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Asthma Care Guideline

Clinical Care Guideline

PURPOSE

The current guideline to control asthma is informed by the National Asthma Education and Prevention Program Expert Panel Report 3 (EPR-3), the 2020 National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group and the Global Strategy for Asthma Management and prevention (GINA), 2023. This document provides a framework to incorporate the new recommendations into standard work for pediatric and adult patients with asthma.

INCLUSION CRITERIA

Patient Population:

- A. *Inclusion:* All patients who receive primary care services
- B. *Exclusion:* None

RESPONSIBILITY

Primary Care Providers

Primary Care Clinic RNs (Registered Nurse)

GUIDELINE

A. Diagnosis:

Asthma can be difficult to diagnose as there are several conditions that masquerade as asthma in pediatric and adult populations. Test before treating, documenting the evidence for the diagnosis before starting ICS-containing treatment (GINA 2023) Refer to Attachment A - Algorithms: ACS Adult Asthma Care Clinical Process for an overview of the recommended process for approaching the adult patient with suspected or known asthma. Recommended methods to establish a diagnosis of asthma (per EPR-3) include the following:

1. Detailed medical history:

a. History of the Present Illness (HPI) – Assess for:

- i. Episodic symptoms of airflow obstruction or airway responsiveness (e.g., episodic wheezing, cough, shortness of breath).
- ii. Duration of symptoms
- iii. Associated symptoms
- iv. Triggers or alleviating factors
- v. Medication trials and outcomes

b. Past Medical History (PMH):

- i. For adults a history of childhood asthma is suggestive
- ii. Allergies (seasonal, food, perennial)
- iii. Other diagnoses that can masquerade as asthma (see Section B, item 3b of this guideline).

c. Social History (SH):

- i. Current or former tobacco use, marijuana use, etc.
- ii. Exposure to second hand smoke
- iii. Animals in home
- iv. Molds
- v. Pests

d. Family History (FH):

- i. Asthma
- ii. Allergy
- iii. Atopy

2. Physical exam focusing on:

- a. HEENT – nasal polyps, pale boggy turbinates
 - b. Lung – wheezes, prolonged inspiration to expiration (I:E) ratio
 - c. Skin – eczema
3. Spirometry:
- Asthma is typically associated with an obstructive impairment that is reversible. However, the patient's pattern of symptoms (along with other information from the patient's medical history) and exclusion of other possible diagnoses are also needed to establish a diagnosis of asthma. Spirometry can be normal in asthma as asthma is an intermittent disease and sometimes patients have predominately nocturnal symptoms. If the basis of a patient's diagnosis has not been previously documented, confirmation with spirometry should be sought. Many patients (25-35%) with a diagnosis of asthma in primary care cannot be confirmed as having asthma.^b
- a. Provider should send any adult patient with suspected asthma and no prior documented spirometry testing to the pulmonary function lab for the first pre- and post-bronchodilator spirometry. All pediatric clinics and school-based health centers have spirometers and providers can perform spirometric testing in the medical home. Any pediatric patients who have difficulties performing spirometry in the medical home should be referred to Children's Hospital Colorado for spirometric testing.
 - b. Reversibility in adults is determined by an increase in FEV₁ of ≥ 12 percent and ≥ 200 cc from baseline after inhalation of a short-acting beta agonist (SABA). Reversibility in children is determined by an increase in FEV₁ increases from baseline by > 12 percent of the predicted value.
 - c. Spirometry should meet American Thoracic Society (ATS) standards.^c
 - d. When spirometry shows severe abnormalities adult patients should be referred for formal pulmonary function testing.
 - e. Spirometry measures should include:
 - i. FEV₁
 - ii. FVC
 - iii. FEV₁ /FVC
4. Additional studies as necessary to exclude alternate diagnoses/support asthma diagnosis (e.g., full pulmonary function testing, methacholine challenge testing). Methacholine challenge testing is not recommended for individuals with an FEV₁ < 65% predicted.
5. Classification of asthma severity and disease risk:
- All asthma patients should have their asthma severity assessed before any therapy is begun. Refer to **Classifying Asthma Severity and Initiating Therapy** table from EPR-3's Asthma Care Quick Reference (<https://www.nhlbi.nih.gov/sites/default/files/media/docs/12-5075.pdf>.)

B. Management:

There are four components to asthma management as outlined by EPR-3: 1) Measures of assessment and monitoring, 2) Education for partnership in asthma care, 3) Control of environmental factors and comorbid conditions that affect asthma, and 4) Medications.

1. Measures of assessment and monitoring to diagnose and assess characteristics of asthma and to monitor whether asthma control is achieved and maintained. Refer to **Assessing Asthma Control and Adjusting Therapy** from EPR-3's Asthma Care Quick Reference (<https://www.nhlbi.nih.gov/sites/default/files/media/docs/12-5075.pdf>).

- a. All asthma patients should be monitored for symptom control

- i. Impairment:

- Several tools are available to assess impairment from asthma. The Asthma Control Test (ACT) (Attachment B) for individuals 12 years and older and the Childhood ACT (Attachment C) for children 4-11 years are recommended. If patient's total point value is 19 or below, his/her asthma may not be well-controlled. The ACT should be administered each time a patient with asthma is seen in clinic. There is a flowsheet in EHR where you can enter the responses to the ACT.
- Symptoms:
 - Nighttime awakenings
 - Need for SABA for quick relief of symptoms
 - Work or school days missed
 - Ability to engage in normal activity
 - Quality of life assessments
- Spirometry may be performed annually or more often as determined by the provider.
- Delineate **persistent** from **intermittent** disease. Persistent baseline/untreated asthma is suggested by any of the following:
 - Symptoms > 2 days/week OR
 - Night awakenings from asthma \geq 2 times/month OR
 - Limitation of activities, despite pre-treatment for exercise induced asthma OR
 - Short-acting beta agonist use > 2 times/week (not for exercise induced bronchospasm).
 - More than two steroid bursts in one year OR
 - FEV₁ < 80% predicted, or lower than expected for age

ii. Risk: Determine the patient's overall risk:

- Exacerbation frequency
- ED visits or other unannounced care
- Decline in lung function greater than expected as a result of normal aging
- Side effects of medications.

- b. In general, patients who have intermittent or mild persistent asthma that has been under control for at least three months should be seen by a clinician approximately every six months, and patients who have uncontrolled and/or severe persistent asthma and those who need additional supervision to help them follow their treatment plan need to be seen more often.

2. Education for a partnership in asthma care:

- a. Providers of adult asthmatic patients should discuss asthma and asthma triggers with patients when first diagnosed and on an ongoing basis. Providers include physicians, NPs, PAs, RNs and pharmacists. Educational handouts are available in EHR.

i. What is asthma?

ii. Asthma triggers

- b. Patients, in partnership with providers, should develop a self-management goal regarding their asthma.

3. Control of environmental factors and comorbid conditions that affect asthma:

- a. Advise patients to eliminate or reduce exposure to following allergens/irritants

i. Tobacco (cigarettes or vaping), Marijuana

ii. Indoor:

- Pests (house dust mites, cockroaches)
- Animal dander
- Mold
- Wood burning stove
- Unvented gas stove
- Volatile organic compounds (e.g., paint, cleaning fluids)
- Perfumes
- Incense or diffusers.
- NSAIDs and aspirin in some adults

iii. Outdoor: Pollens

- b. When patient's asthma cannot be well controlled, evaluate for a complicating comorbid condition, for example:
 - i. Allergic bronchopulmonary aspergillosis
 - ii. Gastroesophageal reflux disease (GERD)
 - iii. Obesity
 - iv. Obstructive sleep apnea (OSA)
 - v. Rhinitis/sinusitis
 - vi. Stress/depression
 - vii. Vocal cord dysfunction (VCD)
 - viii. Upper airway cough syndrome

4. Pharmacologic therapy:

A stepwise approach to pharmacologic therapy is recommended to gain and maintain control of asthma in both the impairment and risk domains. Refer to the updated Stepwise Approach for Managing Asthma tables from the 2020 National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group's **Asthma Management Guidelines At-A-Glance**. The diagrams are intended to help integrate the new recommendations into clinical care, and are meant to assist, and not replace, clinical judgment or decision-making for individual patient management, with input from individuals with asthma about their preferences. When initiating therapy, the type, amount, and scheduling of medication is dictated by asthma severity. The level of control is considered when adjusting therapy. Step down therapy is essential to identify the minimum medication necessary to maintain control. Some general principals:

- a. Patients with intermittent asthma are managed with PRN SABA
- b. Patients with persistent asthma should be on long-term controller medication to be taken daily. Inhaled corticosteroids (ICS) are the most potent and consistently effective long-term single control medication for asthma.
- c. Intermittent ICS dosing includes courses of ICS treatment used for brief periods, usually in response to symptoms or as an add-on with or without a long-acting beta2-agonist (LABA). Please note the At-A-Glance guideline is organized by age groups.
- d. Regularly scheduled daily chronic use of SABA is not recommended and generally indicates inadequate control of asthma and the need for initiating or intensifying anti-inflammatory therapy (e.g., ICS).
- e. Step up therapy if needed to gain control patient medication use and technique should first be reviewed, as well as environmental control.
- f. Spacers should be used with MDIs to optimize appropriate drug delivery. Videos demonstrating how to use inhalers with a spacer and mask and how to prime an asthma inhaler in English and Spanish can be found at DenverHealth.org/Asthma.

i. Long-term controller medication

- ICS
- ICS/long-acting beta agonist (LABA) combination
- LABA
- LAMA
- Leukotriene modifier
- Methylxanthines
- Monoclonal antibody therapy

ii. Quick relief medication

- SABA
- Anticholinergics (for exacerbations only)

C. Referrals:

Consider referral to Pulmonary Clinic when the diagnosis is uncertain, abnormal chest radiograph, pulmonary function test results that suggest both obstruction and restriction, or suboptimal response to therapy. Pediatric patients have the option to see allergy if underlying inhalant and/or food allergies are a concern.

D. There is an Asthma-Ambulatory smartset in EHR which makes it easy to order pulmonary function tests, asthma-related medications, referrals and provide asthma-related handouts.

E. Goals of therapy:
Patients should:

1. Have no chronic symptoms day or night.
2. Have minimal or no exacerbations (i.e., PUCC/AUCC visits, ED visits, hospitalizations).
3. Experience no activity limitations (i.e., no missed school or work).
4. Have minimal use of quick relief agents (SABA use <2x/week-except for exercise-induced bronchospasm, one canister of SABA should last longer than one month).
5. Experience minimal or no adverse effects from medications.

EXTERNAL REFERENCES

National Heart Lung and Blood Institute NAEPP. Expert Panel Report 3 (EPR-3): Guidelines for the diagnosis and management of asthma. In: Services USDoHH, ed. Bethesda 2007. <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf>

Expert Panel Working Group of the National Heart, Lung, and Blood Institute (NHLBI) administered and coordinated National Asthma Education and Prevention Program Coordinating Committee. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. *J Allergy Clin Immunol*, 146 (6), 1217 - 1270.

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Miller MR, Hankinson J, Brusasco V, et al. Standardisation of spirometry. *Eur Respir J*. Aug 2005;26(2):319-338.

King-Biggs MB. In the Clinic-Asthma. *Annals of Internal Medicine*. 2019; 171(7):ITC49-ITC64.

DHMP/DHHA RELATED DOCUMENTS

None

This Clinical Care Guideline is intended to assist care providers in the provision of patient care. This document serves as a guide, and is not a substitute for independent medical decision-making.

Attachments

[Attachment A - ACS Algorithm Adult Asthma Care Clinical Process](#)

[Attachment B - Asthma Control Test Adult 12yrs+ ENG & SP.pdf](#)

[Attachment C- Asthma Control Test 4-11yrs ENG & SP.pdf](#)

[Attachment D - Asthma Management Guideline At-a-Glance.pdf](#)

Approval Signatures

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Applicability

Denver Health Medical Plan (DHMP)

COPY