Stepwise Approach for Managing Asthma in Adults and Children Older Than 5 Years of Age: Treatment

Classify Severity: Clinical Features Before Treatment or Adequate Control	**Medications** Required to Maintain Long-Term Control Daily Medications **(TREATMENTS IDENTIFIED BY THE NIH EXPERT PANEL AS PREFERRED ARE IN BOLD PRINT)**	**Education**	**All Patients**
4 Severe Persistent • Continual symptoms • Frequent nighttime symptoms • Limited physical activity • Frequent exacerbations • FEV, or PEF ≤ 60% predicted • PEF variability > 30%	**Preferred treatment:** • **High-dose inhaled corticosteroids AND** • **Long-acting inhaled beta$_2$-agonists** AND, if needed, • 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 actions plus: • Refer to individual education/counseling	**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.
3 Moderate Persistent • Daily symptoms • Nighttime symptoms > 1 time a week • Exacerbations affect activity • Exacerbations ≥ 2 times a week; may last days • FEV$_1$ or PEF > 60% - < 80% predicted • PEF variability > 30%	**Preferred treatment:** • **Low-to-medium dose inhaled corticosteroids and long acting inhaled beta$_2$-agonists.** Alternative treatment (listed alphabetically): • Increase inhaled corticosteroids within medium-dose range OR • Low-to-medium dose inhaled corticosteroids and either leukotriene modifier or theophylline. If needed (particularly in patients with recurring severe exacerbations): **Preferred Treatment:** • **Increase inhaled corticosteroids within medium-dose range and add long-acting inhaled beta2-agonists.** Alternative treatment (listed alphabetically): Increase inhaled corticosteroids within medium-dose range and add either leukotriene modifier or theophylline.	Step 1 actions plus: • Teach self-monitoring • Refer to group education if available • Review and update self-management plan	**Note** • 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. • Recommend yearly influenza vaccine.
2 Mild Persistent • Symptoms > 2 times a week but < 1 time a day • Nighttime symptoms > 2 times a month • Exacerbations may affect activity • FEV $_1$ or PEF ≥ 80% predicted • PEF variability 20 – 30%	**Preferred treatment:** • **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 actions plus: • Teach self-monitoring • Refer to group education if available • Review and update self-management plan	**Goals of Therapy: Asthma Control** • Minimal or no chronic symptoms day or night • Minimal or no exacerbations • No limitations on activities; no school/work missed • Maintain (near) normal pulmonary function • Minimal use of short-acting inhaled beta2-agonist (< 1x per day, < 1 canister/month) • Minimal or no adverse effects from medications
1 Mild Intermittent • Symptoms ≤ 2 times a week • Nighttime symptoms ≤ 2 times a month • Asymptomatic and normal PEF between exacerbations • Exacerbation brief (from a few hours to a few days); intensity may vary • FEV $_1$ or PEF ≥ 80% predicted • PEF variability < 20%	• 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.	• Teach basic facts about asthma, yearly influenza vaccine. • Teach inhaler/spacer/holding chamber technique • Discuss roles of medications • Develop self-management plan • Develop action plan for when and how to take rescue actions, especially for a patient with a history of severe exacerbations • Discuss appropriate environmental control measures to avoid exposure to known allergens and irritants; see Component 4 (Refer to full text of Reference 1.)	**Quick Relief** • Short-acting bronchodilator: 2–4 puffs short-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 beta2-agonists >2 times a week in intermittent asthma (daily, or increasing use in persistent asthma) may indicate the need to initiate (increase) long-term control therapy.

[1] Adapted from: National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, guidelines for the Diagnosis and Management of Asthma-Update on Selected Topics 2002, Bethesda, MD: U.S. Department of Health and Human Services, June 2002, NIH Publication No. 02-5075, Executive Summary.