Performing a structured asthma review in primary care

There are many components to consider when performing an annual asthma review. The Quality and Outcomes Framework (QOF) can help by prompting healthcare professionals to include such tasks as inhaler technique, peak flow and the Royal College of Physicians’ three questions (RCP3Q). However, these are only process measures. To perform a review adequately, it is important also to understand the more subtle aspects of asthma management in order to achieve the best outcomes for the patient. The ‘SIMPLES’ approach is one way in which this might be achieved (Ryan et al, 2013).

The National Review of Asthma Deaths (NRAD) recognised that lack of self-management and personal action plans, overuse of short-acting beta, agonists, poor quality of asthma management, failure of monitoring and missed opportunities by healthcare professionals to intervene were all contributing factors in asthma deaths (Table 1; Levy, 2015).

Given that there are estimated to be about 5.4 million people suffering from asthma in the UK (Asthma UK, 2013), with nearly four million on the Quality and Outcomes Framework (QOF) registers, the total number of deaths appears small. However, deaths are only the tip of the iceberg, with the majority of patients in the UK not enjoying well-controlled asthma (Price et al, 1999), as defined by the Global Initiative for Asthma (GINA, 2016) (Table 2).

The Royal College of Physicians’ three questions (RCP3Q) about asthma control also contains three of the four questions that GINA (2016; Table 2) recommends asking to assess asthma control, and these 3 RCP questions are included in the QOF (http://bit.ly/1VgxMig) and most standard asthma review templates.

Measures of asthma control levels from routinely collected UK primary care clinical data suggest that the majority of patients with asthma are...
partly controlled, with a significant percentage being uncontrolled (Price et al, 2012). There are many factors involved, not least of which is ensuring that every patient with a diagnostic code of asthma, actually has asthma. Studies from primary and specialist care indicate that a significant number with poorly controlled ‘asthma’, in fact have an alternative diagnosis, such as chronic obstructive pulmonary disease (COPD) (Kiljander et al, 2015).

If control is not being achieved, it is worth reviewing and confirming the diagnosis, or considering an alternative diagnosis (Starren et al, 2012).

ASTHMA REVIEW

The purpose of an asthma review is to ensure that the patient’s therapy is optimised to achieve the best possible control for that person. This may involve a change in treatment once the impact that asthma is having on the individual has been assessed, which should include a comprehensive holistic assessment of the patient.

The SIMPLES approach has been proposed to achieve this objective (Ryan et al, 2013). This covers:
- S: smoking
- I: inhaler technique
- M: monitoring
- P: pharmacotherapy
- L: lifestyle
- E: education
- S: support.

In the author’s clinical experience, this guideline-informed approach to structured asthma reviews helps to identify patients who might benefit from referral to a specialist.

Smoking
Although with the numbers of people who smoke declining, it is not such a problem as it used to be, it still plays a significant role in those with poorly controlled asthma as it adversely affects asthma in three ways:
- It is an irritant which increases inflammation in the lungs leading to increased symptomatology and more severe asthma (Siroux et al, 2000)
- It is an irritant which increases inflammation in the lungs leading to increased symptomatology and more severe asthma (Siroux et al, 2000)
- It is an irritant which increases inflammation in the lungs leading to increased symptomatology and more severe asthma (Siroux et al, 2000)

Table 1: Key findings of NRAD (Levy, 2015)

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>195 (71%)</td>
<td>Out of 276 cases considered by the panels died from asthma; and 27 (10%) had no evidence in their records confirming that they had asthma</td>
</tr>
<tr>
<td>31 (16%)</td>
<td>Out of 195 people who died, and in only one (4%) of the 28 children and young people</td>
</tr>
<tr>
<td>67%</td>
<td>Of those who died from asthma either did not call for or received medical assistance in their final fatal attack. This surprise finding was coupled with the observation that 77% of those who died had no evidence in their medical records of being provided with a personal asthma action plan (BAP) detailing how their medication was to be taken, how to recognise danger signals, and when to call for help</td>
</tr>
<tr>
<td>31 (67%)</td>
<td>Out of 195 who died from asthma</td>
</tr>
</tbody>
</table>

Table 2: Questions to ask patients to assess level of asthma symptom control (adapted from GINA, 2016)

<table>
<thead>
<tr>
<th>Question</th>
<th>Well controlled</th>
<th>Partly controlled</th>
<th>Uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the past four weeks, has the patient had:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Daytime asthma symptoms more than twice/week?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Any night waking due to asthma</td>
<td>None of these</td>
<td>1–2 of these</td>
<td>3–4 of these</td>
</tr>
<tr>
<td>■ Reliever needed for symptoms (not including before exercise) more than twice/week?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Any activity restrictions due to asthma?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The response to inhaled steroids is attenuated, meaning that higher doses have to be used to gain the same effect (Chaudhuri et al, 2003).

People with asthma who smoke suffer a greater decline in lung function and a predisposition to developing COPD (Apostol et al, 2002).

The QOF in the UK recognises the deleterious effect of smoking on a variety of diseases. Thus, as part of a structured review, general practice nurses (GPNs) should identify smokers, assess their willingness to quit and make the appropriate referrals to smoking cessation services (Pang and Stern, 2014).

Inhaled corticosteroids have been the mainstay of treatment for four decades since the seminal study by Brown et al (1972) demonstrated their effect in sparing or reducing the dose of oral steroids.

However, inhalers are not without their problems. Indeed, healthcare professionals may lack competency in how to use the devices (Self et al, 2007), which can result in their being unable either to teach or check and correct faulty inhaler technique, which is reflected in the low numbers of patients demonstrating competency in technique (Plaza and Sanchis, 1998; Molimard et al, 2003). Although guidelines have been published (Dolovich et al, 2005; Haughney et
al, 2010), it has been recognised that there is an urgent problem (Papi et al, 2011), with a recent review giving a comprehensive account of the problems encountered (such as not taking the lid off the device, not loading the device properly, not emptying the lungs before actuation, breathing in too slowly or too quickly, breathing in and out through the device, etc) and how to overcome them (Price et al, 2013).

Poor inhaler technique is predictably accompanied by poor asthma control (Giraud and Roche, 2002), and misuse of corticosteroid metered-dose inhaler is associated with decreased asthma stability (Al-Jahdali et al, 2002), both of which result in frequent emergency department visits (Levy et al, 2013).

In the author’s clinical opinion, the inability of patients with asthma to use a pressurised metered-dose inhaler (pMDI) correctly may also lead to lack of adherence on the grounds that the medication does not appear to have any effect, ‘so why bother taking it’.

However, a full exploration of this problem is beyond the scope of this article, the purpose of which is to focus on the critical importance of being able to use and demonstrate inhaler use correctly during asthma reviews.

Broadly speaking, there are two types of inhaler:
- pMDI
- Dry powder inhaler (DPI).

In both, the medication is held within the device in suspension or in a reservoir, and has to be disaggregated to particles of respirable size (Leach et al, 2009). With pMDI, the energy to achieve this is provided by the aerosol gas (now all hydrofluoroalkane [HFA]), whereas with DPI the patient provides this energy by the depth and strength of inhalation. Thus, with pMDIs, the inhalation technique is slow and gentle, and with DPIs, hard and quick. Given the difference in inhalation technique styles, patients should not mix pMDIs and DPIs, i.e. all inhaled medications should be from similar devices (Figure 1).

Monitoring
Monitoring can be undertaken through:
- The review visit carried out by the practitioner (which is addressed in this article)
- Daily monitoring of the patient by the practitioner.

A Cochrane review suggested that a patient self monitors using a mixture of symptoms and objective lung measurements (daily or twice daily peak flow monitoring). In reality, patients rarely comply with peak flow meters beyond a short space of time. The QOF requires healthcare professionals to document asthma status by recording the RCP’s three questions on an annual basis, which has been validated in primary care (Table 3). A score of one certainly suggests suboptimal control, whereas a score of 2 or 3 suggests poor control (Pinnock et al, 2012).

This can easily be adapted for patients to use themselves, perhaps also adding in a question concerning beta, agonist usage. Patients should be taught that any symptoms are unacceptable and use of the blue inhaler should prompt an enquiry as to why symptoms have got worse (e.g. patient forgot to take routine medication, viral infection, exposure to pollen or other Aeroallergen), and then to take the action agreed with the clinician, such as increasing or taking extra doses of medication, making an urgent appointment, or occasionally starting a course of oral steroids. However, this is a matter of negotiation between the clinician and patient and should be guided by the patient’s history.
The other form of monitoring is an annual review (more frequently if the patient’s asthma symptoms are out of control, or they are having exacerbations or hospital admissions). It is important to recognise that when it comes to giving information, this may occur over more than one consultation, thus call and recall systems form a part of monitoring (Feifer and Ornstein, 2004).

Many patients will need more than one review. If during an annual review poor control is detected and appropriate action taken, the patient should be reviewed some 6–8 weeks later to determine whether control has been achieved and if any further interventions are needed. Similarly, during an acute exacerbation, patients may need to be checked every day or two to ensure that improvement is taking place. If patients have needed to attend emergency departments or are admitted to hospital because of an exacerbation, a review is also urgently indicated within 48 hours to establish why the exacerbation occurred; why the patient’s action plan failed; and for a new plan to be put in place with the aim of reducing the risk of further exacerbations occurring.

**Pharmacology**

There is great emphasis placed on the use and cost of medication in the management of asthma. Patients often have their severity defined by the ‘step’ of asthma treatment they are taking (Bousquet et al, 2010). However, in the author’s clinical opinion, some clinicians step-up therapy if control is not achieved before first checking inhaler technique, adherence, smoking status and correcting these problems. The ‘steps’ thus appear more like a treatment escalator, which does not have a downward step as advocated by guidelines. There are clearly places where step-up and step-down are appropriate, either in the long or short term.

**Practice point**

Risk factors for poorly controlled asthma and exacerbations include:
- Poor inhaler technique
- Smoking
- Exposure to environmental cigarette smoke
- Rhinitis
- Overuse of SABAs
- Underuse of ICS
- Previous exacerbations
- Failure to attend follow-up
- Mental health problems
- Poor health literacy
- Affordability of medication
- Access to care
- Occupation
- Complex regimen, e.g. multiple different types of inhalers taken at different times throughout the day.

The only CFC-free beclometasone pMDI licensed for the prophylactic management of asthma in adults and children. *Volumatic™ spacer required in patients 15 years of age and under, and those requiring daily doses of 1000 micrograms and over.

---

* CFC Module is indicated for the prophylactic management of mild, moderate or severe asthma in adults or children. Please consult the Summary of Product Characteristics before prescribing, particularly in relation to side effects, precautions and contra-indications. Legal category: POM. Information about this product, including adverse reactions, precautions, contra-indications and method of use can be found at www.medicines.org.uk/emc. Further information available from: Chiesi Ltd, 333 Styal Road, Manchester, M22 5LG. Volumatic™ is a trademark of the GlaxoSmithKline group of companies. Date of preparation: Oct 2015. CHCLE20131378e.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Chiesi Ltd on 0161 488 5555.
short term, and the clinician needs to be aware of these and discuss them with the patient (Thomas et al, 2011; Booth, 2015).

Use of medication is beyond the scope of this article but can be found in detail in the British Thoracic Society/Scottish Intercollegiate Guidelines Network guidelines (BTS/SIGN 2014). However, it is important to remember the purpose of the guideline, which is to inform, not dictate care delivery.

**Inhaled corticosteroids (ICS)**

Inhaled corticosteroids (ICS) are the mainstay of treatment for asthma (BTS/SIGN, 2014). However, it is often not realised that for the great majority of patients, there is no additional benefit to be gained by increasing the dose of inhaled steroid above 500mcg per day (or equivalent), with most of the benefit being achieved at the lower dose of 100–250mcg per day (Holt et al, 2001). Thus, any patient on a dose of ICS greater than 500mcg should be reviewed, with particular respect to inhaler technique and compliance. Poor compliance is a frequent cause of poorly controlled or ‘difficult’ asthma (Gamble et al, 2009). However, if the rationale for taking medication and the technique for successful administration is not explained to the patient, clinicians should not be surprised if there is a failure to comply.

If these factors are rectified and a dose greater than 500mcg or equivalent appears to be needed, patients should be referred for specialist assessment, as they may need a different treatment approach (Heaney and Robinson, 2005; Haldar et al, 2008).

**Inhaled short-acting bronchodilators (SABA)**

Beta, agonist use is a mark of losing control. A typical pMDI canister contains 200 puffs or 100 doses (two puffs=one dose). If a patient is using one canister per annum, this suggests that they are needing inhaled therapy at least every four days, suggesting suboptimal control. It is useful to enquire as to when patients use it, as they are frequently used when the patient is anxious or hyperventilating (Laurino et al, 2012). These patients often experience improved control through the intervention of respiratory clinics, as dysfunctional breathing is frequently not recognised (Bowler et al, 1998; Bruton and Thomas, 2011).

The recent NRAD advocated urgent review of patients using 10 or more reliever inhalers per annum, which equates to over 1,000 doses per annum or three doses daily.

As part of monitoring, GPNs should review prescribing records in order to understand whether the patient is having prescriptions dispensed in accordance with what has been prescribed and agreed with the patient.

**Lifestyle**

Asthma, in common with other long-term conditions, benefits from attention to lifestyle advice. Smoking has been addressed above. Patients with asthma who exercise have a lower requirement for preventer medication (however, if a patient with asthma has exercise-induced symptoms, this suggests that asthma control is suboptimal), and thus exercise is to be encouraged (França-Pinto et al, 2015).

Weight is also important, particularly with obesity being a growing problem leading to the development of a variety of morbidities. Studies have demonstrated that in both adults and children, dietary intervention can be a significant factor in gaining control of asthma (Dias-Júnior et al, 2013; Willeboordse et al, 2014).

Stress reduction also appears to induce benefit in terms of improved asthma control, although there were no improvements in lung function in one randomised controlled trial (RCT) (P’bert et al, 2012).

**Co-factors and comorbidities**

Medications prescribed for other comorbidities may have an adverse effect on asthma, for example, beta blockers and non-steroidal anti-inflammatory drugs (NSAIDS), although only a small proportion of asthma sufferers have sensitivity to NSAIDS (Eriksson et al, 2015).

Rhinitis, whether allergic or non-allergic, can worsen asthma control (Ryan et al, 2008) and patients are at higher risk of exacerbations of asthma (Clatworthy et al, 2009). Treating rhinitis with topical nasal steroids may have a modest impact on improving asthma outcomes (Lohia et al, 2013).

**Occupation and exposure to allergens**

Occupational asthma is characterised by respite from symptoms either during holidays away from work or at weekends. Many occupations are associated with occupational asthma (Feary et al, 2016), such as farmers, electronic, chemical and laboratory workers (Tarlo and Lemiere, 2014), and this may be a factor in as many as 15% of patients (Torén and Blanc, 2009).

If occupational asthma is suspected, referral to a specialist is recommended. Clinicians often forget exposure to domestic animals or the influences of hobbies on asthma, which may come to light when exploring patients’ recreational activities (Blanc, 2010).

**Education**

One of the single most important elements of asthma management is the initial and ongoing education of the patient with asthma, which includes the provision of a personal asthma action plan (PAAP) (Stonham, 2015).

In the author’s clinical experience, as with all things related to asthma, education is multilayered
requiring, among other things, exploration of the patient’s ideas, concerns and expectations in order to elicit any patient barriers to care. Patients have a well-developed sense of risk and balance of treatment which should be respected, but if necessary reframed or countered. Patients also have concerns about treatments in terms of side-effects, loss of affect and addiction — all of which need to be addressed.

The patient should know about:
- The pathophysiology (mucosal oedema, mucous production, bronchoconstriction)
- Pharmacology (preventer, reliever)
- Inhaler technique (checked at every visit)
- How to recognise when they are losing control (see monitoring above)
- What to do when control is being lost (treatment increase)
- When to seek urgent advice and what to do in an emergency.

Asthma education and self-management plans have been advocated for many years (Lahdensuo et al, 1996). Uniformly, their use is associated with an improvement in quality of life, and a reduction in exacerbations and hospitalisation. They need to be simple and accessible and agreed with, and understood by the patient. One of the barriers to implementation is the notion that it takes a great deal of time. However, this need not be the case, as was shown in a study by Plaza et al (2015), which demonstrated that it took less than 25 minutes over three sessions.

Support
Patients need the support of their primary care team, including GPN. Part of that support is equipping patients with the skills they need to self-manage their asthma. This involves at least a purposeful, structured annual asthma review with easy access to the clinic when they are getting into trouble (i.e. losing control). Thus, support involves facilitating rapid access to cope with urgent problems (something rarely used in patients who are well controlled).

Direction to patient charities, such as Asthma UK or the British Lung Foundation (BLF), also provides patients with support by reducing any sense of isolation, as well as being good sources of information.

If control is not achieved despite using the SIMPLES approach, referral to a specialist centre for further evaluation is recommended. Here the diagnosis may be confirmed and treatment given, or a new or additional diagnosis (e.g. bronchiectasis, hyperventilation syndrome, vocal cord dysfunction, COPD) made so that appropriate treatment can be given.

Inhaler technique training is available from Education for Health: www.educationforhealth.org/course/improving-inhaler-technique-workshop-2/

REFERENCES


Physicians/American College of Asthma, Allergy, and Immunology. *Chest* 127: 335–71


Levy ML, Hardwell A, McKnight E, Holmes J (2013) Asthma patients’ inability to use a pressurised metered-dose inhaler (pMDI) correctly correlates with poor asthma control as defined by the global initiative for asthma (GINA) strategy: a retrospective analysis. *Prim Care Respir J* 22: 406–11


Register now to use the new, free GPN revalidation zone

GPN’s online revalidation zone helps you follow NMC CPD rules for nurses and midwives:

- Managing your portfolio is easy and FREE
- Store all your work in one place
- Compile your evidence with a simple CPD hours calculator
- See your progress at a glance

Visit

www.journalofpracticenursing.co.uk/revalidation

and register today