

Quick Reference Charts for the Classification and Stepwise Treatment of Asthma

(Adapted from 2007 NHLBI Guidelines for the Diagnosis and Treatment of Asthma Expert Panel Report 3)

Asthma *severity* is the intrinsic intensity of the disease process and dictates which step to initiate treatment.

Asthma *control* is the degree to which the goals of therapy are met (e.g., prevent symptoms/exacerbations, maintain normal lung function and activity levels).

The classification of severity or level of control is based on the **most severe impairment or risk category in which any feature occurs**.

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

Symptom assessment for longer periods should reflect a global assessment, such as inquiring whether the patient's asthma is better or worse since last visit.

Components of SEVERITY		Age (Years)	Classification of Asthma SEVERITY (Intermittent vs. Persistent)			
			Intermittent	Mild	Persistent Moderate	Severe
Impairment	Symptoms	All	≤ 2 days/week	> 2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	0 – 4	0	1–2x/month	3–4x/month	> 1x/week
		≥ 5	≤ 2x/month	3–4x/month	> 1x/week but not nightly	Often 7x/week
	SABA use for symptom control	All	≤ 2 days/week	> 2 days/week but not daily	Daily	Several times a day
	Interference with normal activity	All	None	Minor limitation	Some limitation	Extremely limited
	Lung function:					
	FEV ₁ (predicted) or PEF (personal best)	≥ 5	Normal FEV ₁ between exacerbations	> 80%	60–80%	< 60%
FEV ₁ /FVC	5 – 11	> 85%	> 80%	75–80%	< 60%	
	≥ 12	Normal	Normal	Reduced 5%	Reduced > 5%	
Risk	Exacerbations requiring oral corticosteroids	0 – 4	≤ 1x/year	≥ 2x in 6 months or ≥ 4 wheezing episodes/year lasting > 1 day AND risk factors for persistent asthma		
		5 – 11		≥ 2x/year		
		≥ 12		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 .		
Recommended step for starting treatment	0 – 4	Step 1	Step 2	Step 3	Step 3	
	5 – 11				Step 3 or 4	
	≥ 12				Step 4 or 5	
	All	Consider short course of oral corticosteroids				
	All	In 2–6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly. For children 0–4 years old, if no clear benefit is observed in 4–6 weeks, stop treatment and consider alternative diagnosis or adjusting therapy.				

FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; PEF, peak expiratory flow; SABA, short-acting beta₂-agonist

Components of CONTROL		Age (Years)	Level of Asthma CONTROL				
			Well Controlled	Not Well Controlled	Very Poorly Controlled		
Impairment	Symptoms	0 – 4	≤ 2 days/week but ≤ 1x/day	> 2 days/week or multiple times on ≤ 2 days/week	Throughout the day		
		5 – 11					
		≥ 12					
	Nighttime awakenings	0 – 4	≤ 1x/month	≤ 2 days/week	> 2 days/week	> 1x/week	
		5 – 11				≥ 2x/month	≥ 2x/week
		≥ 12				≤ 2x/month	1–3x/week
	Interference with normal activity	All	None	Some limitation	Extremely limited		
	SABA use for symptoms	All	≤ 2 days/week	> 2 days/week	Several times per day		
	Lung function						
	FEV ₁ (predicted) or PEF (personal best)	≥ 5	> 80%	60–80%	< 60%		
FEV ₁ /FVC	5 – 11	> 80%	75–80%	< 75%			
Validated questionnaires							
ATAQ	≥ 12	0	1–2	3–4			
ACQ	≥ 12	≤ 0.75	≥ 1.5	n/a			
ACT	≥ 12	≥ 20	16–19	≤ 15			
Risk	Exacerbations requiring oral corticosteroids	0 – 4	≤ 1x/year	2–3x/year	> 3x/year		
		5 – 11		≥ 2x/year			
		≥ 12		Consider severity and interval since last exacerbation			
	Reduction in lung growth	5 – 11	Evaluation requires long-term follow-up care				
Loss of lung function	≥ 12	Evaluation requires long-term follow-up care					
Treatment-related adverse effects	All	Medication side effects can vary in intensity from none to very troublesome and worrisome.					
Recommended treatment actions	All	Maintain current step; regular follow-up at every 1–6 months; consider stepping down if well controlled for ≥ 3 months	Step up 1 step	Step up 1–2 steps and consider short course of oral corticosteroids			
			Before stepping up, review adherence to medication, inhaler technique, environmental control, and comorbid conditions. If an alternative treatment option was used in a step, discontinue and use the preferred treatment for that step.				
			Reevaluate the level of asthma control in 2–6 weeks and adjust therapy accordingly.				
			For side effects, consider alternative treatment options.				

ACQ, Asthma Control Questionnaire; ACT, Asthma Control Test; ATAQ, Asthma Therapy Assessment Questionnaire; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; PEF, peak expiratory flow; SABA, short-acting beta₂-agonist

Stepwise Approach for Managing Asthma Long Term

<p style="text-align: center;">← Step UP if needed (first check inhaler technique, adherence, environmental control, and comorbid conditions)</p> <p style="text-align: center;">ASSESS CONTROL</p> <p style="text-align: center;">Step DOWN if possible (and asthma is well controlled for at least 3 months) →</p>							
		Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
0 – 4 Years		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 3 care or higher is required. Consider consultation at step 2.				
	Preferred	SABA as needed	Low-dose ICS	Medium-dose ICS	Medium-dose ICS + LABA <i>or</i> montelukast	High-dose ICS + LABA <i>or</i> montelukast	High-dose ICS + Oral corticosteroids + LABA <i>or</i> montelukast
	Alternative		Cromolyn <i>or</i> montelukast				
Patient education and environmental control at each step.							
	Rescue Medication	<ul style="list-style-type: none"> SABA as needed for symptoms. Treatment intensity depends on symptom severity. With viral respiratory symptoms, SABA every 4–6 hours up to 24 hours (longer with physician consult). Consider short course of oral corticosteroids if exacerbation is severe or if patient has history of previous severe exacerbations. Frequent or increasing use of SABA may indicate inadequate control and the need to step up treatment. 					
5 – 11 Years		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred	SABA as needed	Low-dose ICS	Low-dose ICS + LABA, LTRA, <i>or</i> Theophylline	Medium-dose ICS + LABA	High-dose ICS + LABA	High-dose ICS + LABA + Oral corticosteroids
	Alternative		Cromolyn, LTRA, Nedrocromil, <i>or</i> Theophylline	<i>OR</i> Medium-dose ICS	Medium-dose ICS + LTRA <i>or</i> Theophylline	High-dose ICS + LTRA <i>or</i> Theophylline	High-dose ICS + LTRA <i>or</i> Theophylline + Oral corticosteroids
Patient education and environmental control, and management of comorbidities at each step. Step 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma.							
	Rescue Medication	<ul style="list-style-type: none"> SABA as needed for symptoms – up to 3 treatments at 20-minute intervals initially. Treatment intensity depends on symptom severity. Consider short course of oral corticosteroids. Increasing use of SABA or use > 2 days/week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment. 					
≥ 12 Years		Intermittent Asthma	Persistent Asthma: Daily Medication				
			Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
	Preferred	SABA as needed	Low-dose ICS	Low-dose ICS + LABA <i>OR</i> Medium-dose ICS	Medium-dose ICS + LABA	High-dose ICS + LABA	High-dose ICS + LABA + Oral corticosteroid
	Alternative		Cromolyn, LTRA, Nedrocromil, <i>or</i> Theophylline	Low-dose ICS + LTRA, Theophylline, <i>or</i> Zileuton	Medium-dose ICS + LTRA, Theophylline, <i>or</i> Zileuton	Consider Omalizumab for patients who have allergic asthma	Consider Omalizumab for patients who have allergic asthma
Patient education and environmental control, and management of comorbidities at each step. Step 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma.							
	Rescue Medication	<ul style="list-style-type: none"> SABA as needed for symptoms – up to 3 treatments at 20-minute intervals initially. Treatment intensity depends on symptom severity. Consider short course of oral corticosteroids. Increasing use of SABA or use > 2 days/week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step treatment. 					
All	Notes	<ul style="list-style-type: none"> If an alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up. Theophylline requires serum concentration levels monitoring; zileuton requires liver function monitoring. LABAs are not indicated for acute symptom relief and should be used in combination with an ICS. 					

EIB, exercise-induced bronchospasm; ICS, inhaled corticosteroids; LABA, long-acting beta₂-agonist; LTRA, leukotriene receptor antagonist

For usual dosages of asthma medications, refer to pages 46–52 of the *EPR–3 Summary Report 2007* (NIH Publication Number 08-5846).

The full guidelines, summary report, evidence tables, and links to other relevant resources are all available on the NHLBI website: <http://www.nhlbi.nih.gov/guidelines/asthma/index.htm>.

The UMHS Clinical Care Guidelines on Asthma and approved asthma action plan templates are available at: <http://www.med.umich.edu/oca/practiceguides/>.

The information in this reference was reviewed by the UMHS Asthma Quality Improvement Steering Committee and was last updated on 06/30/2008. Questions and/or comments may be directed to Annie Sy, PharmD (anniesy@umich.edu).