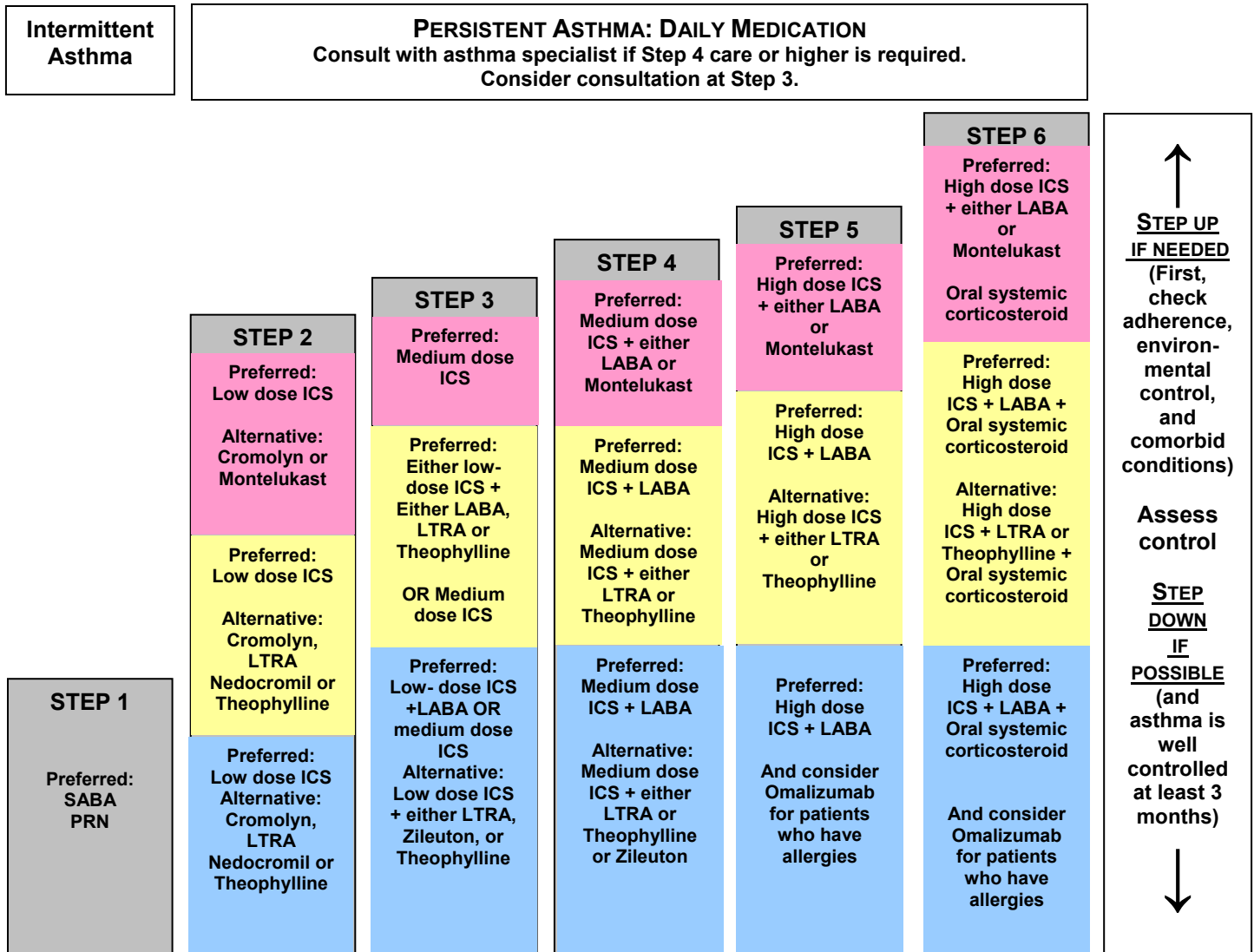


STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 0-4 YEARS OF AGE, 5-11 YEARS OF AGE, YOUTHS GREATER THAN 12 YEARS OF AGE AND ADULTS



Each step: Patient education, environmental control and management of comorbidities.
Ages 5 and older: Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma.

QUICK-RELIEF MEDICATION FOR ALL PATIENTS 0-4 YEARS

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms.
- With viral respiratory infection: SABA q 4-6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if exacerbation is severe or patient has history of previous severe exacerbations.
- Caution: Frequent use of SABA may indicate the need to step up treatment. See text for recommendations on initiating daily long-term control therapy

Quick-Relief Medication for All Patients 5-11 Years

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20 minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Increasing use of SABA or use > 2 days per week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

Quick-Relief Medication for All Patients Greater Than 12 Years Old

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20 minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Use of SABA > 2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

Key: Alphabetical order is used when more than one treatment option is listed with either preferred or alternative therapy.
EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroid; LABA, inhaled long-acting beta 2 agonist;
LTRA, leukotriene receptor agonist; SABA, inhaled short-acting beta 2 agonist.

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 0-4 YEARS OF AGE, 5-11 YEARS OF AGE, AND YOUTHS ≥12 YEARS OF AGE AND ADULTS

Assessing severity and initiating therapy in children who are not currently taking long-term control medication

Components of Severity		Classification of Asthma Severity			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment Normal FEV ₁ /FVC: 8-19 yr 85% 20-39 yr 80% 40-59 yr 75% 60-80 yr 70%	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	0	1-2x/month	3-4x/month	>1x/week
		≤2x/month	3-4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting beta ₂ -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily	Daily	Several times per day
			and not more than 1x on any day		
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
Lung function	• Normal FEV ₁ between exacerbations • FEV ₁ >80% predicted • FEV ₁ /FVC >85%	• FEV ₁ = >80% predicted • FEV ₁ /FVC >80%	• FEV ₁ = 60-80% predicted • FEV ₁ /FVC = 75-80%	• FEV ₁ <60% predicted • FEV ₁ /FVC <75%	
	• Normal FEV ₁ between exacerbations • FEV ₁ >80% predicted • FEV ₁ /FVC normal	• FEV ₁ >80% predicted • FEV ₁ /FVC normal	• FEV ₁ >60% but <80% predicted • FEV ₁ /FVC reduced 5%	• FEV ₁ <60% predicted • FEV ₁ /FVC reduced >5%	
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	≥2 exacerbations in 6 months requiring oral systemic corticosteroids, or ≥4 wheezing episodes/1 year lasting >1day AND risk factors for persistent asthma ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time. Exacerbation of any severity may occur in patients in any severity category.		
		0-1/year (see note)	≥2/year (see note) → ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .		
		0-1/year (see note)	≥2/year (see note) → ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .		
		0-1/year (see note)	≥2/year (see note) → ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .		
		0-1/year (see note)	≥2/year (see note) → ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .		
		0-1/year (see note)	≥2/year (see note) → ← Consider severity and interval since last exacerbation. → Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .		
Recommending Step for Initiating Treatment	Step 1	Step 2	Step 3 and consider short course of oral systemic corticosteroids		
	In 2-6 weeks, depending on severity, evaluate level of asthma control that is achieved. If no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternative diagnosis.				
	Step 1	Step 2	Step 3, medium-dose ICS option and consider short course of oral systemic corticosteroids	Step 3, medium-dose ICS option, or step 4	
	In 2-6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.				
	Step 1	Step 2	Step 3 and consider short course of oral systemic corticosteroids	Step 4 or 5	
In 2-6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.					

Notes:

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- Level of severity is determined by assessment of both impairment and risk. Assess impairment domain by patient's/caregivers recall of previous 2-4 weeks and spirometry, Assign severity to the most severe category in which any feature occurs.
- For ages 0-4: For treatment purposes, patients who had ≥2 exacerbations requiring oral systemic corticosteroids in the past 6 months, or ≥4 wheezing episodes in the past year and who have risk factors for persistent asthma may be the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

Key: EIB, exercise induced bronchospasm; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; ICU, intensive care unit

All ages	Only children 0-4 years of age	Only children 5-11 years of age	Only youths ≥12 years of age and adults
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ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 0-4 YEARS OF AGE, 5-11 YEARS OF AGE, AND YOUTHS ≥12 YEARS OF AGE AND ADULTS

Components of Control		Classification of Asthma Control		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
Impairment	Symptoms	≤2 days/week	>2 days/week	Throughout the day
		≤2 days/week but not more than once on each day	>2 days/week or multiple times on ≤2 days/week	Throughout the day
		≤2 days/week	>2 days/week	Throughout the day
	Nighttime awakenings	≤1x/month	>1x/month	>1x/week
		≤1x/month	≥2x/month	≥2x/week
		≤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
Lung function				
• FEV ₁ or peak flow	>80% predicted/ personal best >80%	60-80% predicted/ personal best 75-80%	<60% predicted/ personal best <75%	
• FEV ₁ /FVC				
FEV ₁ or peak flow	>80% predicted/ personal best	60-80% predicted/ personal best	<60% predicted/ personal best	
Validated questionnaire ACT	≥20	16-19	≤15	
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	2-3/year	>3/year
		0-1/year	≥2/year (see note)	
		Consider severity and interval since last exacerbation		
		0-1/year	≥2/year (see note)	
		Consider severity and interval since last exacerbation		
	Reduction in lung growth	Evaluation requires long-term followup		
	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.			
Recommended Action for Treatment		<ul style="list-style-type: none"> Maintain current step/treatment. Regular followup every 1-6 months Consider step down if well controlled for at least 3 months. 	<ul style="list-style-type: none"> Step up at least 1 step and Reevaluate in 2-6 weeks For side effects: consider alternative treatment options 	<ul style="list-style-type: none"> Consider short course of oral systemic corticosteroids, Step up 1-2 steps, and Reevaluate in 2 weeks. For side effects, consider alternative treatment options.
		<ul style="list-style-type: none"> If no clear benefit in 4-6 weeks, consider alternative diagnoses or adjusting therapy 		

- Before step-up in therapy:
 - Review adherence to medications, inhaler technique, environmental control, and comorbid conditions.
 - If alternative treatment option was used in a step, discontinue it and use preferred treatment for that step.

Key: EIB, exercise induced bronchospasm; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; ICU, intensive care unit

All ages	Only children 0-4 years of age	Only children 5-11 years of age	Only youths ≥12 years of age and adults
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