

Rethinking Rescue in Mild-Moderate Asthma: Adding ICS to Reduce Exacerbations

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INTRODUCTION

Asthma is a chronic inflammatory airway disease with a high population burden, affecting approximately 27.8 million people (~8.4%) in the United States.¹ Mild or moderate disease typically is classified based on the level of treatment needed to maintain symptom control, and patients with these types of “less severe” disease still can experience serious attacks.²⁻⁴ Most patients with asthma are managed in primary care settings, where periodic refills of reliever therapy may serve as the main touchpoint for asthma reassessment.^{3,5}

Uncontrolled asthma is not confined to patients with more severe disease; mild-moderate asthma also may be classified as uncontrolled. Expert guidelines and studies are available for the treatment of all asthma severities; this article focuses solely on uncontrolled mild-moderate asthma. In a large analysis using short-acting β_2 -agonist (SABA) and systemic corticosteroid (SCS) prescription fills as impairment and risk markers, 80.9% of US patients who had uncontrolled asthma were treated for mild-moderate disease. This analysis defined uncontrolled asthma as ≥ 2 annual exacerbations and the use of rescue therapy > 2 times weekly (3 annual SABA canister refills).⁶

Severe attacks frequently lead to treatment with SCS, which remains an effective acute intervention but carries cumulative risk.^{7,8} Repeated courses of SCS and chronic exposure are associated with a broad range of short- and long-term adverse effects. The study data highlight that exacerbation

Key takeaways

- As defined by the Global Initiative for Asthma (GINA), mild to moderate asthma is not inherently low risk; many patients have poorly controlled symptoms and are at risk for exacerbations.
- Inhaled corticosteroid (ICS) rescue strategies align treatment with asthma pathophysiology and can reduce severe exacerbations and systemic corticosteroid exposure compared with SABA-only rescue therapy.
- Since 2019, GINA has recommended ICS-based rescue therapy. However, despite this recommendation and the 2023 US Food and Drug Administration approval of albuterol-budesonide combination inhaler for rescue in adults with asthma, implementation in primary care remains low.
- Primary care implementation can include systematized workflows to identify patients who use SABA-only rescue therapy, provide education to those patients, and adjust therapy to ICS-based rescue therapy through shared decision-making.

risk and SCS exposure can accumulate from months to years in patients who have infrequent symptoms, especially for patients who remain on albuterol-only rescue treatment.^{7,9}

Despite clear recommendations from Global Initiative for Asthma (GINA), as well as other guidelines suggesting that rescue therapy should include ICS, SABA-only rescue therapy remains a prevalent prescribing pattern for patients with mild-moderate asthma.^{2,10} More frequent SABA exposure is consistently associated with an increased risk of severe

exacerbations and asthma-related mortality.^{9,11} Recent US data among adults with SABA-only prescriptions demonstrated higher exacerbation rates as the number of SABA prescriptions increased, even when patients had greater inhaler use.² This pattern suggests that reliance on SABA alone may reflect and perpetuate inadequate control of the underlying inflammatory disease process.^{11,12}

Additionally, strategies to reduce adverse effects should prioritize minimizing avoidable SCS exposure.⁷ Integrating ICS into rescue therapy can be a key tactic for implementation in the primary care setting. The benefit is twofold: ICS can reduce the risk of exacerbation and asthma-related mortality, as well as future SCS burden, rather than being used only as a symptom-control intervention.

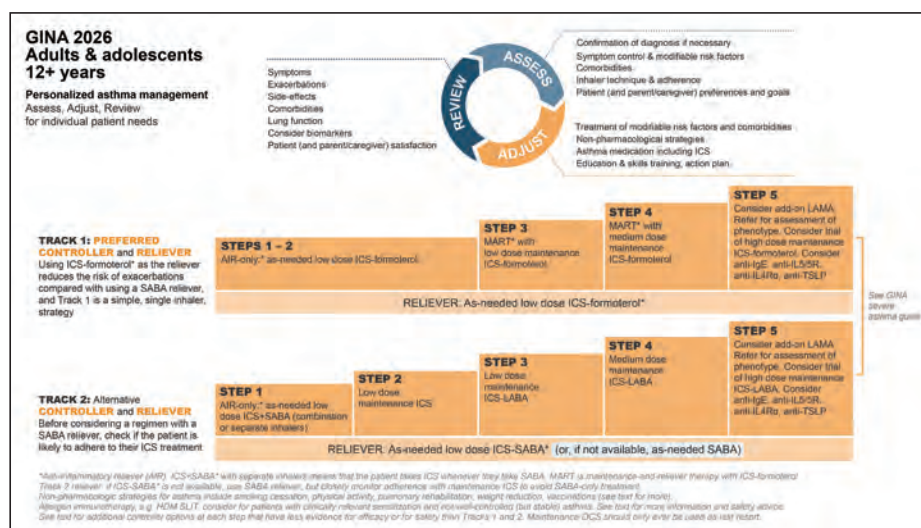
INFLAMMATION IN MILD-MODERATE ASTHMA

Airway inflammation is central to asthma pathophysiology, and inflammatory activity can persist even when symptoms are intermittent or perceived as mild.^{3,4,9} This helps explain why severe attacks can occur unexpectedly in patients who otherwise report low day-to-day symptom burden. Traditional rescue strategies built around SABA-only rescue therapy provide rapid bronchodilation but do not address airway inflammation, leaving the key driver of exacerbations untreated.^{12,13} In 2019, GINA made a fundamental shift by recommending against SABA-only treatment for adults and adolescents and by positioning ICS-based rescue as foundational therapy for all patients, regardless of asthma severity.¹³

Because SABA relieves symptoms rapidly, patients may develop strong preferences for albuterol and may interpret symptom relief as evidence that daily anti-inflammatory therapy is unnecessary.^{3,5} However, worsening symptoms can signal an impending exacerbation, especially when patients are not using any ICS.^{9,14}

Current GINA guidance continues to recommend ICS-containing regimens, including symptom-driven approaches that deliver ICS whenever a reliever is used. Despite these changes in global recommendations, continued SABA-only use in clinical practice means many patients remain exposed to preventable exacerbation risk and cumulative SCS exposure.^{7,11}

FIGURE 1. GINA Tracks 1 and 2: personalized asthma management for adults and adolescents to control symptoms and minimize future risk.⁹



GINA ©2026 Global Initiative for Asthma, reprinted with permission. Available from www.ginasthma.org.

IMPLEMENTING ICS + FAST-ACTING BRONCHODILATOR THERAPY IN MILD ASTHMA

For adults and adolescents with mild asthma, GINA now prioritizes reliever strategies that include an ICS.^{9,12} GINA preferred Track 1 recommends as-needed low-dose ICS-formoterol. Track 2 recommends SABA as the reliever together with low-dose ICS taken whenever SABA is used, or a combination of SABA-ICS in a single inhaler (**FIGURE 1**). Overall, GINA recommends that every patient with asthma should receive anti-inflammatory treatment of some type, whether rescue, maintenance, or both.⁹

Although the 2020 National Asthma Education and Prevention Program (NAEPP) guideline predated some of the newer evidence on the critical need to include ICS in all inhaler regimens, it still recommends concomitant ICS use with quick-relief therapy, which can help clinicians move away from SABA monotherapy in US practice.¹⁵

CHALLENGES AND SOLUTIONS TO ICS + FAST-ACTING BRONCHODILATOR IMPLEMENTATION

In the United States, implementation of ICS + fast-acting bronchodilator historically has been complicated by the lack of an approved ICS-containing rescue inhaler. In 2023, that changed with the approval of albuterol-budesonide for as-needed treatment or prevention of bronchoconstriction for reducing the risk of exacerbations in adults.¹⁶ The recent BATURA trial provided evidence for the use of ICS + fast-acting bronchodilator (albuterol-budesonide) in patients with mild asthma, including intermittent or persistent dis-

ease. In BATURA, as-needed albuterol-budesonide reduced the risk of severe exacerbation compared to the control group (albuterol alone) by 47%, lowered SCS exposure, and improved disease control.¹⁴

The paradigm shift from SABA-only rescue therapy is a significant change from past practice and requires educating clinicians so they can implement the latest guidelines in their practices. Furthermore, the shift also requires clinicians to educate patients to address the traditional teaching that ICS is a maintenance (not rescue) therapy and to explain the popularity and overuse of albuterol.¹² Common barriers to educating patients and implementing ICS in asthma care include lack of time and cost. Using a patient-friendly, evidence-based handout, such as the one shown in **FIGURE 2**, may facilitate patient education and reduce resistance to modifying the usual treatment regimen. A

full-size, printable version of the handout can be found by scanning the QR code.



Adherence to daily ICS often is poor in people with infrequent symptoms, so a rescue-based, self-administered inhaled therapy better aligns with patient behavior for symptom relief.^{5,12} Shared decision-making remains essential, however, because availability through insurance, cost, device familiarity, and patient preferences all can influence whether a theoretically optimal regimen actually is used.^{17,18} In a discrete-choice study, patients placed greater value on fewer exacerbations and simpler, more convenient inhaler approaches.¹⁷

In practice, primary care clinicians (PCCs) can implement ICS + fast-acting bronchodilator rescue therapy in multiple ways.^{9,12,15} Standardization of clinic workflows to identify patients on SABA-only rescue therapy at all touchpoints of a health care encounter is needed. Electronic health record (EHR) notifications regarding SABA use and refill intervals also help alert clinicians of utilization patterns that could lead to asthma morbidity and may help increase rates of uptake in clinical practice. For example, system adjustments to remove

FIGURE 2. Patient education tool that might be used as part of shared decision-making to reduce barriers to ICS implementation in asthma care.

Use of an Inhaled Corticosteroid (ICS) as Part of Rescue/Reliever Therapy

Traditionally, there have been two types of therapy used to treat asthma:

Maintenance Therapy for Inflammation

Most people with asthma have chronic (long-lasting) inflammation in their airways. The amount of airway inflammation can change over time.

Rescue/Reliever Therapy for Symptoms

Sudden increases in airway inflammation can lead to symptoms such as shortness of breath, wheezing, coughing, and chest tightness.

Airway in a patient with asthma

A daily maintenance inhaler containing **ICS** aids in controlling inflammation and helps prevent symptoms and flare-ups.

Airway during an asthma flare-up

A rescue inhaler containing a short-acting beta₂-agonist (SABA) is used to temporarily relieve asthma symptoms. Yet, a **SABA** alone does not address the underlying problem of inflammation.

TODAY, treating **both symptoms AND inflammation** with your rescue/reliever therapy is supported by asthma experts

See how ICS can be included as part of your rescue/reliever strategy!

Options for Including ICS as Part of Your Asthma Rescue/Reliever Strategy

Anti-inflammatory Reliever (AIR)

A rescue/reliever inhaler that contains both an ICS and a rapid-acting bronchodilator

- Use combination ICS-formoterol (a long-acting beta₂-agonist or LABA) as needed

OR

- Use combination SABA-ICS as needed, with or without maintenance ICS-containing therapy

ICS-formoterol inhalers are not FDA-approved for use as rescue/reliever therapy in the United States.

Patient Activated Reliever-Triggered Inhaled Corticosteroid (PARTICS)

Follow your current asthma treatment plan and take ICS when using as-needed SABA as rescue/reliever therapy

Continue your current asthma treatment plan. In addition:

- Take one puff of ICS for each puff of as-needed SABA inhaler

OR

- Take five puffs of ICS after using a SABA nebulizer treatment

ICS-only inhalers are not FDA-approved for use as rescue/reliever therapy in the United States.

Maintenance And Reliever Therapy (MART)

One inhaler for both maintenance and rescue/reliever therapy

- Use combination ICS-formoterol as both maintenance and as-needed for rescue/reliever
- This approach does not include use of a SABA-only inhaler or a SABA-ICS inhaler as rescue/reliever and cannot be used with combinations of ICS with non-formoterol LABAs

ICS-formoterol inhalers are not FDA-approved for use as MART in the United States.

This document was prepared using asthma expert recommendations for educational purposes only. Together, you and your healthcare clinician will determine the best treatment for your asthma. Never ignore worsening asthma symptoms. If your rescue/reliever treatment isn't helping, seek medical attention immediately.

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automatic SABA-only inhaler refills and limiting SABA-only inhaler prescription refills can help reduce SABA use. By working with other clinicians and staff, such as pharmacists, nurses, and medical assistants, PCCs can identify patients on SABA-only rescue therapy and educate them on switching to ICS-based rescue therapy.

CASE STUDY

A 29-year-old woman with a history of mild asthma presents for another albuterol refill after using her inhaler several times most weeks during exercise and spring allergy season. Over the past 12 months, she has had 2 urgent care visits for wheezing and received 2 short courses of oral prednisone, but she has never used an ICS because she feels well between episodes.

A review of pharmacy records shows 5 albuterol inhaler fills in the past year. The patient says that albuterol “always works” even though her flares seem to be happening more often. She wants a simple plan that she can use when symptoms occur, but she also wants to lower her chance of another severe attack.

In this case study, the patient’s limited day-to-day symptom burden does not translate into low future risk, because repeated SABA fills, urgent care use, and repeated SCS bursts are markers of uncontrolled asthma and denote a higher risk of exacerbations. A reasonable next step is to transition away from albuterol-only rescue and initiate an ICS-containing rescue strategy that fits her preferences (e.g., an as-needed albuterol-budesonide inhaler or low-dose ICS taken with each SABA use) while reassessing whether maintenance ICS therapy also is indicated. Because adherence to daily ICS is often poor in patients with infrequent symptoms, linking anti-inflammatory therapy to symptom-driven inhaler use can improve the likelihood that the patient takes ICS-containing treatment. The patient also should receive inhaler technique review, a written action plan, and close follow-up to evaluate symptom control, exacerbations, and refill patterns after the change in therapy.

REAL-WORLD IMPLEMENTATION OF ICS IN PRIMARY CARE PRACTICES

Implementation in primary care means translating guidelines into repeatable clinic behaviors, including identifying appropriate patients, changing default prescribing patterns, teaching device use, addressing coverage barriers, and monitoring follow-up.¹⁹ However, shifting away from SABA-only rescue therapy prescribing is challenging. Implementation science suggests that applying research findings and evidence-based practices into routine care facilitates narrowing the gap between what improves outcomes and what actually is delivered in practice.^{20,21} There are few better places to apply these principles than asthma in primary care, where barriers across clinician, workflow, patient, and system domains may

persist.²²⁻²⁴ The Knowledge to Action framework is particularly relevant in this setting because it links knowledge creation to a practical action cycle that includes identifying the problem, adapting evidence to the local context, assessing barriers, selecting and tailoring interventions, monitoring uptake, evaluating outcomes, and sustaining change over time.^{25,26} This structured approach is important because the time from evidence generation to routine implementation in clinical practice is approximately 17 years, highlighting the need for deliberate, practice-based strategies to accelerate adoption of effective asthma care in the primary care setting.²¹

A practical starting point is proactive case finding.¹⁸ Patients with recent exacerbations, repeated SABA fills, frequent SCS bursts, emergency care use, or no evidence of ICS exposure are most likely to benefit from discontinuing albuterol-only rescue therapy.^{6,11,18} Clinical tools such as EHR reports, refill history, and pre-visit planning processes can identify these patients proactively and in advance, making the treatment change feel systematic rather than opportunistic, which can increase implementation success rates.¹⁹ Focused, practice-level audits and soliciting clinician feedback may also be useful because this creates visibility around SABA overreliance and allows clinics to track whether prescribing patterns are changing.¹⁹

Implementation is facilitated by simplifying the visit.¹⁸ A short explanation about how asthma symptoms involve inflammation and airway constriction and how an ICS-containing rescue regimen treats both tight airways and inflammation can reframe the conversation without requiring a lengthy and detailed discussion.^{5,9} Pairing that message with inhaler technique assessment is important, because technique errors are common and can erode treatment effectiveness over time, even after initial instruction.²⁷ Therefore, education should be iterative rather than one time, with technique checks and regimen reinforcement embedded into follow-up visits, refill encounters, or outreach calls.

Multidisciplinary, interprofessional involvement in asthma care can improve the feasibility and sustainability of implementation approaches. For example, in a pediatric primary care quality-improvement (QI) initiative, a respiratory therapist-driven protocol substantially increased completion of spirometry and asthma education, illustrating how health care team members can improve adherence to best practices when responsibilities are formalized.²⁸ The same implementation logic applies in adult primary care: nurses and pharmacists can support access and device teaching, nurses and medical assistants can provide education and follow-up care, and respiratory therapists can reinforce technique and objective assessment, where available.^{18,19}

Implementation is more likely to succeed when practices treat the switch to ICS-containing rescue as a QI priority

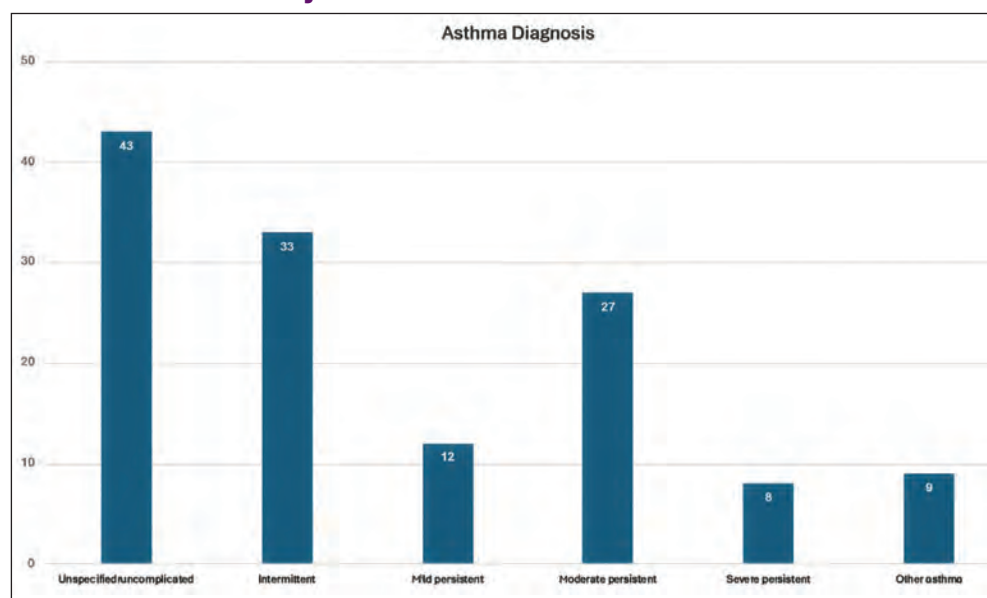
rather than as an optional medication substitution. Codesigned asthma interventions emphasize clinician education, gold-standard prescribing, targeted reviews, patient support, and real-time monitoring as core pillars for sustainable change.¹⁹ That framework fits asthma especially well in primary care, where small workflow changes can influence large patient volumes and meaningfully reduce future exacerbations through successful implementation of ICS-containing rescue therapy.

In the authors' current asthma practices, GINA recommendations are foundational in treating patients with asthma. Accordingly, spirometry is embedded into clinic workflows, with medical assistants or other staff obtaining these objective data before the clinician sees the patient. These data provide a base from which to begin a conversation about asthma, similarly to how glycated hemoglobin objectively provides information about a patient's glycemic status. The operational goal of asthma care is transitioning all patients with asthma who currently use SABA-only rescue therapy to an ICS-containing rescue or rescue and maintenance therapy regimen. We do this by incorporating a conversation about transitioning to ICS into every well visit or asthma-related follow-up visit.

QI study

In a rural family medicine clinic in South Carolina, a 2025-2026 QI project implemented ICS-based rescue therapy in all patients with asthma.²⁹ The project was based on switching from SABA-only rescue to anti-inflammatory reliever (AIR) for patients not requiring maintenance therapy (either SABA-ICS or ICS-formoterol), and either SABA-ICS as-needed with maintenance or ICS + formoterol rescue and maintenance for patients requiring maintenance therapy. Clinicians (including physicians, nurse practitioners, family medicine residents, and a clinical pharmacist) used a systematized workflow process in the EHR to identify patients for intervention and to support prescribing decisions.²⁹ Standard order sets in the EHR for ICS-based rescue included an option for prescribing as-needed albuterol-

FIGURE 3. Baseline classification of asthma severity in patients participating in a US-based asthma QI study assessing implementation of AIR in a rural family medicine clinic.^{29a}



^aClassification of asthma was obtained via chart review, based on clinician impression, and not guided by objective criteria.

budesonide with or without maintenance treatment, or budesonide-formoterol or mometasone-formoterol as maintenance and as-needed therapy.

Researchers identified 132 patients with asthma. At baseline, most patients had mild-moderate or unspecified/uncomplicated asthma (**FIGURE 3**), and only 5 patients (3.85%) were receiving AIR therapy.²⁹ Clinicians contacted patients on SABA-only rescue to recommend discussing therapeutic options with the pharmacist or their clinician at the next visit, where they would be offered AIR alternative therapy. Interim results from monthly audits of asthma patients 3 months after project initiation revealed an increase in the percentage of patients receiving AIR therapy from 3.85% to 25%, an increase in the percentage of visits during which asthma was addressed (30% to 55%), and a decrease in the percentage of "unspecified asthma" diagnoses (25% to 10%).²⁹

The QI project will be evaluated after completion and potentially rolled out to remaining practices within the health care system.

SUMMARY

Mild-moderate asthma should not be equated with a low risk for exacerbations or adverse outcomes. Many patients with mild-moderate disease have uncontrolled symptoms, elevated exacerbation risk due to persistent SABA-only use, and experience severe attacks that lead to avoidable SCS use. Because airway inflammation persists even when symp-

toms are intermittent, rescue strategies that address bronchospasm alone leave the underlying driver of future risk untreated.

Improving mild-moderate asthma care in primary care settings involves moving away from SABA-only rescue and toward ICS-based rescue strategies that treat both symptoms and inflammation. However, implementing a paradigm shift from a long history of SABA-only rescue prescribing requires significant effort and intervention. Success depends not only on choosing an evidence-aligned regimen, but also on proactive case finding, effective patient education, and workflow changes that make ICS-based rescue easier to prescribe and use in daily practice. As ICS-containing rescue becomes more accessible in the United States, primary care teams have an important opportunity to reduce exacerbations, lower SCS exposure, and improve long-term outcomes for patients with mild-moderate asthma. ●

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