Consider the diagnosis of “asthma” if:

1. **RECURRENT** coughing, wheezing, or shortness of breath relieved by a bronchodilator
2. Objective response by spirometry (≥12% increase of FEV₁ post bronchodilator)
3. Rule out conditions such as aspiration, GERD, airway anomaly, foreign body, cystic fibrosis, vocal cord dysfunction, or COPD. GERD is a common co-morbidity. (If diagnosis in doubt, consult with an asthma specialist.)

### Assess Asthma Severity: Persistent vs. Intermittent

**Persistent Asthma**

1. Symptoms >2 days per week OR
2. Awaken at night from asthma >2X per month OR
3. Limitation of activities, despite pretreatment for exercise induced asthma OR
4. More than 2 steroid bursts in 1 year OR
5. FEV₁ <80% predicted OR low FEV₁/FVC ratio (see below)
6. For children <4 years consider “persistent” if more than 4 episodes of wheezing in a year AND parental history of asthma or eczema or wheezing between illnesses.

### Treatment for Persistent Asthma: Daily Inhaled Corticosteroids

(steps 2, 3 or higher)

**Assess Response within 2-6 weeks**

### “Well Controlled” Asthma

1. Daytime symptoms <2 days per week **AND**
2. Awaken at night from asthma <2X per month **AND**
3. No limitation of activities **AND**
4. Less than 2 steroid bursts per year
5. FEV₁ ≥ 80% predicted
6. FEV₁/FVC

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

**YES**

Follow the **Stepwise Approach Guideline** and consider step down if well controlled for 3 consecutive months. Then re-assess every 3 to 6 months.

**NO**

Follow the **Stepwise Approach Guideline** and step up until well controlled is achieved. Re-assess in 2 to 6 weeks.

### Quick Tips for All Patients with Asthma

- **Environmental Control:** identify and avoid triggers such as tobacco smoke, pollens, molds, animal dander, cockroaches, and dust mites.
- **Flu Vaccine:** recommend annually.
- **Spirometry:** at diagnosis and at least annually.
- **Asthma Score:** use tools such as ACQ®, ACT™ or ATAQ© to assess asthma control.
- **Asthma Education:** review correct inhaled medication device technique every visit, if needed.
- **Asthma Action Plan:** at diagnosis; review and update at each visit.
- **Short-Acting Beta-Agonist (e.g., albuterol):** 1) for quick relief every 4-6 hours as needed (see step 1), 2) pretreat with 2 puffs for exercise-induced bronchospasm 10-60 minutes before exercise.
- **Oral Corticosteroids:** consider for acute exacerbation.
- **Spacer with Valve:** if spacer selected, use spacer with valve.
- **Mask:** use with spacer with valve and with nebulizer for children <5 years and anyone unable to use correct mouthpiece technique.

See [www.coloradoguidelines.org](http://www.coloradoguidelines.org) for additional asthma management resources.

Consider referral to a specialist if not well controlled within 3-6 months using stepwise approach OR 2 or more ED visits or hospitalizations for asthma in a year.

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Adapted from the NAEPP 3 ([http://www.nhlbi.nih.gov/guidelines/asthma/](http://www.nhlbi.nih.gov/guidelines/asthma/)). This guideline is designed to assist the clinician in the management of asthma. This guideline is not intended to replace the clinician's judgment or establish a protocol for all patients with a particular condition. For references, additional copies of the guideline, or patient documents go to [www.coloradoguidelines.org](http://www.coloradoguidelines.org) or call (720) 297-1681 or 866-401-2092.
### Intermittent Asthma

#### Step 1
**All Ages**
- **Preferred:** Low-dose inhaled steroid
- **Alternative:** Leukotriene blocker or cromolyn

**Age 0-4 yrs**
- Consider referral (especially if diagnosis is in doubt)

**Age 0-4 yrs**
- Medium-dose inhaled steroid + referral

**Age 5-11 yrs**
- Low-dose inhaled steroid + long-acting beta-agonist or leukotriene blocker or Medium-dose inhaled steroid

**Age 0-4 yrs**
- Medium-dose inhaled steroid + long-acting beta-agonist or leukotriene blocker

### Persistent Asthma: Daily Medication

#### Step 2
**All Ages**
- **Preferred:** Low-dose inhaled steroid + long-acting beta-agonist or Medium-dose inhaled steroid
- **Alternative:** Low-dose inhaled steroid + leukotriene blocker

**Age 0-4 yrs**
- Consider referral (especially if diagnosis is in doubt)

#### Step 3
**Age 12+ yrs**
- **Preferred:** Medium-dose inhaled steroid + long-acting beta-agonist
- **Alternative:** Medium-dose inhaled steroid + leukotriene blocker

**Age 0-4 yrs**
- Medium-dose inhaled steroid + referral

**Age 5-11 yrs**
- Medium-dose inhaled steroid + long-acting beta-agonist or leukotriene blocker

#### Step 4
**Age 12+ yrs**
- **Preferred:** High-dose inhaled steroid + long-acting beta-agonist
- **Alternative:** High-dose inhaled steroid + leukotriene blocker or oral steroid

**Age 5-11 yrs**
- High-dose inhaled steroid + long-acting beta-agonist
- **Alternative:** High-dose inhaled steroid + leukotriene blocker + oral steroid

**Age 0-4 yrs**
- High-dose inhaled steroid + oral steroid
- Consider immunotherapy if allergic asthma

#### Step 5
**Age 12+ yrs**
- **Preferred:** Medium-dose inhaled steroid + long-acting beta-agonist
- **Alternative:** Consider omaluzimab if allergies

**Age 5-11 yrs**
- High-dose inhaled steroid + long-acting beta-agonist
- **Alternative:** High-dose inhaled steroid + leukotriene blocker + oral steroid

**Age 0-4 yrs**
- High-dose inhaled steroid + oral steroid
- Consider immunotherapy if allergic asthma

#### Step 6
**Age 12+ yrs**
- High-dose inhaled steroid + long-acting beta-agonist + oral steroid
- Consider omaluzimab if allergies

**Age 5-11 yrs**
- High-dose inhaled steroid + long-acting beta-agonist + oral steroid
- Consider omaluzimab if allergies

**Age 0-4 yrs**
- High-dose inhaled steroid + oral steroid
- Consider immunotherapy if allergic asthma

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*All LABAs and combination agents containing LABAs have a black box warning.*