2016 Asthma Practice Guidelines

SOURCE(S)


### Diagnosis

**Medical history and physical examination**

- More than one of the following signs and symptoms:
  - Wheezing
  - Shortness of breath
  - Cough, productive or dry
  - Chest tightness
- Symptoms often worse at night or early in the morning
- Symptoms vary over time and intensity
- Symptoms are triggered by viral infections (colds), exercise, allergen exposure, changes in weather, laughter, or irritants such as car fumes, smoke, or strong smells
- **Diagnosis**
  - The evidence supporting a diagnosis of asthma should be documented when a patient first presents. It is more difficult to confirm a diagnosis of asthma once controller treatment has been started.
  - If the above symptoms suggest, a diagnosis of asthma, spirometry or peak expiratory flow with reversibility test should be performed to confirm the diagnosis
- **Evaluation of allergic status**
  - The relevance of allergen exposure and its relation to symptoms must be confirmed by the patient’s history
  - When possible, specific triggers such as mold, dust, or animals should be identified by history
  - Further allergy testing may be indicated for patients with ongoing asthma symptoms. These may include skin testing, blood testing, in vitro specific IgG antibody testing.

### Primary Prevention

- Encourage patients to avoid exposure to tobacco smoke in pregnancy and early life
- Where possible, avoid exposure to Acetaminophen and broad-spectrum antibiotics in the first year of life

### Treatment

**The pharmacological options for long term treatment of asthma fall into three main categories:**

- **Controller medications:** Used for regular maintenance in order to reduce airway inflammation,
control symptoms, and reduce future risks.

- **Reliever (“rescue”) medications:** Used for as needed relief of breakthrough symptoms, short term prevention of exercise-induced bronchoconstriction. Successful management of asthma should reduce or eliminate the need for reliever medication.

- **Add-on therapies for patients with severe asthma:** Used for persistent symptoms or exacerbations despite optimized treatment with high dose controller medications (usually a high dose inhaled corticosteroid and a long acting beta agonist) as well as reduction in modifiable risk factors.

**Other key points include:**

- Use a stepwise approach to asthma treatment
- Asthma is a variable condition and periodic adjustments to controller medication may be needed.

**Controller Medications:**

- **Initial Controller Treatment:**
  - Regular daily controller treatment should be initiated as soon as possible after the diagnosis of asthma is made.
  - Regular low dose inhaled corticosteroids (ICS) is recommended for most patients
  - Consider starting with medium/high dose ICS or ICS plus long acting beta agonist (LABA) if symptoms occur on most days, or cause waking more than once a month.

- **Inhaled corticosteroids (ICS):** Daily low dose ICS is considered first-line controller therapy for all patients with persistent asthma
  - Beclomethasone (Qvar)
  - Budesonide (Pulmicort)
  - Flunisolide (Aerobid)
  - Fluticasone (Flovent)
  - Mometasone (Asmanex)
  - Triamcinolone (Azzmacort)
  - Ciclesonide (Alvesco)

- **Inhaled long-acting beta-agonists** Black Box warning due to potential adverse reactions: *Only used when all other controller therapy has failed*
  - Salmeterol-fluticasone
  - Formoterol-budesonide

**Reliever (Rescue) Medications:**

- **Inhaled short-acting beta agonists (SABA):** used for increased symptoms or before exercise.
  - Albuterol (Ventolin, ProAir, Proventil) by nebulizer or MDI/spacer
  - Metaproterenol (Alupent, Metaprel)
  - Pirbuterol (Maxair)
  - Levalbuterol (Xopenex)
  - Bitolterol (Tornalate)

**Add-on Therapies:**

- Leukotriene modifiers
Considered an option as a long-term control medicine, but inhaled corticosteroids should generally be used first
- Montelukast (Singulair)
- Zafirlukast (Accolate)
- Zileuton (Zyflo)
- Cromolyn (Intal) and nedocromil (Tilade)
  - Considered an option as a long-term control medicine, but inhaled corticosteroids should be used first
  - May also be used before or after exposure to an asthma trigger such as cold air or exercise
- Theophylline (rarely used) – should be avoided in children ages 6-11.
- Oral steroids, given in a burst (starting with higher dose, then weaning off over 5-10 days) for asthma exacerbations
- Omalizumab (an anti-IgE monoclonal antibody)
  - May be tried for patients with moderate or severe asthma not adequately controlled by a combination of inhaled corticosteroids, long-acting beta agonists, and leukotriene modifiers
  - Well-documented allergic component should also be present (elevated IGE levels and sensitization to known allergen)
- Epinephrine (emergent use only)
- Oxygen

Education and implementation of home, school, and work environment for the purpose of avoiding triggers is a key component of asthma management.

Action plans for children should be created and shared with school or child care also.

All patients should receive the following vaccinations:
- Annual, seasonal influenza vaccine as per CDC recommendations for patients with asthma older than six months
- All children between 2 months and 2 years of age should receive a series of pneumococcal conjugate vaccinations, but children older than 2 years should receive one dose of the pneumococcal polysaccharide vaccine.
- Adults with asthma should receive the pneumococcal polysaccharide vaccine (PPSV) at least once prior to age 65. Patients should receive another dose of the pneumococcal vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- Children older than two years of age should receive at least one dose of the pneumococcal polysaccharide vaccine also
Screening/Testing for Management of Complications

**Regular Tests/Exams for Management of Complications**

- Follow-up care is scheduled from 2 week to 3 month intervals based on patient need

- **Assess for symptom control:**
  - Consider keeping a 2-week diary of symptoms, reliever use, and peak flow results
  - Assess symptom control from the frequency of daytime and nighttime asthma symptoms and reliever use, as well as activity limitations

- **Assess for risk factors for exacerbations and future risk of adverse outcomes:**
  - History of 1 or more exacerbations in the previous year
  - Poor adherence with controller medications and lifestyle changes
  - Overuse of rescue inhalers (SABA)
  - Incorrect inhaler technique
  - Low lung function – the most useful indicator of future risk
  - Smoking
  - Blood eosinophilia

- **Assess treatment issues such as inhaler technique and adherence, side effects, and comorbidities**

- **Types of providers that may be involved in care:**
  - Pediatrician, family practitioner or internist
  - Pulmonologist, for more difficult to control asthma
  - Allergist, for more difficult to control asthma or when allergies play a role

- **Other testing may be needed:**
  - Spirometry may be performed every one to two years for poorly controlled asthma. Other pulmonary function tests are generally not needed.
  - Allergy testing, when allergies are suspected and asthma is more difficult to manage

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**Education/Self-Management**

Asthma education, both about the disease and the importance of managing stress and controlling allergens. Patients should be able to recognize and manage all triggers such as:

- Exercise induced asthma
- Smoking and secondhand smoke
- Inhaled irritants (perfumes, chemical solutions, wood burning stoves)
- Aspirin
- Animals and pets
- Pollens, molds, dust mites,
- Food allergies (including sulfites)
- Acid reflux
- Temperature extremes, humidity

**Identify and remove occupational sensitizers**

Obese patients should be informed that weight loss has been demonstrated to improve lung function and reduce asthma symptoms.

Patients should be taught how to properly use inhalers, spacers, and nebulizers. Patients should be educated about the difference between “reliever” and “controller” medications, as well as the

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potential side effects of medications.

- Breathing techniques may be a useful supplement to medications
- Patients with asthma should know when and how to measure and record their peak flow reading

- All patients should have and understand a written Asthma Action Plan for managing their asthma at home (as well as at school, if appropriate). This plan should contain:
  - List of all medicines patient should take on a regular basis, as well as in special situations
  - Names, phone numbers, and addresses of physicians, nurses, clinics, and hospitals that should be contacted and needed.
  - Personal best peak flow reading
  - Which medication to use for worsening symptoms or a drop in their peak flow reading, as well as when to call their physician or go to the emergency room

- Cultural beliefs and literacy level should be taken into consideration when educating patients.
- Patients should be taught that asthma severity may change over time, and depends not only on the severity of the underlying disease but also its responsiveness to treatment. Therefore, it is important for patients to be active in their self-management.
- Psychosocial screening especially for those who are resistant or non-adherent to treatment
- The effective management of asthma requires the development of a partnership between the person with asthma and his or her health care professional(s) (and parents/caregivers, in the case of children with asthma)
- The aim of this partnership is guided self-management—that is, to give people with asthma the ability to control their own condition with guidance from health care professionals

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<tr>
<th>Treatment Goals</th>
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<tr>
<td>Prevent chronic symptoms</td>
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<td>Maintain normal activity levels</td>
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<tr>
<td>Maintain near normal pulmonary function (FEV1 greater than 80% of predicted), no limitations for school or work</td>
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<td>Experience minimal or no adverse effects from treatment</td>
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<td>Minimal use of short acting beta 2 agonist (no more than twice per week)</td>
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<td>Prevent exacerbations (no more than one episode requiring oral steroid burst annually) Minimize need for emergency care or hospitalization</td>
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<tr>
<td>Prevent loss of lung function</td>
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<td>Prevent asthma mortality</td>
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<td>Yearly flu vaccines received, if no contraindications are present</td>
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<tr>
<td>Asthma self-management including inhaler skills, adherence to medications and asthma action plan, self-monitoring, and effective communication with health care providers</td>
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This guideline summary is not intended to replace a clinician’s judgment or to establish a protocol for all patients with a particular condition. Some patients will not fit the conditions contemplated by a guideline; moreover, a guideline will rarely establish the only appropriate approach to a problem. The guideline is intended to assist clinicians by providing a framework, based on evidence-based research, for evaluation and treatment of certain medical conditions.

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Updates/Sources:


8. The ABC’s of Asthma Management: Preventive Medicine in Managed Care Supplement April 2006 Vol. 7 No. @ sup.


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