



Asthma Management ~ Step Therapy Guidelines for Managing Asthma in Adults and Children Older Than 5 Years of Age

The purpose of this guide to provide general care information regarding the management of asthma.

Source: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Heart, Lung and Blood Institute, 1997 July (reprinted 1998 April, updated June 2002, reprinted July 2007, updated August 2008) **Adopted without modification**

Key Considerations for Diagnosis

Wheezing during exhalation (with or without a normal chest exam); History of any of the following: prolonged persistent cough, especially at night or early morning; Symptoms that occur or worsen in the presence of: exercise, allergens, smoke, temperature changes, viral infections, laughing, crying or cold liquids

Classifications and Treatment

A stepwise approach is recommended to gain and maintain control of asthma. For all patients, environmental factors that contribute to asthma and other triggers must be identified and eliminated as much as possible. Medication selection and use is dictated by symptom severity and suppression of airway inflammation. Asthma drugs are classified as either "long term controller" or "quick-relief" medications. As patients change from step to step, either up or down, drug therapy should be adjusted accordingly.

Classify Severity: Clinical Features Before Treatment or Adequate Control		Medications Required to Maintain Long Term Control		
	Symptoms/Day Symptoms/Night	PEF OR FEV ₁ PEF Variability	Daily Medications	Education
Step 1 <i>Mild Intermittent</i>	≤ 2 days/week ≤ 2 nights/month	≥ 80% < 20%	<ul style="list-style-type: none"> ▪ No daily medication needed ▪ Severe exacerbations may occur, separated by long periods of normal lung function and no symptoms. A course of systemic corticosteroids is recommended 	<ul style="list-style-type: none"> ▪ Teach basic facts about asthma ▪ Teach inhaler/ spacer/holding chamber technique ▪ Discuss role of medications ▪ Develop self-management plan ▪ Develop action plan for when and how to take rescue actions, especially for patients with a history of severe exacerbations ▪ Discuss appropriate environmental control measures to avoid exposure to known allergens and irritants
Step 2 <i>Mild Persistent</i>	>2/ week but <1/day >2 nights/month	≥ 80% 20 – 30 %	<ul style="list-style-type: none"> ▪ <i>Preferred Treatment:</i> - Low-dose inhaled corticosteroids. ▪ Alternative treatment (listed alphabetically): cromolyn, leukotriene modifier, nedocromil, OR sustained release theophylline to serum concentration of 5 – 15 mcg/mL. 	Step 1 action plus: <ul style="list-style-type: none"> ▪ Teach self-monitoring ▪ Refer to group education ▪ Review and update self-management plan
Step 3 <i>Moderate Persistent</i>	Daily >1 night/week	>60% - <80% >30%	<ul style="list-style-type: none"> ▪ <i>Preferred Treatment:</i> - Low-to-medium dose inhaled corticosteroids and long-acting inhaled beta₂-agonists. 	Step 1 action plus: <ul style="list-style-type: none"> ▪ Teach self-monitoring ▪ Refer to group education ▪ Review and update self-management plan

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Step 3 <i>Moderate Persistent</i>			<ul style="list-style-type: none"> ▪ Alternative treatment (listed alphabetically): <ul style="list-style-type: none"> - Increase inhaled corticosteroids within medium-dose range OR - Low-to-medium dose inhaled corticosteroids and either leukotriene modifier or theophylline <p>If needed (particularly in patients with recurring severe exacerbations):</p> <ul style="list-style-type: none"> ▪ <i>Preferred Treatment:</i> <ul style="list-style-type: none"> - Increase inhaled corticosteroids within medium-dose range, and add long-acting inhaled beta₂-agonists. ▪ Alternative treatment (listed alphabetically): <ul style="list-style-type: none"> - Increase inhaled corticosteroids in medium-dose range, and add either leukotriene modifier or theophylline 	
Step 4 <i>Severe Persistent</i>	<u>Continual</u> Frequent	≤ 60% >30%	<ul style="list-style-type: none"> ▪ <i>Preferred Treatment:</i> <ul style="list-style-type: none"> - High dose inhaled corticosteroids AND - Long-acting inhaled beta₂-agonists. <p>AND, if needed,</p> <ul style="list-style-type: none"> - Corticosteroid tablets or syrup long term (2 mg/kg/day, generally do not exceed 60 mg per day). (Make repeat attempts to reduce systemic corticosteroids and maintain control with high-dose inhaled corticosteroids.) 	Steps 2 and 3 action plus: <ul style="list-style-type: none"> ▪ Refer to individual education/ counseling

All Patients

- Short-acting bronchodilator: 2 – 4 puffs shorting-acting inhaled beta₂-agonists as needed for symptoms.
- Intensity of treatment will depend on severity of exacerbation; up to 3 treatments at 20 – minute intervals or a single nebulizer treatment as needed. Course of systemic corticosteroids may be needed.
- Use of short acting inhaled beta₂-agonists on a daily basis, or increasing use, indicates the need to initiate or increase long-term control therapy.



Step Down

Review treatment every 1 to 6 months; a gradual stepwise reduction in treatment may be possible



Step Up

If control is not maintained, consider step up. First, review patient medication technique, adherence, and environmental control.

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| <ul style="list-style-type: none"> ▪ Minimal or no chronic symptoms day or night ▪ Minimal or no exacerbations ▪ No limitations on activities; no school/work missed | <ul style="list-style-type: none"> ▪ PEF > 80% of personal best ▪ Minimal use of inhaled short-acting beta₂-agonists (< 1 x per day, < 1 canister/month) ▪ Minimal or no adverse effects from medications |
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- The stepwise approach is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.
- Classify severity: assign patient to most severe step in which any feature occurs (PEF is % of personal best; FEV₁ is % predicted).
- Gain control as quickly as possible (consider a short course of systemic corticosteroids); then step down to the least medication necessary to maintain control.
- Provide education on self-management and controlling environmental factors that make asthma worse (e.g., allergens and irritants).
- Refer to an asthma specialist if there are difficulties controlling asthma or if step 4 care is required. Referral may be considered if step 3 care is required.