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# PREFACE

Asthma affects an estimated 300 million individuals worldwide. It is a serious global health problem affecting all age groups, with increasing prevalence in many developing countries, rising treatment costs, and a rising burden for patients and the community. Asthma still imposes an unacceptable burden on health care systems, and on society through loss of productivity in the workplace and, especially for pediatric asthma, disruption to the family.

Health care providers managing asthma face different issues around the world, depending on the local context, the health system, and access to resources.

The **Global Initiative for Asthma (GINA)** was established to increase awareness about asthma among health professionals, public health authorities and the community, and to improve prevention and management through a coordinated worldwide effort. GINA prepares scientific reports on asthma, encourages dissemination and implementation of the recommendations, and promotes international collaboration on asthma research.

**The Global Strategy for Asthma Management and Prevention** was extensively revised in 2014 to provide a comprehensive and integrated approach to asthma management that can be adapted for local conditions and for individual patients. It focuses not only on the existing strong evidence base, but also on clarity of language and on providing tools for feasible implementation in clinical practice. The report was updated in 2015.

This **Pocket Guide** is a brief summary of the GINA 2015 report for primary health care providers. It does NOT contain all of the information required for managing asthma, for example, about safety of treatments, and should be used in conjunction with the full GINA 2015 report. GINA cannot be held liable or responsible for healthcare administered with the use of this document, including any use which is not in accordance with applicable local or national regulations or guidelines.

The GINA 2015 report and other GINA publications (listed on page 28) can be obtained from \_\_\_\_\_

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# WHAT IS KNOWN ABOUT ASTHMA?

**Asthma is a common and potentially serious chronic disease** that imposes a substantial burden on patients, their families and the community. It causes respiratory symptoms, limitation of activity, and flare-ups (attacks) that sometimes require urgent health care and may be fatal.

**Fortunately...asthma can be effectively treated**, and most patients can achieve good control of their asthma. When asthma is under good control, patients can:

- ✓ Avoid troublesome symptoms during day and night
- ✓ Need little or no reliever medication
- ✓ Have productive, physically active lives
- ✓ Have normal or near normal lung function
- ✓ Avoid serious asthma flare-ups (exacerbations, or attacks)

**What is asthma?** Asthma causes symptoms such as wheezing, shortness of breath, chest tightness and cough that vary over time in their occurrence, frequency and intensity.

These symptoms are associated with variable expiratory airflow, i.e. difficulty breathing air out of the lungs due to bronchoconstriction (airway narrowing), airway wall thickening, and increased mucus. Some variation in airflow can also occur in people without asthma, but it is greater in asthma.

**Factors that may trigger or worsen asthma symptoms** include viral infections, domestic or occupational allergens (e.g. house dust mite, pollens, cockroach), tobacco smoke, exercise and stress. These responses are more likely when asthma is uncontrolled. Some drugs can induce or trigger asthma, e.g. beta-blockers, and (in some patients), aspirin or other NSAIDs.

**Asthma flare-ups** (also called exacerbations or attacks) may occur, even in people taking asthma treatment. When asthma is uncontrolled, or in some high-risk patients, these episodes are more frequent and more severe, and may be fatal.

**A stepwise approach to treatment**, customized to the individual patient, takes into account the effectiveness of available medications, their safety, and their cost to the payer or patient.

**Regular controller treatment**, particularly with inhaled corticosteroid (ICS)-containing medications, markedly reduces the frequency and severity of asthma symptoms and the risk of having a flare-up.

Asthma is a common condition, affecting all levels of society. Olympic athletes, famous leaders and celebrities, and ordinary people live **successful and active lives with asthma**.

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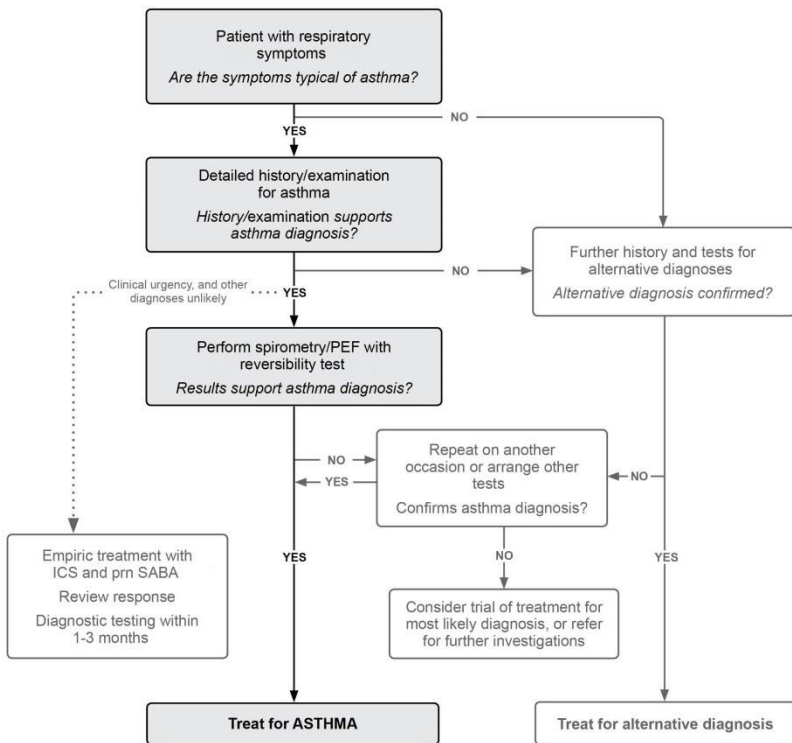
# MAKING THE DIAGNOSIS OF ASTHMA

Asthma is a disease with many variations (heterogeneous), usually characterized by chronic airway inflammation. Asthma has two key defining features:

- a history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, AND
- variable expiratory airflow limitation.

A flow-chart for making the diagnosis in clinical practice is shown in Box 1, with the specific criteria for diagnosing asthma in Box 2.

## Box 1. Diagnostic flow-chart for asthma in clinical practice



The **diagnosis of asthma** should be confirmed and, for future reference, the evidence documented in the patient's notes. Depending on clinical urgency and access to resources, this should preferably be done before starting controller treatment. Confirming the diagnosis of asthma is more difficult after treatment has been started (see p7).

# CRITERIA FOR MAKING THE DIAGNOSIS OF ASTHMA

## Box 2. Features used in making the diagnosis of asthma

### 1. A history of variable respiratory symptoms

Typical symptoms are wheeze, shortness of breath, chest tightness, cough

- People with asthma generally have more than one of these symptoms
- The symptoms occur variably over time and vary in intensity
- The symptoms often occur or are worse at night or on waking
- Symptoms are often triggered by exercise, laughter, allergens or cold air
- Symptoms often occur with or worsen with viral infections

### 2. Evidence of variable expiratory airflow limitation

- At least once during the diagnostic process when FEV<sub>1</sub> is low, document that the FEV<sub>1</sub>/FVC ratio is reduced. The FEV<sub>1</sub>/FVC ratio is normally more than 0.75–0.80 in adults, and more than 0.90 in children.
- Document that variation in lung function is greater than in healthy people. For example:
  - FEV<sub>1</sub> increases by more than 12% and 200mL (in children, >12% of the predicted value) after inhaling a bronchodilator. This is called 'bronchodilator reversibility'.
  - Average daily diurnal PEF variability\* is >10% (in children, >13%)
  - FEV<sub>1</sub> increases by more than 12% and 200mL from baseline (in children, by >12% of the predicted value) after 4 weeks of anti-inflammatory treatment (outside respiratory infections)
- The greater the variation, or the more times excess variation is seen, the more confident you can be of the diagnosis
- Testing may need to be repeated during symptoms, in the early morning, or after withholding bronchodilator medications.
- Bronchodilator reversibility may be absent during severe exacerbations or viral infections. If bronchodilator reversibility is not present when it is first tested, the next step depends on the clinical urgency and availability of other tests.
- For other tests to assist in diagnosis, including bronchial challenge tests, see Chapter 1 of the GINA 2015 report.

\*Calculated from twice daily readings (best of 3 each time), as ((the day's highest PEF minus the day's lowest PEF) divided by the mean of the day's highest and lowest PEF, and averaged over 1-2 weeks. If using PEF at home or in the office, use the same PEF meter each time.

**Physical examination** in people with asthma is often normal, but the most frequent finding is wheezing on auscultation, especially on forced expiration.

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## **DIAGNOSING ASTHMA IN SPECIAL POPULATIONS**

### **Patients with cough as the only respiratory symptom**

This may be due to chronic upper airway cough syndrome ('post-nasal drip'), chronic sinusitis, gastroesophageal reflux (GERD), vocal cord dysfunction, or eosinophilic bronchitis, or cough variant asthma. Cough variant asthma is characterized by cough and airway hyperresponsiveness, and documenting variability in lung function is essential to make this diagnosis. However, lack of variability at the time of testing does not exclude asthma. For other diagnostic tests, see Box 2, and Chapter 1 of the GINA 2015 report, or refer the patient for specialist opinion.

### **Occupational asthma and work-aggravated asthma**

Every patient with adult-onset asthma should be asked about occupational exposures, and whether their asthma is better when they are away from work. It is important to confirm the diagnosis objectively (which often needs specialist referral) and to eliminate exposure as soon as possible.

### **Pregnant women**

Ask all pregnant women and those planning pregnancy about asthma, and advise them about the importance of asthma treatment for the health of both mother and baby.

### **The elderly**

Asthma may be under-diagnosed in the elderly, due to poor perception, an assumption that dyspnea is normal in old age, lack of fitness, or reduced activity. Asthma may also be over-diagnosed in the elderly through confusion with shortness of breath due to left ventricular failure or ischemic heart disease. If there is a history of smoking or biomass fuel exposure, COPD or asthma-COPD overlap syndrome (ACOS) should be considered (see Chapter 5 of the GINA 2015 report).

### **Smokers and ex-smokers**

Asthma and COPD may co-exist or overlap (asthma-COPD overlap syndrome, ACOS), particularly in smokers and the elderly. The history and pattern of symptoms and past records can help to distinguish asthma with fixed airflow limitation from COPD. Uncertainty in diagnosis should prompt early referral, as ACOS has worse outcomes than asthma or COPD alone.

### **Confirming an asthma diagnosis in patients taking controller treatment:**

For many patients (25–35%) with a diagnosis of asthma in primary care, the diagnosis cannot be confirmed. If the basis of the diagnosis has not already been documented, confirmation with objective testing should be sought.

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If standard criteria for asthma (Box 2) are not met, consider other investigations. For example, if lung function is normal, repeat reversibility testing after withholding medications for 12 hours. If the patient has frequent symptoms, consider a trial of step-up in controller treatment and repeat lung function testing after 3 months. If the patient has few symptoms, consider stepping down controller treatment, but ensure the patient has a written asthma action plan, monitor them carefully, and repeat lung function testing.

## ASSESSING A PATIENT WITH ASTHMA

Take every opportunity to assess patients with a diagnosis of asthma, particularly when they are symptomatic or after a recent exacerbation, but also when they ask for a prescription refill. In addition, schedule a routine review at least once a year.

### Box 3. How to assess a patient with asthma

<b>1. Asthma control – assess both symptom control and risk factors</b>
<ul style="list-style-type: none"><li>• Assess symptom control over the last 4 weeks (Box 4, p9)</li><li>• Identify any other risk factors for poor outcomes (Box 4)</li><li>• Measure lung function before starting treatment, 3–6 months later, and then periodically, e.g. yearly</li></ul>
<b>2. Treatment issues</b>
<ul style="list-style-type: none"><li>• Record the patient's treatment (Box 7, p14), and ask about side-effects</li><li>• Watch the patient using their inhaler, to check their technique (p18)</li><li>• Have an open empathic discussion about adherence (p18)</li><li>• Check that the patient has a written asthma action plan (p22)</li><li>• Ask the patient about their attitudes and goals for their asthma</li></ul>
<b>3. Are there any comorbidities?</b>
<ul style="list-style-type: none"><li>• These include rhinitis, rhinosinusitis, gastroesophageal reflux (GERD), obesity, obstructive sleep apnea, depression and anxiety.</li><li>• Comorbidities should be identified as they may contribute to respiratory symptoms and poor quality of life. Their treatment may complicate asthma management.</li></ul>

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