IN THE NAME OF GOD

Asthma Attack

An asthma attack is a sudden worsening of asthma symptoms caused by the tightening of muscles around your airways. This tightening is called a bronchospasm. During the asthma attack, the lining of the airways also becomes swollen or inflamed and thicker mucus -- more than normal -- is produced.

All of these factors -- bronchospasm, inflammation, and mucus production -- cause symptoms of an asthma attack such as trouble breathing, wheezing, coughing, shortness of breath, and difficulty performing normal daily activities.

Diagnosis

Asthma exacerbations can be classified as mild, moderate, severe, or life threatening. Criteria for exacerbation severity are based on symptoms and physical examination parameters, as well as lung function and oxygen saturation.

Table 1. Classifications of Severity of an Asthma Exacerbation

Degree of severity	*Symptoms and signs*	*Initial PEF (or FEV_1)*	*Clinical course*
Mild	Dyspnea only with activity (assess tachypnea in young children)	PEF ≥ 70 percent of predicted or personal best	Usually treated at home Prompt relief with inhaled short-acting $beta_2$ agonist Possible short course of oral systemic corticosteroids
Moderate	Dyspnea interferes with or limits usual activity	PEF 40 to 69 percent of predicted or personal best	Usually requires office or emergency department visit Relief from frequent inhaled short-acting $beta_2$ agonist Oral systemic corticosteroids; some symptoms last for one to two days after treatment begins
Severe	Dyspnea at rest; interferes with conversation	PEF < 40 percent of predicted or personal best	Usually requires emergency department visit and likely hospitalization Partial relief from frequent inhaled short-acting $beta_2$ agonist Oral systemic corticosteroids; some symptoms last for more than three days after treatment begins Adjunctive therapies are helpful
Subset: life threatening	Too dyspneic to speak; perspiration	PEF < 25 percent of predicted or personal best	Requires emergency department visit/hospitalization; possible intensive care unit Minimal or no relief from frequent inhaled short-acting $beta_2$ agonist Intravenous corticosteroids Adjunctive therapies are helpful

FEV_1 = forced expiratory volume in one second; PEF = peak expiratory flow.

Adapted from the National Heart Lung and Blood Institute. National Asthma Education and Prevention Program. Expert panel report 3: Guidelines for the diagnosis and management of asthma; 2007:375. http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm.

Although no single parameter has been identified to assess exacerbation severity,lung functionis a useful method of assessment,with a PEF of 40 percent or less of predicted function indicating a severe attack in patients five yearsor older.

The most useful signs for determining the severity of an asthma exacerbation in children younger than five years,or any child unable to perform a PEF, include the use of accessory muscles of respiration, chest wall retractions,tachypnea greater than 60 breaths per minute, cyanosis,and the presence of inspiratory and expiratory wheezing.

For all patients, pulseoximetry on room air is a useful initial assessment.An oxygen saturation of less than 92 to 94 percent one hour after beginning standard treatment is a strong predictor of the need for hospitalization.

Laboratory data are not required for most patients with acute exacerbations.

Chest radiography is not routinely recommended because it has not been shown to alter the care of patients with an uncomplicated asthma exacerbation.

Management

HOME TREATMENT

EMERGENCY DEPARTMENT TREATMENT

Management of Asthma Exacerbations: Home Treatment

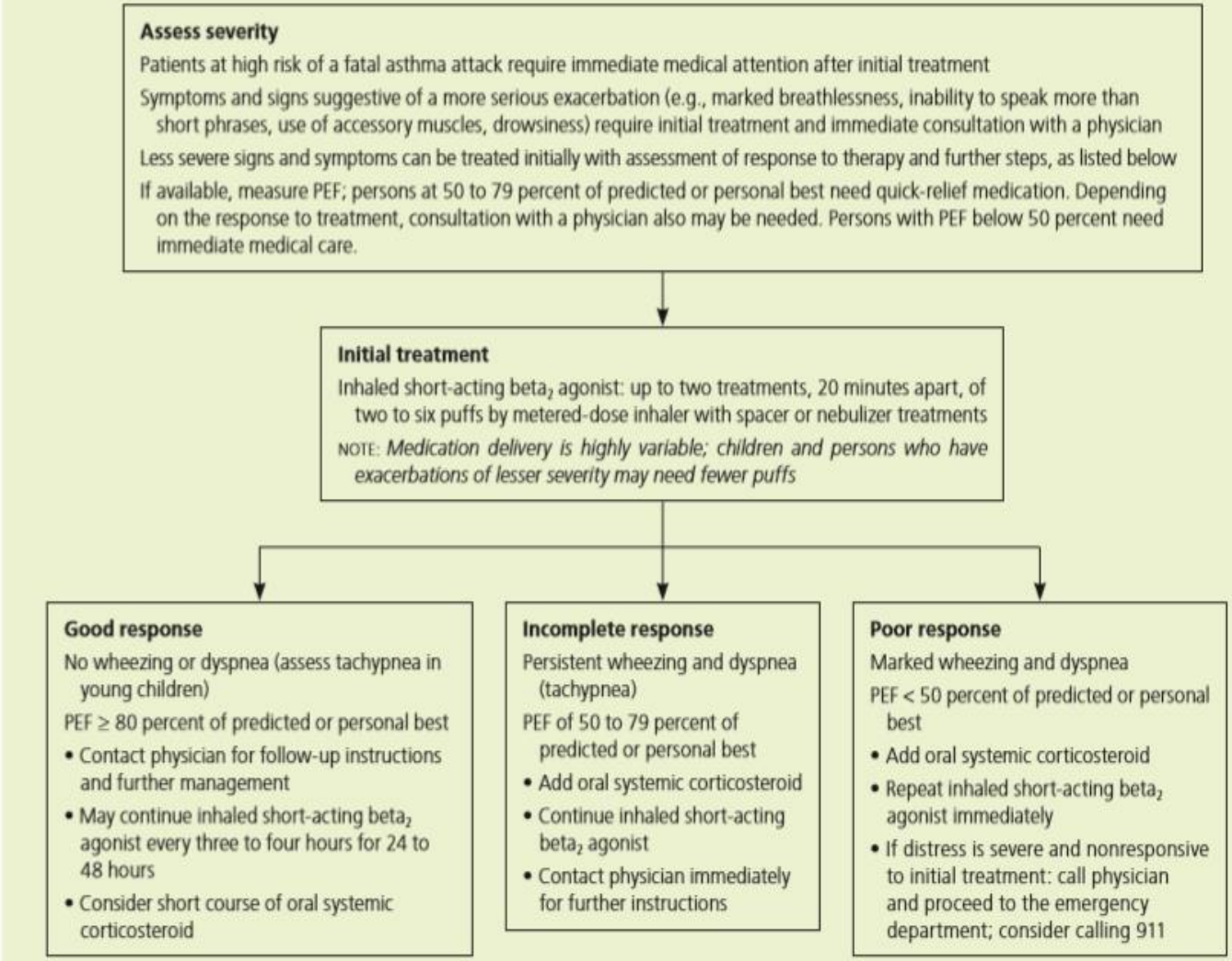

Figure 1. Algorithm for home management of acute asthma exacerbations. (PEF = peak expiratory flow.)

Adapted from the National Heart Lung and Blood Institute. National Asthma Education and Prevention Program. Expert panel report 3: Guidelines for the diagnosis and management of asthma; 2007:382. http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm.

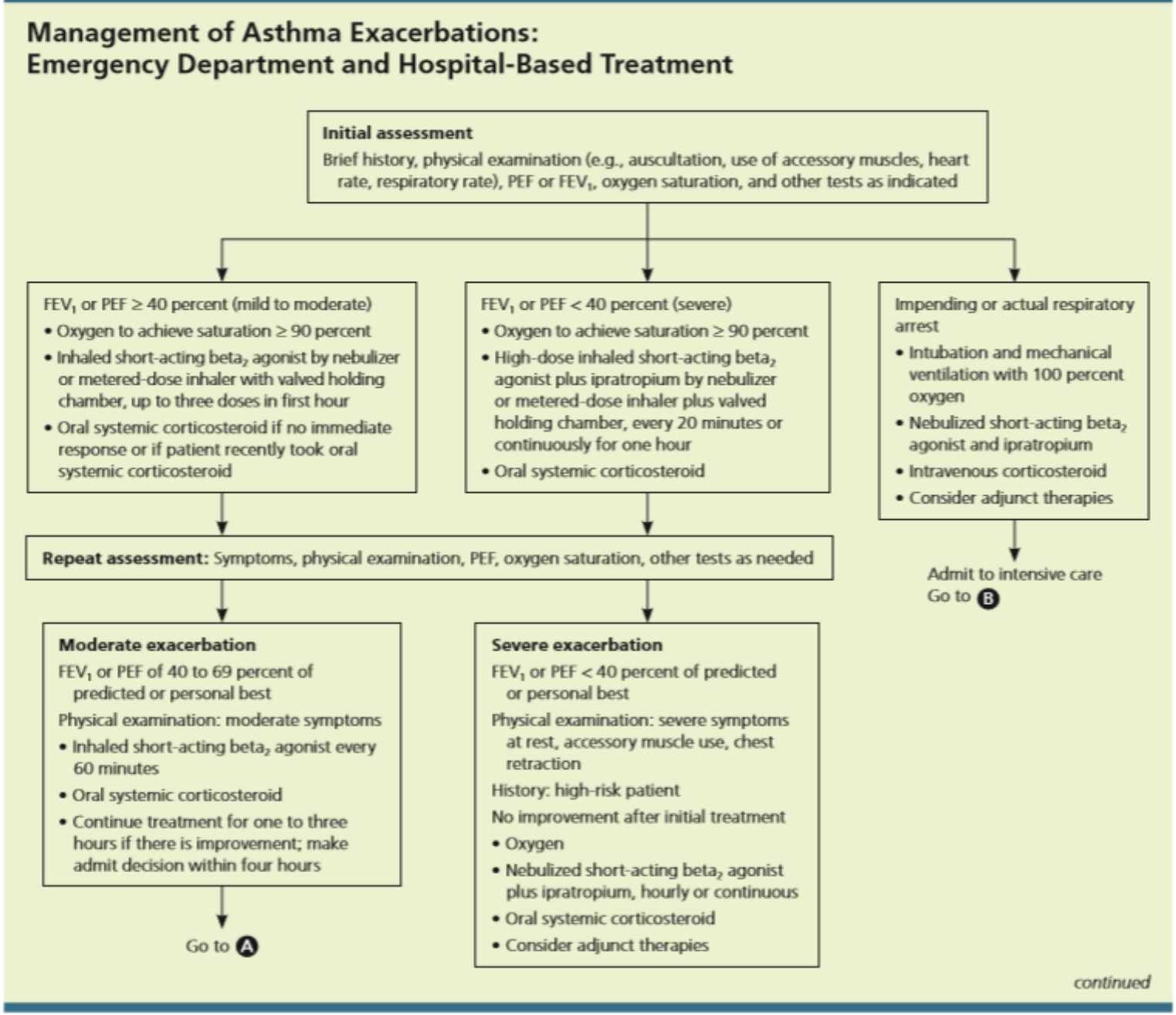

Figure 2. Algorithm for emergency department and inpatient management of acute asthma exacerbations. (FEV_1 = forced expiratory volume in one second; PEF = peak expiratory flow.)

Management of Asthma Exacerbations: Emergency Department and Hospital-Based Treatment *(continued)*

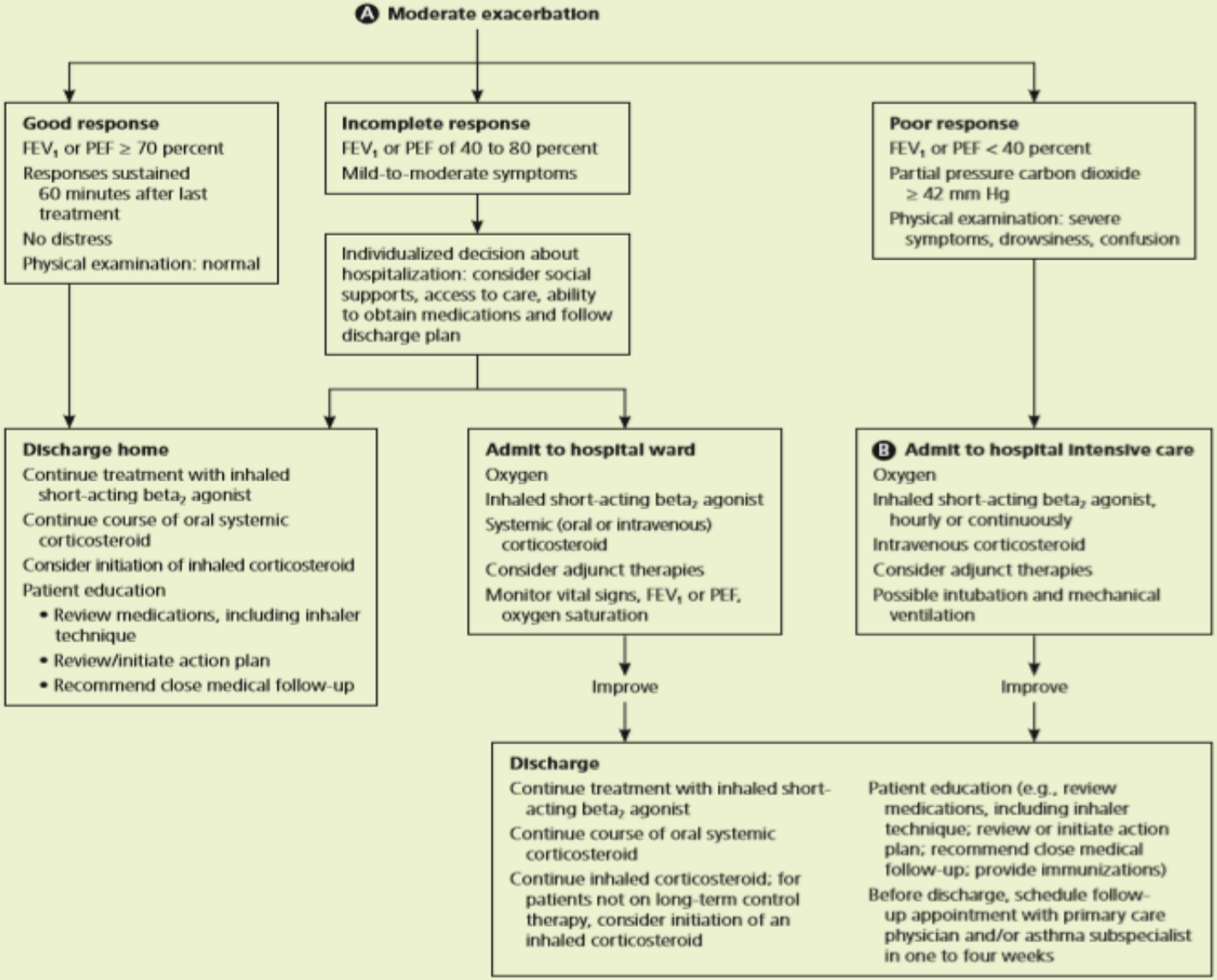

Figure 2. Algorithm for emergency department and inpatient management of acute asthma exacerbations. (FEV_1 = forced expiratory volume in one second; PEF = peak expiratory flow.)

Adapted from the National Heart Lung and Blood Institute. National Asthma Education and Prevention Program. Expert panel report 3: Guidelines for the

POSTDISCHARGE CARE

Patients sent home from the emergency department with systemic corticosteroids (a five-to10-day nontapering course of 50- to 100-mg prednisone per day in adults) have decreased relapse of asthma symptoms, future hospitalizations,and use of short-acting beta2 agonists.

Allergen avoidance is routinely recommended after emergency department discharge to decrease further acute exacerbations of asthma.

Regardless of the therapy chosen in the acute care setting,step-up therapy should be continued for several days to weeks after discharge. Because exacerbations vary in severity,close communication between patients and physicians is required.

Symptoms may be controlled quickly, but airway inflammation may persist for two to three weeks. Scheduled dosing with inhaled beta2 agonists should be continued until symptoms and PEF return to baseline.