: STEP 1</td>
<td>√ All ages: STEP 2</td>
<td>√ All ages: STEP 3; consider short course oral steroids option</td>
<td>√ Age 0-4: STEP 3; short course oral steroids option</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>√ Age 5-11: STEP 3; STEP 4 short course oral steroids option</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>√ Age 12 &amp; over: STEP 4 or 5; short course oral steroids option</td>
</tr>
<tr>
<td><strong>TREATMENT FOR PERSISTENT ASTHMA:</strong></td>
<td>Daily inhaled steroids (see treatment stepwise approach)</td>
<td>Assess response within 2-6 weeks</td>
<td></td>
</tr>
</tbody>
</table>

## FOR ALL PATIENTS WITH ASTHMA:

- Rescue medication for all ages, all severity levels: Short-acting B₂-agonist PRN. Treatment intensity depends on symptom severity.
- Provide written Asthma Action Plan
- Identify & avoid triggers
- Flu vaccine recommended annually, pneumococcal vaccine for adults
- Review correct device technique each visit

Reference: National Heart, Lung, and Blood Institute’s Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma 2007, NH Publication 07-4051. This tool was adapted from Washington Asthma Initiative materials.
Patient Education
Checklist

- Basic facts about asthma
- Differentiating long-term and quick-relief medications
- Identifying and avoiding environmental exposures
- Taking medications correctly
- Self-monitoring
- Importance of asthma action plan

South Bronx Asthma Partnership
Normal bronchiole

Asthmatic bronchiole
# How To Control Things That Make Your Asthma Worse

This guide suggests things you can do to avoid your asthma triggers. Put a check next to the triggers that you know make your asthma worse and ask your doctor to help you find out if you have other triggers as well. Then decide with your doctor what steps you will take.

## Allergens

### Animal Dander

Some people are allergic to the flakes of skin or dried saliva from animals with fur or feathers. The best thing to do:
- Keep fluffy or feathered pets out of your home.
- Keep the pet out of your bedroom and other sleeping areas at all times, and keep the door closed.
- Remove carpets and furniture covered with cloth from your home. If that is not possible, keep the pet away from fabric-covered furniture and carpets.

### Dust Mites

Many people with asthma are allergic to dust mites. Dust mites are tiny bugs that are found in every home—in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items.

Things that can help:
- Encase your mattress in a special dust-proof cover.
- Encase your pillow in a special dust-proof cover or wash the pillow each week in hot water. Water must be hotter than 130°F to kill the mites.
- Use cold or warm water used with detergent and bleach can also be effective.
- Wash the sheets and blankets on your bed each week in hot water.
- Reduce indoor humidity to below 60 percent (ideally between 30–50 percent). Dehumidifiers or central air conditioners can do this.
- Try not to sleep or lie on cloth-covered cushions.
- Remove carpets from your bedroom and those laid on concrete, if you can.
- Keep stuffed toys out of the bed or wash the toys weekly in hot water or cooler water with detergent and bleach.

### Cockroaches

Many people with asthma are allergic to the dried droppings and remains of cockroaches.

The best thing to do:
- Keep food and garbage in closed containers. Never leave food out.
- Use poison baits, powders, gels, or paste (for example, boric acid).
- You can also use traps.
- If a sprayer is used to kill roaches, stay out of the room until the odor goes away.

## Pollen and Outdoor Mold

What to do during your allergy season (when pollen or mold spore counts are high):
- Try to keep your windows closed.
- Stay indoors with windows closed from late morning to afternoon, if you can. Pollen and some mold spore counts are highest at that time.
- Ask your doctor whether you need to take or increase anti-inflammatory medicine before your allergy season starts.

## Irritants

### Tobacco Smoke

- If you smoke, ask your doctor for ways to help you quit. Ask family members to quit smoking too.
- Do not allow smoking in your home or car.

### Smoke, Strong Odors, and Sprays

- If possible, don’t use a wood burning stove, kerosene heater, or fireplace.
- Try to stay away from strong odors and sprays, such as perfume, talcum powder, hair spray, and paints.

## Other things that bring on asthma symptoms in some people include:

### Vacuum Cleaning

- Try to get someone else to vacuum for you once or twice a week, if you can. Stay out of rooms while they are being vacuumed and for a short while afterward.
- If you vacuum, use a dust mask (from a hardware store), a double-layered or microfiber vacuum cleaner bag, or a vacuum cleaner with a HEPA filter.

### Other Things That Can Make Asthma Worse

- Sulfites in foods and beverages: Do not drink beer or wine or eat dried fruit, processed potatoes, or shrimp if they cause asthma symptoms.
- Cold air: Cover your nose and mouth with a scarf on cold or windy days.
- Other medicines: Tell your doctor about all the medicines you take. Include cold medicines, aspirin, vitamins and other supplements, and nonselective beta-blockers (including those in eye drops).

---

For More Information, go to: [www.nih.gov](http://www.nih.gov)
**How to Use a Spacer**

1. **Step 1:** Remove the caps from the inhaler and the spacer.
2. **Step 2:** Shake the inhaler well for 5 seconds.
3. **Step 3:** Insert the inhaler into the open end of the spacer.
4. **Step 4:** Practice blowing in and out slowly and deeply as you would expect to do.
5. **Step 5:** Store your mouthpiece of the spacer as far as air holes out.
6. **Step 6:** Insert the spacer into your mouth, take in a puff of medicine into the spacer.
7. **Step 7:** Breathe in and out slowly and deeply as you would expect to do.
8. **Step 8:** How many puffs did you doctor say to take? Wait 1 minute between each puff. Follow steps 4-8 for every puff ordered by your doctor.
9. **Step 9:** Rinse your child’s mouth with water. Clean the spacer and facemask once a week with soap and warm water and then let air dry. Replace caps on inhaler and spacer.

**How to Use a Spacer with a Facemask**

1. **Step 1:** Remove the caps from the inhaler and the spacer.
2. **Step 2:** Shake the inhaler well for 5 seconds.
3. **Step 3:** Attach the mask to the mouthpiece of the spacer. Now insert the inhaler into the open end of the spacer.
4. **Step 4:** Put the facemask up to your child’s face. Make sure that it is tight around the child’s nose and mouth so that no air leaks out.
5. **Step 5:** Push the inhaler down once. This will release one puff of medicine into the spacer.
6. **Step 6:** Hold the facemask to your child’s face for enough time to allow at least 6 breaths. This may take 10-15 seconds.
7. **Step 7:** Remove the facemask from your child’s face.
8. **Step 8:** How many puffs did your doctor say to take? Wait 1 minute between each puff. Follow steps 4-8 for every puff ordered by your doctor.
9. **Step 9:** Rinse your child’s mouth with water. Clean the spacer and facemask once a week with soap and warm water and then let air dry. Replace caps on inhaler and spacer.
Triggers can cause asthma symptoms.

Not everyone has the same triggers.

What Are Your Triggers?

- Cigarette Smoke
- Colds & Viruses
- Weather Changes
- Hot Air or Cold Air
- Cats
- Dogs
- Odors & Perfumes
- Cleaning Products
- Exercise
- Mold
- Pollution
- Pollen
- Dust Mites
- Cockroaches
- Rats & Mice

Developed by the Asthma Literacy Project for the South Bronx Asthma Partnership
How to Reduce Your Exposure to Triggers

- Don’t bring food into the bedroom
- Keep pets out of the bedroom
- Caulk holes and cracks in walls and corners
- Remove carpets and rugs from the bedroom
- Wipe off dust regularly with a damp cloth
- Remove extra dust-collecting items from the bedroom
- Put away stuffed animals and toys in a bag or box
- Use zipper-encased, allergy-free bedding and pillowcases
- Replace curtains with shades or blinds
- Don’t smoke inside the house
- Keep the windows closed during allergy season
- Keep indoor humidity under 50%
- Use only HEPA vacuums and air purifiers
- Tell your landlord (or call 311) to get rid of mold
- Use ‘green’ cleaning supplies or water and vinegar

You can reduce your exposure to triggers.

Make your bedroom trigger-free.

Developed by the Asthma Literacy Project for the South Bronx Asthma Partnership
Asthma Action Plan

Feel Good Zone →

Not Feeling well →

Feeling Very Sick →

Asthma Action Plan

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care Provider</td>
<td>Medical Record #</td>
</tr>
<tr>
<td>Phone Number</td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td>Night/Weekend</td>
</tr>
<tr>
<td>Test or Visit</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
</tr>
</tbody>
</table>

**GO**

You have all these:
- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can walk and play

**ACTION:** Use your daily preventer and inhaled corticosteroids.

**CAUTION**

You have any of these:
- New or worse symptoms
- Difficulty breathing
- Coughing
- Tight chest
- Confusion

**ACTION:** Continue with your medicine, as above, and ADD

**DANGER**

Your asthma is getting worse.

- Medicine is not helping
- Breathing is hard and fast
- Noise comes with
- No show
- Can’t talk well

**ACTION:** Take these medicine until you talk to your doctor.

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!

Call your primary care provider.

If you cannot contact your doctor, go directly to the emergency room. DO NOT WAIT.

Make an appointment with your primary care provider within 2 days of an EMT visit or hospitalization.

COPY FOR PATIENT

The colors of a traffic light will help you use your allergy medications.
- Green means Go Zone!
- Use preventive medicine.
- Yellow means Caution Zone!
- Add quick-relief medicine.
- Red means Stop Zone!
- Get help from a doctor.

Henry Ford Health System
A student with asthma symptoms should be placed in an area where he/she can be closely observed. Never send a student to the health room alone or leave a student alone. Limit moving a student who is in severe distress. Go to the student instead.

See list of Possible Observations/Symptoms on back.

Immediate Assessment:

- Is the exacerbation severe?
  - Marked breathlessness, inability to speak more than short phrases, use of accessory muscles, or drowsiness OR

- Is the student at High Risk of a fatal attack?
  - Risk factors for a fatal attack (see back)*.

If available, measure PEF: Is PEF < 50% of predicted or personal best?

Check and record respirations, pulse, and PEF rate.

Initial Treatment

- Inhaled SABA: Up to two treatments 20 minutes apart of 2–6 puffs by MDI or nebulizer treatments. (Note: medication must be authorized by a personal physician order or standing protocol signed by the school physician or public health physician).
  - Restrict physical activity, allow student to rest.
  - Administer oxygen (if appropriate and available).
  - Contact parent/guardian.
  - Assess response after ~10 minutes.

Good Response (PEF ≥80% and no wheezing or dyspnea)

- Reassess after 3–4 hours.
- Follow school protocol for returning to class.

Incomplete Response (PEF 50–79% or persistent wheezing or dyspnea)

- Repeat inhaled SABA.
- Reassess after ~10 minutes.
- Call parent immediately if response remains incomplete.

Poor Response (PEF <50% or marked wheezing and dyspnea)

- Repeat inhaled SABA.
- Call 911 (Student to ED).
- Contact parent/guardian.
- Consider epinephrine for life-threatening attack only** (see back).

Take Immediate Actions

- Treat with inhaled SABA.
- Call 911 (student to ED).
- Contact parent/guardian.

Consider epinephrine for life-threatening attack only** (see back).

With parental permission, send a copy of the health room encounter report to the student’s physician. Obtain a personal asthma action plan.

ED: emergency department
PEF: peak expiratory flow
MDI: metered-dose inhaler
SABA: short-acting beta-agonist (quick-relief inhaler)

AUGUST 2011
Goals of Asthma Treatment

- Be active without having asthma symptoms
- Sleep through the night without having symptoms
- Prevent asthma episodes
- Reduce emergency room visits and hospitalizations
- Reduce school/work absence because of asthma
- Not be worried about having asthma
DETROIT!
Wayne County/Detroit Michigan Data

• Widespread disparities exist in the diagnosis, management and health outcomes of inner city children with asthma
• Asthma prevalence among Detroit children is more than double the national rate
  – a majority of these children do not have an ongoing relationship with a primary care physician

<table>
<thead>
<tr>
<th>Data Point</th>
<th>Percentage/Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children in Wayne County &lt;18 years old with asthma</td>
<td>38,928</td>
</tr>
<tr>
<td>Children (&lt;18 years) with asthma that have visited an emergency room for asthma 2 or more times in the past year</td>
<td>9.5%</td>
</tr>
<tr>
<td>Michigan children with persistent asthma that are filling prescriptions for inhaled steroids</td>
<td>30%</td>
</tr>
<tr>
<td>Michigan children with current asthma that have ever received an asthma action plan</td>
<td>40.2%</td>
</tr>
</tbody>
</table>

Source: Asthma Initiative of Michigan
Challenges that inner city children face when accessing health care are quite overwhelming.

- Specific to Detroit
  - Limited availability of providers
  - Lack of reliable transportation
  - Low literacy rates
Henry Ford’s School-Based and Community Health Program has helped to alleviate many of the barriers.

- Bringing health care directly to the child
- 9 School-Based Health Centers
- 1 Mobile Clinic
  - CHF partnership
While school-based and mobile clinics have alleviated many of the barriers, access and compliance to prescribed medication regimens remains a challenge.
Thinking Outside of the Box

–Through an innovative school-based medication delivery program, we hope to alleviate some of these barriers.
A Basic Overview of program application to asthma patients

- Patient seen and evaluated at school or mobile clinic
- Prescription is sent to Henry Ford’s outpatient pharmacy through EMR
- Same day delivery to the school
- Medication is billed to patient’s insurance
- Hands-on education on technique/proper use
- Pictorial-based action plan to help with literacy barriers
- Eventual transition of refills to mail delivery.
Recent Expansion of Asthma Program

• Addition of a Nurse to the team
  – Pilot initiated 6 months ago
  – Responsibilities:
    » Oversee asthma patients at each of the mobile clinic sites
    » Pre-visit intake
    » Patient education,
    » Delivery coordination,
    » Triage and scheduling
    » Education sessions for staff of school

• Transition to Electronic Medical Records
Potential Benefits of Program:

- Reduced number of missed school days
- Reduced work loss for parents
- Reduced ER and physician visits
- Reduced health care costs
- Improved quality of life
In the end, we hope to show that our medication delivery program along with reinforced patient education can overcome some of the current barriers and eventually lead to improved outcomes.
As you treat asthma patients please think about the following:

- Excellence in medical treatment is worthless if the patient doesn’t take (or get!) the medication.
- Compliance is closely linked to clinician communication and patient education.
- Most clinicians believe they are good communicators, but most patients feel clinician communication and education is inadequate.

Source: South Bronx Asthma Partnership
Thank You!

Elliott Attisha, DO FAAP
HANK – Health Alliance For Neighborhood Kids
Department of Pediatrics
School-Based & Community Health Program
Henry Ford Health System