

# Clinical Asthma 101

Lisa C Johnson, RRT, RCP, BAS, AE-C

## Management of Asthma

National Institute of Health (NIH)

**Guidelines for the Diagnosis and  
Management of Asthma (EPR-3)**

Publication Date: July 2007

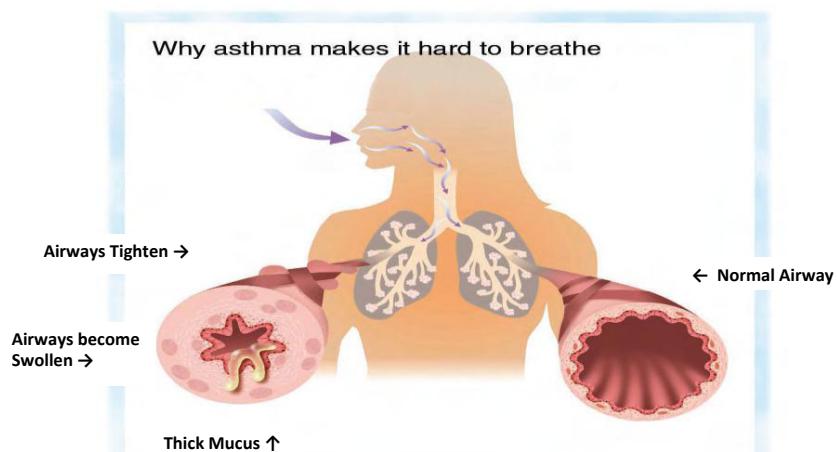
[www.nhlbi.nih.gov/guidelines/asthma/](http://www.nhlbi.nih.gov/guidelines/asthma/)

## What Is Asthma?

- Asthma is a chronic disease that causes coughing, wheezing, chest tightness, and shortness of breath.
- During an asthma episode, the muscles around the airways tighten and make the airways narrower (bronchospasm).
- The lining of the airways becomes swollen and irritated with secretion of thick mucus (inflammation & congestion).

What words do you use????  
Tough to keep definition simple.

## Asthma – The Disease Process



Source: American Academy of Allergy, Asthma, and Immunology

Do you use visuals?

## What Causes Asthma?

- The cause is not known.
- People with asthma have very sensitive airways. When exposed to harmless substances, these people may experience asthma symptoms.

## What are Asthma Triggers?

Triggers are substances that can cause asthma symptoms. Some common triggers:

- Airway infections, colds & flu
- Animal allergens
- Dust mites & Cockroaches
- Molds and pollen
- Cigarette smoke or smoke from a wood-burning or kerosene stove
- Changes in the weather
- Strong odors, fumes & chemicals
- Medicines, food or insect allergy
- GE Reflux (GERD)



Let's Discuss.....

## Preventative Measures

**Key Message from NIH Guidelines:**

**Teach and Reinforce at  
Every Opportunity**

Exacerbations cannot be  
prevented if  
NO education  
is given....

**EDUCATE AT EVERY  
GIVEN OPPORTUNITY!**

# What To Do During An Asthma Attack

## Asthma Action Plans are recommended for all ages.

- A color coded treatment plan that gives instructions for asthma treatment based on symptoms and/or peak flow readings.
- Warning signs are not the same for everyone. Common signs are listed on the plan using the colors of the stoplight, (green, yellow and red), to help determine what type of treatment is needed to control asthma.

## Asthma Action Plan

How often do you do?

If EMR, does it print in color?

Do you go over scenarios to if patient/family understands?

Do you give extra copies?

Asthma Action Plan for _____		DOB: _____
Emergency Contact: _____	Phone number: _____	Date: _____
Doctor's Name: _____	Phone number: _____	Pharmacy: _____
 <b>Asthma Severity:</b> <input type="radio"/> Improvement OR <input type="radio"/> Persistent <input type="radio"/> Mild <input type="radio"/> Severe		<b>Asthma Triggers:</b> <input type="checkbox"/> Tobacco Smoke <input type="checkbox"/> Dust, mold, feathers <input type="checkbox"/> Pollen, molds, cockroaches <input type="checkbox"/> Cold/Respiratory Infection <input type="checkbox"/> Exercise <input type="checkbox"/> Strong odors or香料 <input type="checkbox"/> Other _____
<b>PEAK FLOW</b>  100% (green) 75-100% (yellow) 50-75% (red)		<b>Last Flu Shot:</b> _____
<b>CONTROLLED - Green</b> <ul style="list-style-type: none"> <li>Breathing is good</li> <li>No cough or wheeze</li> <li>Can play and work</li> </ul>  Peak Flow > _____ (90-100% of best)		1. Use CONTROL medicine <b>EVERY DAY</b> (as long as taking it the same time) _____ puffs of _____ times a day, everyday
<b>CAUTION - Yellow</b> <ul style="list-style-type: none"> <li>Coughing (may be worse at night or with exercise)</li> <li>Wheezing</li> <li>Chest tightness</li> </ul>  Peak Flow _____ to _____ (50-80% of best)		2. (check if applicable) puffs of _____ 10-15 minutes before very active exercise
<b>EMERGENCY - Red</b> <ul style="list-style-type: none"> <li>Breathing hard and fast (shortness of breath)</li> <li>Neck starts out</li> <li>Swelling in of skin between ribs and neck (swelling)</li> <li>Grunting</li> <li>Gray or blue lips or fingernails</li> </ul>  Peak Flow < _____ (<50% of best)		3. Call your doctor if you need rescue medicine for more than 24 hours or 2 times a week. 4. Always check for improvement in symptoms and/or repeat peak flow meter 10-15 minutes after using rescue medicine. Continue to follow plan.
1. Take your <b>RESCUE</b> medicine and continue your CONTROL medicine. <b>Rescue Medicine:</b> _____ How much to take: Albuterol _____ or _____ <input type="checkbox"/> 2 puffs by inhaler <input type="checkbox"/> 4 puffs by inhaler <input type="checkbox"/> use spacer, if available <input type="checkbox"/> by nebulizer <b>When to take it:</b> <input type="checkbox"/> Repeat every 4 hours, back in the green zone <input type="checkbox"/> Other _____		
2. Call your doctor at _____ while giving rescue medicine. 3. If you cannot contact your doctor or parent/guardian: Call 911 or go directly to the Emergency Department.		

Helpful Hint:  
 \* always use a spacer device when using metered dose inhalers.  
 \* always rinse your mouth after using controller medicine.



WHITE - PATIENT    YELLOW - CHART    PINK - SCHOOL - School Medication Form on back

## No Symptoms Green Zone – Control

- No asthma symptoms
- Rescue medication is not required unless used as pre-medication for exercise
- Continue taking daily controller medication
- Peak flow in the green zone

## Early Warning Signs Yellow Zone – Caution

### Common early warning signs:

- Coughing – #1 symptom
- Wheezing
- First signs of a cold
- Chest tightness
- Itchy, runny nose & sore throat
- Peak flow in the yellow zone

## Yellow Zone Action

- Follow Asthma Action Plan
- Give rescue inhaler – 2 to 4 puffs, waiting 1–2 minutes between puffs
- Repeat rescue inhaler every 4 hours until back into Green Zone

## Late Warning Signs Red Zone – Emergency

### Common late warning signs:

- Breathing hard and fast
- Retractions or sinking of the skin between the ribs or at the front of the neck
- Flaring nostrils
- Grunting
- Changes in skin color, gray or blue lips or fingernails
- Difficulty walking and talking
- Peak flow in the red zone

## Red Zone Action

- Follow Asthma Action Plan
- Give rescue inhaler – 2 to 4 puffs, waiting 1–2 minutes between puffs
- Repeat rescue inhaler – 2 puffs – every 20 minutes for a total of three treatments
- If no better, call 9-1-1

## What Are Peak Flow Meters?

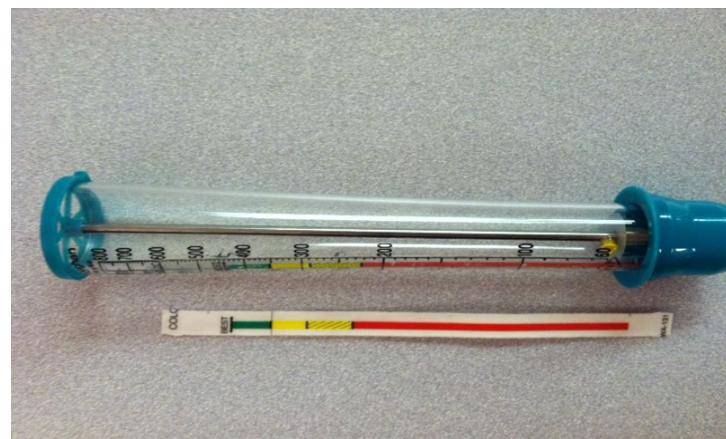
- Devices that measure the amount of air that can be blown out of the lungs.
- When used correctly and daily, peak flow meters can detect changes in the lungs hours, even days, before asthma symptoms appear.
- Predicted peak flow numbers are based on a combination of your height and your normal values when you are not having asthma symptoms.
- The colored zones on the peak flow can help determine how your overall asthma management plan is working, when to take your medicine, and when to call the doctor.



## Peak Flow Meters



## Stickers



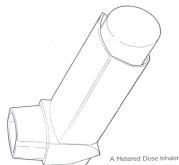
## Education +Treatment = Control



## Role of Medications

Basically, there are two types of medicines used to treat asthma:

- **Rescue medicines** (also called bronchodilators)
- **Daily controller medicines** (also called anti-inflammatory)



What's your secret to  
keeping the medications  
simple????

## Medication Classifications

### Quick-relieve medications (Rescue)

- Short-acting Bronchodilators
- Anticholinergics
- Oral Steroids

### Long-term control medications (Daily Controller)

- Oral Steroids
- Long-acting Bronchodilators
- Combined Medications
- Inhaled Corticosteroids
- Immunomodulators
- Leukotriene Modifiers
- Methylxanthines

## Rescue Medications

- Rescue medicines relax the muscles that tighten around the airways during an asthma episode. This medicine is used to help relieve symptoms of asthma but do not control the swelling inside the lungs.
- Rescue medications should be used:
  - As soon as early warning signs of an asthma episode are noticed.
  - For diagnosed exercise-induced asthma (10–15 minutes before starting exercise).
  - Examples of rescue medications are: Proventil, Albuterol, Ventolin, ProAir & Xopenex

If rescue medicine is required regularly for asthma symptoms over 2 times a week, then asthma is not being controlled

## Controller Medications

- Daily/controller medicines are used to prevent swelling inside the airways that cause asthma symptoms. Generally, these medicines are not carried around – used at home.
- These medications play an important role in preventing asthma episodes but they do not do anything to relax the muscles that are squeezing the airway during an asthma episode.
- Examples of daily controller medications are: Asmanex, Alvesco, Pulmicort, Flovent, QVAR, Aerospan, Advair, Symbicort, Dulera and Singulair.

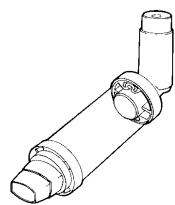
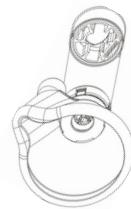
## Metered Dose Inhalers



Are you using identification poster?  
Are you instructing on the care of MDI's?

## What is a Spacer?

- A spacer (holding chamber) is a tool used with a metered dose inhaler.
- When used correctly, spacers help more medicine get into the lungs.
- Spacers come in different sizes and shapes for all ages.



Are you encouraging use in all ages or just pediatrics?

## Spacers with Mask



## Spacers with Mouthpiece

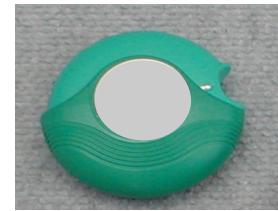


## Common MDI Mistakes

- Failure to remove cap from MDI
- Failure to shake MDI before using
- Using empty canister
- Failure to completely exhale prior to using
- Incorrect timing of actuation
- Incomplete inhalation
- Inhale through nose
- Fast instead of slow inhalation – whistle sound
- Failure to hold breath for 10 seconds
- Activate MDI several times instead of once

What other mistakes do you see patients doing?

## Diskus



What's your  
teaching  
method?

## Flexhaler



What's your  
teaching  
method?

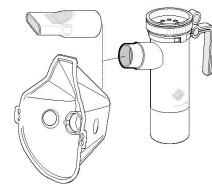
## Twisthaler



What's your  
teaching  
method?

## What is a Nebulizer?

- A tool that allows medicine to be taken as a mist.
- Nebulizers may be used by people who have problems using metered dose inhalers.
- A nebulizer treatment takes about 12–15 minutes to administer.



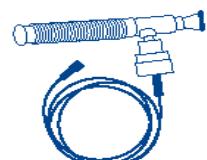
## Air Compressor And Nebulizer Set-ups



AIR COMPRESSOR



NEBULIZER WITH FACE MASK



NEBULIZER WITH MOUTHPIECE

## Nebulizer Concerns

- Expense
- Proper Maintenance of Air Compressor
- Bacterial Source
- Electricity
- Bulky
- Timely
- Medication Waste

Are you teaching about how to clean?

## Patient Skills

- ▶ Taking Medications Correctly
- ▶ Identify & Avoid Environmental Exposures
- ▶ Self-Monitoring
- ▶ Use a Written Asthma Action Plan
- ▶ Seek medical care when appropriate

## KEY POINTS – HOME

**Early treatment of asthma exacerbations is the best strategy for management.** This includes:

- Educate patient about following asthma action plan
- Recognizing early signs & symptoms
- Appropriate use of medication
- Removal or withdrawal of the environmental factor if possible
- Prompt communication between patient and clinician

## Tips for Educating Patients

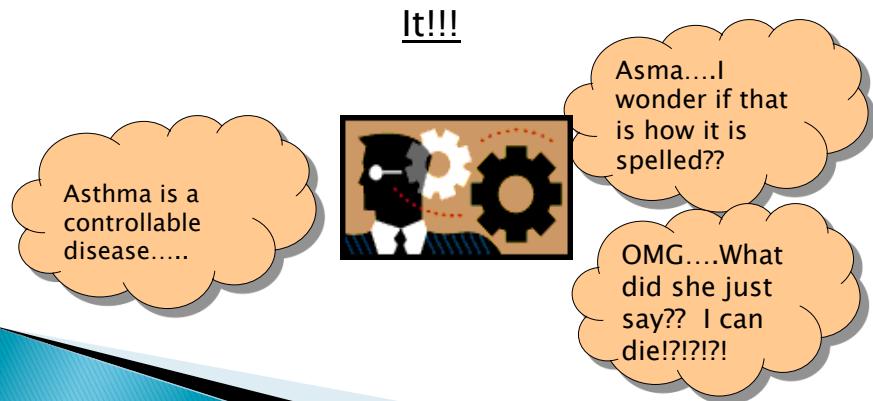
- ▶ Keep Everything Simple
- ▶ Focus on Patient as a Person, not a disease
- ▶ Teach in different styles (lecture, demonstration, audiovisuals, printed materials, simulations and role playing)
- ▶ Give words of encouragement & praise
- ▶ Give paper, pencil, & highlighters so notes can be taken if desired

This will be discussed in Asthma 201

## Patient Education

Remember.....

Just Because You Said It Doesn't Mean They Got It!!!



## Questions

**Lisa C Johnson, BAS, RRT, RCP, AE-C**  
**Coordinator, Pediatric Asthma Program**  
**252-847-6834**  
**lcjohnso@VidantHealth.com**