The Practitioner®

Improving the management of asthma in adults in primary care

Funston W, Higgins B. Improving the management of asthma in adults in primary care.
Practitioner 2014; 258 (1776) 15-19

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Practitioner
Medical Publishing Ltd

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FIGURE 1
Measurement of FeNO (fractional exhaled nitric oxide). The FeNO level correlates well with airway inflammation and is a good indicator of asthma

How should asthma be diagnosed?

THERE ARE 5.4 MILLION PEOPLE WITH ASTHMA IN THE UK,[1] REPRESENTING A SIGNIFICANT DISEASE burden for patients and a substantial workload for both primary and secondary care.

Effective treatment is available and only a small proportion of those with asthma have treatment-resistant, difficult asthma. However, asthma still causes significant morbidity, and occasional mortality, related to inadequate management of the disease. This is highlighted in the National Review of Asthma Deaths, published earlier this year,[2] and it is clear that more needs to be done to provide optimal care for patients with asthma. To this end, NICE published a quality standard for asthma in February 2013[3] and BTS and SIGN co-published an updated guideline on the management of asthma in October 2014.[4]

DIAGNOSIS IN PRIMARY CARE

Perhaps the most challenging aspect of asthma management is getting the diagnosis right. Studies in adult patients have suggested that 30% of those diagnosed with asthma do not actually have the condition[5] and it is likely that the diagnosis is missed in many others.

Asthma is diagnosed principally on clinical history and relies on careful recognition of a characteristic pattern of symptoms and signs. Initial clinical assessment should explore symptoms of wheeze, breathlessness, chest tightness and cough. The probability of asthma is increased if more than one of these symptoms is present and particularly if symptoms are worse at night and in the early morning or are exacerbated by triggers such as exercise, allergen exposure, cold air or drugs.

Although the history can be sufficiently classical as to leave no diagnostic doubt, it is advisable to try to obtain objective evidence to support the diagnosis.

The hallmark of asthma is airflow obstruction varying over short periods of time, and traditionally this has been explored by asking the patient to make serial measurements of peak expiratory flow. Unfortunately, this is a very insensitive test. The BTS/SIGN »

What factors should be monitored?

How should acute attacks be managed?

Box 1

Factors to be monitored and recorded on asthma review in primary care

- Symptomatic asthma control
- Lung function assessed by spirometry or PEF
- Asthma attacks, oral corticosteroid use and time off work since last assessment
- Inhaler technique
- Adherence
- Bronchodilator reliance
- Possession and use of an asthma self-management plan

guideline advocates spirometry after taking the history, and this is now widely available in primary care. If airflow obstruction is present, a trial of treatment can commence, but it is important to note that the diagnosis should not be regarded as confirmed at this point.

A firm diagnosis also requires a symptomatic response and an improvement in the measured airflow obstruction.

'Studies in adult patients have suggested that 30% of those diagnosed with asthma do not actually have the condition ....

Normal spirometry does not exclude the diagnosis of asthma and the BTS/SIGN guideline suggests that further investigation may be needed at this stage. The tests performed will depend on the likelihood of asthma versus other diagnoses.

The diagnosis section of the BTS/SIGN guideline was not updated for the 2014 version, but if it had been, we think it highly likely that measurement of FeNO (fractional exhaled nitric oxide) would have been recommended, particularly for patients with suggestive symptoms but normal spirometry. FeNO is measured via a simple breath test, using equipment which is becoming increasingly cheap and available, see figure 1, p15. The FeNO level correlates well with airway inflammation, and is therefore a good indicator of asthma and in particular of the likely response to inhaled corticosteroids. NICE has advocated the use of FeNO measurement in a recent appraisal of the technology[6] and we believe it is likely to become a widely acceptable test for asthma over the next few years.

Other tests are available including sputum eosinophil measurement and tests of airway hyperresponsiveness. Experience with these measures is limited to specialist respiratory centres and at present they are only likely to be performed here, although it has been questioned whether they should be more widely employed. If they help establish an accurate diagnosis more quickly, they may be cost effective. NICE is due to publish a full guideline on asthma diagnosis late in 2015 and it will be interesting to see how these newer tests feature in their diagnostic pathway.

MONITORING IN PRIMARY CARE

The cornerstone of asthma monitoring is a structured clinical review conducted in primary care on at least an annual basis. The importance of this annual review is highlighted in both the NICE quality standard for asthma[3] and statistics from the National Review of Asthma Deaths:[2] 43% of those who died had no evidence of an asthma review in the previous year and 77% had no personal asthma action plans.

.... and it is likely that the diagnosis is missed in many others'

Furthermore, there was evidence of excessive prescribing of reliever medication and underprescribing of preventer medications.

The specific factors to be monitored and recorded in primary care are highlighted in box 1, above.

Monitoring in primary care also enables identification of patients whose asthma is suboptimally controlled, prompting review of their medication and escalation of their management as appropriate.

'The BTS/SIGN guideline advocates spirometry after taking the history'

SUPPORTED SELF-MANAGEMENT

Health outcomes are improved by education in self-management, incorporating written personalised asthma action plans. The BTS/SIGN guideline[4] cites numerous pieces of evidence of benefit, yet they remain woefully underused. There are several different personalised asthma action plans, including an excellent free version from Asthma UK, see figure 2, opposite.

Key factors for successful plans are:

- The plans should be simple, with only two or three action points
- The action points should be personalised to the individual
- The actions themselves should be clear and easy for the patient to implement when required

They should be offered to all patients with asthma.[3]

It is also recommended that any acute consultation for asthma should be taken as an opportunity to reinforce or refine the patient's self-management strategy and to review adherence to long-term asthma treatment.

PHARMACOLOGICAL MANAGEMENT

The fundamental approach to the pharmacological treatment of asthma remains unchanged in the updated BTS/SIGN guideline and is based on a stepwise strategy tailored to the severity of the patient's asthma.

The aim of asthma management is to achieve complete control of the disease and treatment should be commenced at the step most appropriate to initial severity, with control maintained by stepping up treatment as necessary and stepping down treatment when control is good.

The most common problem with pharmacological management is non-adherence to treatment.

A number of risk factors are recognised and various interventions

FIGURE 2
Every patient should have a personalised asthma action plan. This template can be downloaded free from the Asthma UK website

If you have any concerns about managing your asthma, you can call an asthma nurse specialist on **Asthma UK's Helpline 0800 121 62 44**

Contact number for GP/specialist asthma nurse:

Asthma UK has a range of resources to help with your asthma and a team of specialist asthma nurses if you need further advice.

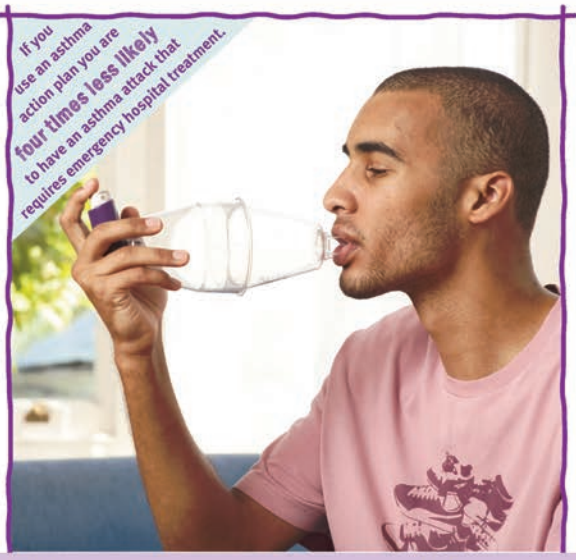
Asthma UK Helpline 0800 121 62 44 | info@asthma.org.uk | Or visit our website www.asthma.org.uk

asthma UK with you every breath of the way

Health & care information you can trust

your asthma action plan

If you use an asthma action plan you are **four times less likely** to have an asthma attack that requires emergency hospital treatment.



Name

Date

asthma UK with you every breath of the way

Complete this with your asthma nurse or GP.

This is what I need to do to stay on top of my asthma:

My personal best peak flow is:

My **preventer** inhaler (insert name/colour)

I need to take my preventer inhaler every day even when I feel well.

I take ____ puff(s) in the morning and ____ puff(s) at night.

My **reliever** inhaler (insert name/colour)

I take my reliever inhaler only if I need to.

I take ____ puff(s) of my reliever inhaler if any of these things happen:

- I'm wheezing
- My chest feels tight
- I'm finding it hard to breathe
- I'm coughing

Other medicines I take for my asthma every day:

If I haven't had any symptoms or needed my reliever inhaler for at least 12 weeks, talk to my GP or asthma nurse about reviewing my medicines.

People with allergies need to be extra careful as attacks can be more severe.

My asthma is getting worse if I notice any of these:

- **My symptoms are coming back (wheeze, tightness in my chest, feeling breathless, cough)**
- **I am waking up at night**
- **My symptoms are interfering with my usual day-to-day activities (eg at work, exercise)**
- **I am using my reliever inhaler ____ times a week or more**
- **My peak flow drops to below ____**

This is what I can do straight away to get on top of my asthma:

1 **If I haven't been using my preventer inhaler, start using it regularly again or:**

Increase my preventer inhaler dose to ____ **until my symptoms have gone and my peak flow is back to normal.**

Take my reliever inhaler as needed (up to ____ puffs every four hours).

If I don't improve within 48 hours make an urgent appointment to see my GP or asthma nurse.

2 **If I have been given prednisolone tablets (steroid tablets) to keep at home:**

Take ____ mg of prednisolone tablets (which is ____ x 5mg) **immediately** and again every morning for ____ days or until I am fully better.

Call my GP today and let them know I have started taking steroids and make an appointment to be seen within 24 hours.

I am having an asthma attack if any of these happen:

- **My reliever inhaler is not helping or I need it more than every ____ hours**
- **I find it difficult to walk or talk**
- **I find it difficult to breathe**
- **I'm wheezing a lot or I have a very tight chest or I'm coughing a lot**
- **My peak flow is below ____**

THIS IS AN EMERGENCY TAKE ACTION NOW

1 Take two puffs of my reliever inhaler (one puff at a time)

2 Sit up and try to take slow, steady breaths

3 If I don't start to feel better, take two puffs of my reliever inhaler (one puff at a time) every two minutes. I can take up to ten puffs

4 **If I don't feel better I should call 999 straight away.** If an ambulance doesn't arrive within ten minutes, and I'm still not feeling better, then I should repeat **Step 3**

5 Even if I feel better after this I should see my GP or asthma nurse for advice the same day

6 If I have rescue prednisolone tablets, take 40mg (8 x 5mg) altogether

Please note this asthma attack information is not designed for people who use the Symbicort SMART regime OR Fostair MART regime. If you use Symbicort SMART or Fostair MART please speak to your GP or asthma nurse about this.

Table 1

Clinical assessment of acute asthma severity

Moderate asthma	Acute severe asthma	Life-threatening asthma
● Peak flow > 50-75% best or predicted ● $SpO_2 \geq 92\%$ ● Increasing symptoms ● No features of acute severe asthma	● Peak flow 33-50% best or predicted ● $SpO_2 \geq 92\%$ ● Respiration ≥ 25 per minute ● Heart rate ≥ 110 beats per minute ● Cannot complete a sentence in one breath	Any one of: ● Peak flow < 33% best or predicted ● $SpO_2 < 92\%$ ● Silent chest, cyanosis, poor respiratory effort ● Arrhythmia, hypotension ● Exhaustion, altered level of consciousness

Adapted from the BTS/SIGN guideline[4]

are mentioned in the BTS/SIGN guideline, but these are modestly effective at best. Nonetheless, checking concordance with existing therapies and inhaler technique before escalating treatment remains an important part of improving the pharmacological treatment of asthma, since it is clearly impossible to address unless it is recognised.

It is certainly important to consider inadvertent non-adherence by virtue of poor inhaler technique.

Training and regular assessment of inhaler technique is important and both the BTS/SIGN guideline and the NICE quality standard emphasise that this should be incorporated into a structured annual review, but also undertaken as opportunities arise when patients present with exacerbations.

'Regular assessment of inhaler technique is important'

Computer repeat prescribing systems in primary care provide an index of adherence. Any patient prescribed more than one short-acting bronchodilator device a month should be identified and have their asthma assessed urgently and measures taken to improve overall control.

NON-PHARMACOLOGICAL MANAGEMENT

Evidence that non-pharmacological management of asthma is effective is difficult to obtain, but addressing patients' concerns in this area is an important part of holistic care.

The BTS/SIGN guideline reviews an extensive range of management options.

'Any patient prescribed more than one short-acting bronchodilator a month should be assessed urgently'

The key recommendations are:

- Advising patients with asthma about the dangers of smoking and taking appropriate steps to support smoking cessation
- Supporting weight loss in overweight patients with asthma
- Offering breathing exercise programmes as an adjunct to pharmacological management to improve symptoms and overall quality of life

There are many environmental, dietary and other triggers implicated in the non-pharmacological management of asthma, but more studies are required before positive recommendations can be made for their use.

MANAGEMENT OF ACUTE ASTHMA

The BTS/SIGN guideline sets out the optimal management pathway for acute asthma attacks of varying severity. The basics of treatment are well known, and the usual source of error is failing to assess severity adequately. The important features are outlined in table 1, above.

Once severity has been determined, the management of patients presenting with an acute attack will include bronchodilators, corticosteroids in all but the mildest cases, and may also include treatment with oxygen.

Of note, nebulisers offer no greater benefit than bronchodilators given via a spacer in an acute asthma exacerbation[7] and if nebulisers are used, it is preferable that they are driven by oxygen.[4] The severity assessment is also important in determining whether the attack can be managed at home or in hospital.

The NICE quality standard stipulates that patients who have received treatment for an acute exacerbation of their asthma either in hospital or in out-of-hours services should be reviewed within two working days by a healthcare professional in their own GP practice. This appointment should serve as a means of exploring reasons for the acute exacerbation and taking appropriate steps to prevent further attacks.

CONCLUSION

While asthma is a commonly encountered condition within both primary and secondary care, the intrinsic variability of the disease guarantees that at times diagnosis and management will pose a challenge to healthcare professionals.

Following the updated BTS/SIGN guideline and NICE quality standard

'Nebulisers offer no greater benefit than bronchodilators given via a spacer in an acute asthma exacerbation'

key points

SELECTED BY

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Studies in adult patients have suggested that 30% of those diagnosed with asthma do not actually have the condition and it is likely that the diagnosis is missed in many others. Initial clinical assessment should explore symptoms of wheeze, breathlessness, chest tightness and cough. The probability of asthma is increased if more than one of these symptoms is present and particularly if symptoms are worse at night and in the early morning or are exacerbated by triggers such as exercise, allergen exposure, cold air or drugs.

The BTS/SIGN guideline advocates spirometry after taking the history. If airflow obstruction is present, a trial of treatment can commence, but a firm diagnosis also requires a symptomatic response and an improvement in the measured airflow obstruction. The FeNO level correlates well with airway inflammation, and is therefore a good indicator of asthma and in particular of the likely response to inhaled corticosteroids. The test is especially useful for patients with suggestive symptoms but normal spirometry.

The cornerstone of asthma monitoring is a structured clinical review conducted in primary care on at least an annual basis. Health outcomes are improved by education in self-management, incorporating written personalised asthma action plans, there is an excellent free version available from Asthma UK.

The fundamental approach to the pharmacological treatment of asthma remains unchanged in the updated BTS/SIGN guideline and is based on a stepwise strategy tailored to the severity of the patient's asthma. Checking concordance with existing therapies and inhaler technique before escalating treatment remains an important part of improving the pharmacological management of asthma.

Computer repeat prescribing systems in primary care provide an index of adherence. Any patient prescribed more than one short-acting bronchodilator device a month should be identified and have their asthma assessed urgently and measures taken to improve overall control.

The management of patients with an acute attack will include bronchodilators, corticosteroids, in all but the mildest cases, and may include treatment with oxygen. Nebulisers offer no greater benefit than bronchodilators given via a spacer in an acute asthma exacerbation. If nebulisers are used, it is preferable that they are driven by oxygen. The severity assessment is also important in determining whether the attack can be managed at home or in hospital.

should help healthcare professionals avoid the known shortcomings in asthma management, and provide a clear template for optimising the holistic care of people with asthma.

REFERENCES

1 Department of Health. An outcomes strategy for COPD and Asthma in England. DH. London. 2011
2 Royal College of Physicians. Why asthma still kills: the National Review of Asthma Deaths (NRAD). RCP. London. 2014
3 National Institute for Health and Care Excellence. QS25. Quality standard for asthma. NICE. London. 2013
4 British Thoracic Society and Scottish Intercollegiate Guidelines Network. SIGN141. British guideline on the management of asthma. SIGN. Edinburgh. 2014
5 Pakhale S, Doucette S, Vandemheen K et al. A comparison of obese and nonobese people with asthma: exploring an asthma-obesity interaction. *Chest* 2010;137:1316-1323
6 National Institute for Health and Care Excellence. DG12. Measuring fractional exhaled nitric oxide concentration in asthma. NIOX MINO, NIOX VERO, and NObreath. NICE. London. 2014
7 Cates CJ, Crilly JA, Rowe BH. Holding chambers (spacers) versus nebulisers for beta-agonist treatment of acute asthma. *Cochrane Database Syst Rev* 2006; Apr 19;(2):CD000052

Useful information

Asthma UK
www.asthma.org.uk

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