

Update on asthma management

Only half of patients with asthma manage to control it to an acceptable level. The others suffer disease symptoms and a reduced health-related quality of life. **Anna Murphy** gives an overview of asthma management, including recent advances

Asthma is a chronic disease characterised by recurrent attacks of breathlessness and wheezing. Symptoms can occur several times a day and, in some people, can be worse during physical activity or at night. The impact of these symptoms can be seen on both the NHS expenditure and patients' health-related quality of life.

Each year, the NHS spends almost £1bn treating asthma and advances in treatments and management over the past 20 years mean that patients should not be putting up with symptoms.¹ However, asthma is still uncontrolled and patients often do not adhere to their prescribed treatment regimens, increasing their chances of attacks. "Unwitting non-adherence", as defined by the World Health Organization, accounts for a large number of asthma patients who fail to use their medicines correctly because they do not understand their regimen or the importance of correct use. For example, patients can misinterpret "use twice a day" as "use twice a day when you are unwell".²

Lack of adherence to preventer medicines, such as inhaled corticosteroids, can lead to poor symptom control and greater reliance on reliever therapy. Studies have shown that between 6 and 44 per cent of prescriptions for asthma medicines go unfilled, and that long-term adherence to preventer therapy is poor even when prescriptions are filled.³

Asthma has a number of clinical variants, including occupational, exercise-induced, allergic and aspirin-sensitive. Although the condition cannot be cured, appropriate management can help to keep it under control and enable people to enjoy a good quality of life. Pharmacists can play a crucial role in ensuring patients are managed following clinical evidence and guidelines so that patient outcomes are improved.

A stepwise approach to management

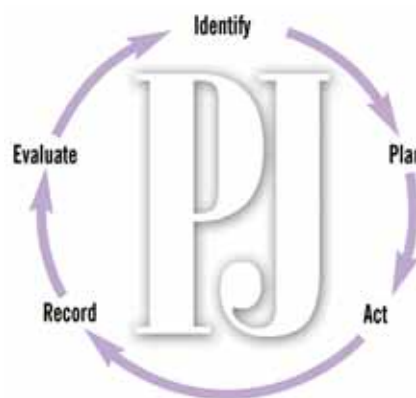
Asthma usually requires continual care. The current British guidelines,⁴ from the British Thoracic Society and the Scottish Intercollegiate Guidelines Network, published in July 2007, aim to achieve early control and to maintain control by stepping up treatment as necessary, and stepping down when control is established (see Figure 1, p284). The treatment initiated depends on the severity of the disease. All pharmacists should be familiar with this stepwise approach.

Traditionally, patients have had to use at least two inhalers to achieve control — a short-acting beta₂ agonist, such as salbutamol or terbutaline, and an inhaled corticosteroid. For some patients, a long-acting beta₂ agonist, such as formoterol or salmeterol, is also



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Between 6 and 44 per cent of prescriptions for asthma medicines go unfilled



Identify knowledge gaps

1. What are the current guidelines for managing asthma?
2. Can you name two recent advances in the management of asthma?
3. What should a personalised asthma action plan include?

Before reading on, think about how this article may help you to do your job better. The Royal Pharmaceutical Society's areas of competence for pharmacists are listed in "Plan and record", (available at: www.uptodate.org.uk). This article relates to "common disease states" (see appendix 4 of "Plan and record").

prescribed and in about 20 per cent of patients, further drugs are required.

Inhaled therapy allows drugs to be delivered directly to the airway significantly reducing systemic side effects compared with oral therapy. A number of different inhalation devices are available, and it can be difficult for a clinician to make informed prescribing decisions. In practice, the fundamental principle is to use the most clinically- and cost-effective drug, taking into account the ability of the patient to use the device. Incorrect use, as well as no use, of an inhaler is a common reason for treatment failure so patients should receive appropriate instruction and guidance on effective technique when they are prescribed an inhaler device and this should be regularly reinforced. Pharmacists are in a pivotal position to train patients on using their inhalers and to demonstrate satisfactory technique.

Reliever medicines Reliever medicines provide rapid relief of symptoms when a patient has breathing difficulties but do not treat the underlying airway inflammation. Short-acting beta₂ agonists (SABAs) are the most commonly used relievers. They relax the airway when bronchoconstriction occurs. Over

Anna Murphy, MSc, MRPharmS, is consultant respiratory pharmacist at University Hospitals of Leicester NHS Trust

reliance on a SABA (ie, taking more than 10 puffs a day or using the inhaler more than three times a week) indicates a poor level of asthma control.

Inhaled corticosteroids Inhaled corticosteroids are the most effective therapy currently available for asthma and are now recommended as first-line therapy for all but the mildest cases. Corticosteroids reduce inflammation in the airway and prevent blood vessels from leaking fluid into airway tissues. They help decrease the frequency of exacerbations and reduce the need for other medicines to control symptoms. The British asthma management guideline recommends that an inhaled corticosteroid is considered for the following patients:

- Those who have had asthma attacks in the past two years
- Those who need to use an inhaled SABA three times a week or more
- Those who experience symptoms three times a week or more, or wake on one night a week or more because of asthma

Many patients currently use beclometasone dipropionate by metered dose inhaler (MDI). However, production of Becotide and Becloforte has recently been discontinued due to the phasing out of chlorofluorocarbon (CFC) propellants in MDIs and, eventually, manufacturer of all CFC-containing beclometasone inhalers will cease. Patients using these inhalers need, therefore, to be prescribed an alternative. There are two CFC-free beclometasone inhalers available: Qvar and Clenil Modulite. Qvar delivers the drug more efficiently than CFC-containing beclometasone inhalers so the dose must be halved. Clenil Modulite has a 1:1 dose equivalence with CFC-containing beclometasone inhalers, so the prescribed dose should remain unchanged. Due to these differences in dose equivalence the Medicines and Healthcare Products Regulatory Authority requires the CFC-free inhalers to be prescribed by brand name and pharmacists receiving generic prescriptions must establish which brand is to be dispensed.

This changeover provides an ideal opportunity to review the medicines and doses used by all asthma patients and to assess their inhaler technique.

Long-acting beta₂ agonists Long-acting beta₂ agonists (LABAs) are used to control moderate to severe asthma or night time symptoms. They widen a constricted airway and this effect lasts for about 12 hours. Salmeterol or formoterol are used regularly along with inhaled corticosteroids and should not be used alone to treat asthma. The MHRA has reviewed the use of LABAs to treat asthma after concerns raised by the Salmeterol Multicentre Asthma Research Trial. This double blind randomised placebo-controlled trial recorded more asthma-related deaths and life-threatening experiences in pa-

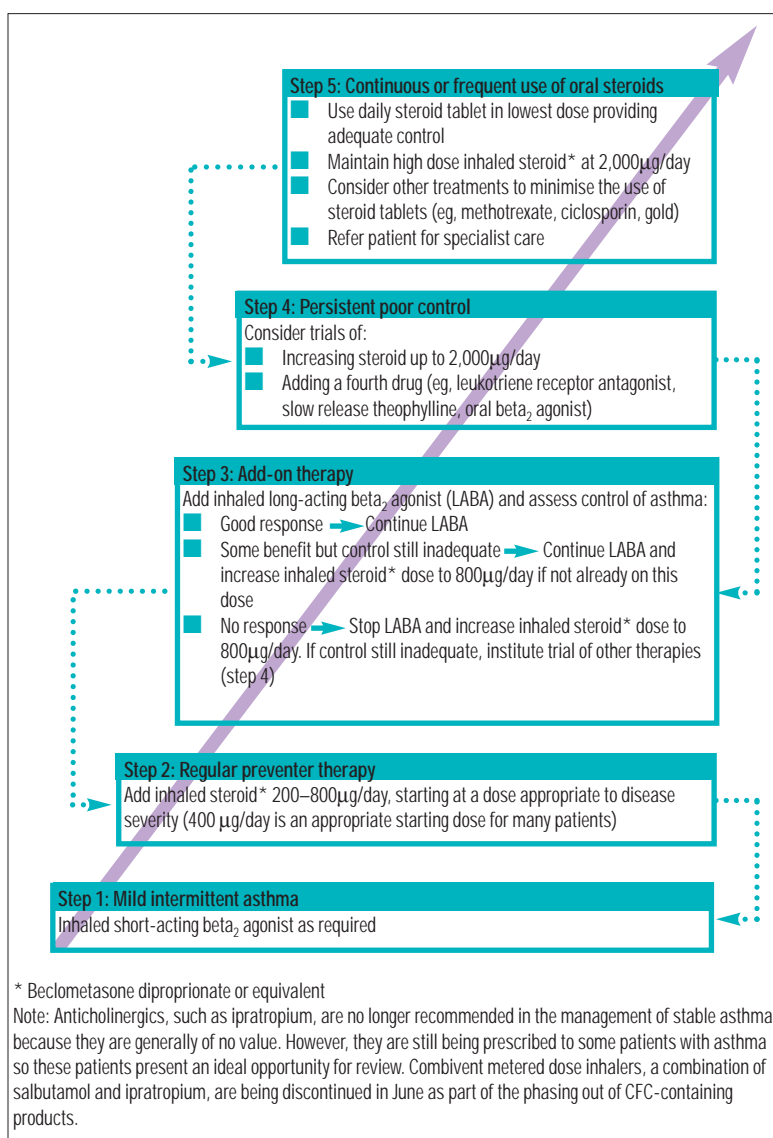


Figure 1: BTS/SIGN asthma management guidelines

Qvar delivers the drug more efficiently than CFC-containing beclometasone inhalers so the dose must be halved

tients using salmeterol compared with placebo. Subgroup analyses suggest the risk may be greater in people of African descent than in Caucasians. However, the MHRA states that since the introduction of LABAs, there has been an overall decrease in asthma-related hospital admissions and asthma-related deaths. The data support the use of LABAs in conjunction with inhaled corticosteroids, consistent with the BTS/SIGN guidelines.

Combination inhalers Maintenance medication must be taken regularly to achieve long-term control. To aid compliance with the concomitant use of inhaled corticosteroids and LABAs, a combination inhaler (eg, budesonide/formoterol [Symbicort] or fluticasone/salmeterol [Seretide]) should be used when appropriate.⁵ Combination inhalers should only be used by patients who fulfil step 3 criteria (see Figure 1).

Advances in asthma management

Since the 2007 BTS/SIGN guidelines update there have been advances in the management of patients with asthma. The guidelines are due to be reviewed this year but, in the mean-

Panel 1: New advances in asthma management

Omalizumab Omalizumab (Xolair), an anti-immunoglobulin-E antibody, reduces exacerbations and the requirement for steroids in allergic asthma.⁶ Patients with this type of asthma produce high levels of IgE, which means their airways are over-responsive to common stimuli, such as dust. Omalizumab, which is administered via subcutaneous injection every two to four weeks, blocks the IgE, reducing the body's normal response to triggers.

The National Institute for Health and Clinical Excellence published a technology appraisal on the use of omalizumab for England and Wales in November 2007. Omalizumab is recommended as a possible treatment for adults and children over 12 years with severe persistent allergic asthma when all of the following circumstances apply:

- The patient has allergic asthma which has been confirmed by checking past symptoms and skin testing for allergies
- The patient's asthma is severe and unstable despite best efforts to control it with other medicines taken as directed
- The patient is a non-smoker (smokers should stop smoking before omalizumab is prescribed)
- The patient has had at least two asthma attacks within the past year that have resulted in hospital admission, or he or she has had three or more severe asthma attacks within the past year, one needing hospital admission and the other two needing additional treatment in an accident and emergency department

Omalizumab treatment should be given alongside the patient's current asthma medicines. The prescriber must be experienced in asthma and allergy medicine at a specialist centre. If omalizumab does not control the asthma after 16 weeks' treatment should be stopped.

The SMART strategy Simplicity in the treatment of asthma, through reducing the number of medicines or inhalers, has been identified as an important aspect of a more desirable management strategy, and provides healthcare professionals with a practical consideration when aiming to adopt a more patient-centred approach to care. Symbicort maintenance and reliever therapy (SMART) is, perhaps, the most important advance in management for all pharmacists to be aware of. Until last summer, patients might have used one or two inhalers daily to control their asthma, plus an additional inhaler to relieve breakthrough symptoms, such as cough and wheeze. SMART allows patients to manage persistent asthma using a single inhaler as both maintenance and relief.⁷ With the SMART approach, patients take a maintenance dose both morning and night and then use the inhaler as needed to provide asthma control. A maximum of 10 extra puffs can be taken each day (ie, 12 puffs in total). A separate reliever inhaler is not required and it is important that patients understand this.

The SMART approach is possible because Symbicort combines budesonide with formoterol, a rapid and long-acting bronchodilator. This means that when the combination is for maintenance and relief, not only is the bronchoconstriction relieved, but each inhalation also treats inflammation. Symbicort 100/6 and 200/6 have been licensed for use in adults aged 18 years or over who are suitable for this combination therapy (ie, patients not adequately controlled with inhaled corticosteroids and as needed inhaled SABA or patients already adequately controlled on both inhaled corticosteroids and LABA plus as needed SABA). Prescriptions for SMART are likely to read "budesonide/formoterol 200/6, one puff *bd* plus as needed".

SMART is consistent with the principles of current treatment guidelines, which reflect disease severity. Although SMART is not yet included in the current guidelines, use is based on the principle of achieving and maintaining asthma control with the lowest effective dose of inhaled steroid. SMART would probably fit in at step 3 of the asthma management guidelines. SMART was devised by AstraZeneca.

time, the new approaches to management — omalizumab and Symbicort maintenance and reliever therapy (SMART) — are summarised in Panel 1.

The nature of asthma is variable so symptoms can fluctuate. An attack usually builds up over several days or weeks, against a background of chronic poor asthma control. For example, a patient may gradually need to use his or her reliever more frequently or experi-

ence night time symptoms. It is during this time that action can be taken to prevent the onset of an attack. For example, some clinics will initiate a short course of oral prednisolone.

Personalised plans Of all the aspects of asthma management likely to improve outcomes, self-care has the potential to have the greatest impact. Many patients with chronic conditions, such as asthma, want to have greater involvement in their treatment and care, and there is growing evidence that self-care improves patient outcomes and relieves pressures on the NHS in terms of reduced emergency appointments and hospital admissions.

Patients with asthma should be offered self-management education in the form of personalised asthma action plans (PAAPs). These can help patients to recognise a weakening of asthma control. The recognition of deteriorating asthma requires interpretation of both subjective and objective aspects. Peak flow meters measure the degree of airflow obstruction. The patient can record his or her best measurement, providing an objective baseline against which to gauge any subsequent deterioration in asthma control. Subsequent asthma exacerbations are then most easily interpreted by patients when expressed as a percentage of this best value.

A PAAP should inform patients about when and how to modify medications in response to worsening asthma and a possible attack in the early stages how and when to access the medical system.

PAAPs should cover:

- How to recognise signs of worsening asthma (eg, symptoms)
- The prompt use of short-acting beta₂ agonists and oral corticosteroids
- How to monitor response to medicines (eg, use of peak flow meters)
- Contact details for asthma nurses
- Follow up to assess asthma control

Creating a PAAP that has a positive outcome on the patient's quality of life, and robust, two-way communication between health professional and patient is of utmost importance. However, although current BTS/SIGN guidelines recommend that all asthma patients should have a PAAP most patients still do not have one.

The role of the pharmacist

Effective asthma management requires a team effort between primary and secondary care. Whether working in the community, hospitals or GP clinics, or as supplementary or independent prescribers, pharmacists are in a pivotal position to contribute to asthma management strategies.

Pharmacists have the opportunity to identify patients with poor asthma control and educate them about their medicines. For example, patients can be encouraged to expect more from their treatment, and instructed on

proper inhaler techniques. When patients are discharged from hospital, pharmacists can ask about treatment plans and clarify instructions that will help prevent readmission.

Traditionally, those with long-term conditions tend to over-rely on secondary care for support, which is inconvenient for them as well as an inefficient use of NHS resources. The NHS has not always been good at proactively managing chronic conditions and patients do not know the primary care services available to them, such as drop-in asthma clinics. Members of the pharmacy team are conveniently placed to provide information, education and day-to-day management for patients following diagnosis.

The average community pharmacy serves around 450 people with asthma, so are well placed to educate patients on asthma management. For example, pharmacists can reinforce advice on how to recognise worsening symptoms and check that patients know what to do during an asthma attack (see Panel 2).

Several pharmacy-based asthma care models have been implemented, and a variety of positive outcomes have been demonstrated, including improved peak flow readings, optimised drug use, fewer hospital admissions and GP appointments, and improvements in patient outcomes, such as symptom improvement and asthma knowledge.

The advanced service of medicines use reviews are ideal for asthma patients. Pharmacists can monitor repeat prescriptions and highlight patients who are not filling in their prescriptions at regular intervals, which could be indicative of poor control. The aim of an MUR for patients with asthma should be to:

- Help patients understand their therapy and identify any problems they may be experiencing (eg, are they overusing their reliever inhaler and underusing their preventer inhaler?)
- Explore patients' understanding about their health in relation to their condition (eg, one patient might classify "good control" as using their reliever inhaler twice a day whereas another patient might use it much less frequently and still perceive their condition as under control)
- Explore patients' understanding about their treatment in relation to their condition (if it is established that a patient's inhaler technique is good, and he is taking his medicine as prescribed, yet is still suffering ongoing symptoms, he may need to step up his treatment)

An article focusing on MURs in patients with asthma is on pp281–2.

Despite major improvements in outcomes over the past few decades for many people with asthma, control can still be improved. The responsibility for effective asthma care falls not only to the GP, hospital doctors and nurses but, increasingly, to pharmacists.

Panel 2: Practical tips for asthma sufferers

How to recognise worsening symptoms If symptoms are getting worse, patients with asthma may recognise some or all of the following:

- Needing more and more reliever treatment
- Waking at night with coughing, wheezing, shortness of breath or a tight chest
- Having to take time off work or school because of their asthma
- Feeling that they cannot keep up with normal level of activity or exercise

What to do during an asthma attack An asthma attack card is available from Asthma UK, which tells people what to do in an attack. This includes:

- Take two puffs of your reliever (blue) inhaler
- Sit up and loosen tight clothing
- If there is no immediate improvement, continue to take one puff of reliever inhaler every minute for five minutes or until symptoms improve
- If symptoms do not improve in five minutes, or if in doubt, call 999 or a doctor, especially if you are too breathless or exhausted to talk or your lips are blue

Resources

- A number of free educational tools are available to support health professionals, including "Be in control" materials produced by Asthma UK (www.asthma.org.uk).

References

1. Global Initiative for Asthma. Global strategy for asthma management and prevention. 2006. Available at www.ginasthma.org (accessed on 3 January 2008).
2. World Health Organization. A world where people can breathe freely. Available at www.who.int/en (accessed on 3 January 2008).
3. World Health Organization. Chapter 7 Asthma. Disease Specific Reviews. 2003. Available at www.who.int/en (accessed on 3 January 2008).
4. British Thoracic Society / Scottish Intercollegiate Guidelines Network. British Guideline on the management of asthma: a national clinical guideline. 2007. Available at www.brit-thoracic.org.uk (accessed on 3 January 2008).
5. Medicines and Healthcare products Regulatory Agency. Drug safety update: review of long-acting beta₂ agonists for asthma 2008. Available at www.mhra.gov.uk (accessed on 11 January 2008).
6. Soler M, Matz J, Townley R, Buhl R, O'Brien J, Fox H et al. The anti-IgE antibody omalizumab reduces exacerbations and steroid requirement in allergic asthmatics. *European Respiratory Journal* 2001;18:254–61.
7. Electronic Medicines Compendium. Symbicort Summary of Product Characteristics, 2007. Available at www.emc.medicines.org. (accessed on 3 January 2008).

Action: practice points

Reading is only one way to undertake CPD and the Society will expect to see various approaches in a pharmacist's CPD portfolio.

1. Next time you talk to a patient with asthma, ask if he or she has a personal asthma action plan. If the patient does not have one, suggest he or she talks to the GP or asthma nurse about getting one.
2. Visit www.asthma.org.uk and look at the range of leaflets available. Choose one for your pharmacy.
3. Keep an eye out for patients who are receiving repeat prescriptions of short-acting inhaled beta₂ agonists. Invite the next 10 for an MUR.

Evaluate

For your work to be presented as CPD, you need to evaluate your reading and any other activities. Answer the following questions:

What have you learnt?

How has it added value to your practice? (Have you applied this learning or had any feedback?)

What will you do now and how will this be achieved?