

ASTHMA EDUCATION

An understanding of asthma, by patient and doctor, is central to managing the disease.

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Asthma in Africa is associated with unique challenges. Among these are the many diverse areas in the country with different allergen and environmental exposures. Areas of the country and sectors of the population have poor access to care and inadequate drug availability, and in many patients there are educational, language and cultural barriers that have an impact on patient care.

Recently, however, classification has shifted to focus much more on asthma control.

Asthma severity ranges from mild to severe. There are variations between individuals, and an individual may vary in their own severity. Prior classification systems stressed the duration and severity of symptoms and classified asthma as intermittent or persistent, with persistent subdivided into mild, moderate and severe. According to this classification, the majority of asthma is intermittent or mild persistent. Severe asthma may also be defined in terms of *chronic* and *debilitating* disease and the NAEPP guidelines further add the concept of 'risk' as important in the assessment of asthma severity. Recently, however, classification has shifted to focus much more on asthma control. The new South African Guidelines¹ have embraced this principle and classify asthma as controlled, partly controlled and uncontrolled according to the criteria as set out in Table I.

Acute severe asthma may be defined as acute asthma requiring hospital admission and the term 'status asthmaticus' is no longer considered meaningful. Life threatening asthma may be defined as acute severe asthma requiring therapy in an intensive care unit. The risk for fatal asthma is associated with both medical and psychosocial factors.²

Medical factors include a previous attack with rapid or severe deterioration, respiratory failure, seizure or loss of consciousness. Further factors include poor asthma control, overuse of beta agonists and under use of inhaled corticosteroids (ICS). Psychosocial factors include denial, non-adherence, dysfunctional families and socio-economic and cultural barriers to health.

Preventing fatal asthma requires improvement in asthma care overall and specific attention to controlling uncontrolled asthma. Medical professionals need to be supported and encouraged to recognise asthma, recognise uncontrolled asthma and treat uncontrolled asthma appropriately. Patients need to be supported and encouraged to access asthma education, adhere to prescribed medication and improve the technique of administration of inhaled medications. Furthermore, doctors need to be trained in how to help their patients in these areas.

Patients with uncontrolled asthma may experience significant symptoms (including at night time and with exercise), miss school or work and require emergency department visits or hospital admissions. There may be failure to keep appointments, fill prescriptions or access repeat medications and patients may be unclear about medications they take. In order to gain control in such patients key areas include adherence and education.

Adherence is an important aim in the treatment of any chronic disease. The term 'compliance' is somewhat out of favour as it implies a patronising attitude that the patient is a passive recipient of instructions that they are required to follow. The term adherence has been defined in various ways. It is seen as an active voluntary collaborative involvement of the patient in a mutually acceptable course of behaviour to produce a desired preventive or therapeutic result. The most recent WHO definition states that adherence is the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provider.³ The key words in the definitions include mutually acceptable, agreed upon recommendations.

In asthma, adherence rates are generally low, ranging from 5% to 50%.^{4,5} Patients tend to use their medications sporadically. Adherence declines over time after a medical consultation⁶ and may be lower in the evening. Adherence is poorer in low-income urban minority families in the USA.⁷ Socio-economic, language and cultural barriers are significant obstacles to adhering to asthma care in South Africa.⁸ It has been calculated that non-adherence probably accounts for approximately 60% of hospitalisations.⁹

Measuring adherence is challenging. Patients may be reluctant to admit to suboptimal adherence. Diary cards are not reliable. A seminal study¹⁰ showed a median adherence by diary cards of 95.4% whereas direct electronic monitoring of drug delivery showed adherence of 58.4%. In this study of ICS use only 33% of doses were administered at the correct time.

Simple measures may however help monitor asthma control and adherence. Sympathetic questioning asking 'how often do you forget to take your medication' allows patients to admit to suboptimal adherence without running the risk of guilt. Patients should be encouraged to bring their medication to every visit, whether the medication is finished (empty) or not. This allows the provider to assess how much has been used as well as whether the patient can identify their medications correctly and explain their use and demonstrate their technique of administration. Medication with built-in dose counters is extremely useful in such patients. The use of asthma control tests has been promoted, but real-time diaries include patient instructions of which medications to use, monitoring of symptoms and monitoring of medication use.



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Table I. Asthma control

Characteristics	Controlled (all of the following)	Partly controlled (any measure in any week)	Uncontrolled
Daytime symptoms: wheezing, cough, difficult breathing	22/week	33/week	3 or more features of partly controlled asthma in any week
Limitation of activities	None	Any	
Nocturnal symptoms	None	Any	
Reliever treatment	22/week	33/week	
Lung function % of predicted/personal best	Normal	<80%	
Exacerbations	None	1 or more/year	1 in any week

The only mechanism to improve adherence is effective education. Cochrane meta-analyses¹¹ show that education enables better asthma control and reduces hospitalisation. Asthma education reduces emergency department visits (RR 0.73), hospital admissions and unscheduled doctor visits (RR 0.68). Not all patients respond equally to educational interventions.¹² The effect of asthma education is more marked in moderate-severe asthmatics than mild-moderate asthmatics and education at scheduled follow-up visits is more effective than education given during emergency room visits.

Different intervention programmes also differ in their effectiveness. Intensive education is better than limited education. Peak flow-based strategies are better than symptom-based strategies. Written plans are better than oral instructions and culture-specific programmes are better than generic programmes.¹³

Limited education includes teaching patients and/or parents about the nature of asthma, what triggers asthma attacks, and why it is important to reduce exposure to all irritants such as cigarette smoke and identified allergens. A key concept is the difference between regular controller treatment and as-required, emergency reliever treatment. Inhaler technique is also essential.

Intensive education includes how to recognise symptoms and signs of worsening asthma, and self-manage appropriately. Patients should be taught that asthma can be controlled and what level of symptoms comprises good control. In addition a written action plan modified for each patient teaches the patient how to increase short-acting beta-2 agonists when necessary and at which level of symptoms to use an emergency dose of oral corticosteroids and seek further medical advice. A symptom diary or peak flow meter and adherence diary also form part of intensive education.

Action plans stress that patients should:

- take their controller medication every day whether they feel well or unwell
- visit their doctor twice a year, even if asthma is well controlled
- take medication/pumps/spacers with them to every doctor's/nurse's visit
- realise that asthma sufferers can have no

symptoms, have a normal lifestyle, play sport and sleep well

- realise that asthma sufferers should have as few acute attacks as possible and miss little or no school or work.

Action plans place patients in one of three zones. In the 'green zone' asthma is under control. In the 'orange zone' the patient is experiencing loss of control, and the 'red zone' comprises an acute asthma attack. Each asthma zone comprises a set of criteria to recognise the level of control and a set of instructions.

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In the 'green zone' patients experience no cough or wheeze, can maintain normal levels of activity, have no sleep disturbance and use their reliever less than 3 times a week. Peak flows are greater than 80% of expected. 'Green zone' instructions include continuing normal controller (and as required reliever) medication.

In the 'orange zone' loss of control is signalled by cough, wheeze or tight chests, nocturnal waking, need to use reliever medication 3 or more times a week or problems maintaining normal play or sporting activities. Peak flows are between 50% and 80% of expected. 'Orange zone' instructions include increasing the reliever medication while continuing regular controller medication. Doctors may individualise this part of the plan to increase controller medication if they so wish. Patients are told to make an appointment to see the doctor or nurse, to monitor their adherence and symptoms with a separate adherence and symptom diary and to bring this and their medication with them to their next visit.

In the 'red zone' patients experience hard or fast breathing, inability to talk or feed easily, severe shortness of breath or symptoms that are not relieved by reliever medication. Peak flows may be below 50% of expected. 'Red zone' instructions include regular reliever

treatment to try abort the acute attack, given by spacer if available. Patients are instructed to attend the closest doctor or emergency room immediately, even if symptoms resolve. Reliever medication should be repeated on the way to an emergency visit as often as needed and an emergency dose of oral corticosteroids may be taken.

While many may regard education programmes as overly ambitious and onerous for time-challenged doctors, the responsibility for this can be shared with other health practitioners such as appropriately trained asthma nurses and educators. The National Asthma Education Programme runs a distance learning certificate in asthma care which equips health professionals to manage all aspects of asthma diagnosis, management, monitoring and counselling. In addition asthma action plans can be found on their website at www.asthma.co.za; these plans can be individualised for each patient. Information sheets aimed at patients as well as symptom and adherence diaries can also be downloaded, enabling doctors to help patients understand and monitor their own disease.

The National Asthma Education programme can be contacted on tel 0861-ASTHMA(278462) or via email at naepr@netactive.co.za.

References available at www.cmej.org.za

IN A NUTSHELL

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- Asthma severity ranges from mild to severe. There are variations between individuals, and an individual may vary in their own severity.
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