Asthma is unresponsive to therapy; asthma is not well controlled within 3-6 months of treatment; life-threatening asthma exacerbation; hospitalization for asthma or its diagnosis; need for environmental control, and co-morbid conditions.

The Diagnosis of ASTHMA should be considered if:
- RECURRENT symptoms of cough, wheeze, shortness of breath, or chest tightness.
- Symptoms occur or worsen at night, awakening from sleep.
- Symptoms occur or worsen due to factors/triggers commonly known to precipitate asthma.
- Alternative diagnoses have been considered such as Exercise Induced Bronchospasm (EIB), Gastroesophageal reflux disease (GERD), airway anomaly, foreign body, cystic fibrosis, vocal cord dysfunction, tuberculosis (TB), or COPD.

The Diagnosis of ASTHMA may be confirmed if:
- Spirometry demonstrates obstruction and/or reversibility by an increase in FEV1 of ≥12% after bronchodilator (in all adults and children 5 years of age or older).
- Spirometry demonstrates variability on repeat testing at different times. If diagnosis is in doubt, consider specialist consultation.

**IMPORTANT NOTE:** Normal spirometry does not rule out asthma.

Spirometry should be readily available, to include appropriately trained personnel to perform and interpret testing properly.

### Assess Asthma Severity: Any of the following indicate PERSISTENT ASTHMA

- Daytime symptoms ≥2 days per week OR
- Awakens at night from asthma ≥2X per month OR
- Limitation of activities, despite pretreatment for Exercise Induced Bronchospasm (EIB) OR
- Short-acting beta2-agonist (SABA) use for symptom control ≥2 days per week (not prevention of EIB) OR
- Oral corticosteroids: ≥ 2 bursts in 1 year (older than 5 years) or in 6 months (0-4 years)* OR
- Abnormal spirometry: FEV1 <80% predicted OR FEV1/FVC ratio < normal range for age

*NOTE:* For children age 0-4 years who had 4 or more episodes of wheezing during the previous year lasting ≥1 day, check risk factors for persistent asthma. Risk factors include either (1) one of the following: parental history of asthma, a physician diagnosis of atopic dermatitis, or evidence of sensitization to aeroallergens, or (2) two of the following: evidence of sensitization to foods, >4% peripheral blood eosinophilia, or wheezing apart from colds.

### Spirometry

<table>
<thead>
<tr>
<th>FEV1/FVC Normal Range</th>
<th>5-19 yrs = 85%</th>
<th>20-39 yrs = 80%</th>
<th>40-59 yrs = 75%</th>
<th>60-80 yrs = 70%</th>
</tr>
</thead>
</table>

### Initiate treatment for Persistent Asthma:

**Daily Inhaled Corticosteroids (Step 2 or higher)**

**Assess response within 2-6 weeks**
Following ED visit and/or admission reassess within 72 hr.

**Is Asthma Well Controlled?**
1. Daytime symptoms ≤ 2 days per week AND
2. Awakens at night from asthma ≤ 2X per month AND
3. No limitation of activities AND
4. SABA use for symptom control (not prevention of EIB) ≤ 2 treatments per week AND
5. ≤1 burst oral corticosteroids per year AND
6. FEV1 ≥80% predicted and FEV1/FVC normal for age AND
7. Asthma Control Test ≥ 20

**FEV1/FVC:**
- 5-19 yrs: 85%
- 20-39 yrs: 80%
- 40-59 yrs: 75%
- 60-80 yrs: 70%

Consider step down if well controlled for 3 consecutive months. Reassess every 3 to 6 months.

**For All Patients with Asthma**

**Asthma Action Plan:** At diagnosis; review and update at each visit

**Medications**
- **Short-Acting Beta2-Agonist (SABA):** (e.g., inhaled albuterol): 1) for quick relief every 4-6 hours as needed (see step 1), 2) pretreat with 2 puffs for exercise-induced bronchospasm (EIB) 5 minutes before exercise
- **Inhaled Corticosteroids (ICS):** Preferred therapy for all patients with persistent asthma
- **Oral Corticosteroids:** Consider burst for acute exacerbation
- **Correct Inhaled Medication Device technique at every visit**

**Environmental Control** Identify and avoid exposures such as tobacco smoke, pollens, molds, animal dander, cockroaches, and dust miles (Allergy testing recommended for anyone with persistent asthma who is exposed to perennial indoor allergens)

**Follow-up Visit:** Every 1-6 months

**Asthma Control** Use tools such as ACT ™ © to assess asthma control

**Spirometry (Not During Exacerbation)** At diagnosis and at least every 1-2 years starting at age 5 years

**Preventive Health**
- **Flu Vaccine:** Recommend annually
- **Smoking Cessation**
- **Coping with chronic disease counseling**

Indications for asthma specialist consultation include:
Asthma is unresponsive to therapy; asthma is not well controlled within 3-6 months of treatment; life-threatening asthma exacerbation; hospitalization for asthma; required ≥2 bursts oral corticosteroids in 1 year; requires higher level step care; immunotherapy is being considered; other conditions complicate asthma or its diagnosis; need for additional education and guidance problems with adherence, or allergen avoidance; patient/parent requests consultation.