Pediatric asthma: Chronic asthma management and special considerations in the adolescent (12–18 years)

By Tashi Gyaltsong, MD, Pediatrics

Clinical questions
What are the special considerations for the adolescent with asthma symptoms? How do I monitor asthma control and the effectiveness of current therapy?

Why did we choose this topic?
The adolescent population deserves special attention because a new presentation at this age is often misdiagnosed as asthma. This population has the most albuterol overuse; high albuterol refill counts have been associated with an increased risk for asthma-related morbidity and mortality.

How could this change my practice?
- Accurately identifying the cause of symptoms in an adolescent will improve that patient's health care while reducing the wasteful use of inappropriate medications and excessive acute-care visits.
- Effective long-term management of childhood asthma—with appropriate use of low-dose inhaled corticosteroids, Asthma Action Plans, and opportunistic monitoring—will reduce serious asthma exacerbations and improve the patient's long-term quality of life.

Recommendations
- Invest in the initial assessment for asthma-related symptoms to make an accurate diagnosis. The possibility that an adolescent with new asthma concerns has a different diagnosis is high.
- Establish an Asthma Action Plan, educate families on its use, and make it visible to other providers.
- Monitor asthma control opportunistically using the Asthma Control Test (ACT).
- Consider initiation of low-dose inhaled corticosteroids to achieve asthma control.

Special considerations in the adolescent patient
Patients between 12 and 18 years old have the greatest need for improved asthma care at Kaiser Permanente. This is an age with common asthma mimics, such as vocal cord dysfunction, making initial diagnosis challenging. This is also the age when young patients begin to develop autonomy in maintaining their own health. With less caregiver oversight, adolescents with an established asthma diagnosis may decrease appropriate use of low-dose inhaled corticosteroids while increasing albuterol use.
**Initial diagnosis**

**Exercise-related symptoms** may cause adolescents to present with an initial expectation for a new diagnosis of exercise-induced asthma. These encounters can be especially challenging, as patients may have already been "diagnosed" by teammates and coaches. Albuterol sharing is not uncommon, and student athletes may report feeling better immediately after trying a peer's albuterol. It is important to have young athletes describe the exact characteristics of their symptoms, including location, triggers, duration, and resolution.

A study (Abu-Hasan 2005) of pediatric patients with exercise-induced dyspnea showed that only 8% had true exercise-induced asthma. About three-quarters of the patients had physiologic symptoms (deconditioning), while some study participants had no symptoms during exercise. Vocal cord paralysis and chest wall deformities were also common, and slightly more common than asthma.

**Vocal cord dysfunction (VCD)** is common, particularly among adolescent female athletes. An athlete with vocal cord dysfunction may report wheezing with exertion that resolves with rest. However, digging deeper into the details may reveal a sense of airflow blockage for both inhalation and exhalation at the levels of the neck, typically only during competition. There is a rapid onset, and equally rapid resolution with rest, calming oneself, albuterol, or a breathing exercise. Symptoms often do not occur with other types of exertion outside of competition or the primary sport. The rapidity of symptom resolution will not fit the pathophysiology of lower airway inflammation. An adolescent may report immediate relief of a severe sense of airway blockage with just 2 puffs of an albuterol inhaler. Patients with VCD will often report lack of improvement when albuterol is provided 30 minutes before exertion.

**Referral to Allergy & Asthma** for lung function testing will help sort these difficult diagnostic situations. Patients should bring their own albuterol to a specialty visit if it has been previously prescribed.

**Achieving and maintaining asthma control**

For adolescent patients with an established diagnosis of asthma, it is important to

- Review the appropriate administration of albuterol, emphasizing the importance of the aerochamber. Even adolescents with long-standing asthma may have developed ineffective medication dosing habits resulting in excessive use.
- Review the difference between albuterol and an inhaled corticosteroid.
- Counsel the adolescent patient on the risks of albuterol overuse.

Kaiser Permanente Washington supports the practice of zero refills for albuterol prescriptions. Each albuterol canister contains 200 puffs and therefore should be more than adequate for well-controlled asthma. Albuterol refill requests are an opportunity to review asthma control.

**A corticosteroid inhaler** should be considered under the following circumstances:

- Acute moderate asthma exacerbation requiring systemic steroids.
- Asthma symptoms more than 2 days per month.
- At onset of viral upper respiratory infections or allergic rhinitis symptoms if these are known asthma triggers for the patient.

Formulary options include are fluticasone propionate (Flovent), beclomethasone dipropionate (QVar) and mometasone (Asmanex). Children under age 5 years should receive Flovent.
An excellent **Asthma Action Plan** empowers and educates families and patients to manage asthma, and forms the foundation for coordinated asthma control for every provider involved in an individual's care. Families, schools, and childcare providers should have an up-to-date copy.

Patients and families need to recognize the signs of asthma and their own asthma triggers, and feel comfortable with the steps in their individualized action plan. They need to feel confident that good asthma control will improve and maintain the child’s lung function and quality of life. Barriers to following an asthma plan can include inhaler technique, poor recognition of asthma symptoms, inappropriate use of medications, and a lack of confidence in the action plan.

Providing the **Asthma Control Test (ACT)** at the start of every visit with a patient who has an asthma diagnosis provides a quick screen for asthma control. There are versions for children 4–11 years of age as well as 12 years and older.

**Resources**

KPWA Asthma Diagnosis and Treatment Guideline

Clinical Pearls

- Asthma diagnosis in four easy steps
- The beta agonist paradox: Why albuterol overuse is dangerous

Global Initiative for Asthma (GINA)

National Heart, Lung, and Blood Institute

- Asthma Action Plans

**Reference**