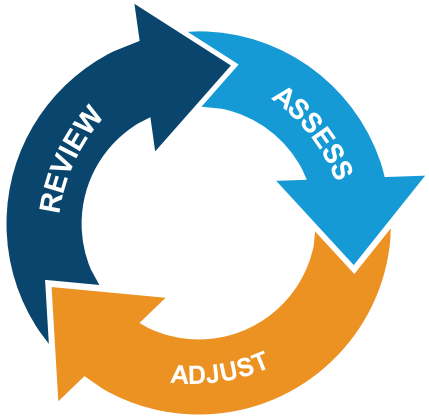
ASSESSMENT OF ASTHMA CONTROL

PRECISION

GINA 2023[1]



It is important to assess a patient's risk factors for exacerbations which may be independent of symptom control

NAEPP and GINA both classify asthma control in terms of symptom impairment and future risk.[1,2]

GINA assessment of asthma control in adults, adolescents and children 6-11 years

A. Asthma symptom control

In the past 4 weeks, has the patient had:		Well controlled	Partly controlled	Uncontrolled
• Daytime asthma symptoms more than twice/week?	Yes☐ No☐	None of these	1–2 of these	3–4 of these
• Any night waking due to asthma?	Yes☐ No☐			
• SABA* reliever for symptoms more than twice/week?	Yes☐ No☐			
• Any activity limitation due to asthma?	Yes☐ No☐			

B. Risk factors for poor asthma outcomes

Assess risk factors at diagnosis and periodically, particularly for patients experiencing exacerbations.

Measure FEV_1 at start of treatment, after 3–6 months of ICS-containing treatment to record the patient's personal best lung function, then periodically for ongoing risk assessment.

a. Risk factors for exacerbations

Uncontrolled asthma symptoms		Having uncontrolled asthma symptoms is an important risk factor for exacerbations.[98]
Factors that increase the risk of exacerbations *even if the patient has few asthma symptoms*†	*Medications*	High SABA use (≥3 x 200-dose canisters/year associated with increased risk of exacerbations, increased mortality particularly if ≥1 canister per month)[74,75,99,100]
		Inadequate ICS: not prescribed ICS, poor adherence,[101] or incorrect inhaler technique[102]
	Other medical conditions	Obesity,[103,104] chronic rhinosinusitis,[104] GERD,[104] confirmed food allergy,[105] pregnancy[106]
	Exposures	Smoking,[107] e-cigarettes,[108] allergen exposure if sensitized,[107] air pollution[109-112]
	Psychosocial	Major psychological or socioeconomic problems[113,114]
	Lung function	Low FEV_1 (especially <60% predicted),[107,115] high bronchodilator responsiveness[104,116,117]
	Type 2 inflammatory markers	Higher blood eosinophils,[104,118,119] elevated FeNO (in adults with allergic asthma taking ICS)[120]
	Exacerbation history	Ever intubated or in intensive care unit for asthma,[121] ≥1 severe exacerbation in last 12 months[122,123]

b. Risk factors for developing persistent airflow limitation

History	Preterm birth, low birth weight and greater infant weight gain,[124] chronic mucus hypersecretion[125,126]
Medications	Lack of ICS treatment in patient with history of severe exacerbation[127]
Exposures	Tobacco smoke,[125] noxious chemicals; occupational or domestic exposures[49]
Investigation findings	Low initial FEV_1,[126] sputum or blood eosinophilia[126]

c. Risk factors for medication side-effects

Systemic	Frequent OCS, long-term, high-dose and/or potent ICS, P450 inhibitors[128]
Local	High-dose or potent ICS,[128,129] poor inhaler technique[130]

See list of abbreviations (p.21). *Based on SABA (as-needed ICS-formoterol reliever not included); see page 36; excludes reliever taken before exercise. †'Independent' risk factors are those that are significant after adjustment for the level of symptom control. Cytochrome P450 inhibitors such as ritonavir, ketoconazole, itraconazole may increase systemic exposure to some types of ICS and some LABAs; see drug interaction websites and p.111 for details. For children 6–11 years, also refer to Box 2-3, p.39. See Box 3-17, p.85 for specific risk reduction strategies.

ASSESSMENT OF ASTHMA CONTROL (cont'd)

PRECISION

NAEPP 2007[2]

Level of control is determined by assessing both impairment and risk, and is based on the most severe category.

Assess impairment domain by patient's recall of previous 2–4 weeks and by spirometry/ or peak flow measures.

For treatment purposes, patients having had ≥2 prior-year exacerbations requiring oral steroids in the last year may be considered as having not well-controlled asthma, even if the patient has well-controlled symptoms.

COMPONENTS OF CONTROL		CLASSIFICATION OF ASTHMA CONTROL (≥12 years of age)		
		Well-Controlled	Not Well-Controlled	Very Poorly Controlled
Impairment	Symptoms	≤2 days/week	>2 days/week	Throughout the day
	Nighttime awakenings	≤2x/month	1-3x/week	≥4x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	Short-acting $beta_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	FEV_1 or peak flow	>80% predicted/personal best	60-80% predicted/personal best	<60% predicted/personal best
	Validated questionnaires ATAQ ACQ ACT	 0 ≤0.75* ≥20	 1-2 ≥1.5 16-19	 3-4 N/A ≤15
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	≥2/year (see note)	
		Consider severity and interval since last exacerbation		
	Progressive loss of lung function	Evaluation requires long-term followup care.		
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		

*ACQ values of 0.76-1.4 are indeterminate regarding well-controlled asthma.
EIB, exercise-induced bronchospasm; FEV_1, forced expiratory volume in 1 second.
Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Note: At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma severity. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate greater disease severity.

TREATMENT APPROACHES FOR AGES ≥12 YEARS

PRECISION

GINA 2023[1]

Strategy for Asthma Management from GINA:

- SABA alone as rescue therapy is no longer recommended as risk of severe exacerbations and mortality increases incrementally with higher SABA use, independent of treatment step
- While the assessment of symptom control includes a criterion for SABA reliever use on ≤2 versus >2 days/week, it does not include a similar criterion for an anti-inflammatory reliever. Assess the average frequency of reliever use over the past 4 weeks when the ICS maintenance dose is reviewed.

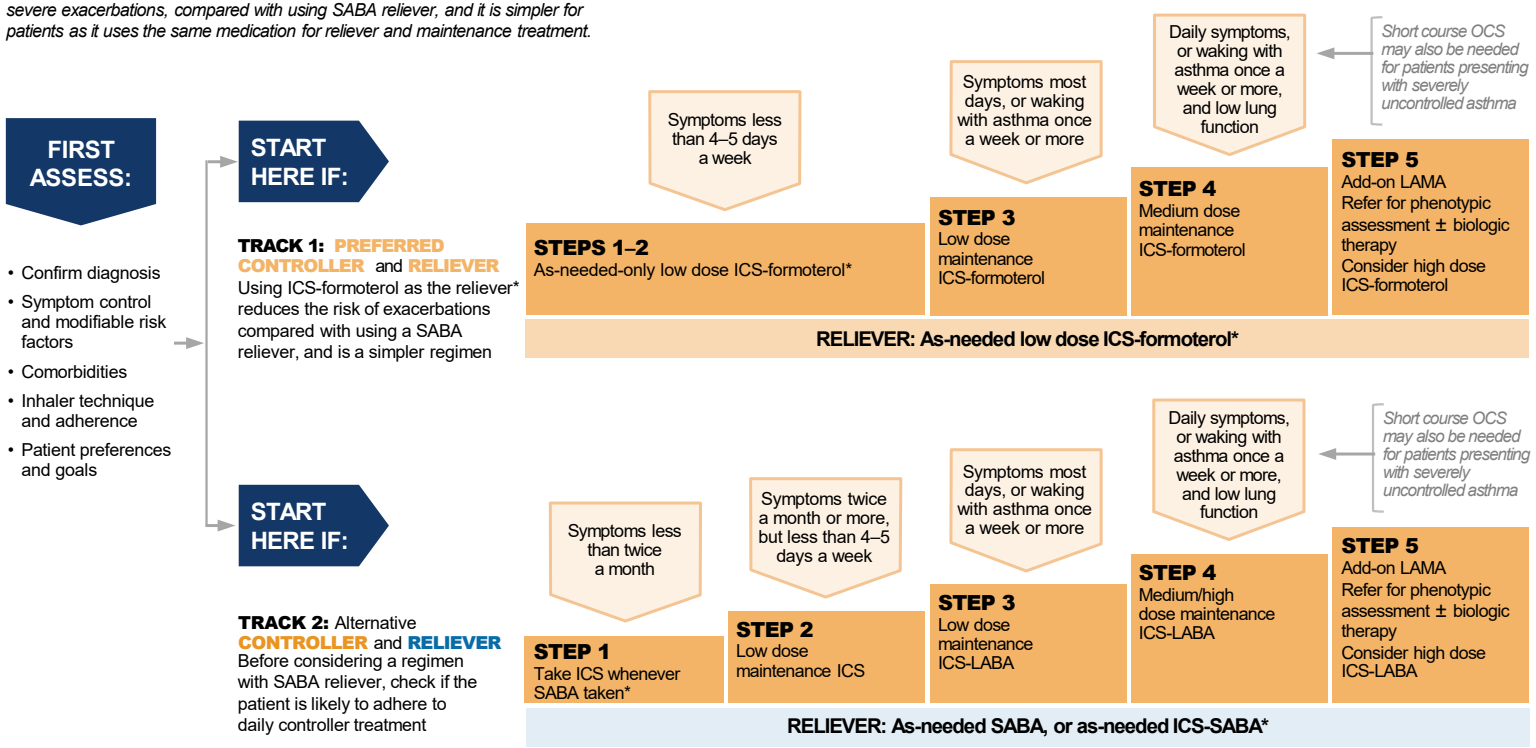
Selecting initial treatment in adults and adolescents with a diagnosis of asthma

NOTE: The use of ICS-formoterol is not approved for maintenance plus rescue therapy or for as-needed rescue only in the US. The recommendations for ICS-formoterol are based on clinical data evaluating the use of ICS-formoterol formulations and strengths not approved and not available in the US.

GINA 2023 – STARTING TREATMENT

In adults and adolescents with a diagnosis of asthma

Track 1 using ICS-formoterol reliever is preferred because it reduces the risk of severe exacerbations, compared with using SABA reliever, and it is simpler for patients as it uses the same medication for reliever and maintenance treatment.



*Anti-inflammatory relievers (AIR)

See list of abbreviations (p.21). See Box 3-14, p.67 for low, medium and high ICS doses for adults and adolescents. See Box 3-15, p.80, for Track 1 medications and doses.

TREATMENT APPROACHES FOR AGES ≥12 YEARS (cont'd)

PRECISION

NAEPP Focused Update 2020[4]

- Supports the use of concomitant ICS with a fast-acting bronchodilator as part of rescue therapy
- Concomitant SABA and ICS is one of the preferred options at step 2 treatment
- Single maintenance and reliever therapy (SMART) is suggested for step 3 and 4 treatment
- Individuals whose asthma is uncontrolled on maintenance ICS-LABA with SABA as quick relief therapy, should receive the preferred SMART if possible before moving to a higher step in therapy

AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 12+ Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6■
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA or PRN concomitant ICS and SABA▲	Daily and PRN combination low-dose ICS-formoterol▲	Daily and PRN combination medium-dose ICS-formoterol▲	Daily medium-high dose ICS-LABA + LAMA and PRN SABA▲	Daily high-dose ICS-LABA + oral systemic corticosteroids + PRN SABA
Alternative		Daily LTRA* and PRN SABA or Cromolyn,* or Nedocromil,* or Zileuton,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LAMA,▲ or daily low-dose ICS + LTRA,* and PRN SABA or Daily low-dose ICS + Theophylline* or Zileuton,* and PRN SABA	Daily medium-dose ICS-LABA or daily medium-dose ICS + LAMA, and PRN SABA▲ or Daily medium-dose ICS + LTRA,* or daily medium-dose ICS + Theophylline,* or daily medium-dose ICS + Zileuton,* and PRN SABA	Daily medium-high dose ICS-LABA or daily high-dose ICS + LTRA,* and PRN SABA	
		Steps 2–4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy▲			Consider adding Asthma Biologics (e.g., anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13)**	

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The NAEPP 2020 Focused Updates did not include new research or the US FDA approval of multiple drugs classified as asthma biologics occurring after October 2018.

The tables and figures are selections from the National Asthma Education and Prevention Program's (NAEPP) Expert Panel Report EPR-3 (2007) and 2020 Focused Updates to the Asthma Management Guidelines, and the Global Initiative for Asthma (GINA) 2023 Report. Please refer to the complete reports for additional information and full context. This is not a comprehensive compilation of all content from these sources. The intent of this document is to provide a quick summary tool.

1. Global Initiative for Asthma, 2023. Available at: www.ginasthma.org. Accessed July 3, 2023. **2.** National Heart, Lung, and Blood Institute. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma, 2007. Available at: https://www.ncbi.nlm.nih.gov/books/NBK7232/pdf/Bookshelf_NBK7232.pdf. Accessed July 3, 2023. **3.** Murphy KR, Chipps B, Beuther DA, et al. Development of the asthma impairment and risk questionnaire (AIRQ): a composite control measure. *J Allergy Clin Immunol Pract*. 2020;8(7):2263-2274.e5. **4.** NAEPPCC Expert Panel Working Group. 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*. 2020;146:1217-1270.