

ABSTRACT

Treatment for asthma is guided by regular assessment of disease severity and control using a stepwise approach. The goals should be discussed at the very start of the treatment plan. Long-term preventive treatment is the cornerstone of good asthma control. Continual monitoring is essential to assure that the treatment goals are met. Prevention of asthma attacks should be a key emphasis.

GOALS OF ASTHMA THERAPY

Appropriate asthma care can help patients prevent most attacks, stay free of troublesome night and day symptoms, and be physically active.

The goals of successful asthma management are:

- o Minimal or no symptoms, including nighttime symptoms;
- o Minimal asthma episodes or attacks;
- o No emergency visits to hospitals or physicians;
- o Minimal need for reliever medications;
- o No limitations on physical activities and exercise;
- o Minimal or no side effects from medication;
- o Maintain normal pulmonary function.

STEPWISE APPROACH

A stepwise approach is used to classify asthma severity and guide treatment. The number and dose/frequency of medications increase (step up) as the need for asthma therapy increases, and decreases (step down) when asthma is under control. The STEP classification of asthma severity is derived from an assessment of the patient's frequency of daytime and night-time symptoms such as cough, wheeze and peak flow measurement (if available).

Asthma severity is classified into intermittent, mild persistent, moderate persistent or severe persistent (Figure 1).

When the patient is already on treatment, the classification of severity should be based on the clinical features present, and on the step of the daily medication regimen that the patient is already on. If control is not achieved, consider stepping up drug therapy.

The aim is to achieve control as soon as possible, then decrease treatment to the least amount of medication needed to maintain control. A rescue course of prednisolone may be needed for acute exacerbations with stepped up treatment.

Treatment should be reviewed every 3 to 6 months. If control is sustained for at least 3 months, a gradual stepwise reduction in treatment may be possible. Patients at any level of severity- even intermittent asthma- can have severe attacks. Discontinuation of long-term preventive treatment with inhaled corticosteroids should be attempted with great caution. After stopping inhaled steroids, patients are at an increased risk of severe asthma and even fatal, asthma relapse.

MEDICATIONS & DOSAGES

Two types of medications help control asthma: controller medications that keep symptoms from starting, and reliever medications that work to treat attacks or relieve symptoms. Inhaled medications are preferred because of their high therapeutic ratio.

Short-acting inhaled beta2-agonists are useful for relief of acute symptoms or can be used as a quick-relief medication. It can also be used prior to exercise for exercise-induced bronchospasm. There is a dose-effect relationship between excessive use of short-acting beta2-agonists (≥ 2 units of metered dose inhalers per month) and risk of asthma death.

Patients with persistent asthma ($\geq$ STEP 2) should be started on inhaled corticosteroids to improve asthma control. Adult asthmatics with symptoms not controlled with 400-800 mcg of inhaled steroids per day should be given long-acting beta2-agonists. The addition of long-acting beta2-agonists results in better asthma control and reduction in severe exacerbations when compared with doubling the dose of inhaled steroids. Methylxanthines are useful for long-term control and prevention of symptoms, especially nocturnal symptoms. There is a need to monitor serum levels in sustained release theophylline (250 mg/tab).

Fig 1: STEP Classification of Asthma Severity

	Daytime symptoms	Night-time symptoms	PEF
STEP 1 Intermittent	<1 time a week Asymptomatic and normal PEF between attacks	<2 times a month	>80% predicted variability <20%
STEP 2 Mild Persistent	>1 time a week, but <1 time a day	>2 times a month	>80% predicted variability 20-30%
STEP 3 Moderate Persistent	Daily symptoms Attacks affect activity	>1 time a week	>60-<80% predicted variability >30%
STEP 4 Severe Persistent	Continuous Limited physical activity	Frequent	<60% predicted variability >30%

The use of combination drugs (inhaled steroid + long-acting beta2-agonist) may be more effective than using the 2 drugs separately, and also improve compliance. Examples of combinations are Seretide Accuhaler/Evoaler and Symbicort Turbuhaler.

Antibiotics are not routinely recommended to treat asthma exacerbations. They may be indicated for patients who also have pneumonia or bacterial infection such as sinusitis.

Figure 2 summarises the appropriate drug treatment at

Fig. 2	Long-Term Preventive (Controllers)	Quick-Relief (Relievers)
STEP 1 Intermittent	Daily medications None needed	Short-acting bronchodilator: inhaled beta2-agonist as needed for symptoms, but less than once a week
STEP 2 Mild Persistent	Daily medications - o Inhaled corticosteroid, 200-400 mcg, with or without SR theophylline - o Consider anti-leukotrienes	Short-acting bronchodilator: inhaled beta2-agonist as needed for symptoms, not to exceed 3-4 times in 1 day
STEP 3 Moderate Persistent	Daily medications - o Inhaled corticosteroid, 400-800 mcg AND, if needed - o Long-acting bronchodilator: either long-acting inhaled beta2-agonist, SR theophylline, or long-acting beta2-agonist tablets - o Consider anti-leukotrienes	Short-acting bronchodilator: inhaled beta2-agonist as needed for symptoms, not to exceed 3-4 times in 1 day
STEP 4 Severe Persistent	Daily medications - o Inhaled corticosteroid > 800 mcg - o Long-acting bronchodilator: either long-acting inhaled beta2-agonist and/or SR theophylline, and/or long-acting beta2-agonist tablets and - o Corticosteroid tablets	Short-acting bronchodilator: inhaled beta2-agonist as needed for symptoms

each step of asthma severity in adults. Once control of asthma is achieved and maintained for at least 3 months, a gradual reduction of the maintenance therapy should be tried to identify the minimum therapy required to maintain control.

MONITORING

Control of asthma requires continual long-term care and monitoring. Monitoring includes review of symptoms, compliance to medication usage, device proficiency, and as much as possible, measurement of lung function. PEF (Peak Expiratory Flow rate) monitoring at every physician visit, along with review of symptoms, helps in evaluating the patient's response to therapy and adjusting treatment accordingly. PEF consistently greater than 80% of the patient's personal best suggests good control.

Compliance and adherence with asthma management plans is improved when patients have the opportunity to talk about their concerns, fears, and expectations related to their condition. Regular visits (at 1-to 6-month intervals as appropriate) are essential, even after control of asthma is established. During these visits, monitor and review treatment plans, medications, and level of asthma control.

PREVENTION

Prevention of attacks is the key to successful asthma long-term control. Patients should avoid exposure to risk factors such as allergens and irritants that make asthma worse, and to use daily their preventive inhaler medication for those with persistent asthma. Primary prevention of asthma is not yet possible, but promising leads are being actively investigated.

RECOMMENDED READING:

MOH Clinical Practice Guidelines 1/2002

Global Initiative For Asthma (GINA) Global Strategy for Asthma Management and Prevention, available from <http://www.ginasthma.com>

LEARNING POINTS

- o Patients with persistent asthma (defined as needing relief medication one or more times per week) should be given inhaled corticosteroids to improve asthma control and reduce mortality.
- o Drug treatment should be guided by regular assessment of asthma severity and control using a step classification system.
- o During routine clinic visits for asthma, monitor and review treatment plans, medications and level of asthma control.