

**CLINICAL GUIDELINE
FOR THE MANAGEMENT
OF
ASTHMA
IN PRIMARY CARE**

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1. INTRODUCTION

Asthma can be defined as inflammation of the airways with bronchial hyper-reactivity.

1.1 WHY A GUIDELINE FOR THE MANAGEMENT OF ASTHMA IN PRIMARY HEALTH CARE?

Asthma is a very common condition in Mauritius, affecting children and adults, males and females, accounting for substantial morbidity among the population. Although some patients require hospital referral or admission, most patients will normally be treated within our primary health care set-ups at area health centre and community health centre level. More aggressive care, especially through the judicious use of anti-inflammatory agents, could diminish morbidity and reduce the frequency and need for referral or hospital admission whilst contributing towards improvement of the quality of life of these patients.

1.2 BACKGROUND TO THE DEVELOPMENT OF THIS GUIDELINE

This guideline has been developed in line with the Ministry of Health's re-engineering of its Non-Communicable Disease Control programme. Its development is the combined efforts of physicians including a chest physician and community physicians in association with the Mauritius Institute of Health. It aims to standardize the approach to management of asthmatics in the community and reducing unnecessary disparities in care so that each and every patient suffering from asthma can have the fullest quality of life within our national context.

2. DIAGNOSIS OF ASTHMA AND TESTS

2.1 IDENTIFICATION OF ASTHMA

The diagnosis of asthma is made from a good history and clinical features supported by relevant tests if available.

2.2 SYMPTOMS AND FEATURES

Symptoms may occur in isolation or in any of the combinations below. Typically these symptoms are:

- Cough at night or during the day
- Episodic wheezing
- Chest tightness
- Shortness of breath

Note: The absence of symptoms at the time of consultation does not exclude the diagnosis of asthma.

2.3 PREDISPOSING, FACILITATING AND AGGRAVATING FACTORS

2.3.1 Predisposing Factors

1. Genetic
2. Atopy: predisposition to develop IgE's in response to allergens

2.3.2 Facilitating Factors

1. Respiratory allergens
 - domestic
 - atmospheric

2. Occupational agents
3. Allergies & food intolerance
 - Allergies to cow milk, egg, peanuts
 - Intolerance to sulfites (usually found in canned foods, wine, medications etc.)
4. Drugs
 - Aspirin and non-steroidal anti inflammatory drugs
 - β -blockers
5. Maternal smoking
 - Facilitates the development of childhood asthma

2.3.3 Aggravating Factors

1. Passive or active smoking
 - Has a direct irritating and pro-inflammatory effect on respiratory tree
2. Domestic and atmospheric pollution
 - Respiratory allergens, paint, wood, varnish
 - Ozone, nitrogen oxides, black fumes, sulphur dioxide
3. Respiratory infections and ENT pathologies
 - Respiratory syncytial virus, para influenza virus and other rhinoviruses.
4. Gastro-oesophageal reflux

5. Hormonal factors:
 - Puberty, menopause, pregnancy, premenstrual asthma
6. Psychological factors
7. Exercise

2.4 Tests

Measurements of peak expiratory (PEF) are useful if the facilities are available in the centre.

3. CLASSIFICATION OF ASTHMA SEVERITY

The classification of asthma is based on symptoms supported where possible by tests of lung function as shown in table 3-1.

Table 3-1 Classification of severity of asthma

Clinical Features Before Treatment*

	Symptoms	Night time symptoms	Lung function
STEP 1 Mild Intermittent	<ul style="list-style-type: none"> • Symptoms ≤ 2 times a week • Asymptomatic and normal PEF between exacerbations • Exacerbations brief (from a few hours to a few days); intensity may vary 	≤ 2 times a month	PEF $\geq 80\%$ predicted PEF variability $\leq 20\%$
STEP 2 Mild Persistent	<ul style="list-style-type: none"> • Symptoms >2 times a week but <1 time a day • Exacerbations may affect activity 	>2 times a month	PEF $\geq 80\%$ predicted PEF variability 20-30%
STEP 3 Moderate Persistent	<ul style="list-style-type: none"> • Daily symptoms • Daily use of inhaled short-acting beta₂ agonist • Exacerbations affect activity • Exacerbations ≥ 2 times a week; may last days 	>1 time a week	PEF $>60\%$ - $<80\%$ predicted PEF variability $>30\%$
STEP 4 Severe Persistent	<ul style="list-style-type: none"> • Continual symptoms • Limited physical activity • Frequent exacerbations 	Frequent	PEF $\leq 60\%$ predicted PEF variability $<20\%$

* The presence of one of the features of severity is sufficient to place a patient in that category. An individual should be assigned to the most severe grade in which any feature occurs. The characteristics noted in this feature are general and may overlap because asthma is highly variable. Furthermore, an individual's classification may change over time.

**Patients at any level of severity can have mild, moderate or severe exacerbations. Some patients with intermittent asthma experience severe and life-threatening exacerbations separated by long periods of normal lung function and no symptoms.

4. GOALS OF ASTHMA TREATMENT

1. Prevent chronic troublesome symptoms (e.g. coughing, breathlessness at night, in early morning or after exertion)
2. Maintain (near) “normal” pulmonary function
3. Maintain normal activity levels (including exercise and other physical activity)
4. Prevent recurrent exacerbations of asthma and minimise the need for emergency visits or hospitalizations
5. Provide optimal pharmacotherapy with minimal or no adverse effects
6. Meet patients’ and families’ expectations of asthma care.

5. TREATMENT OF ASTHMA

5.1 STEP 1-INHALED SALBUTAMOL AS NEEDED FOR SYMPTOMS

Step 2 - Regular inhaled beclomethasone (500-800 µg daily) AND

Inhaled salbutamol as required

Step 3 - Inhaled steroids in high doses (800-2000 µg daily)

AND

Long-acting bronchodilators if available OR sustained-release theophylline

AND

Inhaled salbutamol as required

Step 4 - Inhaled steroids in high doses (800-2000 µg daily)

AND

Long-acting bronchodilators if available OR sustained-release theophylline

AND

Corticosteroid tablets

AND

Inhaled salbutamol as required

6. TREATMENT OF ACUTE SEVERE ASTHMA

6.1 DIAGNOSIS

The following criteria are suggested for recognition of acute severe asthma (based on the 1997 BTS guidelines)

Pulse > 110

Respirations \geq 25 breaths/min

Cannot complete sentences in one breath

PEF \leq 50% predicted or best

Patients with acute severe asthma should be kept under frequent and careful review. Any of these features not responding to treatment is an indication for emergency admission.

6.2 TREATMENT OF ACUTE SEVERE ASTHMA

1. Oxygen
2. Nebulised salbutamol (5 mg) AND ipratropium bromide (500 micrograms) if available.
3. Oral steroids (0.5- 1.0 mg/kg); if cannot take oral steroids. i.v hydrocortisone 200 mg bolus)

**IF RESPONSE TO ABOVE POOR
REFER IMMEDIATELY TO HOSPITAL**

If condition improves, the patient should be started on a 4-10 day course of steroids.

There is no need to taper the dose of steroid if prescribing for less than 10 days. The patient must be reviewed for re-assessment in order to initiate long term prophylactic therapy.

If patient can tolerate drug (i.e no tachycardia), nebulise repeatedly every 30 minutes for up to 2 hours if necessary.

7. LIFE-THREATENING ASTHMA

7.1 DIAGNOSIS

A diagnosis of life-threatening asthma is based on any of the following features.

- Bradycardia or hypotension
- Silent chest, cyanosis or feeble respiratory effort
- Exhaustion, confusion, or coma
- $PEF \leq 33\%$ predicted or best

7.2 TREATMENT

**START STANDARD TREATMENT AS
FOR ACUTE SEVERE ASTHMA
AND
REFER IMMEDIATELY TO HOSPITAL**

Note: The use of theophyllines in the management of acute severe asthma.

Normally patients will have been on long-acting theophyllines already with no improvement. Further addition of theophyllines to acute treatment will confer no significant benefits and may in fact increase the risk of toxicity. If patient has however not been on theophyllines, then diluted aminophylline may be given slowly by the intravenous route.

8. PATIENT EDUCATION

8.1 EXPLANATION OF DIAGNOSIS

Patients newly diagnosed with asthma should be explained the diagnosis. Health workers must however remember that patients will be able to take in only a small amount of information at each consultation. They may be worried and anxious and need reassurance. The first consultation should be confined to an explanation of essential items. More complicated instructions can be dealt with subsequently.

8.2 ROLE OF THE COMMUNITY NURSE

Community nurses have a major role to play in the education of asthma patients. Items to be included in asthma education should include:

- explanation of the disease
- use of the inhaler(s) and spacer devices
- recognition of severe asthma
- use of the peak flow meter if available

RECOMMENDATIONS

1. All Area Health Centres and Community Health Centres should have a nebuliser
2. A peak flow meter should be available in all Community Health Centres and Area Health Centres
3. Both Salbutamol and Ipratropium Bromide solution should be available in all Area Health Centres and Community Health Centres.
4. Nurses and Health Educators should participate in the training of patients in using inhalers.