



Primary Care Respiratory Society UK

Formerly known as General Practice Airways Group

A Quick Guide to the Routine Management of Asthma in Primary Care

Adapted from the 2009 BTS/SIGN Guideline for the Management of Asthma and incorporating NICE guidance on inhaled steroids

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Primary Care Respiratory Society UK

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The Primary Care Respiratory Society UK (PCRS-UK) (formerly known as the General Practice Airways Group) is an independent charity representing primary care health professionals interested in delivering the best standards of respiratory care. It is dedicated to achieving optimal respiratory care for all through:

- Representing primary care respiratory health needs at policy level
- Promoting best practice in primary care respiratory health through education, training and other services
- Supporting the development of primary care health professionals in respiratory medicine
- Facilitating and leading primary care respiratory research

The PCRS-UK is a membership organisation. To learn more about the full range of membership services and programmes or for information on how to join please visit our website at <http://www.pcrs-uk.org>.

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Introduction

More than five million people in the UK are currently being treated for asthma yet despite proven treatments there remains a high morbidity from this condition with a high use of emergency admissions. Many of these could be avoided with the correct management.

We still have deaths from asthma. In 90% of cases avoidable risk factors have been identified. It is therefore important that healthcare professionals offer the best available management tailored to individual patients needs. Guidelines can assist us in our care management and treatment of this common problem.

This '**Quick Guide**' to the routine management of asthma in primary care is based on the British Thoracic Society (BTS) and Scottish Intercollegiate Guideline Network (SIGN) British Guideline on the Management of Asthma, May 2008, revised edition published June 2009: http://www.brit-thoracic.org.uk/Portals/0/Clinical%20Information/Asthma/Guidelines/Asthma_fullguideline_2009.pdf and the guidance published by NICE on the use of inhaled steroids in the management of asthma (<http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11945>).

It is intended as an 'aide memoire' for primary care health professionals to refer to in the course of a consultation and is **also available as a short guide on the PCRS-UK website** at http://www.pcrs-uk.org/asthmaguide/asthma_guide_home.php in easy to view sections and in Microsoft Powerpoint® Slide format for downloading. There is also a simple online knowledge test to assess your understanding of the BTS/SIGN Guideline on the Management of Asthma.

The PCRS-UK is grateful to BTS/SIGN for permitting the adaptation of figures and text from the Guideline to support this publication. Additional tools and resources including slides and case studies to support the guideline are also available on the BTS website available at <http://www.brit-thoracic.org.uk/ClinicalInformation/Asthma/AsthmaEducationMaterials/tabid/211/Default.aspx>.

Aim of Asthma Management

The aim of asthma management is disease control, this is defined as:

- No daytime symptoms
- No night time symptoms due to asthma
- No need for rescue medication
- No exacerbations
- No limitations on activity including exercise
- Normal lung function - in practical terms FEV₁ and/or PEF >80% predicted or best with minimal side effects

Diagnosis in Children

Focus the initial assessment in children suspected of having asthma on:

- Presence of key features and examination
- Careful consideration of alternative diagnosis

Clinical features that increase the probability of asthma

- More than one of the following symptoms - wheeze, cough, difficulty breathing, chest tightness:
 - particularly if these are frequent and recurrent;
 - are worse at night/early morning
 - occur in response to are worse after exercise or other triggers such as exposure to pets, pollens, cold or damp air, or with emotion, laughter
 - occur apart from colds
- Personal history of atopic disease
- Family history of atopic disease and/or asthma
- Widespread wheeze heard on auscultation

With a thorough history and examination, a child can usually be classed into one of three groups:

High probability of asthma - diagnosis of asthma is likely

- Start a trial of treatment
- Review and assess response
- Reserve further testing for those with poor response

Low probability of asthma - diagnosis other than asthma is likely

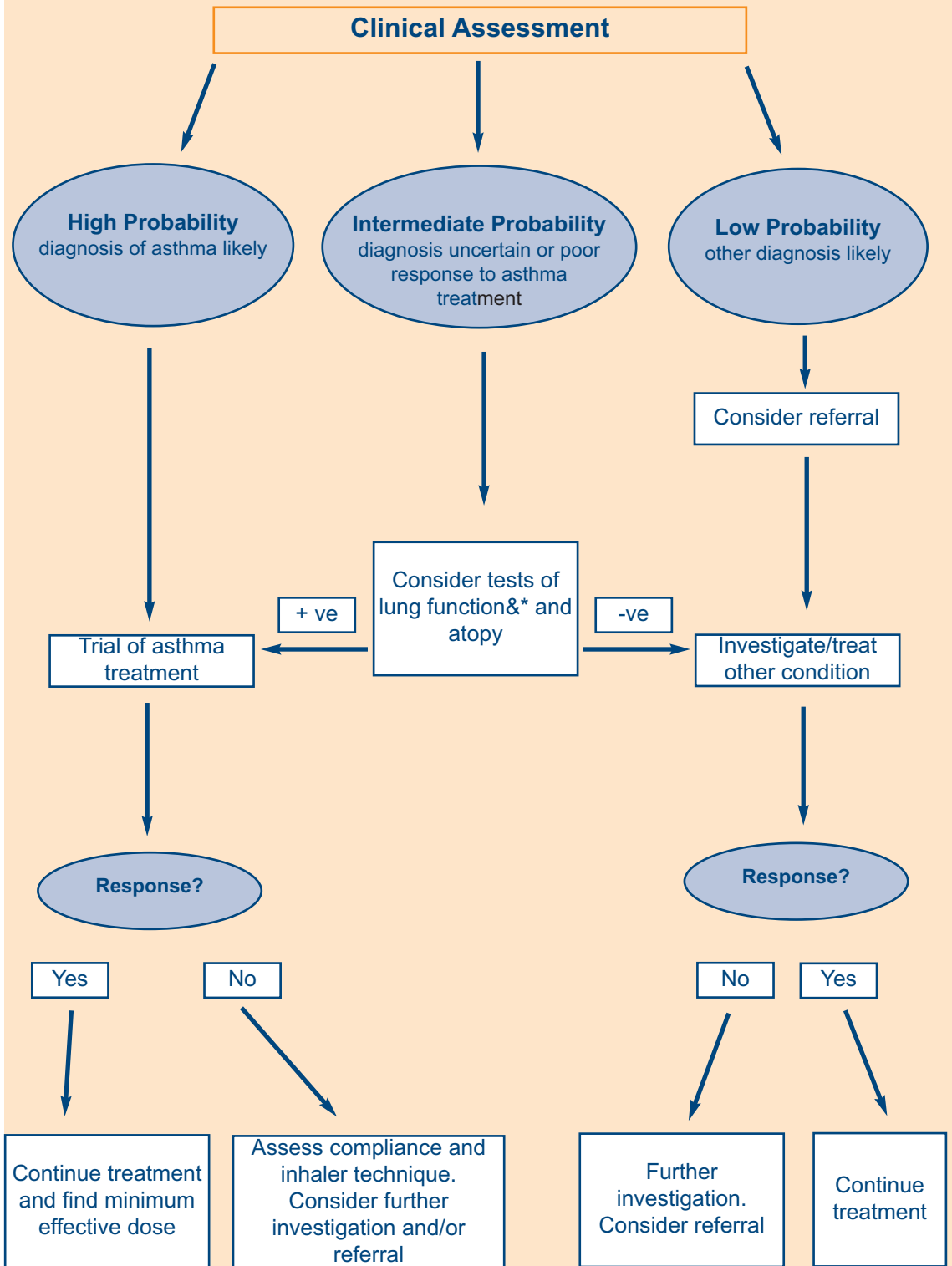
- Consider alternative diagnosis and treat appropriately
- Consider more detailed investigation and specialist referral

Intermediate probability of asthma - diagnosis is uncertain

In some children particularly those less than five years of age, where there is insufficient evidence at the first consultation to make a firm diagnosis, but no features to suggest an alternative diagnosis, there are several possible approaches to reaching a diagnosis in this group. These approaches include:

1. **Watchful waiting with review** - in children with mild, intermittent wheeze and other respiratory symptoms which occur only with URTIs, it is reasonable to give no specific diagnostic label or treatment and simply plan a review of the child after an agreed interval with the parents/carers
2. **Trial of treatment with review** - choice of treatment e.g. inhaled β_2 -agonist or inhaled corticosteroid depends on the severity and frequency of symptoms. However, it can be difficult to assess the response to treatment as an improvement in symptoms or lung function may be due to spontaneous remission, therefore careful observation during a trial of withdrawing treatment may clarify whether a response to asthma therapy has occurred
3. **Lung function and reversibility testing**- In children who can perform spirometry* and have evidence of airways obstruction, assess the change in FEV₁ or PEF in response to an inhaled β_2 -agonist such as salbutamol (reversibility) and/or response to a trial of treatment for a specified period. However, normal results on

Presentation with suspected asthma in children



* Lung function tests include spirometry before and after bronchodilator (test of airway reversibility) and possible exercise or methacholine challenge (test of airway responsiveness). Most children over the age of five years can perform lung function tests.

testing especially if performed when the child is asymptomatic, do not exclude a diagnosis of asthma

- If there is significant improvement in FEV₁ and/or PEF of 12% or a positive response to treatment the diagnosis of asthma is highly probable
- If there is no significant reversibility and a trial of treatment is not beneficial, consider alternative diagnosis and specialist referral

The diagnosis of asthma in children is a clinical one. It is based on recognising a characteristic pattern of episodic symptoms in the absence of an alternative explanation.

Diagnosis in Adults

The diagnosis of asthma is based on the recognition of a characteristic pattern of symptoms and signs and the absence of an alternative explanation for them. **The key is to take a careful clinical history.**

- In patients with a **high probability** of asthma move straight to a trial of treatment. Reserve further testing for those whose response to a trial of treatment is poor
- In patients with a **low probability** of asthma whose symptoms are thought to be due to an alternative diagnosis, investigate and manage accordingly. **Reconsider the diagnosis in those who do not respond**
- In patients with an **intermediate probability** of having asthma, carry out further investigations, including an explicit trial of treatments for a specific period before confirming a diagnosis and establishing maintenance treatment

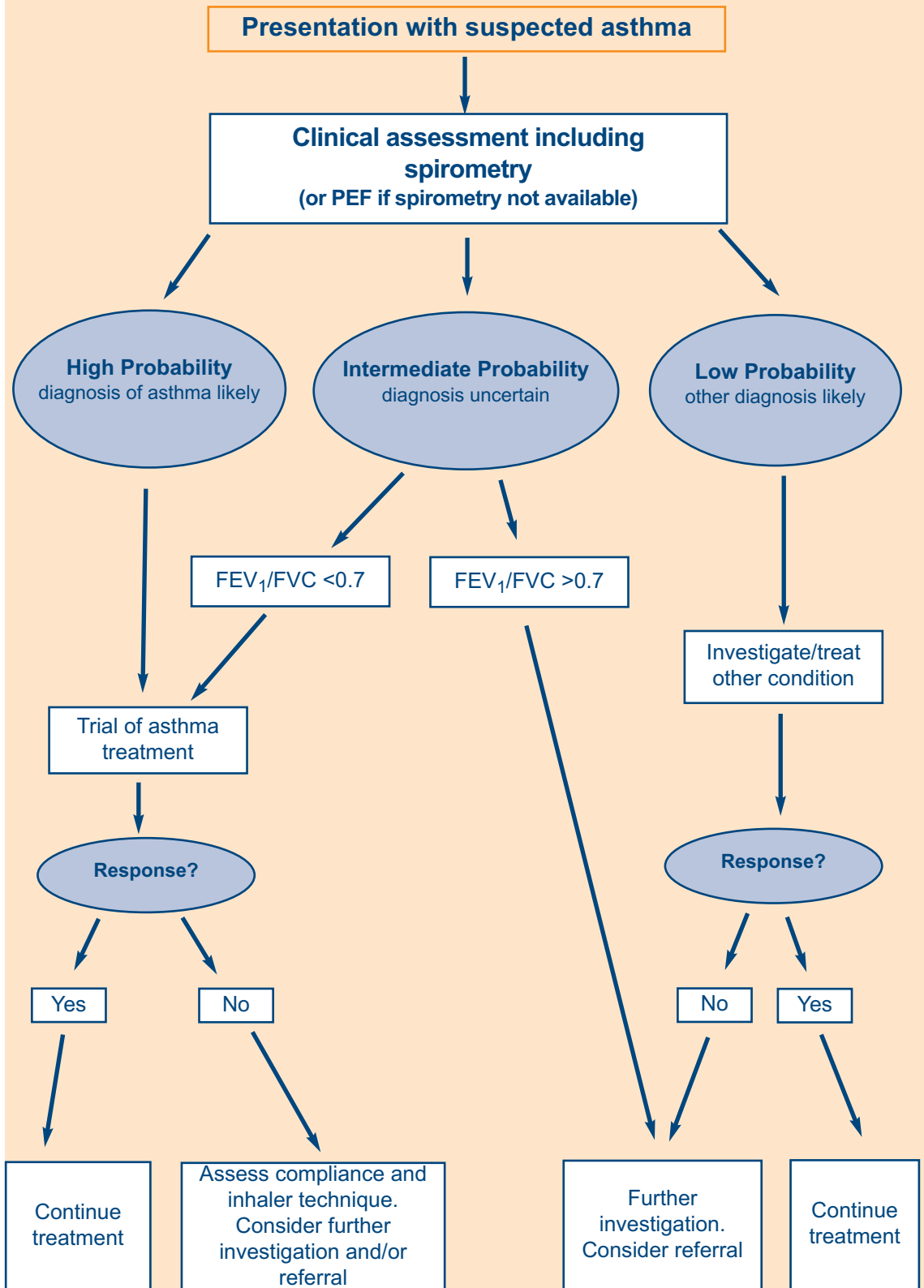
Spirometry* is the preferred initial test to assess the presence and severity of airflow obstruction as it has the advantage of providing more information than a PEF however normal spirometry when not symptomatic does not exclude the diagnosis of asthma. Repeated measurements of lung function are often more informative than a single measurement.

* All spirometry should be undertaken and performed by a trained operator - see the PCRS-UK Spirometry Standards paper at www.thepcrj.org - DOI: <http://dx.doi.org/10.4104/pcrj.2009.00054>.

Clinical features that increase the probability of asthma

- More than one of the following symptoms: wheeze, breathlessness, chest tightness and cough particularly if:
 - symptoms are worse at night and in the early morning
 - symptoms in response to exercise, allergen exposure and cold air
 - symptoms after taking aspirin, NSAIDs or beta-blockers
- Personal history of atopic disease
- Family history of asthma/atopic disease
- Widespread wheeze heard on auscultation of chest
- Otherwise unexplained low FEV₁ or PEF (historical or serial readings)

Presentation with suspected asthma in adults



Pharmacological management of asthma

The step-wise approach

The introduction of regular preventer therapy with inhaled corticosteroids (step 2) should be considered when a person has had exacerbations of asthma in the previous 2 years, is using an inhaled short acting β_2 -agonist three times a week or more, is symptomatic three times a week or more, or is waking at night at least once a week because of asthma.

In accordance with guidance from NICE (<http://www.nice.org.uk/TA138>) the least expensive product that is suitable for the individual patient, within its marketing authorisation should be used.

1. Start treatment at the step most appropriate to severity to initial severity – a reasonable starting dose of inhaled corticosteroids (ICS) in adults would be 400mcg/day of beclometasone BDP-HFA (or equivalent) and in children 200mcg/day. In children <5 years higher doses may be required if there are problems in obtaining consistent drug delivery
2. Achieve early control
3. Maintain control by:
 - Stepping up treatment as necessary
 - Stepping down when control is good

The majority of children will be adequately managed on 200-400mcgs of beclometasone BDP-HFA (or equivalent) per day (see table on page 14 for inhaled corticosteroid equivalent doses). **In children aged 5-12 years consider very carefully before going above an inhaled steroid dose of beclometasone BDP-HFA 400mcg/day (or equivalent) and refer patients with inadequately controlled asthma, especially children, to secondary care.**

There is some limited evidence that leukotriene receptor antagonists (LTRAs) can be used intermittently in children with episodic asthma. Treatment is started at the onset of either asthma symptoms or of coryzal symptoms and continued for 7 days.

Before initiating a new drug therapy practitioners should always check compliance with existing therapies, inhaler technique and, where possible, eliminate trigger factors.

Inhaler devices

- Prescribe inhalers only after patients have received training in the use of the device and have demonstrated satisfactory technique
- The choice of device may be determined by the choice of drug
- If the patient is unable to use a device satisfactorily, an alternative should be found
- In children aged 0-5 years pMDI and spacer are the preferred delivery system, for β_2 -agonists and inhaled steroids. A face mask is required until the child can breathe reproducibly using the spacer mouthpiece

Pharmacological management of asthma continued

Combination inhalers

Long acting beta-agonists (LABA) are the preferred first option for add-on therapy, usually beyond an inhaled corticosteroid dose of 400mcg Beclometasone BDP-HFA or equivalent per day in adults and 200mcg per day in children.

In accordance with NICE guidance, the use of a combination inhaler is recommended as an option for patients in whom an inhaled steroid and a LABA are considered appropriate.

Combination inhalers have the advantage, once a patient is on stable therapy, of guaranteeing that the LABA is not taken without the inhaled steroid.

Combination of Budesonide/formoterol in one inhaler

- In selected adult patients at Step 3 who are poorly controlled or in selected patients at step 2 (>400mcg BDP/day who are poorly controlled) the use of budesonide/formoterol in a single inhaler as rescue medication instead of a short acting β_2 -agonist, in addition to its regular use as a preventative (controller) treatment, has been shown to be effective
- When this management option is introduced the total regular dose of daily inhaled steroids should not be decreased
- The regular daily dose of ICS may be budesonide 200mcg bd or 400mcg bd
- Patients taking rescue budesonide/formoterol once/day or more should have their treatment reviewed
- Before instituting this management careful patient education is required.
- This management technique has not been investigated with other combination inhalers

Stepping Down

- Regular review of patients as treatment is stepped down is important. When deciding which drug to step down first and at what rate, the severity of the asthma, the side-effects of the treatment, time on current dose, the beneficial effect achieved and the patient's preference should all be considered
- Patients should be maintained at the lowest possible dose of inhaled corticosteroid
- Any reduction in inhaled corticosteroid should be undertaken slowly, every three months, since patients deteriorate at different rates
- For severe asthma, the reduction in inhaled steroid should be 25% eg. if taking 800mcg of inhaled corticosteroid they could be reduced to 600mcg- 1 puff am and 2 puffs in the evening or vice-versa
- For more stable patients, the inhaled corticosteroid could be reduced by 50% with the patient taking 400mcg instead of 800mcg/day
- Some children with mild asthma and a clear seasonal pattern to their symptoms may have a more rapid dose reduction during their "good season"

Review patients regularly to check for deteriorating control

Summary of stepwise management in children less than five years

Patients should start treatment at the step most appropriate to the initial severity of their asthma. Check concordance and reconsider diagnosis if response to treatment is unexpectedly poor

MOVE UP TO IMPROVE CONTROL AS NEEDED

MOVE DOWN TO FIND AND MAINTAIN LOWEST CONTROLLING STEP



* BDP or equivalent

[^] Higher nominal doses may be required if drug delivery is difficult

SYMPTOMS

VS

TREATMENT

Summary of stepwise management in children aged 5-12 years

Patients should start treatment at the step most appropriate to the initial severity of their asthma. Check concordance and reconsider diagnosis if response to treatment is unexpectedly poor

MOVE UP TO IMPROVE CONTROL AS NEEDED

MOVE DOWN TO FIND AND MAINTAIN LOWEST CONTROLLING STEP



* BDP or equivalent

SYMPTOMS

VS

TREATMENT

Summary of stepwise management in adults

Patients should start treatment at the step most appropriate to the initial severity of their asthma. Check concordance and reconsider diagnosis if response to treatment is unexpectedly poor

MOVE UP TO IMPROVE CONTROL AS NEEDED

MOVE DOWN TO FIND AND MAINTAIN LOWEST CONTROLLING STEP



* BDP or equivalent

SYMPTOMS

VS

TREATMENT

Primary Care Review - Organisation and delivery of care

- All people with asthma should have access to primary care services delivered by doctors/nurses/pharmacists with appropriate training in asthma management (see PCRS-UK Skills Document)
- Proactive clinical reviews of people with asthma improves clinical outcomes and clinicians trained in asthma management achieve better outcomes for their patients
- Structured review as opposed to opportunistic or unscheduled review is associated with reduced exacerbation rates and days lost from normal activity
- Consider undertaking routine reviews by telephone for patients with asthma. However, face-to-face review is better for patients with poor control or inhaler related problems
- Follow-up of patients is essential for those who have attended an emergency department, been admitted to hospital, or been treated in the practice with an acute exacerbation of asthma
- The general practice surgery should be informed of any admission so that the patient can be seen for review to explore reasons for the exacerbation and to discuss and implement actions to prevent further relapses

What constitutes a good asthma review?

- Checking inhaler technique is essential; the device may need to be changed to meet the patient's needs
- General practices should maintain a register of people with asthma – READ coding of patients who are newly diagnosed or register at a practice will ensure a meaningful database for audit and review purposes
- Clinical review should be structured and should use a standard recording system
- Use of the above improve the recording of relevant data and may promote further action to address the causes of sub-optimal control, such as under-treatment, poor adherence, or poor inhaler technique
- Reviewing patients using a patient centred style of consultation can lead to improved outcomes
- Patient education and understanding of medication role and use is important
- Checking inhaler technique is essential; the device may need to be changed to meet the patient's needs
- Recording lung function
- Review should incorporate a written asthma action plan (see PCRS-UK opinion sheet on asthma action plans)

Patient education and self-management

Health care professionals who provide asthma care should have heightened awareness of the complex needs of ethnic minorities, socially disadvantaged groups, adolescents, the elderly and those with communication difficulties

- Patients with asthma should be provided with self-management education that focuses on individual needs and can be reinforced by a written personalised action plan
- Components of a self management programme should encompass:
 - Specific advice about recognising loss of asthma control, this may be assessed by peak flows, symptoms or both
 - Actions, summarised as 2 or 3 actions to be taken if asthma deteriorates, including seeking emergency help, commencing oral steroids or temporarily increasing current medication
- Self management programmes will only achieve better health outcomes if the prescribed asthma treatment is appropriate, therefore clinicians should have a good working knowledge of the current national guideline
- Practices should ensure that there is a robust local notification system for hospital discharge, (within 48 hrs), to ensure that they can facilitate early practice-based review to explore the reasons for the asthma exacerbation

Difficult asthma

Difficult asthma is defined as persistent symptoms and/or frequent exacerbations despite treatment at step 4 or 5. Patients with difficult asthma should be systematically evaluated including:

- Confirmation of the diagnosis of asthma
- Identification of the mechanism of persisting symptoms and assessment of adherence to therapy
- Increased numbers of asthma deaths and difficult asthma is commonly associated with poor adherence to maintenance therapy and coexistent psychosocial morbidity

Patients who fall into this category should be referred to a specialist team experienced in the assessment and management of difficult asthma.

PCRS-UK equivalent doses of inhaled corticosteroids reference table

Steroid	Equivalent dose to beclometasone dipropionate 400mcg BDP-HFA
Beclometasone-CFC	No longer available
Beclometasone	
Clenil Modulite®	400mcg
Clickhaler	400mcg
Aerobec® Autohaler	400mcg
Asmabec® Clickhaler	400mcg
Becodisks® Dry Powder	400mcg
Easyhaler	400mcg
Pulvinal®	400mcg
Filair® MDI	400mcg
Qvar® MDI/Easi-breathe/Autohaler	200-300mcg
Fostair®-BDP/Formoterol MDI	200mcg
Budesonide	
MDI	400mcg
Turbohaler®	400mcg
Easyhaler®	400mcg
Novolizer®	400mcg
Symbicort® Turbohaler- budesonide/formoterol	400mcg
Fluticasone	
MDI (HFA)	200mcg
Accuhaler®	200mcg
Seretide® (HFA) MDI fluticasone/salmeterol	200mcg
Seretide® Accuhaler	200mcg
Mometasone	
Twisthaler®	200mcg
Ciclesonide®	
MDI	200-300mcg

Adapted with permission from the BTS/SIGN Guideline on the Management of Asthma, May 2008, Updated June 2009

For prescribing information please refer to the individual product's Summary of Product Characteristics (SPC). You can view and download SPCs and Patient Information Leaflets (PILs) from the electronic Medicine Compendium (eMC) available at <http://emc.medicines.org.uk/>

References

This booklet has been prepared by members of the Primary Care Respiratory Society UK and is based on the BTS/SIGN Guideline for the management of asthma - see <http://www.sign.ac.uk/guidelines/fulltext/101/index.html> and the National Institute for Health and Clinical Excellence (NICE) guideline for the use of inhaled steroids in the management of asthma (Adults: <http://www.nice.org.uk/Guidance/TA138> and Children: <http://www.nice.org.uk/Guidance/TA131>).

PCRS-UK Resources

- **PCRS-UK Online Quick Guide to the Management of Asthma**
http://www.pcrs-uk.org/asthmaguide/asthma_guide_home.php
- **PCRS-UK Opinion Sheet - Asthma Action plans**
http://www.pcrs-uk.org/opinions/asthma_action_plans_rev_aug_2008.pdf
- **PCRS-UK Opinion Sheet - Diagnosis of Asthma in Adults**
http://www.pcrs-uk.org/opinions/diagnosis_asthma_adults_final.pdf
- **PCRS-UK Opinion Sheet - Asthma Review**
http://www.pcrs-uk.org/opinions/asthma_review_final.pdf
- **PCRS-UK Opinion Sheet - Inhaler Devices**
http://www.pcrs-uk.org//opinions/inhaler_devices_final.pdf
- **PCRS-UK Opinion Sheet - NICE Guidelines for the use of ICS in asthma**
http://www.pcrs-uk.org/opinions/nice_ics_final.pdf
- **PCRS-UK Opinion Sheet - High Risk Asthma**
http://www.pcrs-uk.org/opinions/high_risk_asthma_final.pdf
- **PCRS-UK Opinion Sheet - Asthma - Special Situations**
http://www.pcrs-uk.org/opinions/asthma_special_situations_final.pdf
- **PCRS-UK Opinion Sheet - The role of inhaled corticosteroids and long-acting β_2 -agonists, alone and in combination, in the management of asthma**
http://www.pcrs-uk.org/opinions/laba_ics_asthma_final.pdf
- **PCRS-UK Protocol - Asthma Review**
http://www.pcrs-uk.org/resources/asthma_review_protocol_final_web_170909.pdf
- **PCRS-UK Protocol - Spirometry**
http://www.pcrs-uk.org/resources/protocol01_spirometry_final.pdf
- **PCRS-UK Protocol - Management of acute asthma in primary care**
http://www.pcrs-uk.org/resources/protocol04_acuteasthma_final_webversion.pdf
- **PCRS-UK Protocol - Telephone consultations**
http://www.pcrs-uk.org/resources/protocol_tele_consult_final.pdf
- **PCRS-UK Patient Group Direction - Reversibility testing in primary care**
http://www.pcrs-uk.org/resources/reversibility_pgd_final.pdf
- **PCRS-UK Patient Group Direction - Administration of salbutamol in acute asthma**
http://www.pcrs-uk.org/resources/pgd02_adminsalb_final_webversion.pdf
- **PCRS-UK Checklist - Asthma Assessment and Review**
http://www.pcrs-uk.org/resources/asthma_checklist_final_web_170909.pdf
- **PCRS-UK Skills Level Document**
http://www.pcrs-uk.org/resources/skills_level_set_180707.pdf

PCRS-UK Resources continued

- **Primary Care Respiratory Journal**
Diagnostic Spirometry in Primary Care: Proposed standards for general practice compliant with American Thoracic Society and European Respiratory Society recommendations
Mark L Levy, Philip H Quanjer, Rachel Booker, Brendan G Cooper, Steve Holmes, Iain Small
<http://dx.doi.org/10.4104/pcrj.2009.00054>
- **Primary Care Respiratory Journal Supplement**
Summary of the 2008 BTS/SIGN British Guideline on the Management of Asthma
http://www.thepcrj.org/journ/vol18/18_suppl_1_S1_S16.pdf

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