

Asthma Management Essentials: GINA Recommendations Key Takeaways

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ABSTRACT

Over diagnosis, under diagnosis, and inadequate management of asthma are all common issues. The Global Initiative for Asthma (GINA) annually releases an evidence-based strategy for asthma management and prevention, aiming to globally decrease severe asthma exacerbations and asthma-related deaths. This article highlights up-to-date, clinically relevant, high-yield information on asthma management to guide the care of this high-risk population and enhance the translation of these guidelines into clinical practice.

1. Main Text

Asthma is a heterogeneous disease characterized by chronic airway inflammation causing respiratory symptoms like shortness of breath, wheezing, chest tightness, or cough that vary over time and in intensity^{1,2}. Asthma affects over 300 million people across the globe and involves chronic airway inflammation, reversible expiratory airflow limitation, and heightened airway responsiveness. Asthma is often triggered by viral infections, allergen exposure, exercise, strong odors, cigarette smoke, and air pollution and frequently worsens during the night and early morning. Both over and under-diagnosis of asthma are frequent, often resulting from the absence of objective lung function testing^{1,2}. GINA guidelines recommend considering asthma as a possible diagnosis for individuals with recurrent and varying respiratory symptoms and confirming the asthma diagnosis through lung function testing before initiating controller treatment whenever feasible. Asthma severity (mild, moderate, severe) is classified based on the frequency of day and night symptoms and the level of stepwise treatment required to control symptoms and prevent exacerbations. Clinicians must consider the individual requirements, preferences, and accessible resources of patients to provide a holistic approach to asthma management.

The American College of Chest Physicians has no published asthma guidelines². The Global Initiative for Asthma (GINA) annually releases an evidence-based strategy for asthma management and prevention, aiming to globally decrease severe asthma exacerbations and asthma-related deaths. Per GINA recommendations, adults, adolescents, and children aged 5 and above diagnosed with asthma should receive ICS (inhaled corticosteroids) to effectively control symptoms and prevent exacerbations.¹ The use of ICS substantially diminishes the need for oral steroid treatments, consequently lowering the overall risk of long-term side effects such as cataracts, even with occasional oral steroid courses²⁻⁴. Monotherapy with short-acting beta-agonist (SABA) on an as-needed basis is no longer recommended as the initial therapy for mild asthma because it increases the risk of severe exacerbations and asthma-related deaths^{5,6}. Frequent utilization of SABA, for instance, using it 2-4 times daily for as brief as 1-2 weeks exacerbates airway hyperresponsiveness and airway inflammation^{7,8}. Furthermore, relying excessively on SABA is associated with an increased risk of severe exacerbations and mortality, even among patients who are also using ICS⁹⁻¹¹. To decrease these risks, all adults with asthma should receive combination therapy with an inhaled corticosteroid (ICS) and a long-acting beta-agonist (LABA) on an as-needed basis for mild asthma or regular daily use for

moderate or severe asthma. Unfortunately, patients lack access to crucial low-dose ICS in multiple underserved countries, which is the fundamental basis of care for asthma patients regardless of severity. When patients experience exacerbations despite using ICS-LABA, they should be prescribed at least a medium dose of ICS-LABA before contemplating the addition of a LAMA (long-acting muscarinic antagonist). The recommended option is low-dose budesonide-formoterol or beclomethasone-formoterol as an alternative¹². If a SABA is used, it should be simultaneously combined with a low-dose ICS. The preferred agent for rescue therapy is as-needed low-dose ICS-LABA (preferably budesonide-formoterol) in contrast as needed SABA was first-line therapy per prior guidelines. Until 2017, ICS-LABA combinations carried a boxed warning from the US Food and Drug Administration (FDA) due to early LABA trials that demonstrated an elevated risk of severe adverse asthma events (such as hospitalization, intubation, and death)¹³. Subsequent trials showed that these combinations effectively reduced asthma exacerbations that required corticosteroids, without significantly increasing the risk of severe adverse asthma outcomes¹⁴. Despite the removal of the boxed warning as recommended by the GINA, no ICS-LABA combination has received FDA approval for the as-needed treatment of acute bronchospasm. In mild asthma patients, as-needed ICS-formoterol reduced severe exacerbations by 55% and lowered emergency visits/hospitalizations by 65% vs. SABA alone¹⁵. Combination ICS-LABA should be considered for all patients with asthma, and for select patients with mild asthma, this should be considered on an as-needed basis replacing SABA as the sole therapy. However, the availability and affordability of ICS-LABA combinations could be challenging for certain patient populations. Physicians should focus on shared decision-making (SDM), a patient-centered bidirectional approach considering the patient's preferences, goals & circumstances to afford specific inhalers^{15,16}. Maintenance of oral corticosteroids should be regarded as a last resort option in all age groups due to the potential for significant long-term adverse effects.

Severe asthma represents a subset of challenging-to-manage asthma that remains uncontrolled despite adhering to optimized high-dose ICS-LABA treatment with proper inhaler technique and addressing contributing factors like comorbidities and environmental exposures¹⁷. Alternatively, it could refer to asthma that worsens upon reducing ICS-LABA dosage^{1,2,18}. Approximately 10% of adults with asthma grapple with its severe form, leading to reduced quality of life and escalated risks like fixed airflow limitation, frequent exacerbations, heightened healthcare utilization, hospitalization, and even mortality^{18,19}. When asthma remains inadequately controlled despite the use of medium or high-dose ICS-LABA, it's important to conduct a reassessment of the patient. This includes confirming the asthma diagnosis, addressing relevant comorbidities and risk factors, verifying medication collection, treatment adherence, and confirming accurate inhaler technique^{1,2}. Clinical trials involving patients reliant on oral glucocorticoids for severe asthma management have demonstrated that introducing mepolizumab, benralizumab, or dupilumab as add-on therapies spares glucocorticoid usage and effectively lowers exacerbations¹³. The objective is to curtail both short-term and long-term reliance on oral glucocorticoids for individuals with severe asthma. Difficult-to-treat asthma patients could potentially benefit from pulmonary specialist referral for further assessment and treatment.

GINA advocates a two-fold approach to asthma control assessment: a) evaluating current symptom control and; b) identifying factors predisposing to future poor asthma outcomes, particularly exacerbations¹. Effectively addressing coexisting conditions that may escalate exacerbations like obesity, chronic rhinosinusitis, obstructive sleep apnea, gastroesophageal reflux disease, and mental health disorders is crucial. Tailoring care to individual patient risk factors and concurrent conditions requires a blend of pharmacological and non-pharmacological interventions. Non-pharmacological methods include smoking cessation, teaching breathing exercises, managing stress, maintaining ideal body weight, reducing exposure to air pollutants and allergens, and ensuring appropriate immunization. Exercise is one of the best ways to reduce asthma symptoms. Physical activity improves lung function and enhances the quality of life for those with asthma by reducing inflammatory cytokines and increasing anti-inflammatory cytokines²⁰. A study revealed that 20-minute intervals of three workouts per week resulted in better asthma control²¹. The GINA 2023 advises engaging in cardiovascular and strength training exercises twice a week¹.

Effective strategies to mitigate medication-related risks include proper inhaler technique and adherence, lowering ICS dose after sustained asthma control (2-3 months), identifying excessive SABA users for possible transition to using an ICS-formoterol reliever, and pulmonary specialist consultation for poorly controlled asthma on medium/high dose ICS-LABA. Regular assessments are essential for individuals with asthma. Even individuals with seemingly mild or well-managed asthma can still experience severe exacerbations and potentially fatal outcomes. Patient-reported tools used to assess asthma symptom control (e.g., Asthma Control Questionnaire, Asthma Control Test) only offer a snapshot of recent symptoms, up to four weeks, rather than a comprehensive view of asthma control. Patients with asthma exacerbations often receive acute-focused management and are then discharged without further follow-up. Patients should have follow-up within 2 days after severe exacerbations. Because verbal instructions are often forgotten, it is essential to offer patients written asthma action plans that should elucidate how to modify their medication regimen when asthma worsens and when to seek medical assistance. Every patient should receive a written action plan for asthma exacerbation management. This plan should match the patient's literacy level, health comprehension, and treatment plan. The collaborative teamwork between primary care physicians and pulmonary consultants is vital to ensuring effective asthma management for our patients.

2. Key Takeaways

- Monotherapy with short-acting beta-agonist (SABA) on an as-needed basis is no longer recommended as the initial therapy for mild asthma because it increases the risk of severe exacerbations and asthma-related deaths.
- For persistent asthma, GINA suggests combining ICS with LABA to improve lung function and control symptoms more effectively than ICS alone.
- It is essential to ensure emergency room or hospital discharge follow-up within 2 days after severe exacerbations.
- Clinicians must involve shared decision-making with patients to optimize asthma management.
- Every patient should receive a written action plan for asthma exacerbation management matching the patient's literacy level, health comprehension, and treatment plan.

3. Source of Funding

None

4. Conflict of Interest

None

5. References

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