

DISCUSSION PAPER

Setting the standard for routine asthma consultations:
a discussion of the aims, process and outcomes of reviewing
people with asthma in primary care*Hilary Pinnock^a, Monica Fletcher^b, Steve Holmes^c, Duncan Keeley^d, Jane Leyshon^e,
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Abstract

Globally, asthma morbidity remains unacceptably high. If outcomes are to be improved, it is crucial that routine review consultations in primary care are performed to a high standard. Key components of a review include:

- Assessment of control using specific morbidity questions to elucidate the presence of symptoms, in conjunction with the frequency of use of short-acting bronchodilators and any recent history of acute attacks
- After consideration of the diagnosis, and an assessment of compliance, inhaler technique, smoking status, triggers, and rhinitis, identification of poor control should result in a step-up of treatment in accordance with evidence-based guideline recommendations
- Discussion should address understanding of the condition, patient-centred management goals and attitudes to regular treatment, and should include personalised self-management education

Regular review of people with asthma coupled with provision of self-management education improves outcomes. Underpinned by a theoretical framework integrating professional reviews and patient self-care we discuss the practical barriers to implementing guided self-management in routine clinical practice.

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Introduction: the burden of asthma

Worldwide, asthma is an important cause of morbidity, economic cost, and mortality. It is estimated that about 300 million people have asthma, with the highest prevalence in the UK, Australasia and North America.¹ In England, data from

general practice suggest that 5.8% of the population have 'active asthma' (defined as a diagnosis of asthma and a prescription for asthma treatment in the previous 12 months).²

Despite the focus in international guidelines on assessing and achieving good disease control in international

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guidelines,³ surveys have consistently shown unacceptable morbidity associated with low expectations on the part of patients.⁴⁻⁸ It has been estimated that up to three-quarters of the 80,000 admissions for asthma in the UK in 2004 might have been prevented with improved long-term care.⁹ A key strategy for reducing the burden of asthma is a shift in emphasis from acute management to long-term care and supported self-management, in order to reduce chronic morbidity and impairment of quality of life, as well as reducing exacerbations, admissions and mortality.^{3,10} Proactive care, with structured reviews provided by clinicians with training in asthma care, improves outcomes.¹¹⁻¹⁵

After describing the policy and theoretical framework linking regular reviews and guided self-management, this discussion paper sets out the evidence base supporting the recommended content of good asthma reviews in primary care. It then discusses the role of 'pay-for-performance' – exemplified by the UK Quality and Outcomes Framework¹⁶ – as a driver for improving treatment outcomes. An Opinion sheet providing practical guidance for clinicians is available from www.pcrs-uk.org.

Policy and theoretical framework

The framework for monitoring chronic disease described by Glaziou et al. emphasises the inter-relationship between professional review and patient self-management,¹⁷ using asthma as an exemplar condition (see Figure 1). Cochrane reviews provide support for this concept, concluding that improved outcomes are the result of training in asthma self-management coupled with regular review.¹⁸⁻²⁰ This dual approach is summarised in the GINA asthma guideline as 'guided self-management',⁹ is explicitly recommended (Grade A) in the 2008 update of the BTS/SIGN asthma guideline,¹⁰ and is a core strategy of national programmes to improve asthma care in Finland and Australia.^{21,22}

Self care is a 'key pillar' of the policy approach to meeting the challenge of providing care for people with long-term

conditions.²³⁻²⁷ The widely cited Long-Term Conditions pyramid of care (LTC pyramid) emphasises the importance of self-management to "ensure patients and carers have the skills and knowledge they need to understand how to best handle their condition, including how to deal with flare-ups, to adjust medicines, improve their life-styles and access health care services"²⁶. Routine reviews operate in the boundary between patient self-care and professional management,^{28,29} not only offering opportunities specifically to reinforce and refine self-management skills, but also more generally to build the trusted relationship valued by patients (see Figure 2).²⁹

Asthma reviews

Asthma reviews in primary care should incorporate three key steps:

1. Assessing control in order to target care appropriately
2. Responding to that assessment by identifying reasons for poor control and adjusting management strategy accordingly
3. Exploring patients' ideas, concerns and expectations, and guiding self-management to facilitate on-going control

1. Assessing control

Asthma control reflects the degree to which symptoms are reduced, exacerbations are prevented and normal lung function is maintained by treatment,³⁰ with current guidelines defining 'control' as no symptoms, no exacerbations and normal lung function⁹ (see Table 1). Occasional daytime symptoms (defined as less than twice a week) may be consistent with good control, but disturbed sleep due to asthma signals loss of control. Challenge tests for assessment

Figure 1. The inter-relationship between professional and self-monitoring (adapted from Glaziou et al.¹⁷ to illustrate the management and self-management of asthma).

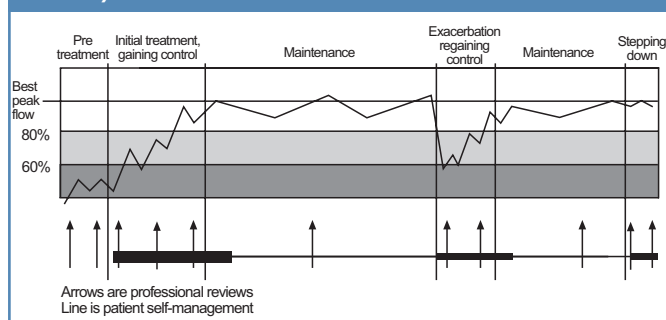


Figure 2. The long-term condition pyramid with the boundary between professional and self care (adapted from Degeling et al.²⁸).

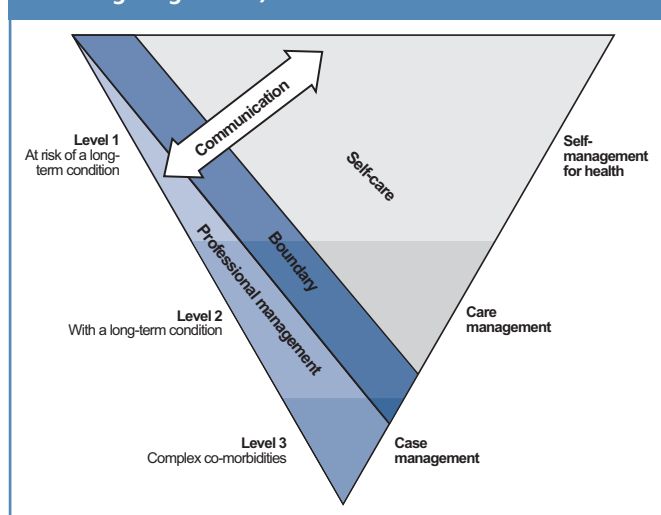


Table 1. Levels of Asthma Control (reproduced from GINA guidelines⁹).

Characteristic	Controlled (All of the following)	Partly Controlled (Any measure present in any week)	Uncontrolled
Daytime symptoms	None (twice or less/week)	More than twice/week	Three or more features of partly controlled asthma present in any week
Limitations of activities	None	Any	
Nocturnal symptoms/awakening	None	Any	
Need for reliever/rescue treatment	None (twice or less/week)	More than twice/week	
Lung function (PEF or FEV ₁) ⁱⁱⁱ	Normal	< 80% predicted or personal best(if known)	
Exacerbations	None	One or more/year ⁱ	One in any week ⁱⁱ

i. Any exacerbation should prompt review of maintenance treatment to ensure that it is adequate

ii. By definition, an exacerbation in any week makes that an uncontrolled asthma week.

iii. In adults and older children.

of bronchial hyper-responsiveness are unlikely to be practical measures of control in primary care settings, though estimation of exhaled nitric oxide as a measure of inflammation may have a place in clinical care in the future.³⁰

In primary care, asthma control is normally assessed on the basis of symptoms, supplemented by examination of the clinical records. Frequent use of reliever inhalers implies poor control, and intermittent requests for preventer treatment signals the need to address patients' perception of, and fears about, regular treatment.¹⁰ The occurrence of an acute exacerbation is evidence of poor control over a longer time-frame than the duration of current symptoms.³¹ A primary care clinician with access to patient records can easily check the number of courses of oral steroid required over the previous year. A 'one-off' peak expiratory flow (PEF) or spirometry reading taken in clinic is of limited value in assessing the control of a variable condition, though if the patient is well-controlled it can provide an up-to-date 'best' reading for use in action plans. Although few patients will maintain an accurate paper-based PEF diary on a daily basis,^{32,33} use of mobile technology may engage some patients with on-going PEF and symptom monitoring.^{34,35}

Surveys have consistently shown unacceptably high levels of asthma morbidity.⁴⁻⁸ Trials demonstrate that by adopting a policy of 'zero tolerance' to symptoms, patients with asthma can achieve good control;³⁶ however, it remains unclear to what extent good control as defined by guidelines can be achieved in real-life practice.³⁷ Patients will wish to balance the benefits of stepping up therapy until control is achieved against perceptions of, and preferences for, long-term treatment, and the practicalities of short consultations may restrict the time available to address all the diverse factors which result in poor control.³⁷

• Measures of morbidity

Patients' perception of control may differ markedly from that based on objective assessment of symptoms,^{5,8} and clinicians over-estimate improvements in asthma control.⁶ This has given impetus to the development of morbidity scores,

suitable for use in clinical practice, which can facilitate detection of poor control. A review of some asthma control tools is available on the web-site of the International Primary Care Respiratory Group.^{38,39} Common to all these tools is specific enquiry about the presence of symptoms, interference with activities and disturbance at night.

There are two short, well-validated questionnaires widely used in research which may be suitable for use in clinical practice.^{10,30} The Asthma Control Questionnaire^{40,41} uses five morbidity questions plus an optional measure of the forced expiratory volume in one second (FEV₁), has been tested for use in clinical practice, and a score of more than 1.5 indicates poor control.⁴² The Asthma Control Test uses similar morbidity questions but also includes a rating of overall control, with a score of 20 or more indicating good control.^{43,44} Both are available in a number of languages and have been validated for self-administration.

However, validity of questionnaires is determined under carefully controlled conditions, since the mode, circumstances and place of administration may affect the responses.⁴⁵ By contrast, conditions of administration in routine clinical practice are likely to be very variable, with some practices arranging completion prior to the asthma review at home or in the waiting room, whilst others administer them formally in the consultation. Some clinicians may explain or paraphrase the questions to assist with completion. There is, therefore, a need to establish the value of such scores for assessing

Table 2. The Royal College of Physicians three questions⁴⁶.

In the last month

1. Have you had difficulty sleeping because of asthma symptoms (including cough)?
2. Have you had your usual asthma symptoms during the day (cough, wheeze, chest tightness or breathlessness)?
3. Has your asthma interfered with your usual activities (eg housework, work, school, etc)?

control in a range of normal clinical scenarios.

The 'Royal College of Physicians (RCP) three questions' represent a consensus UK view on a short symptom questionnaire,⁴⁶ which correlates with the Asthma Control Questionnaire and is responsive to change.⁴⁷ A refinement of the RCP three questions which scores the number of days in the previous week affected by symptoms has been suggested to improve discriminatory power. The questions (or very similar precursors of the 'RCP three questions') have been used successfully to target care,⁴⁸ including use by postal questionnaire⁴⁹ and during telephone reviews.⁵⁰ Whilst occasional symptoms (e.g. on two or less days a week) may be acceptable, any nocturnal waking or activity limitation should be considered as less than well-controlled disease, and management should be adjusted accordingly.^{3,10}

2. Response to assessment and adjustment of management

If control is good, a reminder of action to be taken if asthma deteriorates may be all that is necessary. However, if assessment of symptoms, taken in conjunction with the reported and recorded use of short-acting bronchodilators and any recent history of any acute attacks, suggests that control is not ideal, the reasons for this should be considered and addressed appropriately before increasing asthma therapy.¹⁰ A recent primary care review has considered the causes for poor control in detail.⁵¹ Here, we present a summary of the key implications for routine practice:

- *Reviewing the diagnosis*

An increase in symptoms, or failure to respond to treatment, should lead to reconsideration of the diagnosis.^{10,52} An unrecognised diagnosis (for example chronic obstructive pulmonary disease (COPD) in a smoker, gastro-oesophageal reflux as a trigger for cough, obesity as a cause of breathlessness), or the development of a co-morbid condition, may be responsible for apparent poor control.⁵² A wide range of rare conditions in childhood may be initially misdiagnosed as asthma.⁵³

- *Checking and correcting inhaler technique*

Poor inhaler technique is a well documented problem which results in ineffective and wasteful use of therapy, and is an important cause of poor control.⁵¹⁻⁵⁶ As few as a quarter of patients make no mistakes when using a pressurised metered-dose inhaler (pMDI), while just over a half can use dry powder inhalers, breath-actuated pMDI or pMDI with a spacer without errors.⁵⁷ Provision of a spacer for use in an acute situation may improve effectiveness at a time when breathlessness makes usual pMDI technique more difficult.

Meta-analysis of the effect of teaching inhaler technique shows significant improvement after an educational intervention with a 'number needed to teach' (to achieve an 'ideal' technique) of 2.6 patients.⁵⁷ However, repeated

training is required to maintain good technique.^{55,56} Those unable to master or maintain good technique with one device should be offered an alternative.⁵¹ This has been specifically highlighted in children, where inadequate technique – resulting either from poor training or from choosing a device poorly suited to the child – significantly reduces drug delivery to the lungs and results in poor asthma control.⁵⁸

Practical training when a device is first prescribed, supported by review of inhaler technique at every asthma consultation (whether with a nurse, doctor, pharmacist or other healthcare professional) is good practice.^{3,10,55,56,58}

- *Assessing adherence*

Adherence with regular preventative medication is known to be poor, and under-use should be considered when there is a failure to control asthma symptoms.^{59,60} Patients self-reporting and health care professional assessment both overestimate regular use of prophylactic medication.^{59,61,62} In primary care, repeat prescribing records provide an indication of adherence with prescribed asthma regimens.¹⁰

Simple, verbal and written instructions and information on asthma and its treatment for patients and carers may help to overcome unintentional non-adherence.¹⁰ Patients balance their perceived need for treatment against their concerns about taking a medication.⁵¹ Enquiry, based on a non-judgemental assumption of non-adherence, can facilitate an open discussion of the rationale and potential benefits of regular therapy versus the disadvantages of taking a drug with (perceived or real) side effects, thus enabling the patient to reach an informed decision about concordance with clinical advice on the use of inhaled steroids.

- *Asking about, and treating rhinitis*

Rhinitis and asthma are common diseases which co-exist in 75-80% of patients⁵² and are associated with substantial cost to patients, employers and health care systems. The relationship between rhinitis and asthma is strongly supported by epidemiological, pathophysiological and clinical evidence.⁶³⁻⁷¹ Patients with co-existent asthma and rhinitis incur greater prescription drug costs and experience more general practitioner (GP) visits and hospitalisations for asthma than those with asthma alone.^{72,73}

Treatment of concomitant allergic rhinitis, particularly with intranasal steroids and/or leukotriene receptor antagonists, is associated with significant reductions in risk of emergency room treatment and hospitalisation for asthma.⁷⁴⁻⁷⁶ Rhinitis (including seasonal rhinitis) should therefore be sought as a co-morbidity in all patients with uncontrolled asthma and treated appropriately.⁵²

- *Assessing smoking status and offering cessation advice*

Smoking adversely affects asthma control. This may signal a diagnosis of COPD, either as a co-morbidity or because the COPD has been incorrectly diagnosed as asthma. Smoking also reduces

the effectiveness of inhaled steroids.^{63,77,78} It is therefore important to enquire about smoking status and to offer cessation advice to patients with poorly controlled asthma. Persistent smokers may need relatively high doses of inhaled steroids.¹⁰

- *Adjusting therapy according to evidence-based guidelines*

After consideration of diagnosis, compliance, inhaler technique, smoking status, triggers and rhinitis, the identification of poor control should result in a step-up of treatment in accordance with the evidence-based advice of international or national guidelines.^{3,10} Discussion of the advantages and disadvantages of treatment options, and acknowledgement of patient preferences – i.e. whether to accept symptoms, or whether to accept a change or an increase in treatment such as a higher dose of inhaled steroids, an additional therapy, a combination inhaler instead of separate inhalers, an inhaled long-acting bronchodilator or an oral leukotriene receptor antagonist – is good consulting practice and would seem likely to optimise future concordance.⁷⁹

Control should be maintained on the lowest possible dose and stepping down treatment is an important and frequently-overlooked step for patients who are consistently well controlled, especially in children who often 'grow out' of their asthma.^{3,10}

3. Exploring perceptions and supporting self-management

- *Guideline recommendations*

International guidelines emphasise that *"Patient education is the key to success of every aspect of asthma management and prevention"*,³ as many of the obstacles to achieving best control relate to misunderstanding of the condition, underestimation of the potential benefits of regular treatment, and exaggerated fears about side effects of asthma treatment. The UK national guideline includes the Grade A recommendation that *"Patients with asthma should be offered self-management education that should focus on individual needs, and be reinforced by a written action plan"*.¹⁰

The provision of self-management education, incorporating a written asthma action plan, can reduce hospitalisation,⁸⁰ unscheduled consultations, time lost from work and nocturnal asthma, as well as improving self-efficacy and asthma-related quality of life.^{16,81} Similar benefits have been shown in school age children,²⁰ though an innovative approach may be required for pre-school children.⁸¹

Clear advice from a systematic review on the components of effective asthma action plans – i.e. written instructions, 2-3 action points triggered by symptoms or based on best peak flow, advice on increasing inhaled steroids and commencing oral steroids – is now available.⁸² Health professionals should tailor the self-management intervention to allow for patient

preference (e.g. preferred degree of autonomy versus frequency of professional review; peak flow versus symptom monitoring) as well as the severity of asthma, risk of very severe attacks and the maintenance treatment plan.¹⁹

- *Implementation in primary care*

The challenge for primary care is that of implementing these evidence-based recommendations. Studies have shown consistently that provision of self-management education is poorly implemented in practice.^{8,83,84} Some of the recognised barriers, such as time and resources, are practical issues which need to be addressed when planning routine care for people with asthma.^{85,86} Confusion about details of action plans (such as the relevance of increasing inhaled steroids) are a further barrier.⁸⁷ Despite the growing body of evidence from primary care,⁸⁸⁻⁹² there is scepticism about whether the evidence applies to the relatively low risk mild patients in whom benefit is harder to demonstrate.⁸⁴ More fundamentally, provision of asthma action plans is often perceived as an optional task delegated to a nurse educator.⁸⁰ Recognition that self-care and professional care are inextricably linked as complementary aspects of the management of all people with long-term conditions – as illustrated in the framework for monitoring and self-monitoring (see Figure 2)¹⁷ – may be the conceptual key that will help unlock implementation.

A systematic review of the implementation of asthma action plans highlighted the importance of this inter-relationship between the facilitation of regular, structured review and the provision of self-management education.⁹³ All three primary care studies in this review demonstrated increased ownership of asthma action plans,^{92,94,95} and showed a consistent trend to improved clinical outcomes, though the only significant benefits were a reduction in episodes of 'speech limiting wheeze',⁹² and night time waking.⁹⁴ Similarly, within managed care programmes, nurse-led telephone-based reviews incorporating self-management education supported by written information can increase the use of inhaled steroids.^{96,97} This inter-relationship is encompassed in international guidelines as the concept of 'guided self-management'.³

Ensuring access to professional advice

Patients value flexible access to professional advice in order to support self-care,^{29,98} but not all patients are willing to attend a pre-arranged appointment for a regular review.^{83,99} Repeat prescribing arrangements should aim to be sufficiently flexible to enable patients to order more inhalers promptly when needed, but should include checks to ensure that those patients requesting reliever inhalers frequently are reminded to arrange a review.

There is now evidence to inform the appropriate role of telephone asthma reviews.^{10,50,101,102} Telephone asthma reviews

Table 3. A suggested service model for provision of asthma reviews.

- Ensure adequate and updated specialist training of clinicians.
- Consider strategies for maximising access – e.g flexible timing of ‘clinics’, offering a choice of mode of review, expecting that most patients will make a choice appropriate to the severity of their asthma.
- Set up a register and devise a recall system using a range of reminders (verbal, postal, telephone, e-mail, SMS). Consider opportunistic phone calls to non-attenders.
- Ask standard morbidity questions to enable objective assessment of control and tailor the review (both in content and mode of delivery) appropriate to the needs of the patient.
- Adopt a policy of ‘zero tolerance’ of symptoms, addressing the potential reasons for poor control and recommending stepping up treatment as appropriate.
- Prioritise guided self-management and the provision of personal asthma action plans, using every opportunity to review, revise, and refine the plan with the patient.
- Audit the asthma review service, ideally focusing not only on process, but also on patient outcomes.

increase the proportion of patients reviewed without loss of clinical effectiveness,¹⁰⁰ though patients whose asthma is causing concern prefer a face-to-face review.¹⁰¹ Asking standard morbidity questions by telephone can identify those who should be invited for a face-to-face review whilst offering a convenient telephone option to those currently under good control.⁵⁰ The provision of a telephone asthma review option within routine practice showed that opportunistic telephone calls could provide consultations to non-responders who would otherwise not have had a review.¹⁰² A suggested model of care incorporating this evidence is given in Table 3.

Ensuring quality

Appropriate training

Asthma reviews should be undertaken by healthcare professionals with appropriate training to enable them not only to assess control but also to adjust treatment as necessary.²⁰ In the UK, this is frequently an experienced practice nurse, though a survey published in 2007 highlighted that 20% of nurses did not have any specialist asthma training.¹⁰³ Whilst guidelines (and clinical governance) might recommend that at least one member of the primary care team has specialist respiratory training, this raises concerns about the potential deskilling of other members of the team.⁸⁴ Poorly defined inter-professional roles and inadequate communication between colleagues can act as barriers to the implementation of guideline recommendations,⁸⁶ an issue of particular importance in the context of guided self-management. Although a specialist clinician may initiate education, it is incumbent on all members of the team to provide the on-going, consistent support for guided self-management.¹⁰⁴ Multi-disciplinary education and support for professionals was a core component of the successful Finnish programme.²¹

Audit and standards

A systematic review of 118 randomised controlled trials

spanning a range of countries, professionals and disease areas concluded that audit and feedback can be moderately effective at improving professional practice.¹⁰⁵ The process of asthma reviews, particularly when the consultations are recorded on computer templates, offers ready opportunities for repeated audit cycles. However, detailing and auditing all the possible functions of an asthma review, whilst potentially improving process, risks automating the consultation and making it less responsive to individual patient needs. The UK Quality and Outcomes Framework (QOF) – a ‘pay for performance’ scheme which was introduced as part of the UK General Medical Services Contract in 2004 and which rewards practices for achieving pre-determined standards of care for a range of long-term conditions¹⁶ – recognised this potential risk, and the approach adopted was to reward the ‘provision of an asthma review’ recorded as a single coded entry in the computerised clinical records.¹⁰⁶ Concerns remain about the quality of the review represented by this ‘tick box’, though serial detailed audits in 60 representative practices showed significant progress in assessing control by the recording of specific symptoms, and checking inhaler technique as part of the review.¹⁰⁷ Disappointingly, despite uniformly high achievement in the process measures for QOF,¹⁰⁸ the proportion of well-controlled patients varies considerably between practices.¹⁰⁹

Conclusion

Too many of the 300 million people around the world living with asthma are coping on a daily basis with a variable condition that significantly affects their quality of life, despite the existence of treatment which could substantially improve their symptoms. At the core of a routine review is the opportunity to identify patients with sub-optimal control and (for both patients and professionals) the need to adopt an approach of ‘zero tolerance’ to symptoms. Recognition of the inter-relationship of professional reviews and patient self-

management underpins the partnership as future management strategies are negotiated.

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Conflict of interest declarations

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Contributorship

HP, BW, JL, JV, MF, and RR prepared the original QOF submission and all the authors contributed to the preparation of this discussion paper.

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