

Practice Guidelines

Asthma: Updated Diagnosis and Management Recommendations from GINA

Key Points for Practice

- As-needed SABA therapy alone is not recommended because of severe exacerbations and mortality risks.
- As-needed use of a low-dose ICS/formoterol combination is preferred in adolescents and adults with mild asthma.
- As-needed use of a low-dose ICS and a SABA is preferred in children six to 11 years of age with mild asthma.
- Controller therapy should be shifted to once-daily administration if symptoms are not controlled with as-needed therapy, minimizing the ICS dose when possible.

From the AFP Editors

Asthma is a serious global health problem. The latest update to the Global Initiative for Asthma (GINA) guidelines includes significant changes to treatment recommendations, especially a recommendation against using a short-acting beta₂ agonists (SABA) such as albuterol as sole therapy.

Diagnosis

The diagnosis of asthma continues to require characteristic symptoms and evidence of variable airflow limitation on pulmonary function testing. The characteristic symptoms, especially in adults, include wheezing, shortness of breath, cough, and chest tightness that are worse at night or early in the morning; vary over time and in intensity; and are triggered by viral infections (colds), exercise, allergen exposure, changes in weather, laughter, or irritants. Features that decrease the likelihood of asthma include cough in the absence of other respiratory symptoms, chronic production of sputum, shortness of breath associated with

light-headedness or paresthesia, chest pain, and exercise-induced dyspnea with noisy inspiration.

An asthma diagnosis should be confirmed with pulmonary function testing to avoid overtreatment and to ensure that other diagnoses are not missed. In one study, 2% of adults diagnosed with asthma had serious cardiorespiratory conditions that were missed.

In asthma, lung function can vary between normal and severely obstructed, especially when poorly controlled. In adults with characteristic symptoms, an increase or decrease in forced expiratory volume in one second (FEV₁) of greater than 12% and 200 mL from baseline or a change in peak expiratory flow of at least 20% is consistent with asthma.

Bronchial provocation testing is useful for ruling out asthma but less useful for making the diagnosis, and it should be limited to diagnosing asthma in athletes or in patients with symptoms despite normal spirometry findings or when spirometry is unavailable. Although the presence of atopy increases the likelihood of allergic asthma, its absence does not rule out asthma.

In patients taking controller treatment, it may be necessary to step down the dose to confirm an asthma diagnosis. Patients should be advised to reduce their inhaled corticosteroid (ICS) dose by 25% to 50% or stop any other long-acting medication.

Treatment

Asthma severity is defined by the treatment required to control symptoms and exacerbations. Well-controlled asthma involves daytime symptoms or as-needed medication use twice a week or less, no activity limitation, and no waking with symptoms. Severity is assessed after several months of regular controller treatment.

- Mild: Asthma is well controlled with step 1 or 2 treatment.
- Moderate: Asthma is well controlled with step 3 treatment.
- Severe: Step 4 or 5 treatment is required to control symptoms, or symptoms are uncontrolled despite this treatment.

GINA recommends that a SABA not be prescribed as sole therapy because short-acting medications increase the risk of severe exacerbations and death. Adding an ICS daily or as needed reduces this risk. GINA also recommends using the lowest dose of ICS tolerated, including reducing the corticosteroid dose after symptoms are controlled.

Clinicians should check inhaler adherence and treat any modifiable risk factors (*Table 1*) before considering a step up

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This series is coordinated by Sumi Sexton, MD, editor-in-chief.

A collection of Practice Guidelines published in AFP is available at <https://www.aafp.org/aafp/practguide>.

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in treatment. A step down should be considered if asthma has been controlled for three months.

STEP 1

Step 1 options are for those with symptoms less than twice per month and no risk factors for exacerbations (*Table 1*).

An inhaled low-dose ICS/formoterol combination used as needed is the preferred treatment in adults and adolescents. The guideline also strongly discourages the use of long-acting bronchodilators without an ICS because of increased risk of exacerbation. If the ICS/formoterol combination is not available or affordable, a low-dose ICS as needed for symptoms with a SABA is recommended.

Options for children six to 11 years of age include using a low-dose ICS as needed for symptoms with a SABA or a daily low-dose ICS with a SABA as needed. When symptoms are infrequent, adherence to daily therapy is often poor.

STEP 2

Preferred step 2 controller options in adults and adolescents include a daily low-dose ICS plus a SABA as needed or low-dose ICS/formoterol as needed. Leukotriene receptor antagonists are less effective but can be considered for patients who are unable or unwilling to use an ICS or who have concomitant allergic rhinitis.

The preferred step 2 controller for children six to 11 years of age is a daily low-dose ICS plus a SABA as needed. Less effective options include a daily leukotriene receptor antagonist or using a low-dose ICS as needed with a SABA.

STEP 3

Options in adults and adolescents include low-dose ICS/long-acting beta₂-agonist (LABA) as daily treatment with a SABA as needed, or low-dose ICS/formoterol as both daily treatment and as needed. In children six to 11 years of age, either a medium-dose ICS or a low-dose ICS/LABA combination should be used as a controller, with a SABA as needed.

STEP 4

Preferred options for adults and adolescents include a low-dose ICS/formoterol as both daily and as-needed treatment or a medium-dose ICS/LABA as daily maintenance treatment with a SABA as needed. The addition of sublingual allergen immunotherapy may be considered in adults with allergic rhinitis and suboptimally controlled asthma despite ICS therapy. Referral is recommended for children six to 11 years of age if asthma is not controlled with a medium-dose ICS.

STEP 5

Patients with persistent and severe symptoms despite optimal use of step 4 treatments should be referred for allergist evaluation and consideration of add-on treatments. These additional treatments include high-dose

TABLE 1

Risk Factors for Asthma Exacerbations

Potentially modifiable

| | |
|---------------|--|
| Comorbidities | Chronic rhinosinusitis, food allergy, gastroesophageal reflux disease, obesity, pregnancy |
| Context | Psychological difficulties, socioeconomic issues |
| Exposures | Air pollution, allergen exposure, smoking |
| Medications | High short-acting beta ₂ -agonist use (more than one inhaler per month), inadequate inhaled corticosteroid adherence, incorrect inhaler technique |

Independent

| | |
|--------------|--|
| History | History of intubation or intensive care, severe exacerbation in past year |
| Test results | Blood eosinophils, elevated exhaled nitric oxide, high bronchodilator reversibility, low forced expiratory volume in one second (< 60% of predicted) |

ICS/LABA, tiotropium (Spiriva), azithromycin (Zithromax), anti-immunoglobulin E, anti-interleukin-5/5R, anti-interleukin-4R alpha, sputum-guided treatment, bronchial thermoplasty, and low-dose oral corticosteroids. Adverse effects and the risk of antibiotic resistance should be taken into account when considering these treatments.

Editor's Note: Two changes in these guidelines are based on studies cited in the *AFP* article "Top POEMs of 2018 Consistent with the Principles of the Choosing Wisely Campaign" (<https://www.aafp.org/afp/2019/0901/p290.html>). These trials demonstrated that as-needed use of budesonide/formoterol combination was as effective as a daily ICS for mild asthma in adults. A subsequent study demonstrated that as-needed combination therapy reduced severe exacerbations in mild and moderate asthma, which was highlighted as a POEM in *AFP* (<https://www.aafp.org/afp/2020/0301/p310.html>). These data, with evidence of increased severe exacerbations and mortality with as-needed albuterol alone, resulted in these dramatic changes in treatment recommendations for mild to moderate asthma.—Michael J. Arnold, Contributing Editor for *AFP*

Guideline source: Global Initiative for Asthma

Evidence rating system used? Yes

Systematic literature search described? Yes

Guideline developed by participants without relevant financial ties to industry? No

Recommendations based on patient-oriented outcomes? Yes

Published source: Global Strategy for Asthma Management and Prevention (2019 Update)

Available at: <https://ginasthma.org/wp-content/uploads/2019/06/GINA-2019-main-report-June-2019-wms.pdf>

AFP Editorial Staff ■