DIAGNOSING ASTHMA
School Nurse Academy
### Diagnosing Asthma

<table>
<thead>
<tr>
<th>DIAGNOSTIC FEATURE</th>
<th>CRITERIA FOR MAKING THE DIAGNOSIS OF ASTHMA</th>
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<tbody>
<tr>
<td><strong>1. History of variable respiratory symptoms</strong></td>
<td>• Generally more than one type of respiratory symptom&lt;br&gt;• Symptoms are variable over time and vary in intensity&lt;br&gt;• Symptoms are often worse at night or on waking&lt;br&gt;• Symptoms are often triggered by exercise, laughter, allergens, cold air&lt;br&gt;• Symptoms often appear or worsen with viral infections</td>
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<tr>
<td>Wheeze, shortness of breath, chest tightness and cough</td>
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<tr>
<td>Description may vary between cultures and by age, e.g. children may be described as having heavy breathing</td>
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<tr>
<td><strong>2. Confirmed variable expiratory airflow limitations</strong></td>
<td>• Identify presence (or absence) of pulmonary dysfunction&lt;br&gt;• Evaluate bronchodilator response (or lack of)&lt;br&gt;• Trend patient progress with medications</td>
</tr>
<tr>
<td>Pulmonary Function Testing (PFTs) can be attempted starting around age 6</td>
<td></td>
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<tr>
<td>Response to bronchodilator in FEV\textsubscript{1} of &gt;12% indicates asthma</td>
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<tr>
<td>FEV\textsubscript{1} represents flow as a function of volume in time (amount of air that can be blown out in 1 second)</td>
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<td>Asthma shows an obstructive pattern on PFTs</td>
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<th>Diagnostic Feature</th>
<th>Criteria for Making the Diagnosis of Asthma</th>
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<td><strong>1. History and Family History</strong></td>
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<tr>
<td>Family History of Asthma or Allergy</td>
<td>• Increased the probability that the respiratory symptoms are due to asthma</td>
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<tr>
<td>Patient with allergic rhinitis or Atopic dermatitis</td>
<td>• Patients should be asked about specific respiratory symptoms</td>
</tr>
<tr>
<td>Physical Exam can be normal</td>
<td>• If patient is in a flare-up decreased or expiratory wheezes may be present</td>
</tr>
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</table>

How Can You Help Students with Asthma?

[Arkansas Children's logo]
Asthma Resources

Stepwise Approach to making it safe in the home for your child with asthma

Asthma Management at Home

Managing an Asthma Flare-Up at Home

www.allergyasthmanetwork.org

www.aaaai.org

www.lung.org/asthma

www.epa.gov/asthma

www.ginasthma.org

www.iggyandtheinhalers.com
Control is the Name of the Game

School Nurse Academy
Asthma Management Goals

1. Good symptom control
2. Minimize future risk of exacerbation
3. Minimize fixed airway limitations
4. Minimize side effects of treatment
5. Identify patient and family goals


The control-based asthma management cycle per GINA guidelines

- Symptoms
- Exacerbations
- Side-effects
- Lung Function
- Patient Satisfaction

Diagnosis
- Symptom control and risk factors
- Lung function
- Inhaler technique
- Adherence to treatment plan
- Patient preference

- Asthma medications
- Non-pharmacological strategies
- Treat modifiable risk factors
Achieving Control
Albuterol for quick acting relief of symptoms

Short-acting Beta agonist (SABA)

Indications for SABA
- Prescribed for anyone with a diagnosis of asthma
- Treatment or prevention of bronchospasm

Desired Effect
- Relieve symptoms associated with an asthma flare-up
- Prevent exercise induced bronchospasm
- Dilate the smooth muscle surrounding the airway

Potential side effects
- Increased heart rate & blood pressure
- Jitteriness
- Excessive use can be fatal
- Paradoxical bronchospasm

*Always use a chamber with HFA’s

*New Dry Powder Inhaler
DO NOT USE A CHAMBER
Achieving Control
Inhaled Corticosteroids are the First Line of Defense

Indications for ICS
One or more risk factors for exacerbation
Waking due to asthma more than once a month
Symptoms or reliever use more than twice a week

Desired Effect
Suppress airway inflammation
Control symptoms
Reduce future risk of exacerbations
Stop decline in lung function

Potential side effects
Oropharyngeal candidiasis
Pharyngitis
Adrenal crisis
Suppressed growth velocity
Osteoporosis
Achieving Control
What happens when ICS alone is not enough?

Indications for LABA +ICS
Persistent symptoms for 2 to 3 months despite adherence to ICS
Exercise induced asthma not controlled with ICS + SABA

Desired Effect
Suppress airway inflammation
Relax smooth muscle bands
Reduce future risk of exacerbations
Stop decline in lung function

Potential Side Effects
Palpitations
Tremors
Headache
Muscle Cramps
Decreased Potassium
Achieving Control
What other adjunct medications help asthma?

Leukotriene receptor antagonist (LTRA)

**Indications for LTRA**
- Asthma driven by allergic rhinitis, indoor allergens, and seasonal allergies
- Exercise induced asthma not controlled with ICS + SABA

**Desired Effect**
- Suppress Leukotrienes
- Suppress inflammation in the airways
- Reduce future risk of exacerbations

**Potential side effects**
- Upset stomach
- Diarrhea
- Trouble Sleeping
- Headache
- Weakness
- Muscle Pain
- Cold Symptoms
- Mood changes
- Skin rashes
Achieving Control
Non-Pharmacological Strategies

- No safe level of 2nd hand smoke
- Exercise should be encouraged
  - Provide advice on talking with provider on prevention and management of exercise-induced bronchospasm
- Healthy diet and weight reduction
- AVOID INDOOR AND OUTDOOR TRIGGERS
- Deal with emotional stress
- Identify barriers to medication adherence
  - Intentional vs. non-intentional
# Assessing Control

<table>
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<tr>
<th>In the past 4 weeks, has the patient had:</th>
<th>Well Controlled</th>
<th>Partly Controlled</th>
<th>Uncontrolled</th>
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<tbody>
<tr>
<td>Daytime symptoms more than twice/week?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
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<tr>
<td>Any night waking due to asthma?</td>
<td>Yes ☐ No ☐</td>
<td>None of these</td>
<td>3 or 4 of these</td>
</tr>
<tr>
<td>Reliever needed more than twice/week?</td>
<td>Yes ☐ No ☐</td>
<td>1 or 2 of these</td>
<td></td>
</tr>
<tr>
<td>Any activity limitation due to asthma?</td>
<td>Yes ☐ No ☐</td>
<td></td>
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