



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	Recommendations
<p>Children and adults with the following:</p> <ul style="list-style-type: none"> • 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 	<p>Diagnosis and management goals Assessment and monitoring</p>	<ul style="list-style-type: none"> • Detailed medical history and physical exam to determine that symptoms of recurrent episodes of airflow obstruction are present • Use of spirometry (FEV₁, FEV₆, FVC, FEV₁/FVC) in all patients ≥ 5 years of age to determine that airway obstruction is at least partially reversible • Consider alternative causes of airway obstruction <p>Fractional Exhaled Nitric Oxide (FeNO) Testing</p> <ul style="list-style-type: none"> • For ages 5 years and older is recommended when either the diagnosis or the approach to therapy is uncertain. • For ages 4 years and younger who have recurrent episodes of wheezing, FeNO measurement does not reliably predict the future development of asthma. <p><i>Note: FeNO testing should not be used alone to assess asthma control or predict the clinical course of disease.</i></p> <p>Goals of therapy are to achieve control by:</p> <ul style="list-style-type: none"> • Reducing impairment: chronic symptoms, need for rescue therapy and maintain near-normal lung function and activity level • Reducing risk: exacerbations, need for emergency care or hospitalization, loss of lung function or reduced lung growth in children, or adverse effects of therapy
	<p>Assessment and monitoring</p>	<ul style="list-style-type: none"> • Assess asthma severity to initiate therapy using severity classification chart for impairment and risk. • Assess asthma control to monitor and adjust therapy. (Use asthma control chart, for impairment and risk. Step up if necessary; step down if possible). • Obtain spirometry (FEV₁, FEV₆, FVC, FEV₁/FVC) to confirm control, and at least every 1-2 years, more frequently for not well-controlled asthma. • Schedule follow-up care: within 1 week, or sooner, if acute exacerbation; at 2- to 6-week intervals while gaining control; monitor control at 1- to 6-month intervals, at 3-month interval if a step-down in therapy is anticipated) • Assess asthma control, medication technique, written asthma action plan, patient adherence at every visit.

Eligible Population	Key Components	Recommendations
	Education	<ul style="list-style-type: none"> • Develop written action plan in partnership with patient. Update annually, more frequently if needed. • Provide self-management education. Teach and reinforce: self-monitoring to assess control and signs of worsening asthma (either symptoms or peak flow monitoring); using written asthma action plan; taking medication correctly (inhaler technique and use of devices); avoiding environmental and occupational factors that worsen asthma. • Tailor education to literacy level of patient; appreciate potential role of patient's cultural beliefs and practices in asthma mgmt.
	Control environmental factors and comorbid conditions	<ul style="list-style-type: none"> • Recommend measures to control exposure to allergens and pollutants or irritants that make asthma worse • Integrated pest management is recommended for those who are allergic and exposed to cockroaches, mice or rats. • Consider allergen immunotherapy for patients with persistent asthma and when there is a clear evidence of a relationship between symptoms and exposure to an allergen to which the patient is sensitive. • Treat comorbid conditions (e.g., allergic bronchopulmonary aspergillosis, gastroesophageal reflux, obesity, obstructive sleep apnea, rhinitis and sinusitis, chronic stress or depression.) • Inactivated influenza vaccine for all patients
	Medications	<ul style="list-style-type: none"> • Corticosteroids. <ul style="list-style-type: none"> -Ages 0-4 years with recurrent wheezing, a 7-10-day course of daily inhaled corticosteroids along with an as-needed short-acting bronchodilator is recommended at the start of a respiratory tract infection. -Ages 4 years and older with moderate to severe persistent asthma, treatment is inhaled corticosteroid and formoterol. Should be used as both a daily asthma controller and quick-relief therapy. -Ages 12 years and older with mild asthma treatment may include inhaled corticosteroids daily or as needed when asthma gets worse. They may also benefit from inhaled corticosteroids with a short-acting bronchodilator. • Long-Acting Muscarinic Antagonist (LAMA) If inhaled corticosteroids do not control asthma, a long-acting beta2-agonist (LABA) or a LAMA may be added. <ul style="list-style-type: none"> -For children under 12 and most people 12 or older with asthma that is not controlled by an inhaled corticosteroid alone, adding LABA rather than a LAMA to an inhaled corticosteroid is preferred. -Ages 12 years and older, if a LABA cannot be used, a LAMA may be used with inhaled corticosteroid treatment instead of continuing the inhaled corticosteroid alone. -Ages 12 years old and older whose asthma is not controlled with an inhaled corticosteroid plus a LABA, adding a LABA is recommended. • Immunotherapy: Allergy shots, known as subcutaneous immunotherapy, are recommended for people who have allergic asthma and whose symptoms worsen after exposure to certain allergens.

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	Medications	<ul style="list-style-type: none"> • Bronchial Thermoplasty. -Ages 18 years and older with uncontrolled, moderate to severe persistent asthma should not undergo bronchial thermoplasty because the benefits are small, the risks are moderate, and the long-term outcomes are uncertain Note. Some individuals with moderate to severe persistent asthma who have troublesome symptoms may be willing to accept the risks of bronchial thermoplasty and might choose this intervention after shared decision making with their health care provider.
	Referral	Refer to an asthma specialist for consultation or co-management if there are difficulties achieving or maintaining control; 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.

This guideline is based on the 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. National Heart, Lung and Blood Institute (www.nhlbi.nih.gov)

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