

Elevating the Importance of Asthma Care in the United States

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KEY TAKEAWAYS

- Primary care clinicians (PCCs) play a key role in managing care of patients with asthma across the disease continuum, which includes mild to severe asthma.
- Rescue/reliever regimens containing inhaled corticosteroids (ICS) are preferred to short-acting beta₂-agonist-only treatment because of the reduced risk for exacerbations.
- PCCs should refer patients with severe asthma to a specialist when indicated for further evaluation and management, which may include biologic therapy.
- Effective use of asthma action plans can help patients initiate anti-inflammatory therapy in a “window of opportunity” leading up to an exacerbation.
- Asthma quality metrics and incentives in the US currently lack alignment with best practices, and policymakers are urged to update these measures as new evidence and guidance emerge.

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INTRODUCTION

According to the most recent Global Initiative for Asthma (GINA) report (2024), the definition of asthma is “a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms, such as wheeze, shortness of breath, chest tightness, and cough, that vary over time and in intensity, together with variable expiratory airflow limitation.”¹ In the US, an estimated 8.7% of adults and 6.2% of children have asthma, and asthma is the reason for approximately 6.3% of office-based physician visits (2022 data).² Asthma is most common in American Indian/Alaskan Native populations (12.3%), followed by Black non-Hispanic (10.9%) and White non-Hispanic (7.6%) populations.³

Asthma severity is currently assessed retrospectively

based on how difficult the patient’s asthma is to treat. Mild asthma is defined as asthma that is well controlled with low-intensity treatment (eg, as-needed low-dose inhaled corticosteroid [ICS] and fast-acting bronchodilator or low-dose ICS plus as-needed short-acting beta₂-agonist [SABA]) and moderate asthma defined as asthma that is well controlled with GINA Step 3 or Step 4 treatment (eg, low- or medium-dose ICS plus long-acting beta₂-agonist [LABA]). Severe asthma is defined as “asthma that is uncontrolled despite adherence with maximal optimized high-dose ICS/LABA treatment and management of contributory factors, or that worsens when high-dose treatment is decreased.”¹ Asthma should not be classified as severe if it improves when modifiable contributory factors such as adherence and inhaler technique are addressed.¹ Severe asthma is considered a subset of difficult-

to-treat asthma, which is asthma that remains uncontrolled despite use of medium- or high-dose ICS with a second controller, or frequent steroid bursts; asthma that requires chronic use of systemic corticosteroids (SCS); or asthma that requires high-dose ICS treatment to maintain symptom control and reduce exacerbation risk.¹ Up to 14% of people with asthma in the US have severe asthma.⁴

Severe asthma incurs a heavy health burden, including symptoms, exacerbations, and medication side effects.¹ Examples include frequent shortness of breath, chest tightness, coughing, and wheezing that interfere with daily living, sleeping, and physical activity; exacerbations in patients with severe asthma can be unpredictable or frightening. Severe asthma frequently results in limitations in family, social, and working lives and affects mental and emotional well-being.¹ Significant medication side effects in severe asthma are most often associated with SCS, which cause both long-term and short-term adverse effects. Contrary to traditional thinking, analyses over the past decade have shown that even short-term (<30 days) and intermittent SCS use can increase risk for bone fracture, venous thromboembolism, and sepsis.⁵ Higher cumulative doses of SCS over a patient's lifetime may contribute to increases in cardiovascular disease, osteoporosis, pneumonia, kidney impairment, cataracts, cerebrovascular disease, depression, anxiety, weight gain, sleep apnea, and type 2 diabetes.^{6,7}

Uncontrolled asthma is different from severe asthma—it can occur across all severities of asthma. Patients with uncontrolled asthma have one or both of the following characteristics:¹

- Poor symptom control, indicated by frequent reliever use or symptoms, night waking due to asthma, or activity limited by asthma
- Frequent exacerbations that require SCS, emergency department visits, and/or hospitalization

Recently in the United States, approximately 60% of adults and 44% of children were reported to have uncontrolled asthma^{8,9}; of those, more than 80% had mild or moderate asthma.¹⁰ In an international cohort of 1115 patients classified as GINA Step 1 or Step 2, 25% had uncontrolled asthma and about 33% reported rescue inhaler use in the previous 4 weeks.^{1,11}

Similarly, asthma exacerbations can occur in all severities of asthma despite guideline-directed treatment.¹² A history of emergency department visits and hospitalization for an asthma exacerbation increases the risk for future exacerbations, irrespective of disease severity, patient demographics, or clinical characteristics.^{12,13}

As previously discussed^{14,15} and as reflected in the GINA report, inclusion of ICS with rescue/reliever therapy

is preferred for patients with asthma, including those with uncontrolled asthma, regardless of disease severity.¹ Furthermore, extensive data show that use of ICS and fast-acting bronchodilator combinations as maintenance and rescue/reliever therapy or as rescue/reliever therapy alone leads to decreased asthma exacerbations compared to either the same or a higher dose of maintenance ICS plus SABA.¹⁶⁻²⁷

PRIMARY CARE CLINICIANS' ROLE IN ASTHMA AND SEVERE ASTHMA MANAGEMENT

More than 60% of patients with asthma receive care from a primary care clinician (PCC), and incorporating best practices for asthma management in primary care is essential to improving care across the disease continuum.²⁸⁻³⁰ Although many patients can be successfully managed in primary care, those with an unclear asthma diagnosis, a less-than-expected response to appropriate therapy, or who have severe, persistently uncontrolled asthma should be considered for referral for specialist care.^{1,31}

There are several benefits to appropriately referring patients with severe asthma to specialists, including testing for and identifying disease phenotypes to ensure appropriate treatment, evaluating for asthma masqueraders (comorbidities that may produce asthma-like symptoms but do not respond well to asthma therapies), maintaining symptom control, and reducing health care utilization and associated costs.³² US guidelines recommend appropriate medication escalation and referral of patients with severe asthma to a specialist for consultation or co-management, especially following an exacerbation.³³ However, findings from a recent study suggest that many patients with severe, uncontrolled asthma (35% to 51%) do not receive medication escalation or specialist referral. More Black patients (41%) and Hispanic/Latinx patients (38%) did not receive specialist referral or medication escalation than non-Hispanic White patients (33%). Furthermore, Black and Hispanic/Latinx patients have worse asthma outcomes compared to White patients and are the patient groups in most need of appropriate referral and treatment escalation. These findings indicate a need to improve guideline-based care delivery for patients with severe asthma, particularly those who experience the greatest burden and the greatest disparities.³³

Furthermore, patients experience delays in diagnosis and treatment initiation, resulting in suboptimal symptom control and quality of life. An international survey of clinicians in 2021 suggests that the average time from first symptoms to diagnosis was 2 years.³⁴ The average time between severe asthma diagnosis and biologic treatment ranges from 2 to 12 months, with an average length of 6.5 months. Additionally, the average time for referral to a specialist from primary care is approximately 5.5 months.³⁴

Current recommendations for treating asthma in the United States are based on the 2020 Focused Update of the National Asthma Education and Prevention Program (NAEPP) and the 2007 Expert Panel Report-3 (EPR-3) guidelines.^{31,35} Global asthma recommendations are based on the 2024 GINA report.¹ Suggested approaches for applying these recommendations in primary care, highlighting the importance of concurrent ICS use with bronchodilators, have been reviewed previously.^{14,15}

Treatment goals suggested by EPR-3 and GINA are closely aligned. Both recommend that achieving good symptom control, maintaining normal activity levels, and reducing negative asthma outcomes such as exacerbations, adverse effects, persistent airflow limitation, and asthma-related death, are important clinical goals for asthma management.^{1,35}

Assessing asthma control is fundamental to asthma management and to optimize medication therapy, prevent exacerbations, improve quality of life, and achieve patient and clinical treatment goals.^{1,35} Many common asthma assessment tools are focused only on evaluation of symptoms, but an ideal tool for assessing asthma should include questions that reveal both symptoms and exacerbation risk. This topic is discussed in further detail later in this article.

CHALLENGES IN PRIMARY CARE ASTHMA MANAGEMENT

There are many asthma management challenges in primary care clinical settings, several of which are discussed in this article. These challenges include the following^{28,32,33,36,37}:

- Misaligned quality metrics and national incentives
- Lack of adequate assessment and infrequent use of validated tools
 - Results in missing patients whose asthma is uncontrolled and those at risk for exacerbations
- Lack of time, staffing, reimbursement, and staff competency
- Lack of access to asthma care and treatments
- Barrier to multidisciplinary team care management approach
 - Include collaboration with specialists such as pulmonologists; allergists; and ear, nose, and throat specialists; emergency department clinicians for management of acute exacerbations and transitions of care; and other members of the outpatient care team, including pharmacists, respiratory therapists, and certified asthma educators
- Challenges related to patient factors such as access to care and treatments, insurance coverage, adherence, and knowledge gaps
 - Result in many patients experiencing long wait

times and traveling long distances to specialists, further diminishing access to care

The remainder of this article discusses additional details regarding barriers to optimal asthma management encountered in primary care along with potential solutions. Key areas of focus include asthma quality metrics and incentives, unmet needs in asthma populations, considerations for clinicians and clinic staff in practice, use of biologic therapies, referral to specialists, and the use of asthma action plans.

CASE SCENARIO

A 42-year-old woman presents to her primary care clinic for an asthma follow-up visit. She is currently treated with moderate-dose ICS-LABA for maintenance therapy, with SABA-only rescue therapy. She has had 1 exacerbation within the past year and currently does not have an asthma action plan in place. When asked how she is doing with her asthma, she responds, “It’s been okay, I’m glad I have my rescue inhaler because I really need it when I get out of breath.”

No changes to treatment are recommended, as the clinician decides that the patient’s current regimen seems to be working fine, reasoning that 1 burst of SCS per year is “not that bad and likely unavoidable anyway.” The patient is scheduled for another follow-up visit in 6 months.

The patient in this case scenario is at risk for exacerbations, especially because she is regularly using SABA-only rescue therapy. However, more information is needed to accurately assess the patient’s status. Either a more detailed history, or the use of a validated tool such as the Asthma Impairment and Risk Questionnaire (AIRQ[®]) could highlight exacerbation risk and focus attention on improving symptom control. Additionally, the clinician in the scenario appears to be unaware of updated guidance for ICS-containing rescue therapy, which would optimize the patient’s treatment regimen. Notably, current asthma quality metrics and incentives in the US would not promote different management of this patient.

ASTHMA QUALITY METRICS AND INCENTIVES

In the US health care system, quality metrics and incentives play a prominent role, monitoring and reporting performance of clinical interventions across health systems, health plans, and clinicians.³⁶ However, the number and complexity of quality measures continue to increase, placing a growing burden on clinicians and health systems. Additionally, measures that are not aligned to evidence-based practice can hinder optimal asthma care.

Current state of asthma quality metrics and national incentive schemes in the United States

The current asthma quality metrics and national incentive

TABLE 1. Current CMS measures that apply to asthma care in the United States.

Measure	Description
MIPS #398: Optimal Asthma Control ⁴¹ Data submitted by individual MIPS-eligible clinicians, groups, or third-party intermediaries for reimbursement	Composite measure of the percentage of pediatric and adult patients whose asthma is well controlled as demonstrated by 1 of 3 age-appropriate patient-reported outcome tools and not at risk for exacerbation
MIPS #444: Medication Management for People with Asthma ⁴² Data submitted by individual MIPS-eligible clinicians, groups, or third-party intermediaries for reimbursement	The percentage of patients aged 5-64 years during the measurement year who were identified as having persistent asthma and were dispensed appropriate medications that they remained on for at least 75% of their treatment period
HEDIS: Asthma Medication Ratio (AMR) ⁴³ Data submitted by individual clinicians, groups, or third-party intermediaries for health plan performance reporting	Assessment of adults and children aged 5-64 years who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year
ACO #9: Prevention Quality Indicator (PQI): Ambulatory Sensitive Conditions Admissions for Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults ⁴⁴ Data submitted by individual clinicians, groups, or third-party intermediaries for reimbursement	All discharges <i>ICD-9-CM</i> principal diagnosis code for COPD or asthma in adults aged 40 years and older, for ACO-assigned or aligned Medicare beneficiaries with COPD or asthma, with risk-adjusted comparison of observed discharges to expected discharges for each ACO

Abbreviations: ACO, Accountable Care Organization; HEDIS, Healthcare Effectiveness Data and Information Set; MIPS, Merit-based Incentive Payment System.

schemes include the Merit-based Incentive Payment System (MIPS), Healthcare Effectiveness Data and Information Set (HEDIS) measures, and Accountable Care Organization (ACO) measures established by the Centers for Medicare and Medicaid Services (CMS).³⁹⁻⁴⁰ Several of the current MIPS, HEDIS, and ACO measures apply to asthma care (**TABLE 1**).⁴¹⁻⁴⁴

Notably, guidance in the US lacks updated recommendations for asthma screening and control assessment. Furthermore, accountability measures of readmission are currently not applied to asthma (despite being applied to chronic obstructive pulmonary disease), which can lead to suboptimal exacerbation management with increased visits to the emergency department or unplanned hospitalizations.

Challenges with metrics and incentives for asthma

Despite the intention of current metrics and incentives to improve asthma care, they lack alignment with evidence-based practice recommendations and leave gaps in care. For example, national priority and composite measures currently do not align with best practices for escalation of asthma therapies, and they miss an opportunity for regulating ongoing harms of the overuse of SCS. Additionally, current care patterns often result in allowing patients to worsen and remain unnecessarily uncontrolled for a period before an intervention is made (treating to failure), as compared to proactive treatment implementation to prevent clinical worsening.

Many clinicians, even those in specialty practice, may not know about quality metrics for asthma, or the requirements are so burdensome that they may avoid using them. Current measures typically do not reward optimal asthma

care. For example, optimal care suggests that validated asthma assessment tools should be used. The MIPS asthma control measure mandates use of 1 of 3 symptom-based validated control tools, the Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ), or Asthma Therapy Assessment Questionnaire. However, these tools do not assess exacerbation risk. Newer data on the composite AIRQ, which assess the risk for future exacerbations in addition to current symptom control, are not included in the MIPS measure because of the measure’s development before collection of the AIRQ longitudinal data.⁴⁵⁻⁴⁹ Moreover, although the MIPS measure’s current assessment of future exacerbation risk is linked to the number of emergency department visits or hospitalizations within the last year, this is not a validated measure, and it can be difficult for clinicians to accurately access exacerbation history without use of a validated tool designed for this purpose.⁴⁵

Importantly, current metrics are cumbersome and therefore not used. As a pre-COVID-19 pandemic benchmark, of 130,225 PCCs reporting MIPS measures in 2019, only 109—0.08%—reported on MIPS 398 (the asthma control measure). With the reduction of quality reporting due to pandemic waivers, only 7 of 89,718 (—0.01%—) clinicians reporting MIPS measures in 2022 reported on MIPS 398.

Other measures may be outdated as well; the asthma medication ratio (AMR) HEDIS measure, which “assesses adults and children aged 5 to 64 years who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year,” is outdated considering evidence

that supports use of maintenance and reliever therapy (ICS plus fast-acting bronchodilator treatment regimens). Additionally, clinicians may be incentivized to spend excessive time meeting the metrics or incentive measures to boost payment, rather than focusing on quality care.⁵⁰

Potential solutions to these challenges with asthma metrics and incentives stem from an updated understanding of best practices in asthma and corresponding updates in quality measures. Some changes have already been recognized, such as the retirement of HEDIS Medication Management for People with Asthma in 2020 with the release of the NAEP 2020 Focused Update.⁵¹ Stakeholders should design quality metrics to better align with guidelines while also limiting the burden of data collection and submissions on clinicians. This may include a more proactive, earlier intervention approach to treat and lower the risk for irreversible lung damage and rescue medication side effects, rather than waiting for disease worsening, as well as early identification of patients appropriate for specialist referral.

SELECT UNMET NEEDS IN ASTHMA POPULATIONS

Disparities in asthma care

The burden of asthma can uniquely affect patients and their families across various age, socioeconomic, and racial and ethnic groups. For example, disparate patient groups may face additional barriers accessing asthma care due to language and cultural barriers, lack of familiarity with or distrust of health care systems and resources, poverty, and low numbers of primary care facilities and health systems.⁵²

Inadequate assessment of asthma

Asthma assessment may be inadequate in many instances; specifically, current practices may miss patients at risk for exacerbations, across all severities. Use of validated tools in practice requires planning to implement effectively but has been reported to save clinician time in continuity of care.⁵³

Implementation of validated assessments of asthma control may include asking patients to complete questions before seeing the clinician, with assistance from the receptionist, rooming staff, or an online portal. The reading levels of these questions should not pose a high literacy demand on patients. The clinician could then quickly review the results and incorporate them into treatment decisions, without using time during the appointment to conduct the assessment. The validated tools listed here, as well as the GINA questions, can help ensure the necessary information is obtained rather than asking less useful questions such as, “How is your asthma?”

Validated asthma assessment tools include:

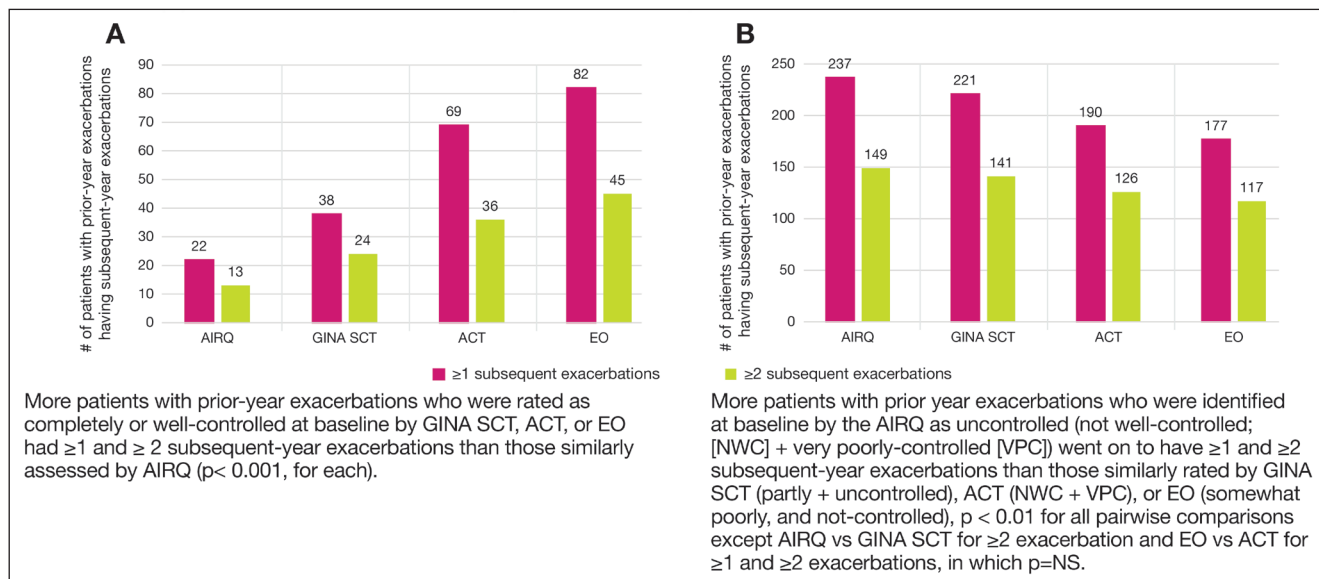
- **AIRQ.** The AIRQ is a recently developed and validated

tool comprising of 10 “yes/no” questions that incorporates both symptom and exacerbation risk assessment.⁴⁶ Scores range from 0 to 10, with a score of 0 to 1 indicating well-controlled asthma and higher scores representing worsening asthma control.⁴⁶ The AIRQ control level has been found to predict risk for future exacerbations across the following 12 months.⁴⁵ Additionally, the assessment tool is linked to suggestions for further evaluation of each question domain. Between annual visits, a 3-month follow-up version of the AIRQ can be used to assess ongoing disease status and the impact of interventions.⁴⁷ The AIRQ has been shown to have low literacy demand, increasing its usability among patient groups.

- Data suggest that the AIRQ may serve to improve determination of asthma control compared to other validated tools by assessing previous exacerbations (**FIGURE 1**).^{48,49}
 - Link to the AIRQ: <https://www.asthmaresourcecenter.com/home/for-your-practice.html>
- **ACT.** The ACT includes 5 multi-answer questions with 4-week recall. Scores range from 5 to 25, and higher scores indicate better control.⁵⁴ A score of 20 to 25 indicates well-controlled asthma, and the minimum clinically important difference is 3 points.⁵⁵
 - Link to ACT questions: <https://www.asthmacontroltest.com/welcome>
- **Asthma APGAR.** The Asthma APGAR (Activities, Persistent, triGers, Asthma medications, Response to therapy) includes 6 questions with 2-week recall; the 3 multi-answer questions are scored with the other 3 to identify potential reasons for lack of control. Scores of >2 are considered inadequate control. It is linked to a care algorithm based on NAEP guidelines.^{53,56}
 - Link to the Asthma APGAR questions and care algorithm: https://www.aafp.org/dam/AAFP/documents/patient_care/nrn/nrn19-asthma-apgar.pdf
- **ACQ.** The ACQ includes 5 symptom-based questions with 4-week recall.^{1,57} Scores range from 0 to 6, with higher scores indicating worse asthma control; the total score is an average of individual items.¹ Because the ACQ is a proprietary tool, permission must be obtained before using it.
 - Link to the ACQ: <https://www.qoltech.co.uk/acq.html>

The GINA report suggests 4 areas be covered when assessing control. The GINA questions are not validated but can serve as a guide to what to ask if a validated questionnaire is not used. The 4 questions are¹:

FIGURE 1. Accuracy of asthma control assessments in predicting future exacerbations within 12 months, based on prior 12-month exacerbation history



Patients represented in panel A were assessed as well-controlled at baseline and those in panel B were assessed as uncontrolled at baseline.

Source: Chipps BE, Zeiger RS, Beuther DA, et al. Advancing assessment of asthma control with a composite tool: The Asthma Impairment and Risk Questionnaire. *Ann Allergy Asthma Immunol.* 2024;133(1):49-56. doi:10.1016/j.anai.2024.03.011

- In the past 4 weeks, has the patient had
 - Daytime asthma symptoms more than twice a week?
 - Any night waking due to asthma?
 - SABA reliever use for symptoms more than twice a week?
 - Any activity limitation due to asthma?

Reducing exacerbation frequency and severity

Incorporating ICS as part of rescue therapy is supported by extensive data, as previously mentioned. Specifically, budesonide-formoterol has been studied as maintenance and rescue therapy in those with moderate to severe asthma¹⁶⁻²³ and as rescue therapy in patients with mild or mild to moderate asthma.^{24-26,58} These trials highlight the effectiveness of an ICS plus fast-acting bronchodilator combination inhaler in managing asthma and preventing exacerbations (formoterol is a long-acting bronchodilator with rapid onset). Meta-analysis of budesonide-formoterol studies evaluating use as maintenance and rescue therapy in patients with uncontrolled moderate-to-severe asthma indicated a statistically significant decreased risk for exacerbations with budesonide-formoterol compared to previous GINA Step 3 or Step 4 (13.2% vs 17.7%; heart rate 0.70; 95% CI, 0.58-0.85; $P < .001$).²³

More recently, an albuterol-budesonide combination inhaler was approved by the US Food and Drug Administration (FDA) for patients 18 years and older with asthma. This approval was based largely on the MANDALA trial, which

showed a 24% decrease in the annualized rate of severe asthma exacerbations (0.45 vs 0.59; rate ratio, 0.76; 95% CI, 0.62-0.93) and a 33% lower mean annualized total dose of SCS (86.2 ± 262.9 mg prednisone equivalents vs 129.3 ± 657.2 mg) in patients receiving the fixed-dose combination of albuterol-budesonide 180/160 µg compared to albuterol alone (preplanned efficacy analysis).²⁷ Data suggest that exposure to ICS with rescue/reliever therapy in addition to ICS used for maintenance therapy would remain within the range of FDA-approved doses of ICS, even for most patients using high-dose ICS in their maintenance regimen.⁵⁹

Approximately 10 to 14 days before an asthma exacerbation, progressive rising inflammation accompanies the decrease in lung function (peak expiratory flow, or PEF) and increase in symptoms,^{60,61} which may result in patients increasing SABA-only rescue use.⁶¹⁻⁶³ SABA-only rescue use can provide symptomatic relief, but it does not address airway inflammation.^{60,61} The approximately 10- to 14-day period leading up to an exacerbation has been suggested to represent a “window of opportunity” across asthma severities to minimize airway inflammation and either reduce the severity of or prevent an exacerbation by ensuring anti-inflammatory therapy is part of rescue treatment.⁶⁴

BARRIERS TO AND POTENTIAL SOLUTIONS FOR DELIVERING OPTIMAL ASTHMA CARE

To address unmet needs in asthma populations, clinicians should consider reducing barriers to delivering optimal

TABLE 2. Basic characteristics of biologic therapies for severe asthma available in the United States⁶⁵

Biologic (Target)	Age	Administration	GINA Recommendation
Omalizumab (IgE)	≥6 y	SC injection	Severe exacerbations within last year, sensitization to inhaled allergens, total serum IgE and weight within local dosing range
Mepolizumab (IL-5)	≥6 y	SC injection	Severe exacerbations within last year, blood eosinophil ≥150 cells/μL or ≥300 cells/μL
Reslizumab (IL-5)	≥18 y	IV infusion	Severe exacerbations within last year, blood eosinophil ≥150 cells/μL or ≥300 cells/μL
Benralizumab (IL-5Ra)	≥6 y	SC injection	Severe exacerbations within last year, blood eosinophil ≥150 cells/μL or ≥300 cells/μL
Dupilumab (IL-4Ra)	≥6 y	SC injection	Severe exacerbations within last year, blood eosinophil ≥150 cells/μL and ≤1500 cells/μL, or FeNO ≥25 ppb, or maintenance SCS
Tezepelumab (TSLP)	≥12 y	SC injection	Severe exacerbations within last year

Adapted from Shah and Brightling, 2023.

asthma care. Barriers to optimal asthma care may include²⁸:

- Lack of familiarity with recommendations from national and international guidelines and reports
- Failure to recognize uncontrolled and/or severe asthma
- Failure to implement updated treatment recommendations, such as ICS-containing rescue therapy
- Clinic workflow challenges, which may include
 - Lack of time within appointments
 - Inadequate staffing to assist with administrative functions of asthma care
- Patients' lack of access to asthma care and treatments
- Lack of access to specialists for patients with severe uncontrolled asthma, who need more intensive evaluation for complicating diagnoses, or who are indicated for initiation of biologic therapy

Addressing these barriers involves increased familiarity among clinicians with the NAEPP 2020 guideline and the GINA report, as well as educating patients to improve their knowledge of and adherence to the best asthma treatment for the patient's severity level. Addressing access to asthma care and treatments includes a heightened awareness of disparities in access between patient groups, assisting patients with factors including prior authorization, free or low-cost health care facilities, and financial assistance programs.

PATIENT CASE REVISITED 6 MONTHS LATER

The patient in the case scenario returns to her primary care clinic for a 6-month follow-up visit. At this visit, the PCC asks the patient to complete the AIRQ, recognizing its utility in identifying exacerbation risk. The patient is determined to have uncontrolled asthma, remaining at risk for exacerbations. Her PCC implements ICS-containing rescue therapy to reduce exacerbation risk and improve overall asthma control.

NAVIGATING BIOLOGICS FOR ASTHMA IN PRIMARY CARE

Biologics represent an important option for additional disease control in patients with severe asthma. Those who have frequent exacerbations and/or poor symptom control despite use of medium- to high-dose ICS/LABA therapy ± long-acting muscarinic antagonists, ± leukotriene receptor antagonists, or who are dependent on SCS should be considered for biologic therapy.^{1,65} An overview of biologic therapies approved in the US for asthma is provided in **TABLE 2**, including patient age, mode of administration, and GINA recommendation.^{1,65} Approved biologic therapies for severe asthma in the US (in approval order) include omalizumab, mepolizumab, reslizumab, benralizumab, dupilumab, and tezepelumab, which have all demonstrated benefit in eosinophilic type 2 severe asthma.⁶⁵

Although biologic therapies are not typically prescribed in primary care settings, increased awareness of their benefits for severe asthma treatment may prompt referral for appropriate patients. A variety of factors influence eligibility for and ability to access biologic therapies, such as labeled indications and local payor criteria and affordability, as well as clinical characteristics such as age, use of SCS, degree of asthma control, lung function, biomarkers, and comorbidities.⁶⁵ Patient preferences should also be considered and may be informed by dosing frequency and route of administration.^{65,66} Additionally, widespread adoption at the national and local level of guidance that prioritizes biologic therapies over SCS may help reduce avoidable health care resource utilization by promoting adequate disease management.

PATIENT CASE REVISITED ANOTHER YEAR LATER

Another year later, the patient's asthma has worsened to become severe, evidenced by multiple severe exacerbations secondary

to worsening outdoor environmental triggers in her area of residence. Her PCC is meeting with her at a post-hospitalization visit. Her inhaled maintenance and rescue therapies have been maximized, and she is now indicated for biologic therapy. Therefore, a referral for specialist care is made to further evaluate and manage her severe asthma.

EFFECTIVE AND EFFICIENT USE OF ASTHMA ACTION PLANS

Effective use of asthma action plans can help clinicians give patients and families specific guidance to take action in identifying and using early treatment for an exacerbation.⁶⁷ As part of an asthma action plan, triggers should be identified and addressed for preventing future exacerbations. Asthma self-management education may include helping patients understand self-monitoring of symptoms and/or lung function (via PEF measurement) and their written asthma action plan.¹ At a follow-up visit after an exacerbation, the clinician should review and update the asthma action plan with the patient.¹ Clinicians should also recognize that SABA-only treatment is no longer the optimal rescue option.

Policy changes surrounding asthma action plans may also help influence their effective and efficient use. This may include alignment in payor reimbursement, national enforcement in policy, and regulations and health system performance measures that drive the optimal asthma care for patients across disease severities.

Principles of self-management of exacerbations using a written asthma action plan may include¹:

- Consulting with the patient and any caregivers to develop the action plan using shared decision-making
- Assessing symptoms early and detecting worsening symptoms early that may precede an exacerbation
- Determining when and how to escalate rescue/reliever (ICS plus rapid-acting bronchodilator) treatment (ie, during a “window of opportunity” just preceding an exacerbation)
- Deciding when and how to escalate controller therapy
- Reviewing response to treatment and assessing next steps
- Contacting the clinician or emergency services

FIGURE 2. Example of an asthma action plan

Provider: _____
Clinic: _____

My Asthma Action Plan

Name: _____ DOB: ____/____/____

Severity Classification: Intermittent Mild Persistent Moderate Persistent Severe Persistent

Asthma Triggers (list): _____

Peak Flow Meter Personal Best: _____

Green Zone: Doing Well

Symptoms: Breathing is good – No cough or wheeze – Can work and play – Sleeps well at night
 Peak Flow Meter _____ (more than 80% of personal best)

Flu Vaccine—Date received: _____ Next flu vaccine due: _____ COVID19 vaccine—Date received: _____

Control Medicine(s)	Medicine	How much to take	When and how often to take it

Physical Activity Use Albuterol/Levalbuterol _____ puffs, 15 minutes before activity
 with all activity when you feel you need it

Yellow Zone: Caution

Symptoms: Some problems breathing – Cough, wheeze, or tight chest – Problems working or playing – Wake at night
 Peak Flow Meter _____ to _____ (between 50% and 79% of personal best)

Quick-relief Medicine(s) Albuterol/Levalbuterol _____ puffs, every 20 minutes for up to 4 hours as needed

Control Medicine(s) Continue Green Zone medicines
 Add _____ Change to _____

You should feel better within 20-60 minutes of the quick-relief treatment. If you are getting worse or are in the Yellow Zone for more than 24 hours, THEN follow the instructions in the RED ZONE and call the doctor right away!

Red Zone: Get Help Now!

Symptoms: Lots of problems breathing – Cannot work or play – Getting worse instead of better – Medicine is not helping
 Peak Flow Meter _____ (less than 50% of personal best)

Take Quick-relief Medicine NOW! Albuterol/Levalbuterol _____ puffs, _____ (how frequently)

Call 911 immediately if the following danger signs are present:

- Trouble walking/talking due to shortness of breath
- Lips or fingernails are blue
- Still in the Red Zone after 15 minutes

Emergency Contact Name _____ Phone (____) _____ - _____

Date: ____/____/____

1-800-LUNGUSA | Lung.org

ALA Asthma AP V4 31 2023

Source: American Lung Association. My Asthma Action Plan. 2022. Used with permission. <https://www.lung.org/getmedia/dc79f142-a963-47bc-8337-afe3c3e87734/FY22-ALA-Asthma-Action-Plan-with-QR-codes.pdf>

An example of an asthma action plan is shown in **FIGURE 2.**

SUMMARY

PCCs play a critical role in managing care of patients with asthma across the disease continuum, which includes mild to severe asthma. For patients with uncontrolled asthma, regardless of severity, there is an increased risk for exacerbations. This should be addressed by escalating maintenance therapy and/or by the addition of ICS-containing rescue/reliever therapy. ICS rescue/reliever therapy can now be in the form of budesonide-albuterol used as rescue with any maintenance regimen, or by the use of a single maintenance and reliever therapy regimen. Strong randomized trial evi-

dence shows the inclusion of ICS in rescue therapy reduces the risk for exacerbations. PCCs should refer patients with severe, uncontrolled asthma to a specialist when indicated for further evaluation and management, which may include biologic therapy. ●

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