

*General Principles for the Diagnosis and Management of Asthma*

The following guideline recommends general principles and key clinical activities for the diagnosis and management of asthma.

Eligible Population	Key Components	Recommendation and Level of Evidence
Children and adults with the following: ♦ Wheezing ♦ History of cough (worse particularly at night), recurrent wheeze, recurrent difficulty in breathing, recurrent chest tightness ♦ Symptoms occur or worsen in the presence of exercise, viral infection, inhalant allergens, irritants, changes in weather, strong emotional expression (laughing or crying hard), stress, menstrual cycles ♦ Symptoms occur or worsen at night, awakening the patient	Diagnosis and management goals	<ul style="list-style-type: none"> <li>♦ Detailed medical history and physical exam to determine that symptoms of recurrent episodes of airflow obstruction are present</li> <li>♦ Use spirometry* in all patients <math>\geq 5</math> years of age to determine that airway obstruction is at least partially reversible [C].</li> <li>♦ Consider alternative causes of airway obstruction.</li> </ul> <p><b>Goals of therapy are to achieve control by [A]:</b></p> <ul style="list-style-type: none"> <li>♦ Reducing impairment (prevent chronic symptoms, minimize need for rescue therapy with short-acting beta<sub>2</sub>-agonists (SABA), maintain near-normal lung function and activity levels).</li> <li>♦ Reducing risk (prevent exacerbations, minimize need for emergency care or hospitalization, prevent loss of lung function or prevent reduced lung growth in children, have minimal or no adverse effects of therapy).</li> </ul>
	Assessment and monitoring	<ul style="list-style-type: none"> <li>♦ Assess asthma severity to initiate therapy. (Use severity classification chart, assessing both domains of impairment [B] and risk [C] to determine initial treatment.)</li> <li>♦ Assess asthma control to monitor and adjust therapy [B]. (Use asthma control chart, assessing both domains of impairment and risk to determine if therapy should be maintained or adjusted. Step up if necessary; step down if possible.)</li> <li>♦ Obtain spirometry* to confirm control, and at least every 1-2 years [B], more frequently for not well-controlled asthma.</li> <li>♦ Schedule follow-up care: In general, consider scheduling patients at 2- to 6-week intervals while gaining control [D]; at 1- to 6-month intervals, depending on step of care required or duration of control, to monitor if sufficient control is maintained; at 3-month intervals if a step-down in therapy is anticipated [D].</li> <li>♦ Assess asthma control, medication technique, written asthma action plan, patient adherence and concerns at every visit.</li> </ul>
	Education	<ul style="list-style-type: none"> <li>♦ Provide self-management education [A]. Teach and reinforce: self-monitoring to assess control and signs of worsening asthma (either symptom or peak flow monitoring) [B]; using written asthma action plan (review differences between long-term control and quick-relief medication); taking medication correctly (inhaler technique and use of devices); avoiding environmental and occupational factors that worsen asthma.</li> <li>♦ Tailor education to literacy level of patient; integrate education into all points of care; appreciate potential role of patient's cultural beliefs and practices in asthma management [C].</li> <li>♦ Develop written action plan in partnership with patient [B].</li> </ul>
	Control environmental factors and comorbid conditions	<ul style="list-style-type: none"> <li>♦ Recommend measures to control exposures to allergens and pollutants or irritants that make asthma worse [A].</li> <li>♦ Consider allergen immunotherapy for patients with persistent asthma and when there is clear evidence of a relationship between symptoms and exposure to an allergen to which the patient is sensitive [B].</li> <li>♦ Treat comorbid conditions (e.g., allergic bronchopulmonary aspergillosis [A], gastroesophageal reflux [B], obesity [B], obstructive sleep apnea [D], rhinitis and sinusitis [B], chronic stress or depression) [D].</li> <li>♦ Inactivated influenza vaccine for all patients over 6 months of age [A] unless contraindicated.</li> </ul>
	Medications (See age-specific guidelines)	<ul style="list-style-type: none"> <li>♦ Initial treatment should be based on the severity of asthma, both impairment and risk.</li> <li>♦ Inhaled corticosteroids (ICS) are the most effective long-term control therapy [A]. Optimize ICS use before advancing to other therapies.</li> <li>♦ Re-evaluate in 2 - 6 weeks for control. Modify treatment based on level of control</li> <li>♦ Consider step down if well-controlled for 3 months.</li> </ul> <p><b>Warning for use of Long-acting beta-agonists (LABA). See Black Box Warning:</b></p> <ul style="list-style-type: none"> <li>♦ Do not use LABA as monotherapy. Use only with an asthma controller such as inhaled corticosteroids (preferably combination product for children).</li> <li>♦ Use for the shortest duration possible.</li> <li>♦ Only use if not controlled on other drugs.</li> <li>♦ Pediatric and adolescent patients who require the addition of a LABA to an inhaled corticosteroid should use a combination product containing both.</li> </ul>
Referral	<ul style="list-style-type: none"> <li>♦ Refer to an asthma specialist for consultation or comanagement if there are difficulties achieving or maintaining control (See age-specific guidelines.); immunotherapy or omalizumab is considered; additional testing is indicated; or if the patient required 2 bursts of oral corticosteroids in the past year or a hospitalization [D].</li> </ul>	

\*spirometry = FEV<sub>1</sub>, FEV<sub>6</sub>, FVC, FEV<sub>1</sub>/FVC

Levels of Evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel

This guideline lists core management steps. It is based on the 2007 National Asthma Education and Prevention Program Expert Panel Report 3, Guidelines for the Diagnosis and Management of Asthma, National Heart, Lung and Blood Institute ([www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)). Individual patient considerations and advances in medical science may supersede or modify these recommendations.