Issues at the interface between primary and secondary care in the management of common respiratory disease • 3

Series editors: W F Holmes, J Macfarlane

Providing better asthma care: what is there left to do?

Ronald G Neville, Bernard G Higgins

The care of patients with asthma impinges on all levels of the health service and is a major component of the workload of general practices, accident and emergency departments, and medical outpatient clinics. Asthma is a frequent cause of hospital admission and a major contributor to the workload of on-call cooperatives and the ambulance service. It is therefore appropriate that asthma has become a high profile disease and the subject of numerous initiatives at both primary and secondary care levels.

Because of the variable nature of asthma and the wide spectrum of severity, it is a prime example of a disease where all health care professionals should work to a common strategy, providing consistent care. In an ideal world these professionals would sit down together and agree core strategies for implementing guidelines, new therapies and assessment tools, and referral and follow up procedures. We do not live in an ideal world. This review addresses some of the areas in which primary and secondary health care professionals could work together to improve the care of patients with asthma.

Common management strategies

THE NEED FOR A COMMON ASSESSMENT TOOL

There is a need to establish a common assessment tool which is equally acceptable to primary and secondary care, and which could serve as the basis of shared care for audit purposes. The basic simplistic approach of asking "how are you" and being told "fine" is a good way to finish a clinic early but a bad way of assessing asthma control. An in depth interview on life style and attitudes with comprehensive pulmonary function tests is equally inappropriate as a pragmatic means of assessing control in a busy clinic.

A recent Royal College of Physicians symposium (M Pearson, personal communication) addressed this issue, reviewing work on questionnaires, the Jones morbidity index, and the Tayside asthma stamp. A consensus view identified three core questions linked to a scoring system as follows:

"How often have you experienced cough, wheeze or breathlessness due to asthma in the past month (a) at night (0 = never, 1 = some nights, 2 = every week, 3 = every night), (b) in the morning (0 = never, 1 = sometimes, 2 = every week, 3 = every day), and (c) on exercise (0 = never, 1 = running, 2 = walking, 3 = at rest)?".

These questions can then be supplemented by a check on compliance and inhaler technique, peak flow measurement, and an estimate of days lost from work or school due to asthma.

This assessment tool has the merit of simplicity, ease of use at home, in a surgery or hospital. It can be applied to adults or children. No extra paper is required and results can be recorded on a small stamp. However, further work is needed to test the validity of each individual question and predicted value against morbidity.

Others have advocated outcome measures not based directly on symptom assessment, but these are less applicable to both primary and secondary care. Nurses and doctors working in the community might be comfortable using secondary care attendance or admissions as outcome measures, but from a hospital perspective there is clearly no point in labelling all secondary care contact as an adverse outcome. There are attractions to using economic outcomes but these are notoriously difficult to study. The University of Kent has produced a set of estimates for the cost of various components of health service use in asthma.[1] Direct costs such as clinic attendance, medication, and admissions are relatively easy to quantify, but indirect costs such as disruption to patient's lifestyle are not so amenable to study although equally important. Perhaps future guideline committees should address the topic of a common clinical and economic assessment tool.

PUTTING GUIDELINES INTO PRACTICE

If the benefits of consistent management of asthma are accepted, it follows that treatment should follow mutually agreed guidelines. Since few practices or hospitals have the resources to develop their own valid, evidence based guidelines, they need to adapt an accepted national guideline for their own use. Although guidelines in general are unpopular with some doctors, the British asthma guidelines have been widely accepted and there is evidence that care has improved because of

Asthma Research Unit, Tayside Centre for General Practice, University of Dundee, Dundee DD2 4AD, UK
R G Neville

Department of Respiratory Medicine, Freeman Hospital, Newcastle upon Tyne NE7 7DN, UK
B G Higgins

Correspondence to:
Dr R G Neville.

them. However, there are still many practitioners who do not follow any guidelines, with potential adverse consequences for their patients and health care resources.

The barriers to implementation of guidelines have been reviewed elsewhere.[2] Perhaps the most difficult of these to deal with are the health professionals who fail to appreciate that their performance is suboptimal. The challenge facing "asthma interested GPs" and respiratory physicians is to construct a local strategy to reach those who most need to take up guidelines. Rather than run predictable specialist lectures on asthma, one ought to consider novel approaches such as inviting individual GPs to comment on proposed local guidelines, or interactive educational meetings. For those whose knowledge is adequate but not translated into optimum practice, multifaceted interventions such as audit and feedback may be appropriate. Reminders or patient mediated intervention may help during the actual consultation. Patient self-management plans referenced to guideline steps could be a powerful way of giving patients a role in the education of the medical profession.

WHAT IS THE BEST WAY TO EDUCATE PATIENTS?

A basic tenet of asthma care is that patients should be educated to manage their own condition. Although never formally tested, there can be no doubt that it is important for patients to understand how and when to use their inhalers. Whether control of asthma is improved significantly by more detailed intensive education is less clear. This is a major gap in our understanding since ensuring that uniform principles govern education of asthmatic subjects in primary and secondary care is as important as adherence to guidelines for pharmacological treatment.

Education of asthmatic patients can be limited to purely giving information or it can be more intensive to include self-monitoring and personalised action plans. Limited education has been shown to improve knowledge and generally to improve inhaler technique and usage.[3–5] Disappointingly, however, although some studies report subjective improvement in symptoms after education, more objective measures such as "days lost", doctor visits or admissions to hospital, and lung function show no improvement.[6] Some individual trials may show more promising results, but it is not possible to determine whether these are type I errors or whether one approach is genuinely superior.

More intensive education includes teaching self-monitoring based on symptoms and/or peak flow, which can be supplemented by written action plans and regular medical review. A recent systematic review[7] concluded that this is beneficial, with greater benefit accruing as the intensity of intervention increases—that is, when self-management is accompanied by written plans and regular review. In other words, it may be that education is only really useful if it includes all the possible elements, and delivering this to all asthmatic patients is a daunting prospect. This conclusion, based on aggregation of a number of studies, needs to be confirmed in a prospective trial which compares education packages of varying intensity, delivered by the same instructors, against each other.

NEW TREATMENTS

Whilst guidelines based on established evidence should optimise the use of established treatment, they cannot realistically cover newer agents which are often marketed before sufficient peer reviewed clinical data have been published. Until this problem is addressed, respiratory physicians and asthma-interested GPs will have a responsibility to inform and advise on new asthma treatments. The agenda for discussion is usually set by the drug companies, and it is a matter of some regret that there is not an independent body which can offer appropriate guidance when novel products become available. Indeed, such a body might usefully prompt the pharmaceutical industry towards initiating the most desirable studies to allow correct positioning of their products.

The need for such advice is illustrated by the disparity in the prescribing indications for montelukast and zafirlukast, products whose mode of action is essentially the same. GPs and respiratory physicians have an ideal opportunity for constructive dialogue as experience is gained in the use of leukotriene antagonists. Respiratory physicians can take a lead in advising which patients with severe asthma should try the new agents. GPs will accumulate useful experience in treating occasional patients with leukotriene antagonists alone (in steroid refusers, for example), and may recognise some clinical syndromes which coincidentally improve such as allergic rhinitis.

The changeover from CFC inhalers also presents an opportunity for all health care professionals to collaborate to help patients, and again it is likely that guidance will be needed from chest physicians and asthma-interested GPs. The major problem in the changeover is likely to be patient confusion, and it is crucial that this is not made worse by confusion among doctors. The essential facts about the relative efficacy of new and old metered dose inhalers, and of the dry powder inhalers which will still be available, must be communicated. Although the National Asthma Campaign has some supportive literature available, this will need to be backed up at a local level. To achieve this smoothly a local primary/secondary care steering group will be necessary.

PROBLEM PATIENTS

There will always be some patients whose asthma is difficult to control despite intensive therapy, and at the extreme end of this scale are patients with brittle asthma. Brittle asthma can be classified into two types: type 1 has persistent symptoms and increased airway variability over a long period of time despite maximal treatment whereas type 2 asthma becomes severe within a short space of time from an apparently stable background.[8] The pathophysiological mechanisms behind these severe manifestations of asthma have not been deter-

Table 1 Suggested reasons for referral to a respiratory physician (taken from the British asthma guidelines[32])

Referral to an adult respiratory physician
• Patients in whom there is doubt about the diagnosis
• Patients with possible occupational asthma
• Those who present a management problem, for example
Brittle asthma symptoms despite high dose inhaled steroids
Those being considered for long term nebulised therapy
Asthma worsening in pregnancy; asthma interfering with lifestyle
Patients recently discharged from hospital
Referral to a respiratory paediatrician
• After a life threatening episode or admission to the ITU
• When asthma is very brittle
• When normal activity is severely restricted
• When special investigation is required
• When long term inhaled steroids are needed at doses above 800 μg/day
• When oral steroids are required regularly or in courses more than four times per year

mined. What is clear is that these patients, especially those with type 1 disease, have a higher life time prevalence of psychiatric problems, and there is little doubt that some of these patients benefit from interventions such as counselling or psychiatric medication.[9 10] We feel that these subjects are best managed in a specialised clinic. Conversely, it is particularly important in such patients that those involved in the community are fully aware of the treatment strategies, which may involve attempts to improve social circumstances or the domestic environment when it is felt that these are contributing to poor symptom control.

Poor compliance can be an issue in brittle asthma, but is certainly not confined to those with severe disease. Many patients have beliefs about their asthma which affect their attitudes to their regular medication.[11 12] Even in the face of adequate education patients may not act appropriately during acute attacks.[13] Doctors and nurses are not good at picking up poor compliers. When this does emerge as a factor it is important that the information is shared so that other carers provide consistent advice, rather than inadvertently reinforcing the patient's fears and misconceptions—for example, about side effects of inhaled steroids.

Process of care

ORGANISATION OF CARE

Within the simple division of primary and secondary care there are several different ways of organising the care of asthma patients. Asthma is seen as a priority condition by politicians, and most practices now offer some form of regular review clinic. There are small financial inducements in the form of Health Authority (Health Board in Scotland and Northern Ireland) accreditation of asthma clinics, but whilst it has been shown that this leads to superficially correct changes in process, it is less clear that it improves outcome.[14] In fact, there are no randomised controlled trials of special asthma clinics in general practice. Two "before and after" reports of clinics run by family doctors suggested little overall improvement except for a decrease in school absence in children.[15 16] There are also several reports of nurse-run asthma clinics[17–20] which appear to show significant benefit, but these are again mainly "before and after" rather than controlled studies and the benefits are not always sustained. A comparison of two practices, one with and one without a nurse-run clinic, showed no differences although the authors themselves point out numerous methodological problems in this study.[21]

Within hospitals most respiratory physicians would subscribe to the view that they, rather than generalists, should look after patients with asthma. There is some evidence to support this view, at least in the inpatient setting.[22] In a non-randomised study patients seeing a respiratory specialist were more likely to receive care in accordance with accepted guidelines, and audit data suggest that they experience fewer symptoms and re-admissions.

The GRASSIC study assessed the effectiveness of shared care between primary and secondary sectors, one study group foregoing the traditional regular hospital follow up. Shared care proved as effective and was also cheaper and preferred by the patients.[23] However, it seems likely that the benefits of this type of system would only pertain where communication and commitment were excellent.

An alternative method of linking hospital and community care is via a respiratory specialist nurse who liases with practice nurses. Many such posts have been created but their value has not been formally assessed. Indeed, the number of good quality studies addressing the organisation of asthma care is disappointingly small, a fact emphasised in a recent systematic review of the topic.[24]

REFERRAL/FOLLOW UP

The majority of patients with asthma should be managed in general practice, but the British asthma guidelines suggest that referral to a respiratory physician is appropriate for certain patients (table 1). It is difficult to make these indications any more specific, but each of them requires a degree of judgement by the referring doctor. The ideal referral occurs when a general practitioner and patient jointly agree to involve a consultant in an aspect of ongoing care. Ideally, this referral would lead to a consultation within four weeks and initial assessment and prompt investigation (on the same day in a perfect world). The patient would then receive a clear explanation of the consultant's opinion and the GP would receive a written report within one week.

Clearly not all referrals fit the above brief. What could be done to improve the process? Patients should be involved in decision making. GPs can encourage this by asking patients' views, establishing what the hospital contact should achieve, and asking specific questions in the referral letter. Consultants could improve accessibility and thus cut referral waiting times by rigorously pruning routine follow up cases. A large proportion of routine chest clinic follow up cases could be discharged back to primary care. A recent survey suggests that 4.5% of practice populations are in long term outpatient follow up, yet GPs are willing to take over the care of half of those attending a medical clinic.[25] These patients are probably easy to spot—those cases which consultants are happy for their junior staff to see repeatedly. As a rule

of thumb those consultants whose "new to old" ratio is more than 1:3 might review their practice.

GPs also need guidance on who to follow up (and how often) in their own asthma clinics. A practice with 10 000 patients may have 1000 patients on its asthma list. It is unrealistic to recall each of these frequently. One approach is to follow up those at increased risk of attack or admission. Practices may choose on pragmatic grounds to follow up those on steps 3–5 of the British asthma guidelines. The difficulty with this approach is that attack and admission risk do not correlate closely with treatment step. Patients can and do have severe attacks at step 1,[26] although the correlation between attacks and routine symptom assessment is better in children.[27]

The British asthma guidelines also give common sense advice for discharge of patients after admission. This includes criteria which indicate readiness for discharge. These are not always fulfilled, but this may not matter if proper treatment, advice, and follow up are arranged.[28] The guidelines also suggest that follow up should be within a week of discharge. This is clearly impossible for GPs to organise unless they are informed of discharge straightaway, but probably only a few units have formalised arrangements between hospital and primary care to allow this to take place.

THE A & E PROBLEM

Asthma is one of the commonest reasons for A & E attendance, yet this is clearly the wrong place in which to manage a disease requiring long term continuity of follow up. Although A & E departments can be life saving for some patients, strategies are needed to reduce inappropriate use of this environment. Some patients attend A & E because they have lost or run out of inhalers; most do not realise that retail pharmacies can issue emergency supplies. Perhaps inhaler packs could mention this and it could be included in the new NHS direct advice protocols. Most asthma attacks have a gradual onset measurable in days rather than hours, and patients and those working in general practice should have a clear understanding of the availability of urgent appointments for asthmatic patients with deteriorating symptoms.

Some GPs take a keen interest if any of their patients have attended an A & E department. Practice nurses with asthma training are able to review A & E slips and contact patients. It is perfectly feasible for practices to initiate contact with an asthma patient on the basis of A & E slips.[29] A timely review in the asthma clinic could address the reasons behind an exacerbation and reinforce the view that patients should seek care from their own practice.

A joint policy between hospital and community should be established to ensure proper follow up of asthma attacks. A & E departments may wish to re-consider initiating chest clinic referrals and instead telephone practices to arrange a date and time for follow up. One approach is to appoint an asthma liaison nurse who reviews all patients referring themselves to A & E departments within 48 hours of the event.

COMMUNICATION

Doctors ought to be good at communicating but the general practice/hospital interface traditionally presents problems. There are various methods by which communication might take place, each with its own advantages and disadvantages.

Face to face meetings are good for educational topics or to review policy but are not a realistic way of communicating about everyday events. Telephone communication is perhaps the next best thing and would ideally accompany all admission requests or planned discharges. In reality, however, GPs can have great difficulty in negotiating hospital switchboards, and calls in the other direction may be frustrated because GPs are away from the surgery. Given the obvious benefits of telephone discussion of some problems, it behoves both the GPs and consultants to let their receptionists/secretaries know where they are, if they are available, and if not when they will be able to return calls.

Most communication will continue to be in writing. Although this has been the case for decades, there is still grumbling dissatisfaction with both the content and timing of letters. The information required in a good letter has been studied.[30] Interestingly, there was high concordance between GPs and consultants about the content of an ideal letter (table 2), yet neither group favoured standardised letters, preferring some scope for individuality. Other studies have emphasised the value of a structured letter with a problem list and separate subheadings for management and medication.[31] The minor additional effort involved in constructing this type of letter should be encouraged.

The timing of discharge summaries and letters from hospital to GP is a further source of discontent. There is general agreement that these letters should be typewritten (although a few units have agreed to formal hand written discharge letters) and that it is important for the GP to receive this quickly, but pressures on dictating time and secretarial help, compounded by notes disappearing for coding purposes, cause considerable difficulty. One partial solution is for hospitals to prioritise the more important clinic letters when major treatment changes have been made. These can be dictated on a separate tape and, if local GPs are

Table 2 Most important items for inclusion in letters: (a) from general practitioners (GPs) as judged by consultants, (b) from consultants as judged by GPs (items requested by >90%). From Newton et al[31]

Items to be in letter from GP
• Outline of the history
• Current medication
• Initial sentence stating reason for referral
Items to be in reply from consultant
• Appraisal of problem including diagnosis
• Management plan
• What the patient or relative has been told
• Findings on investigation
• Time to follow up appointment

known to favour this, sent by fax. In the future email via the NHS Internet has great potential to improve doctor to doctor communication. There is an opportunity for groups of practices and respiratory units to plan how best to use email to improve communications.

Finally, GPs and consultants could help each other by avoiding habits known to annoy. GPs should ensure that patients are willing and likely to attend after referral, and arrange to see patients afterwards to implement suggested management changes. Consultants could try to address the central question or need in a referral, and communicate this clearly to the primary care team.

Conclusion

There is a wealth of research evidence to guide the management of asthma, and treatment is available to control the disease in most patients.[32] Enthusiastic doctors in primary and secondary care already offer a high quality service. The challenge, which cannot be met by individuals working in isolation, is to organise the process of care so that all patients receive the same excellent level of care. This is far more difficult to achieve and will require considerable further discussion and co-operation across the primary/secondary care interface.

The following questions merit further study:

- What is the appropriate minimum information necessary to assess asthma control in clinical consultations?
- What is the best way of identifying poor asthma care, and how can the performance of such health care professionals be improved?
- What is the most cost effective method of asthma education? How intensive should educational efforts be?

1 Netten A, Bennett J. *Unit costs of health and social care*. PSSRU, University of Kent, 1997.
2 Lomas J. Teaching old (and not so old) docs new tricks; effective ways to implement research findings. In: Dunn EV, Newton PC, Stuart M, *et al*, eds. *Disseminating research/changing practice. Research methods for primary care*. Volume 6. Thousand Oaks: Sage Publications, 1994.
3 Hilton S, Sibbald B, Anderson HR, *et al*. Controlled evaluation of the effects of patient education on asthma morbidity in general practice. *Lancet* 1986;i: 26–9.
4 Jenkinson D, Davison J, Jones S, *et al*. Comparison of effects of self-management booklet and audio cassette for patients with asthma. *BMJ* 1988;**297**:267–70.
5 Wilson SR, German DF, Lulla S, *et al*. A controlled trial of two forms of self-management education for adults with asthma. *Am J Med* 1993;**94**:564–76.
6 Gibson PG, Coughlan J, Wilson AJ, *et al*. *The effects of limited (information only) patient education programs on the health outcomes of adults with asthma*. Cochrane Library, 1997.
7 Gibson PG, Coughlan J, Abramson M, *et al*. *The effects of self-management education and regular practitioner review in adults with asthma*. Cochrane Library, 1998.
8 Ayres JG, Miles JF, Barnes PJ. Brittle asthma. *Thorax* 1998;**53**:315–21.
9 Harrison B. Psychosocial aspects of asthma in adults. *Thorax* 1998;**53**:519–25.
10 Godding V, Kruth M, Jamart J. Joint consultation for high risk asthmatic children and their families, with paediatrician and child psychiatrist as co-therapists: model and evaluation. *Family Process* 1997;**36**:265–80.
11 Sibbald B. Patient self-care in asthma. *Thorax* 1989;**44**:97–101.
12 Adams S, Pill R, Jones A. Medication, chronic illness and identity; the perspective of people with asthma. *Soc Sci Med* 1997;**45**:189–201.
13 Kolbe J, Vamos M, Fergusson W, *et al*. Determinants of management errors in acute severe asthma. *Thorax* 1998;**53**:14–20.
14 Neville RG, Hoskins G, Smith B, *et al*. Observations on the Structure, process and clinical outcomes of asthma care in general practice. *Br J Gen Pract* 1996;**46**:583–7.
15 Usherwood T, Barber J. Audit of process and outcome in a mini-clinic for children with asthma. *Fam Pract* 1988;**5**: 289–93.
16 Martys C. Asthma care in Darley Dale: general practitioner audit. *BMJ* 1992;**304**:758–60.
17 Charlton I, Charlton G, Broomfield J, *et al*. An evaluation of a nurse-run asthma clinic in general practice using an attitudes and morbidity questionnaire. *Fam Pract* 1992;**9**:154–60.
18 Charlton I, Charlton G, Broomfield J, *et al*. Audit of the effect of nurse-run asthma clinic on workload and patient morbidity in a general practice. *Br J Gen Pract* 1991;**41**: 227–31.
19 Dickinson J, Hutton S, Atkin A, *et al*. Reducing asthma morbidity in the community: the effect of a targeted nurse-run asthma clinic in an English general practice. *Respir Med* 1997;**91**:634–40.
20 Dickinson J, Hutton S, Atkin A. Implementing the British Thoracic Society's guidelines: the effect of nurse-run asthma clinic on prescribed treatment in an English general practice. *Respir Med* 1998;**92**:264–7.
21 Jones KP, Mullee MA. Proactive, nurse-run asthma care in general practice reduces asthma morbidity: scientific fact or medical assumption? *Br J Gen Pract* 1995;**45**:497–9.
22 Bucknall C, Robertson C, Moran F, *et al*. Differences in hospital asthma management. *Lancet* 1988;i:748–50.
23 Osman LM, Abdalla MI, Beattie JA, *et al*. Integrated care for asthma: a clinical, social, and economic evaluation. Grampian Asthma Study of Integrated Care (GRASSIC). *BMJ* 1994;**308**:559–64.
24 Eastwood AJ, Sheldon TA. Organisation of asthma care; what difference does it make? A systematic review of the literature. *Quality Health Care* 1996;**5**:134–43.
25 Reeve H, Baxter K, Newton P, *et al*. Long Term follow up in outpatient clinics. 1: The view from general practice. *Family Pract* 1997;**14**:24–8.
26 Duffy R, Neville RG, Hoskins G, *et al*. Who is admitted to hospital with asthma? *Asthma Gen Pract* 1997;**5**:5–7.
27 Neville RG, Bryce FP, Clark RA, *et al*. The use of children's medical records to predict the risk of asthma attack. *Scot Med J* 1995;**40**:138–40.
28 Williams TJ, Spencer J, Fahey T, *et al*. Timing of discharge from hospital of patients admitted with asthma; a district general hospital experience. *J R Coll Phys Lond* 1994;**28**: 306–9.
29 Johnson PH, Wilkinson I, Sutherland AM, *et al*. Improving communication between primary and secondary care increases follow-up rates for asthmatic patients following casualty attendance. *Respir Med* 1988;**92**:289–91.
30 Newton J, Eccles M, Hutchinson A. Communications between general practitioners and consultants: what should their letters contain? *BMJ* 1992;**304**:821–4.
31 Rawal J, Barnett P, Lloyd BW. Use of structured letters to improve communication between hospital doctors and general practitioners. *BMJ* 1993;**307**:1044.
32 British Thoracic Society. Guidelines on the management of asthma. *Thorax* 1993;**48**(Suppl):S1–24.