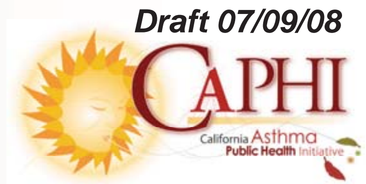
NAEPP EPR-3: Guideline-Based Asthma Diagnosis & Management for Children and Adults

Draft 07/09/08



Consider the Diagnosis of ASTHMA if:

- Patient has RECURRENT episodes of cough, wheeze, shortness of breath, or chest tightness - at least partially relieved by a bronchodilator.
- Symptoms occur or worsen at night, awakening the patient.
- Symptoms occur or worsen in the presence of exposures (e.g., dust mite, cockroach, pets, mold, viral infections, and exercise).
- Spirometry demonstrates *obstruction* and *reversibility* by an increase in FEV_1 of ≥12% after bronchodilator (in all adults and children 5 years of age or older).
- Alternative diagnoses have been excluded such as GERD (a common co-morbidity), airway anomaly, foreign body, cystic fibrosis, vocal cord dysfunction, or COPD.

Consider consulting an asthma specialist if diagnosis is in doubt.

Assess Asthma Severity: PERSISTENT vs. Intermittent (Any of the following indicate PERSISTENT ASTHMA)

- Symptoms >2 days per week **OR**
- Awaken at night from asthma ≥2X per month (0-4 years old: ≥1X per month) **OR**
- Short Acting Beta-agonist (SABA) use for symptom control >2X per week (not prevention of EIB) **OR**
- Limitation of activities, despite pretreatment for exercise induced asthma **OR**
- FEV1 <80% predicted **OR** FEV1/FVC ratio < predicted normal range for age (see below) **OR**
- Two or more steroid bursts in 1 year (0-4 years old: ≥2 steroid bursts in 6 months)

NOTE: Check risk factors for persistent asthma for children 0-4 years of age who had 4 or more episodes of wheezing during the previous year lasting >1 day. 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.

Long-Term Treatment for Persistent Asthma: Daily Inhaled Corticosteroids
(Step 2 or higher)

Assess Response Within 2-6 Weeks

***Well Controlled* Asthma**

1. Daytime symptoms ≤2 days per week **AND**
2. Awakening at night from asthma ≤1X per month (>12+yrs: ≤2X per month) **AND**
3. No limitation of activities **AND**
4. SABA use for symptom control (not prevention of EIB) ≤2 days per week
5. FEV_1 ≥80% predicted
6. FEV_1/FVC →
7. No more than 1 steroid burst per year

FEV_1/FVC:
5-19 yrs ≥85%
20-39 yrs ≥80%
40-59 yrs ≥75%
60-80 yrs ≥70%

YES → Follow the **Stepwise Approach** and consider *step down* if ***well controlled*** for 3 consecutive months. Then **reassess every 3 to 6 months.**

NO → Follow the **Stepwise Approach** and *step up* until ***well controlled***. **Reassess in 2 to 6 weeks.**

→ Consider Consulting an asthma specialist if asthma is not ***well controlled*** within 3-6 months using stepwise approach **OR** patient has 2 or more ED visits or hospitalizations for asthma in one year.

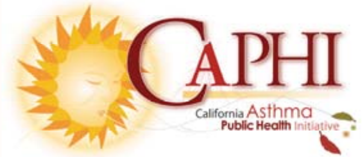
Quick Tips for All Patients with Asthma

- **Scheduled Follow-up**: Every 1-6 months
- **Environmental Control**: Identify and avoid exposures such as tobacco smoke, pollens, molds, animal dander, cockroaches, and dust mites (Allergy testing recommended for anyone with persistent asthma)
- **Flu Vaccine**: Recommend annually
- **Spirometry**: At diagnosis and at least every 1-2 years
- **Asthma Control**: Use tools such as ACQ®, ACT™ or ATAQ© to assess asthma control
- **Asthma Education**: Review correct inhaled medication device technique every visit
- **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 (EIB) 5 minutes before exercise
- **Inhaled Corticosteroids (ICS)**: Preferred therapy for all patients with persistent asthma
- **Oral Corticosteroids**: Consider for acute exacerbation.
- **Spacer with Valve**: Recommend use with all metered dose inhalers (MDI)
- **Spacer with Valve and Mask**: Recommend use with MDI and with nebulizer for children <5 and anyone unable to use correct mouthpiece technique

See http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf for additional asthma management resources.

Adapted from the NAEPP EPR-3: http://www.nhlbi.nih.gov/guidelines/asthma/ and the Colorado Clinical Guidelines Collaborative: www.coloradoguidelines. 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.betterasthmacare.org or call (916) 552-9717.

Stepwise Approach for Managing Asthma



Intermittent Asthma

Persistent Asthma: Daily Medication

Assess Control

Step up as indicated and/or address possible poor adherence to medication. Reassess in 2 to 6 weeks.

Step down if ***well controlled*** in 3 months and reassess in 3-6 months.

All long-acting beta-agonists (LABAs) and combination agents containing LABAs have a black box warning.

Step 1

(all ages)

Preferred:
SABA every 4-6 hours prn

If used more than 2 days per week (other than for exercise) consider inadequate control and the need to step up treatment

Step 2

Age 0-4 yrs

Preferred:
Low dose ICS

Alternative:
Cromolyn or Monteluklast

Consider consulting an asthma specialist

Age 5-11 yrs

Preferred:
Low dose ICS

Alternative:
Cromolyn, LTRA Nedocromil or Theophylline
+
Consider immunotherapy if patient has allergic asthma

Age 12⁺ yrs

Preferred:
Low dose ICS

Alternative:
Cromolyn, LTRA Nedocromil or Theophylline
+
Consider immunotherapy if patient has allergic asthma

Step 3

Age 0-4 yrs

Preferred:
Medium dose ICS
+
Consult an asthma specialist

Age 5-11 yrs

Preferred - EITHER:
Low dose ICS + either LABA, LTRA or Theophylline
OR
Medium dose ICS
+
Consider immunotherapy if patient has allergic asthma
+
Consider consulting an asthma specialist

Age 12⁺ yrs

Preferred:
Low dose ICS + LABA
OR Medium dose ICS

Alternative:
Low dose ICS + either LTRA, Zileuton, or Theophylline
+
Consider immunotherapy if patient has allergic asthma
+
Consider consulting an asthma specialist

Step 4

Age 0-4 yrs

Preferred:
Medium dose ICS **+** either LABA or Montelukast
+
Consult an asthma specialist

Age 5-11 yrs

Preferred:
Medium dose ICS + LABA

Alternative:
Medium dose ICS + either LTRA or Theophylline
+
Consider immunotherapy if patient has allergic asthma
+
Consult an asthma specialist

Age 12⁺ yrs

Preferred:
Medium dose ICS + LABA

Alternative:
Medium dose ICS + either LTRA or Theophylline or Zileuton
+
Consider immunotherapy if patient has allergic asthma
+
Consult an asthma specialist

Step 5

Age 0-4 yrs

Preferred:
High dose ICS + either LABA or Montelukast
+
Consult an asthma specialist

Age 5-11 yrs

Preferred:
High dose ICS + LABA

Alternative:
High dose ICS + either LTRA or Theophylline
+
Consult an asthma specialist

Age 12⁺ yrs

Preferred:
High dose ICS + LABA
+
Consider omalizumab for patients who have allergies
+
Consult an asthma specialist

Step 6

Age 0-4 yrs

Preferred:
High dose ICS + either LABA or Montelukast
+
Oral systemic corticosteroid
+
Consult an asthma specialist

Age 5-11 yrs

Preferred:
High dose ICS + LABA
+
Oral systemic corticosteroid

Alternative:
High dose ICS + LTRA or Theophylline
+
Oral systemic corticosteroid
+
Consult an asthma specialist

Age 12⁺ yrs

Preferred:
High dose ICS + LABA
+
Oral systemic corticosteroid
+
Consider omalizumab for patients who have allergies
+
Consult an asthma specialist

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