

Outpatient Asthma: Evaluation and Management

What You Need to Know

- This guideline is intended to provide a standardized approach to assess asthma control and adjust therapy to improve care and outcomes with a focus on decreasing unnecessary ED visits, hospitalizations, and readmissions.

Key Points

- Guidelines emphasize the importance of anti-inflammatory rescue inhalers
 - No patient should be on SABA-only therapy
 - Maintenance and reliever therapy with ICS-formoterol continues to be preferred management. Do **not** combine different ICS-LABA inhalers for maintenance and reliever therapy.
 - ICS whenever SABA is used can now be combined into a single ICS-SABA inhaler
- Fully assess asthma control and document in medical record. Recommend using validated questionnaire ACT or ACT-c to document score.
- Obtain spirometry in all patients ≥ 5 years of age.
- Develop a written asthma action plan (AAP) for all asthma patients.

Assessing Asthma Control and Adjusting Therapy in Youth > 4 Years of Age and Adults

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	≤ 2 times / month	1 – 3 times / week	≥ 4 times / week
	Interference with normal activity	NONE	Some limitation	Extremely limited
	Short-acting beta ₂ – agonist use for symptom control (not exercise-induced bronchospasm prevention)	≤ 2 days / week	> 2 days / week	Several times per day
	FEV1 or peak flow	> 80 % predicted / personal best	60 – 80 % predicted / personal best	< 60 % predicted / personal best
	*ACT or c-ACT Score	≥ 20	16 – 19	≤ 15
*Validated Asthma Control Questionnaires: ▪ ACT = Asthma Control Test™ ▪ c-ACT = Childhood Asthma Control Test™		ACT scores should be documented in IHIS (visit navigator “screenings”)		
RISK	Number of exacerbations requiring oral systemic corticosteroids	0 – 1 / year	≥ 2 / year	
		Consider severity and interval since last exacerbation		
	Progressive loss of lung function	Evaluation requires long-term follow-up 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.		
Recommended Treatment See “Stepwise Approach for Managing Asthma” on page 2 for treatment steps.		MAINTAIN current step ▪ Regular follow-up every 1–6 months to maintain control ▪ Consider STEP DOWN if well controlled for at least 3 months	STEP UP 1 Step ▪ Reevaluate in 2–6 weeks ▪ If side effects, consider alternative treatments	STEP UP 1–2 Steps ▪ Consider short course of oral systemic corticosteroids ▪ Reevaluate in 2 weeks ▪ If side effects, consider alternative treatments
Before Step Up in Therapy: ▪ Review with patient adherence to medication, inhaler technique, environmental control, and comorbid conditions. ▪ If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.				

Notes:

- Level of control is based on the most severe impairment or risk category.
 - Assess impairment domain by patient’s recall of previous 2–4 weeks and by spirometry or peak flow measures.
 - Symptom assessment for longer periods should reflect a global assessment, such as inquiring whether patient’s asthma is better or worse since last visit.
- At present, there are inadequate data to correspond frequencies of exacerbations with different levels of asthma control.
 - In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate poorer disease control.
 - For treatment purposes, patients who had > 2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have not-well controlled asthma, even in the absence of impairment levels consistent with not-well-controlled asthma.



- ### Before Step Up in Therapy:

- Review with patient adherence to medication, inhaler technique, environmental control, and comorbid conditions.
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.

- The stepwise approach is meant to assist, not replace, the clinical decision making required to meet individual patient needs.
- Biologic therapies should be considered prior to or while starting daily systemic corticosteroids.
- Evidence for recommendations:
 - **Step 1:** ICS-LABA PRN [Evidence B]. PRN ICS taken whenever SABA is taken [Evidence B];
 - **Step 2:** ICS OR PRN ICS-LABA [Evidence A]. LTRA alternative is inferior to ICS [Evidence A] and inferior to ICS whenever SABA is taken [Evidence A].
 - **Step 3:** low dose ICS-formoterol maintenance and reliever therapy (MART) [Evidence A]. Alternative: maintenance low dose ICS-SABA [Evidence A]. ICS-SABA reliever data is for combination with ICS-LABA at step 3 and above;
 - **Step 4:** medium dose ICS- formoterol maintenance (2 puffs) and reliever therapy (1 puff) (MART) [Evidence A]. Alternative: low dose ICS-SABA with SABA reliever [Evidence B]. Addition of LAMA to medium or high dose ICS-LABA can improve in lung function [Evidence A]. Addition of LTRA [Evidence A] to ICS is not as effective as addition of LABA; Note FDA black-box warning for montelukast.
 - **Step 5:** high dose ICS-LABA [Evidence A] should be added to medium dose ICS-LABA and 3rd controller (LTRA) [Evidence A]
 - **Step 6:** add -on Biologic therapies of anti-IgE, anti-IL5/5R, anti IL-4Ra, and anti- TLSP [Evidence A].

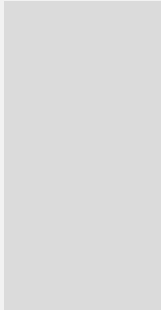
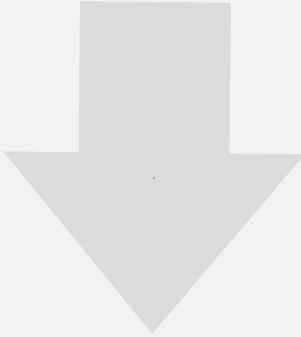

- **Immunotherapy for steps 2-4** is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults.
- Clinicians who administer immunotherapy, omalizumab, or mepolizumab should be prepared to identify and treat anaphylaxis that may occur.

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Stepwise Recommendations for Asthma Management (12+ Years)

Abbreviations: <ul style="list-style-type: none">ICS: inhaled corticosteroidLABA: long-acting beta₂-agonistLTRA: leukotriene receptor antagonistSABA: short-acting beta₂-agonist						Consult with a specialist	Step 6
						Consult with a specialist	Step 5
		Step 2	Add scheduled maintenance inhaler	Step 3	Step 4	Add on LAMA High dose ICS-LABA Evaluate asthma endotype and qualification for biologic therapy: <ul style="list-style-type: none">CBC with diffTotal IgEConsider evaluation for allergen sensitization by RAST or percutaneous testingConsult with specialist for step up to biologic therapies	High dose ICS-LABA + Targeted biologic therapy NOTE: Consider addition of corticosteroids if poorly controlled
PREFERRED Controller	Step 1 Low Dose ICS-formoterol	PRN Low Dose ICS-formoterol		Low dose maintenance ICS-LABA*	Medium dose ICS-LABA May add LAMA or LTRA		
Alternative Controllers	Low dose ICS whenever SABA is taken (PRN ICS-SABA)	Low dose scheduled maintenance ICS		<ul style="list-style-type: none">Medium dose ICSOR add LTRA	Note: Consider laboratory evaluation for asthma endotyping		
RELIEVER	Anti-inflammatory relievers are preferred: PRN low dose ICS-formoterol <i>when used</i> as same Maintenance And Reliever Therapy (MART). Do not combine two ICS-LABA products for use in the same patient. If not using ICS-formoterol MART approach, AIR therapy can be achieved with PRN budesonide-albuterol instead of SABA-only reliever. Evidence is greatest for PRN ICS-SABA reliever at Step 3+. Alternate reliever: PRN SABA. If using SABA-only reliever therapy (with maintenance ICS), ensure patient adherence to ICS. No patient should be on SABA-only therapy.						

*, **, *** - the number of stars indicates how many extra inhalers a specific dose would require for a month

Anti-Inflammatory Relievers (PRN Therapy) PRN Low Dose ICS / LABA Budesonide/Formoterol (Symbicort, Breyna) 12+ y/o: 80 / 4.5 mcg 2 puffs Q4H PRN* *max 12 puffs/day Mometasone/Formoterol (Dulera) 12+ y/o: 50 / 5 mcg 2 puffs Q4H PRN* *max 12 puffs/day PRN ICS / SABA Budesonide/Albuterol (Airsupra) 12+ y/o: 80-90 mcg 2 puffs Q4H PRN	Low Dose ICS		Medium Dose ICS		 Guidelines do not recommend high dose ICS without a LABA. Move on to combination medications below or equivalent regimen. 
	Beclomethasone (QVAR)				
	5+ y/o: 40 mcg, 2 puffs BID		12+ y/o: 80 mcg, 2-3* puffs BID		
	Budesonide (Pulmicort)				
	Powder 6+ y/o: 180 mcg, 1 puff BID		Powder 6-11 y/o: 180 mcg 2 puffs BID 12+ y/o: 180 mcg 2-3* puffs BID		
	Nebulizer 5-11 y/o: 0.5 mg 1 neb daily		Nebulizer 1+ y/o: 1 mg 1 neb daily		
	Ciclesonide (Alvesco)				
	12+ y/o: 80 mcg 2* puffs BID		12+ y/o: 160 mcg 2* puffs BID		
	Flunisolide (Aerospan)				
	6-11 y/o: 80 mcg 1 puff BID 12+ y/o: 80 mcg 2 puffs BID		6-11 y/o: 80 mcg 2 puffs BID 12+ y/o: 80 mcg 3-4* puffs BID		
PRN SABA <i>Monotherapy is not Recommended</i> Albuterol (ProAir or Ventolin) Aerosol 4+ y/o: 90 mcg 2 puffs Q4H PRN Nebulizer 2+ y/o (15 kg+): 2.5 mg / 3mL (0.083%) neb 3-4x a day PRN 2+ y/o: 5 mg / 1 mL (0.5%) neb 3-4x a day PRN max: 1.5 mg/kg/day Levalbuterol (Xopenex) Aerosol 4+ y/o: 59 mcg 2 puffs Q4H PRN Nebulizer 6-11 y/o: 0.63% (0.63 mg / 3 mL) up to 3x a day PRN 12+ y/o: 1.25% (1.25 mg / 3 mL) up to 3x a day PRN	Fluticasone				
	Aerosol (pMDI) 4+ y/o: 44 mcg 2 puffs BID		Aerosol (pMDI) 12+ y/o: 110 mcg 2 puffs BID		
	Powder 4+ y/o: 50 mcg 1 puff BID		Powder 12+ y/o: 250 mcg 1 puff BID		
	Arnuity Ellipta Powder 12+ y/o: 100 mcg 1 puff daily		Arnuity Ellipta Powder 12+ y/o: 200 mcg 1 puff daily		
	Mometasone (Asmanex)				
	Aerosol (pMDI) 12+ y/o: 100 mcg 1 puff BID		Aerosol (pMDI) 12+ y/o: 100 mcg 2 puffs BID		
	Powder 4-11 y/o: 110 mcg 1 puff QPM 12+ y/o: 220 mcg 1 puff QPM		Powder 12 y/o: 220 mcg 2 puffs QPM		
	Low Dose ICS /LABA		Medium Dose ICS /LABA		High Dose ICS /LABA
	Budesonide/Formoterol (Symbicort, Breyna pMDI)				
	12+ y/o: 80 / 4.5 mcg 2 puffs BID		12+ y/o: 160 / 4.5 mcg 2 puffs BID		
Fluticasone/Salmeterol (Advair HFA)					
Aerosol (pMDI) 12+ y/o: 45 / 21 mcg 2 puffs BID		Aerosol (pMDI) 12+ y/o: 115 / 21 mcg 2 puff BID		Aerosol (pMDI) 12+ y/o: 230 / 21 mcg 2 puff BID	
Fluticasone/Salmeterol (Advair Diskus/Wixela inhub inhaler)					
Powder 4+ y/o: 100 / 50 mcg 1 puff BID		Powder 12+ y/o: 250 / 50 mcg 1 puff BID		Powder 12 + y/o: 500 / 50 mcg 1 puff BID	
Fluticasone/Salmeterol (AirDuo RespiClick)					
12+ y/o: 55 / 14 mcg 2 puffs BID		12+ y/o: 113 / 14 mcg 1 puffs BID		12+ y/o: 232 / 14 mcg 1 puffs BID	
Mometasone/Formoterol (Dulera pMDI)					
5+ y/o: 50 / 5 mcg 2 puffs BID		12+ y/o: 100 / 5 mcg 2 puff BID		12+ y/o: 200 / 5 mcg 2 puff BID	
Fluticasone/Vilanterol (Breo ellipta inhaler)					
18+ y/o: 100 / 25 mcg 1 puff daily		18+ y/o: 200 / 25 mcg 1 puff daily			
Other Add-On Medications to use in addition to ICS/LABA					
	LTRA		Zileuton		Theophylline <ul style="list-style-type: none">Start at 300 mg/day then after 3 days (if tolerated), increase to 400 mg/dayAfter 3 more days (if tolerated and needed) increase to 600 mg/dayDosing based on # of hrs divided over – IR (over 6-8 hrs), ER over 12 or 24 hrs
	Zafirlukast (Accolate)		12+ y/o: <ul style="list-style-type: none">IR (600 mg 4x/day)ER (1200 mg BID)		
	5-11 y/o: 10 mg BID	12+ y/o: 20 mg BID			
	Montelukast (Singulair)				
	6 months- 5 y/o: 4 mg QPM 6-14 y/o: 5 mg QPM	15+ y/o: 10 mg QPM			

References

- U.S. Department of Health and Human Services, National Institute of Health, National Heart, Lung, and Blood Institute. (2007). National Asthma Education and Prevention Program Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, Summary Report.
- [Global Initiative for Asthma \(GINA\). Global Strategy for Asthma Management and Prevention 2023.](#)

OSUWMC Resources

IHIS Order Sets

- Express Lane: Asthma Visit [7651]

IHIS Tip Sheets

- [Ordering Patient Asthma Tracking in OSUMyChart](#)

IHIS SmartPhrases

- SmartPhrases for outpatient management and documentation

Assessment Tools

- [ACT Questionnaire](#)
- [c-ACT Questionnaire](#)
- [Asthma Action Plan](#)

Quality Measures

- All patients with asthma assessed for control using validated questionnaire (ACT or c- ACT)
- All patients with asthma prescribed only PRN therapy prescribed an inhaled corticosteroid containing regimen
- All patients with persistent asthma prescribed corticosteroid therapy
- No patients with asthma are prescribed SABA-only therapy

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