UNDERSTANDING AND LEARNING ABOUT STUDENT HEALTH

Written by Meg Sullivan, MD with help from Marina Catallozzi, MD, Pam Haller MDiv, MPH, and Erica Gibson, MD
Teacher Workshop Curriculum Outline:

**Goal:** To increase teachers’ comfort with common topics of adolescent health and improve the interaction between the school and the School Based Health Clinic (SBHC.)

**Workshop One: Asthma—**Keeping Students Breathing Safe and In School
--Definition of asthma
--Demographics of asthma in Washington Heights
--Symptoms of asthma--When To Be Worried
--Treatment of asthma--When To Refer To SBHC, When To Send To ER
Lesson Plan: Asthma

Keeping students breathing safe and in school

Goal: To develop an understanding of what asthma is as well as how to recognize, treat, and prevent asthma exacerbations.

Introduction: Brief introduction of yourself and teachers. Briefly review lesson plan outline. (5 minutes)

Definition of asthma: (10 minutes) (Lung model/poster if available, elicit responses from teachers on what they think asthma is, then review handouts: What is Asthma, What Happens During an Asthma Attack?)

--Key points:
* Asthma is chronic lung disease causing inflammation of the airways
* Asthmatics have highly sensitive lungs that respond to various triggers
* Triggers include exercise, viral infections/colds, allergens, cold weather, smoke
* Asthma is a chronic disease, but manifested by acute attacks

Demographics of asthma nationally and specifically in Washington Heights: (10 minutes)
Review handout: How Does Asthma Affect Our Students?

--Key Points
* Asthma is one of the most common chronic illnesses in children
* Asthma is a leading cause of missed school days and hospitalizations in children
* Washington Heights/Inwood has asthma rates far above the national average

Symptoms of asthma--When to be worried and What to Look For: (10 minutes) (Elicit possible symptoms from teachers, then review handouts: Symptoms of Asthma, Asthma Emergency Plan)

--Key points
* Key symptoms include difficulty breathing, wheezing, chest tightness
* Respiratory rate is important (normal respiratory rate is 12-20)
* Explain accessory muscle use, retractions, nasal flaring
* Severity of asthma attack can be assessed using different signs

Treatment of asthma (10 minutes) (Review handouts: Treatment of Asthma, Asthma Action Plan)

--Key points
* Every student with asthma should have inhaler readily accessible
* Regardless of severity, should try 2 puffs of Albuterol inhaler
* If student has moderate symptoms, should go to SBHC immediately
* If student has severe symptoms, consider sending to ER (call SBHC immediately)
* Review Asthma Action Plan
* Review what the SBHC has in terms of asthma management

If time permits, Asthma Scenarios: Split up into small groups; each group given “asthma scenario” to discuss and then share discussion with entire workshop

Questions (5 minutes)
WHAT IS ASTHMA?

Asthma is a **chronic** disease that affects the lungs and causes difficulty breathing. It is caused by inflammation and increased reactivity of the lungs to specific triggers. Characterized by acute attacks with:

- swelling of the airways (inflammation)
- mucus build up in airways
- tightening of muscles around the airways (bronchospasm)

Asthma Attacks Are Triggered By:

- Upper Respiratory Infections
- Weather Changes
- Allergens from dust, molds, pollen, animals, and occasionally food
- Exercise
- Environmental Irritants such as cigarette smoke, auto exhaust, smog, or cleaners
- Emotions
- Certain Medications
- Sulfides
- Early Morning

[Image source: www.patient.co.uk/showdoc/21692507/ - 27k]
[Image source: www.carolinaasthma.com/images/edu/3.bmp]
WHAT HAPPENS DURING AN ASTHMA ATTACK?

**Normal**
- Cartilage
- Muscle layer
- Airway
- Mucous gland
- Bronchus

**Asthma**
- Reduced airway opening
- Mucus
- Muscle layer contracts

**Inflammation**
- Asthma triggers irritate the lining of the bronchial tubes, causing them to become inflamed and swollen. Excess mucus makes breathing more difficult.

**Bronchoconstriction**
- During an asthma attack, bands of muscles surrounding the bronchial tubes contract, causing the airway to narrow.

http://www.moondragon.org/health/graphics/asthma1.jpg
**HOW DOES ASTHMA AFFECT OUR STUDENTS?**

*National Health Statistics from CDC*

--Asthma is one of the most common chronic illnesses among children in U.S.

--In 2006, 6.8 million (9.4%) school aged children found to have asthma
  *(Continues to increase; was 3.6% in 1980, 7.5% 1995)*

--3.1 million school aged children experienced asthma attack within past year

--Asthma is a leading cause of school absences for chronic disease; estimated to account
  for approximately 14 million days of school missed each year

--Asthma is the 3rd leading cause of hospitalization for children younger than 15

--Inner-city, low-income, and minority children have more ER visits, hospitalizations,
  and deaths as a result of asthma than the general population

**WASHINGTON HEIGHTS/INWOOD STATISTICS:**

--There are an estimated 70,000 children under the age of 18 living in Washington
  Heights/Inwood

--14,000 (30%) of those children have asthma (approximately four times the national average)

--Of those children with asthma, approximately 11% have visited the Emergency Room
  for asthma in the past year (data from 2004-2005.)

**SYMPTOMS OF AN ASTHMA ATTACK:**

1. [http://www.cdc.gov/asthma/children.htm](http://www.cdc.gov/asthma/children.htm)
NORMAL:

- Well appearing
- Regular physical activity
- Normal breathing rate and pattern
  (normal respiratory rate is 12-20 breaths/min)
- No cough/wheezing
- Sleeps through entire night

ACUTE ASTHMA ATTACK includes:

- Shortness of Breath
- Breathing fast (>20 breaths/min)
- Wheezing
- Chest tightness/pain
- Nostrils flaring
- Using other muscles to breathe
  (between your ribs and in your chest)
- Difficulty speaking in full sentences
- Sitting forward/hunched over
- Coughing (at night or after physical activity)

SEVERITY OF ASTHMA ATTACK:

- Mild, Moderate or Severe
- Important in determining treatment
- See Next Handout—Asthma Emergency Plan for help
  with scoring asthma signs and determining severity of 
  asthma exacerbation.
**ASTHMA EMERGENCY PLAN**

“Rule of Nine”
Adapted from One Minute Asthma (www.pedipress.com)

**Note: This is meant only as a guide/tool that can be used to help better assess the student’s asthma severity; any student having an asthma exacerbation should be sent to the SBHC immediately (with another person accompanying him/her.)**

Call 911 if you see ANY ONE of the following emergency signs:

- Trouble walking or talking
- Child is hunched over
- Child is struggling to breathe
- Lips or fingernails are gray or blue

After calling 911, call the office/SBHC and tell them to contact a parent or guardian.

**IF EMERGENCY SIGNS ARE NOT PRESENT**, but the child is coughing or having difficulty breathing, assess the severity of the asthma signs:

- Circle the score that applies to each symptom
- Total the score

**Cough**

- None 0
- Less than 1 per minute 1
- 1 – 4 per minute 3
- More than 4 per minute 5

**Sucking in of chest skin**

- None 0
- Barely noticeable 1
- Obvious 3
- Severe 5

**Wheeze**

- None 0
- End of exhale 1
- Throughout exhale 3
- Inhale and exhale 5

**TOTAL SCORE:** _______

**Total Score Key:**

- 0 = Child is in Green Zone: Child’s asthma is under control
- 1-4 = Child is in High Yellow Zone: Child's asthma is mild
- 5-8 = Child is in Low Yellow Zone: Child’s asthma is moderate
- 9 or more = Child is in Red Zone: Child’s asthma is severe

(from [http://www.californiabreathing.org/childcare_staff.php](http://www.californiabreathing.org/childcare_staff.php))

From the One Minute Asthma Training. Copyright 2002. Pedipress, Inc. All rights reserved. May be copied by school nurse or district. Contact info@pedipress.com for commercial use or sale. Asthma Emergency Plan 1.7 030503

I: Avoidance of triggers
   - Keep classroom free from mold and dust (consider dust free chalk or dry erase boards if possible;) avoid having students with asthma clean chalkboard/erasers
   - Ensure art/chemistry classrooms well ventilated to avoid spread of vapors to remainder of building
   - Classroom animals? Try to minimize fur and dander
   - As much as possible, maintain comfortable temperature

II: Recognize early symptoms and act immediately
   - Have child sit in comfortable position
   - Remain calm and speak calmly to child
   - Remove any obvious triggers in immediate area
   - Determine need for medication
   - Don’t hesitate to call for help
   - Don’t leave child alone; if send to SBHC, send someone with him/her

III: Medications
   - Relief (Quick-Acting) medications:
     o Fast acting inhalers, such as Albuterol
     o Only used for acute attacks
     o Work immediately to open airway;
     o Short-acting
   - Controller medications
     o Long acting inhalers such as Flovent, Pulmicort
     o Need to be taken EVERY DAY
     o DO NOT WORK in acute asthma attack situations
     o Work to decrease level of inflammation
     o Long acting
   - ASTHMA ACTION PLAN! (See next handout)

IV Education
   - Students
   - Teachers/School Staff
   - Parents
   - Community
# Asthma Action Plan

**[To be completed by Health Care Provider]**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date of Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Emergency Contact/Phone</td>
</tr>
<tr>
<td>Health Care Provider Name</td>
<td>Phone</td>
</tr>
<tr>
<td>Fax</td>
<td></td>
</tr>
</tbody>
</table>

**Asthma Severity:**
- [ ] Mild Intermittent
- [ ] Mild Persistent
- [ ] Moderate Persistent
- [ ] Severe Persistent

**Asthma Triggers:**
- [ ] Colds
- [ ] Exercise
- [ ] Animals
- [ ] Dust
- [ ] Smoke
- [ ] Food
- [ ] Weather
- [ ] Other

## If Feeling Well

**Every Day Medicines**

<table>
<thead>
<tr>
<th>MEDICINE</th>
<th>HOW MUCH</th>
<th>WHEN TO TAKE IT</th>
</tr>
</thead>
</table>

**Child feels good:**
- Breathing is good
- No cough or wheeze
- Can work/play
- Sleeps all night

*Peak flow in this area: ___ to ___*

20 minutes before exercise use this medicine:

## If Not Feeling Well

**Take Every Day Medicines and (Add) these Rescue Medicines**

<table>
<thead>
<tr>
<th>MEDICINE</th>
<th>HOW MUCH</th>
<th>WHEN TO TAKE IT</th>
</tr>
</thead>
</table>

**Child has any of these:**
- Cough
- Wheeze
- Tight chest

*Peak flow in this area: ___ to ___*

**Call doctor if these medicines are used more than two days a week.**

## If Feeling Very Sick

**Get help from Doctor NOW!**

**Take These Medicines**

<table>
<thead>
<tr>
<th>MEDICINE</th>
<th>HOW MUCH</th>
<th>WHEN TO TAKE IT</th>
</tr>
</thead>
</table>

**Child has any of these:**
- Medicines is not helping
- Breathing is hard and fast
- Nose opens wide
- Can’t walk or talk well
- Ribs show

*Peak flow below: ___*

SEEK EMERGENCY CARE or CALL 911 NOW if:
- Lips are bluish
- Getting worse fast, hard to breathe, can’t talk or cry because of hard breathing or has passed out

**Health Care Provider Signature**

**Patient Signature**
ASTHMA: SAMPLE SCENARIOS

If time permits at end of workshop, divide teachers into smaller groups. Each group will be given a sample scenario to discuss for a few minutes. Each group should then discuss their scenario as well as their thoughts with the remainder of the groups.

Scenario I: The parent of a student in your homeroom comes to you and says, “My child has asthma; should he be allowed to participate in gym.”

Key points:

- Students with well-controlled asthma should have no activity limitations
- Teachers should discuss with parent severity of student’s asthma as well as current medications
- Should also discuss common symptoms student has when having asthma attack
- Discuss with student that s/he should feel comfortable participating in gym, but should also feel comfortable “sitting out” if s/he is having difficulty with his asthma
- (Note: interesting that many famous athletes (including Jackie Joyner-Kersie, Emmitt Smith) have asthma

Scenario II: A student comes to you and says, “My asthma gets worse when I am in your classroom.” What should you do?

Key points:

- Do not take it personally
- Most likely that there are certain “triggers” in your classroom to which the student is being exposed
- You should spend time looking for these (e.g. type of chalk, drafty windows, dust, animals, etc.)

Scenario III: You are on a field trip to the museum of natural history when a student comes to you and says, “I am having trouble with my asthma.” What do you do?

Key points:

- Make sure the student and you stay calm; have her sit down in comfortable position
- Ask the student if he/she has inhaler with him/her? If so, administer 2 puffs
- To the best of your ability, assess severity of student’s asthma attack.
- Do not hesitate to seek help/call 911 if you believe it is severe

Scenario IV: A student comes up to you and says, “My mom keeps telling me to take my asthma medication, but I feel great right now. I don’t have to take it, right?”

Key points:

- Two different types of asthma medication—quick relief (which student should not take every day) and controller (which student should take every day).