

GUIDELINES FOR THE MANAGEMENT OF CHRONIC ASTHMA IN CHILDREN - 2000 UPDATE

Statement by the Working Group of the Allergy Society of South Africa

Endorsed by the South African Pulmonology Society

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Introduction

The South African Childhood Asthma Working Group (SACWG), a subcommittee of the Allergy Society of South Africa, first published its guidelines for the management of chronic asthma in children and adolescents in 1992¹. The guidelines were revised in 1994².

It was widely felt that the existing guidelines for the treatment of chronic childhood asthma needed to be revised for the following reasons:

- The grading system differed from that used in the international literature.
- The trend toward the increasing and earlier use of inhaled corticosteroids in children had to be addressed.

- Recommendations had to be made regarding the use of inhaled long-acting β_2 agonists and the role of the new leukotriene receptor antagonists.

Asthma prevalence is increasing worldwide and the attendant morbidity and mortality remain unacceptably high. The aim of this guideline document is to promote a better standard of treatment based on advances in the understanding of the pathophysiology and pharmacotherapy of asthma and to encourage uniformity in the management of asthma. The early use of anti-inflammatory therapy, objective measurement of asthma severity and monitoring is emphasised.

Asthma in children

The dominant pathophysiologic process underlying asthma is airway inflammation. Asthma is the commonest chronic disease in children and treatment may be expensive. Resources in our country are limited and different therapeutic options will be recommended in this statement. However, health practitioners should strive to achieve the best possible therapy for each of their patients through motivation and education of parents, manufacturers and health administrators in order to ensure that all patients have access to appropriate medication.

In childhood and adolescence, asthma is often triggered by viral infections, environmental factors and allergens. The diagnosis, assessment of severity and monitoring of the effects of therapy are more difficult in young children because it may not be possible to obtain objective measurement of airway obstruction. Acute episodes of severe asthma often develop more rapidly in young children. Side-effects of therapy specifically applicable to children (e.g., effect on linear growth) need to be considered.

Diagnosis

Asthma is a clinical diagnosis. Asthma should be diagnosed in a child with *chronic persistent or recurrent wheeze with or without cough, which responds to a bronchodilator*. Features supporting the diagnosis are a family and personal history of atopy, night cough, exercise-induced cough and/or wheeze and a seasonal variation in symptoms. Cough alone however, is a poor marker of asthma. It appears that *most children with isolated cough do not have asthma*³. A short trial of bronchodilator treatment should be given if asthma is suspected, but it is important to assess response to treatment in these patients. If the cough is related to asthma, earlier uncontrolled trials that used theophylline claim that the cough should relent within a week⁴. Treatment should be discontinued if it is not beneficial. Prolonged use of inhaled corticosteroids is not justified in children with isolated cough.

Additional support for the diagnosis in *older children (> 5 years)* is objective evidence of reversible airways obstruction. This can be calculated by measuring the peak expiratory flow rate (PEF) or forced expiratory volume in 1 second (FEV₁) before and after β_2 agonist administration. An improvement of more than 15% in FEV₁ or 20% in PEF after 10 minutes

indicates reversible airway obstruction. Bronchial variability > 20% can be measured using a peak flow meter and a diary card. Bronchoprovocation tests should only be performed by a specialist, if the diagnosis is uncertain.

The diagnosis of asthma in *young children (<5 years)*, can be extremely difficult.

Approximately 40% of children who wheeze before the age of 6 years have asthma. Most of the rest have viral associated wheezing which resolves by the age of 3 years⁵. Asthma does occur in children younger than 1 year of age with half of asthmatic children wheezing before 3 years of age. Asthma should be diagnosed in wheezy children born to atopic parents and/or who have atopic symptoms or signs and respond to bronchodilators. A family history or signs in the child of atopy is strongly supportive of the diagnosis. *If a child below 5 years of age is not responding to treatment or requires more than 400 µg of beclomethasone per day, the diagnosis of asthma needs re-evaluation.* Conditions such as aspiration pneumonia, cystic fibrosis and foreign body inhalation must be excluded.

Classification of asthma severity

A new severity grading system based on the GINA (Global Initiative for Asthma) guidelines⁶ is recommended for chronic asthma. The grades of *intermittent, mild persistent, moderate persistent and severe persistent asthma* are determined, utilising frequency of clinical symptoms and lung function. Since asthma severity can vary with time, regular reassessment with a view to reassignment of individual grading is necessary.

Assessment of severity and control

The method of assessment presented conforms to international assessment criteria. The following points should be noted:

- The assessment of severity is outlined in [Fig. 1](#), which is used to assign a child to a particular treatment group.
- The assessment of severity refers to a child's symptoms between acute attacks. The assessment and management of the acute attack are dealt with in a separate document⁷.
- Asthma presents as a spectrum of severity rather than in discrete severity groups. Practitioners should attempt to grade each patient accurately but must regard this only as a starting point.
- If unsure of grading, place the child on therapy appropriate to the severity group, which is judged to be the most likely, and monitor control by means of a diary card (for symptoms and/or PEF). Reassess after 4 weeks.
- One or more features may be present to assign a grade of severity; a patient must be assigned to the most severe grade in which any feature occurs.

- Asthma severity can vary with time. Regular reassessment is necessary with a view to stepping therapy up or down.
- The PEF is assessed at times other than during acute exacerbations. The predicted or the best PEF, whichever is higher, should be utilised.
- In practice about 70% of childhood asthmatics will fall into the 'intermittent or mild persistent', 25% into the 'moderate persistent' and 5% into the 'severe persistent' categories.

Management

Goals

The goal is effective control of asthma, which strives to ensure that the asthmatic is able to lead a normal and physically active life. For a 'normal life' the aim is to:

- Be completely free from any symptoms, i.e. cough, wheeze and breathlessness.
- Attend school regularly and participate fully in all school activities, including sporting activities.
- Have restful sleep, free from nighttime cough and/or wheeze.
- Grow and develop normally.
- Minimise the number of attacks of acute asthma and avoid hospitalisation.
- Avoid medication-related side-effects.

Principles

A comprehensive therapeutic approach is required to meet the above objectives. This includes the following:

- • Early diagnosis and objective assessment of severity.
- Control of the environment to exclude cigarette smoke and reduce exposure to triggers such as viral infection and allergens.
- Optimal use of medications to limit side effects and cost, using the most appropriate delivery system.
- Follow-up and regular re-evaluation (clinical evaluation and quality of life).

- Patient and parent education.

Optimal management of asthma includes *avoidance of triggers / environmental control, pharmacotherapy and education* .

Environmental control

1. Indoors

a. Cigarette smoking is harmful.

Smoking should not be allowed in the home of any asthmatic and active steps should be taken to inform the parents of the problem, encouraging smokers to quit.

b. Indoor allergens⁸

A detailed history should identify which allergens are likely to be significant. If there is uncertainty after taking a history, and the child has persistent asthma, then specific allergen testing by *Skin Prick Test or RAST* is indicated.

i. *Housedust mites:*

Mattress, pillow and duvet covers with mite impermeable characteristics are recommended. Bedding should be washed regularly at temperatures greater than 60°C. Rooms should be well ventilated. Carpets should be removed from the living areas and especially the bedrooms. Acaricides are ineffective. Other sources of housedust mite should also be considered, e.g., fluffy toys and feather pillows.

ii. *Cockroaches:*

Cockroach allergy is widespread in South Africa. They may be a cause of ongoing airway inflammation and sensitivity to cockroaches is a risk factor for more severe asthma. Obsessive cleaning, "bait stations" and/or boric acid indoors can reduce cockroach numbers⁸.

iii. *Pets:*

Asthmatics known to be allergic to dogs or cats should avoid contact with them. Cat allergens are notoriously difficult to eliminate and may persist for several months after the cat has been removed from the home.

iv. *Mould:*

Obvious sources of indoor mould in bathrooms, kitchen and damp parts of the home should be treated with proper plumbing, damp proofing, mould repellent paint and Lysol sprays.

2. *Outdoors*

a. **Outdoor allergens**

Moulds are important sources of outdoor allergen and sensitive children are advised to avoid exposure to mouldy places, e.g. farms, forests, compost heaps or parks, particularly in autumn, winter and in spring. *Grasses* may be implicated in perennial asthma due to the particularly long grass season in South Africa.

b. **Exercise**

Exercise induced asthma can be prevented by the use of a short-acting β_2 agonist. LABA are preferred for children who engage in repetitive exercise because of their prolonged duration of action. Leukotriene antagonists are also an option for preventive treatment of exercise induced asthma.

3. *Dietary factors*

These may be divided into additives, eg. preservatives and allergens. Children with asthma should avoid exposure to cooldrinks containing sulphur dioxide (SO₂) and sodium benzoate. Food allergens are a rare cause of asthma as an isolated manifestation. Milk allergy may play a role in the child below the age of 2 years, especially with concomitant eczema.

Pharmacotherapy

Pharmacotherapy is the cornerstone of asthma management. Initial treatment is based upon the clinical assessment of severity, according to the classification ([Fig. 1](#)).

Principles of medication

When selecting medication for an asthmatic patient, the following principles apply:

- Asthma is an inflammatory disease of the airways.
- Regular anti-inflammatory medication is indicated for persistent asthma.
- Inhaled therapy is preferable.
- Inhaled β_2 agonists are cheaper per dose than syrups and tablets.

The drugs are conveniently classified as:

- *relievers* – acute relief from symptoms
- *preventers* – anti-inflammatory
- *controllers* – drugs which have a sustained bronchodilatory action, but unproven anti-inflammatory action

A. RELIEVERS

These include short acting inhaled β_2 agonists, ipratropium bromide and short-acting xanthines. Short-acting oral β_2 agonists and xanthines are not recommended in the maintenance treatment of asthma.

Short-acting β_2 agonists

Short-acting β_2 agonists are generally used on an as needed (prn) basis. Their use can be minimised by the optimal use of anti-inflammatory agents and controllers. Oral preparations of short acting β_2 agonists are appropriate for use in patients unable to use inhaled medication. Short-acting β_2 agonist inhalers provides relief from acute symptoms of asthma.

Anticholinergics (Ipratropium bromide)

These drugs work by inhibiting vagally mediated bronchoconstriction. They are less potent bronchodilators than inhaled β_2 agonists and in general have a slower onset of action (30 to 60 minutes to maximum effect). They may be used in patients who cannot tolerate β_2 agonists or as adjunctive bronchodilator treatment in patients who do not obtain adequate symptom relief during acute asthma. Ipratropium bromide benefits in long-term management of asthma have not been established.

B. PREVENTERS

Anti-inflammatory treatment is recommended for all patients with persistent asthma. These drugs modify the airway inflammation that is characteristic of asthma. Inhaled corticosteroids are the most widely studied and recommended drugs in this class for asthma. Other drugs with weak to mild anti-inflammatory effects include the cromones, (sodium cromoglycate and nedocromil sodium), the sustained release theophyllines and the most recently developed leukotriene antagonists.

Inhaled corticosteroids

Inhaled corticosteroids (ICS) are the most effective anti-inflammatory agents available for the treatment of asthma⁹. They have proven efficacy in reducing symptoms, improving lung function, reducing the frequency of exacerbations, and improving the quality of life. ICS have been shown to reduce airway inflammation¹⁰.

Studies in adults suggest that early use of ICS may prevent remodelling of the airway by inflammation, which eventually results in fixed airway obstruction, although this has not been conclusively proven in children. Early treatment with ICS is claimed to minimise lung function decline in children¹¹. There are no comparable data for children younger than 5 years.

Indications

International and local guidelines^{2,12,13} recommend the use of anti-inflammatory therapy when asthma is persistent. ICS should be used as first line treatment in moderate to severe persistent asthma. This agent may also be used in mild persistent asthma¹⁰, but currently concerns about the safety of ICS in mild asthma remain a source for debate. For this reason, the benefits must be weighed up against the risks and side-effects in the milder forms of asthma.

Dose

The optimal dose of ICS should be the lowest dose that is needed for good disease control. There is evidence that low doses (100-200 µg/day) of ICS are highly effective in childhood asthma¹⁴. The dose for each child should be individualised and continuously titrated. Increasing doses do not necessarily increase effectiveness but do result in systemic bioavailability with potential side-effects. For inhaled beclomethasone or equivalent ([Fig.1](#)), doses >400 µg/day may be associated with a risk of systemic side-effects. The recommended approach is to start at a dose of ICS appropriate to the child's symptoms and lung function ([Fig. 1](#)), and gradually decrease the dose as symptoms and lung function improve. The efficacy and safety of inhaled steroids are increased by the use of spacer devices. Certain dry powder devices such as the turbuhaler and accuhaler increase the drug delivery to the lung, and therefore lower doses may be used. ICS are usually administered twice daily. It is reasonable to use generic preparations where they have demonstrated bioequivalence and offer cost advantage.

Cromones

Sodium cromoglycate and *nedocromil* have weak anti-inflammatory effects. They are mainly of value in young atopic patients with mild asthma. Their disadvantages include higher cost, frequent dosing interval and poor efficacy in comparison with inhaled corticosteroids. Monitoring of symptoms and lung function is recommended and inhaled corticosteroids should be substituted if control is inadequate after 6-12 weeks treatment. Cromones may be tried in asthmatics with a persistent cough despite optimal treatment with corticosteroids. They are also effective for the prevention of exercise induced asthma. Their main advantage is a good safety profile.

C. CONTROLLERS

These are agents that have prolonged bronchodilatory action, but weak anti-inflammatory effects. They include the long-acting β_2 agonists and the slow release xanthines (theophyllines). Leukotriene antagonists may be also classified as controllers.

Long-acting β_2 agonist (LABA) inhalers

Salmeterol and *formoterol* are LABA inhaler therapy, administered twice daily because of their greater than 12 hour duration of action. This sustained action is useful for control of nocturnal symptoms and to prevent exercise induced asthma (as they may provide longer protection than the short-acting beta₂ agonists).

LABA are not suitable for relief of asthma exacerbations although formoterol has an acute onset of bronchodilation (within 10-15 mins of administration). Side-effects of these drugs include palpitations and tremors.

Adult studies have shown that combining moderate doses of inhaled corticosteroids with LABA provides better asthma control compared to doubling the dose of steroids (Facet study). There is a paucity of data on the combined use of inhaled steroids and LABA in paediatric asthma. The two studies which evaluated LABA as add on treatment have shown conflicting results^{21,22}.

Slow-release xanthines (SR theophyllines)

SR theophyllines can be used in combination with inhaled steroids as an add on treatment and for control of nocturnal asthma. These agents may be used as an alternative to inhaled corticosteroids²⁰ for mild persistent asthma in certain situations, (e.g. if inhaled corticosteroids unavailable or patients prefer oral medication).

Leukotriene receptor antagonists

Leukotriene receptor antagonists inhibit the effect of the cysteinyl leukotrienes, products of arachidonic acid metabolism. They have been shown to:

- improve asthma control, in persistent asthma (mild, moderate and severe)^{15,16,17}
- attenuate exercise induced asthma¹⁸
- be of value in aspirin induced asthma¹⁹
- have a rapid onset of action (within 1-3 hours)^{15,16}

Current recommendation is to classify them as controllers but evidence is accumulating that they have anti-inflammatory effects. LRAs have a role in moderate and severe persistent asthma as a steroid sparing agent. The role of these agents as monotherapy in mild persistent asthma still needs to be determined. A trial of treatment is acceptable in this situation

(maximum duration for 30 days). If asthma is not controlled on LRAs, switch to inhaled steroids. Churg-Strauss syndrome, a form of systemic vasculitis, in association with the administration of leukotriene antagonists in adults has been reported. To date, there are no reports of this condition in children.

OTHER DRUGS

Oral corticosteroids

Oral corticosteroids such as prednisone may be considered in patients with *poorly controlled severe asthma* on optimal doses of inhaled corticosteroids and controller medications. These patients should be referred to a specialist for review. Long term oral corticosteroids whilst relatively inexpensive are associated with serious systemic corticosteroids side effects.

Short courses (7-14 days) of oral steroids (prednisone 1-2 mg/kg/day with an upper limit of 60 mg/day) are generally necessary in the treatment of acute exacerbations of asthma. It is not necessary to taper oral steroids if used as a short course. Maintenance treatment with daily or alternate-day oral steroids is indicated only in those patients not controlled by high dose inhaled steroids. In children on oral steroids extra care should be taken during episodes of increased stress, e.g. surgery.

Antihistamines

Ketotifen and cetirizine have no proven benefit in young children (< 3 years) with established asthma, but may be used in young children with multiple allergies. The clinical benefits of ketotifen may only be evident after more than 2 months of treatment.

DEVICES FOR DELIVERING INHALED THERAPY IN CHILDREN

All delivery systems must be assessed on an individual basis taking the limitations of the patient as well as the delivery system into account.

Spacer devices

- Steroids inhaled from a MDI must always be prescribed with an appropriate spacer to improve drug delivery and diminish side-effects.
- Smaller volume spacers (250-300 ml) are suitable for children younger than 5 years and larger volume spacers (> 500 ml) for older children. Static electricity diminishes the amount of drug delivered and can be minimised by using a stainless steel spacer, a low static spacer or by priming a spacer with multiple actuations from a MDI before use.

- Spacers should be washed weekly. To reduce the static electricity in plastic spacers the spacer should be washed with a liquid detergent, not rinsed in water, and left to drip-dry overnight.
- If commercially available spacers are not available a 500 ml plastic bottle can be used as a spacer. A hole to fit the MDI is cut or melted into the bottom of the bottle using the hot wire technique²³. Polystyrene cups are not efficient spacers.
- One puff at a time should be actuated into the spacer and the child should breathe 4-5 times before the next actuation. After inhalation of ICS, the mouth should be rinsed. If a spacer with a facemask is used it should be applied tightly to the face. The face should be washed after corticosteroid inhalation to prevent skin changes, (spider naevi, atrophy).

Children under 3 years of age:

The delivery system of choice is a MDI with a spacer. The spacer should be fitted with a facemask.

Nebulisers are an alternative, but should only be prescribed if the child is not able to use a MDI and a spacer.

Dry powder devices and breath-actuated MDI should not be used.

Children between 3 and 5 years of age:

The delivery system of choice is a MDI with a spacer. The spacer should be used with a mouthpiece. Should the child be unable to manage a mouthpiece, then a facemask may be used.

Breath-actuated systems are not indicated. Dry powder devices are generally not indicated, but some have successfully been used in children as young as 3-4 years; this must be evaluated on an individual basis.

Nebulisers are very seldom indicated in this age group and should only be used if children refuse to use spacers.

Children older than 5 years of age:

The delivery system of choice is a MDI with a spacer. The spacer should be used with a mouthpiece. Dry powder devices and breath-actuated devices can be used successfully. Nebulisers should only be used in this age group in exceptional circumstances.

LUNG FUNCTION TESTING

Peak Expiratory Flow (PEF) can be measured by cheap hand-held devices (Assess, Mini-Wright, Pocket peak flow, Vitalograph). They indicate the trend in airway obstruction and improvement on therapy, and can be used to measure bronchial variability (the difference between the early morning and late afternoon peak flow readings). All children >5 years should have their peak flow measured during the initial evaluation and at follow-up. Peak flow meters should be considered for short-term home monitoring in moderate and severe asthmatics. Other measures of lung function (FEV₁, MMEF₂₅₋₇₅ and FVC) can be measured by spirometry (preferably performed by a specialist).

IMMUNOTHERAPY

Allergen immunotherapy with specific allergens modulates the immune response in the direction of a protective, non-allergic response. There is new evidence that in young children whose rhinitis is treated with immunotherapy, the risk of developing asthma may be reduced. At present, however there is insufficient data to recommend routine treatment with immunotherapy for allergic asthmatics. There is a risk of the induction of severe bronchospasm and ideal protocols are still under investigation. At present, immunotherapy for asthma should only be conducted in the context of research studies.

SPECIAL CONSIDERATION IN CHILDHOOD **ASTHMA**

Pharmacotherapy for asthma in children younger than 5 years of age

For children under the age of 5 years the same basic steps must be taken as in older children. Note that the assessment and monitoring of severity with measurements of lung function, including PEF, are not feasible in this subgroup of patients. Therefore, classifying asthma severity must be based on clinical criteria. The history is fundamental and the symptoms must be described as wheezing and/or cough and/or dyspnoea. Essential elements in decision making are evaluation of the child's quality of life and physical examination.

Relievers:

The same doses of β_2 agonists are recommended for young children as for adults due to the inefficiency of the delivery systems. Oral β_2 agonists and short acting theophyllines are not recommended because of the side-effect profile.

Preventers:

In children with moderate or severe persistent asthma inhaled corticosteroids are the drug of choice. The safe dose is still 400 µg of beclomethasone or equivalent per day. Cromones may be used as preventer therapy on a trial basis (6-8 week duration), in children with mild to moderate persistent asthma. If there is no or poor response, patients should be switched to ICS.

Controllers:

The use of long-acting β_2 agonists or slow release theophylline preparations would be similar to the older child although there are no trials showing efficacy. Leukotriene receptor antagonists have recently been approved (by the FDA in the USA) for use in children aged 2 - 5 years.

Tapering and terminating therapy

Children on anti-asthma therapy should be reviewed at least every 3 months. If their asthma is well controlled (on clinical assessment and lung function) for a period of 3-6 months, treatment should be reduced. Stepping down is done as follows: first aim to discontinue oral steroids; next reduce dosage of inhaled steroids to a medium dose (if on high doses); thereafter aim to reduce or stop controller treatment; finally aim to further reduce inhaled steroids to lowest effective dose.

Self management plan for asthma

Patients and parents must be encouraged to participate actively in their own management. Wherever possible the patients and parents should be given a written plan. The elements of a self-management plan are summarised as follows:

- Instructions on avoidance measures including allergens and tobacco smoke.
- Training patients and parents to recognise alterations in their asthma and to know when to make adjustments to their treatment.
- Educating patients and parents about asthma and its treatment (e.g. correct use of inhalers; correct use of peak flow meter; recognition of symptoms and signs of worsening asthma).
- A crisis plan for management of acute exacerbations of asthma and access to health care in emergencies.
- Arrangements for a "Medic-Alert" badge for patients with severe steroid dependent asthma, known drug hypersensitivity like aspirin sensitivity and brittle asthma.

The responsibility for *patient education* rests with the doctor and should be shared with specially trained health care professionals. Several studies have shown that patient education significantly improves asthma control, decreases hospitalisation rates and reduces the overall cost of asthma.

Referral to a specialist

The majority of asthmatics can be managed optimally in a primary health care facility, provided the elements of the asthma guidelines are followed. There are some patients who may require referral to a specialist.

Referral of patients to a specialist is recommended if the goals of management are not achieved, or for the following reasons:

- diagnosis in doubt
- unstable asthma
- parents or general practitioners need further support
- child on high dose ICS (>400 µg beclomethasone equivalent per day).
- oral steroids are required regularly
- after a life-threatening episode
- frequent hospitalisations or visits to an emergency room

Unnecessary therapy

The following are without benefit in the treatment of childhood asthma: antibiotics, cough syrups, mucolytics, ionisers and breathing exercisers. Physiotherapy is indicated in children only where lobar collapse is documented.

Summary

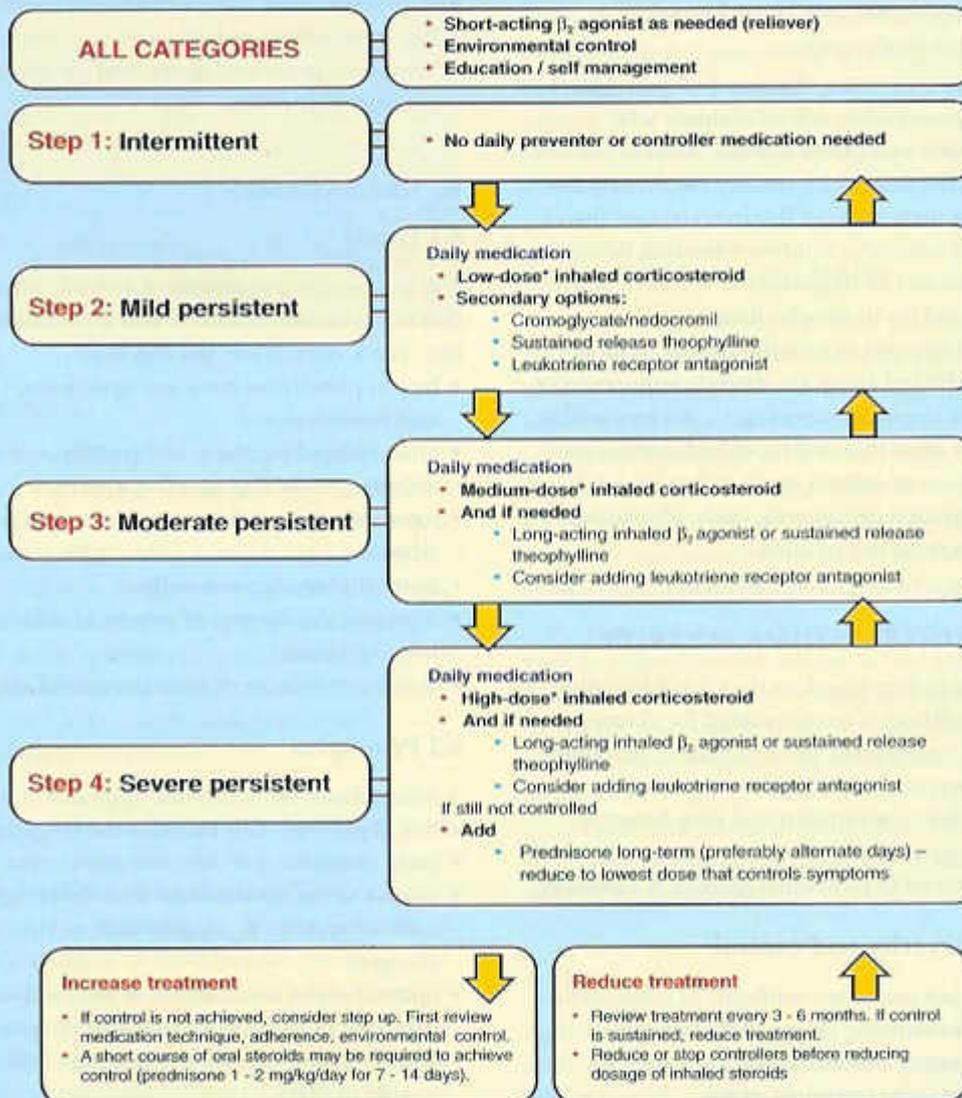
In the past few years, there have been significant paradigm shifts in the management of asthma. Regular use of anti-inflammatory treatment in patients with persistent symptoms is now generally well accepted. Although inhaled corticosteroid treatment is the most efficacious anti-inflammatory therapy for asthma, there are still concerns about their potential for adverse effects in children. Currently, there is great interest in the use of combination therapy (low to moderate doses of inhaled steroids and other inflammatory agents) in asthma.

Combination therapy with sustained release theophylline or leukotriene receptor antagonists may allow clinicians to use lower doses of inhaled steroids in order to minimise adverse effects and control symptoms. Combination of long term therapy with inhaled steroids and LABA, whilst efficacious in adults, has shown inconsistent results in children. Environmental control measures and self-management (including patient education) remain essential components of asthma management.

Fig. 1. Stepwise approach to management of chronic asthma in children

CLASSIFY SEVERITY AT PRESENTATION				
Category	Intermittent	Mild	Moderate	Severe
	1	2	3	4
Daytime symptoms	≤ 2 / week	2 – 4 / week	> 4 / week	Continuous
Night-time symptoms	≤ 1 / month	2 – 4 / month	> 4 / month	Frequent
PEF (predicted) -	≥ 80%	≥ 80%	60 – 80%	< 60%

Start treatment at any step depending on the level of severity.



Choice of spacer devices

- < 3 yrs MDI + spacer with mask
- > 3 yrs MDI + spacer with mouthpiece or DPI

*Recommended daily dosages of inhaled corticosteroids

STERIOD	LOW DOSE	MEDIUM DOSE	HIGH DOSE
CFC beclomethasone*	100 - 200 μ g	200 - 400 μ g	> 400 μ g
Budesonide MDI	100 - 200 μ g	200 - 400 μ g	> 400 μ g
Budesonide turbuhaler	100 μ g	100 - 200 μ g	> 200 μ g
Fluticasone	50 - 100 μ g	100 - 200 μ g	> 200 μ g
Triamcinolone	100 - 200 μ g	200 - 400 μ g	> 400 μ g

*HFA beclomethasone: dosages recommended by the manufacturer are 50% of those for CFC beclomethasone.



[\(For the Guideline for the Management of Chronic Asthma in adults, click here.\)](#)

Annexure A. Methodology

SACAWG is an official Working Group of the Allergy Society of South Africa. This group was constituted on 18 November 1989 with Prof. Eugene Weinberg being the first chairman. It first published guidelines for the management of chronic childhood asthma in 1992. The guidelines were revised in 1994 because of several important advances in the understanding and treatment of asthma. The revised document was published as a companion to the original guidelines in the South African Medical Journal in 1992. It was widely felt that the existing guidelines had to be reviewed in the light of (i) the development of leukotriene receptor antagonists, (ii) studies claiming a synergistic effect of the combination of LABA with inhaled corticosteroids and (iii) a request by the South African Medical Association for a comprehensive guideline document. This was followed by an agreement with the South African Pulmonology Society that the adult asthma guidelines be reviewed as well.

The SACAWG was reconstituted in 1998 with Dr Cas Motala as the new chairman of the group. He co-opted more members and divided the group into 6 sub-committees: Environmental control and immunotherapy; Pharmacotherapy (steroids); Pharmacotherapy (non-steroidals); Asthma management in the third world setting; Management of children under 5 years of age and use of delivery devices; Patient education. The composition of the various subcommittees is listed on pages 18 and 19. A chairperson was appointed for each subcommittee. The subcommittees were requested to review the current literature (evidence-based, where available) on their respective areas of asthma management and to submit any proposals for amending the existing guidelines. Dr. Motala, Dr. Kling and the chairpersons of the subcommittees convened a meeting on 22 August 1998 in Cape Town to discuss the relevant issues for the revision of the guidelines. This meeting was sponsored by an educational grant from Zeneca Pharmaceuticals. Following this meeting an Editorial Board was constituted and given the task of drawing up a draft document with the proposed amendments. The draft document was then circulated to all the members of SACAWG for comment. The Editorial Board was tasked to compile the final guideline document.

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