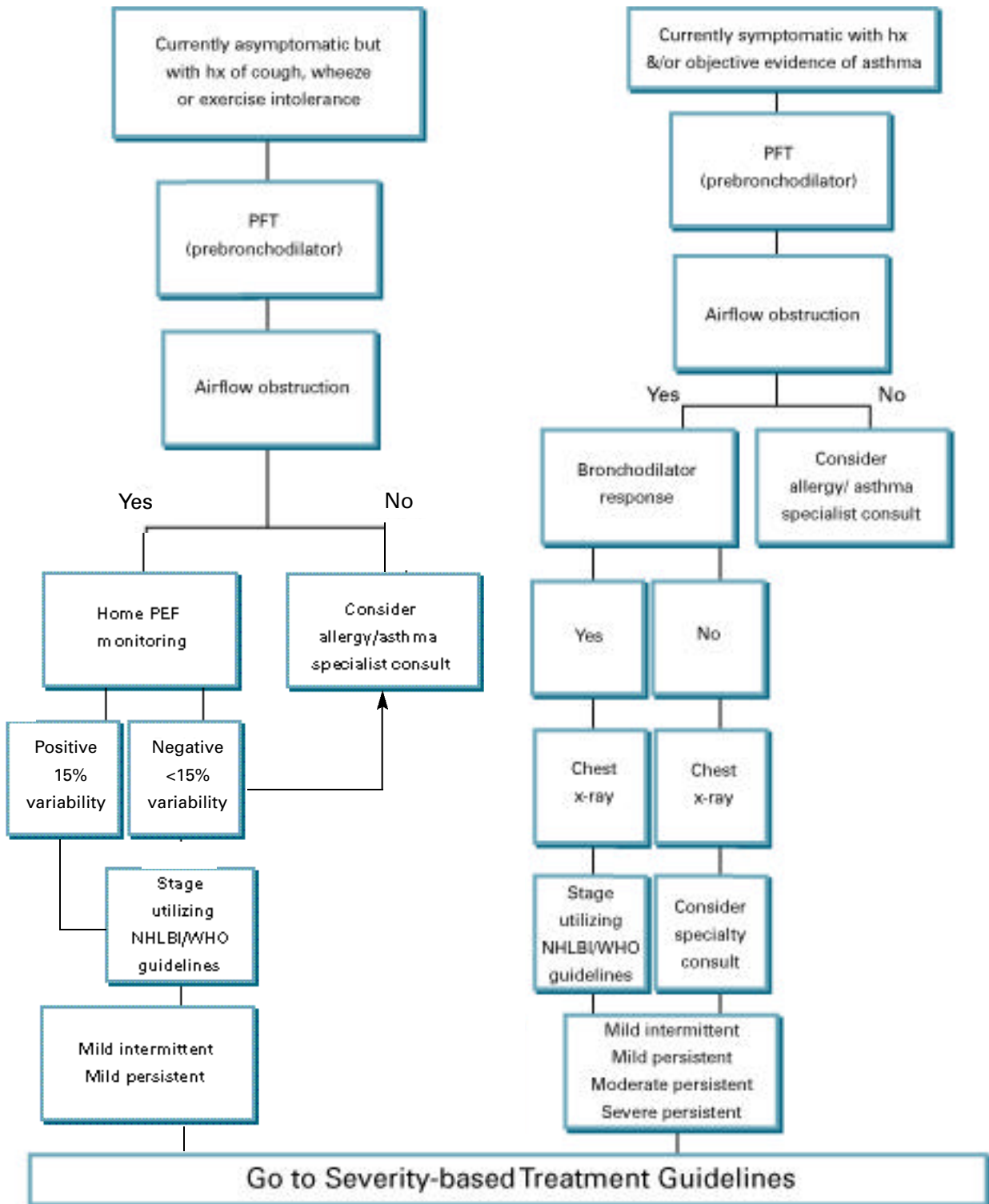


Diagnostic Algorithm for Asthma
(In adults and children over 5 years of age)



Algorithm Guide

Symptomatic patients may be detected by history of cough, wheeze, chest tightness, shortness of breath, exercise intolerance or by physical examination. Children may report chest pain as their presenting symptom. Asthma may be suspected by observing wheezing or simply expiratory prolongation upon auscultation of the chest.

Asymptomatic patients may give a history of previous episodes of cough, wheeze or exercise intolerance. These patients will usually have no findings of asthma on physical examination. However, this is not always the case. Some patients may deny active asthma and have wheezing or a prolonged expiratory phase on physical examination.

Pulmonary Function Testing

Most patients suspected of having asthma symptoms within the past year should have pulmonary function testing (may not be obtainable on children under 5 years of age). Pulmonary function testing done before and after inhaled bronchodilators will often support the diagnosis of asthma. The lack of bronchodilator response does not exclude asthma, and other maneuvers, such as a 5-10 day course of oral corticosteroid administration (specialty consultation suggested), followed by repeat testing, may be necessary to demonstrate reversibility. For patients with normal or near-normal pulmonary function studies, provocative testing (i.e., methacholine challenge) may be indicated to help support or refute the diagnosis of asthma. Alternatively, home peak flow monitoring may demonstrate intraday variations in keeping with the diagnosis of asthma.

Ancillary Testing

When patients present with a history, physical examination or laboratory findings supportive of asthma, a chest x-ray within the past 12 months is usually indicated for adults. Review of a previous normal chest x-ray may be adequate for most children.

In those instances when the diagnosis of asthma is substantiated, the patients should be categorized in accordance with NHLBI/WHO guidelines as intermittent, mild persistent, moderate persistent or severe persistent asthma. (See NHLBI/WHO Classification and Treatment Guidelines for Asthma.)

When the diagnosis of asthma is not substantiated, then the differential diagnosis of diseases that have symptoms like asthma should be considered.

Role of Home Monitoring in Determining Peak Flow Variability*

Home peak flow monitoring may demonstrate intraday variations in keeping with the diagnosis of asthma. During a monitoring period of 2-3 weeks, the patient should record peak expiratory flow (PEF) measurements at least twice a day. If the patient takes a bronchodilator, then PEF should be measured before and after using the bronchodilator. The personal best is the highest PEF measurement achieved when the patient's asthma is in control.

If the patient's highest value during the monitoring period is less than 80% of predicted value after adequate bronchodilator and/or daily variability is more than 15%, again, after adequate bronchodilator, more aggressive therapy and continued daily monitoring are indicated.

Day-to-day variability of PEF provides a reasonable index of asthma stability and/or severity. The variability can be calculated from at least two values (morning and night) before and after bronchodilators (if the patient is using bronchodilators). The variability of PEF may be calculated from the formula:

Average Daily Variability = $(\text{Highest PEF} - \text{Lowest PEF}) \times 100 \div \text{Highest PEF}$
15% supports diagnosis of asthma

* Adapted from: Global strategy for asthmatic management and prevention. NHLBI/WHO International Report.

Trained personnel must assure proper technique in utilization of PEF and provide follow-up observation of technique.