

GUIDELINE SUMMARY

Management of allergic and non-allergic rhinitis: a primary care summary of the BSACI guideline

Elizabeth Angier^a, Jenny Willington^b, Glenis Scadding^c, Steve Holmes^d, *Samantha Walker^e

^a Department of Immunology and Allergy, Northern General Hospital, Sheffield, UK

^b StowHealth, Violet Hill House, Stowmarket, UK

^c Allergy & Rhinology, RNTNE Hospital, London, UK

^d The Park Medical Practice, Shepton Mallet, UK

^e Director of Education and Research, Education for Health, Warwick, UK

Received 17th November 2009; revised version received 6th May 2010; accepted 12th May 2010; online 2nd August 2010

Abstract

Rhinitis is a common problem in primary care which is often managed sub-optimally. It causes considerable morbidity and has been shown to have a detrimental impact on people's ability to concentrate at school and at work. Rhinitis and asthma often present together, and symptomatic rhinitis can be associated with poor asthma control and increased risk of exacerbations. There is therefore a clear need to recognise and treat rhinitis according to guideline recommendations.

This article is a primary care summary of the British Society for Allergy & Clinical Immunology (BSACI) Standards of Care Committee guideline on the management of rhinitis, written by a multi-disciplinary group of clinicians. It takes into account the time restrictions on assessment and the tests and equipment available in primary care, as well as the need for practical, clear and intuitive strategies for investigation and management. It recommends a stepwise approach to treatment, and highlights the relevance of less frequently prescribed treatments, including nasal douching leukotriene receptor antagonists and anticholinergics. Red flag symptoms are identified, together with indicators for referral. As with many other long term conditions, good communication between primary and secondary care in terms of timely and appropriate referral is a key factor for success.

© 2010 Primary Care Respiratory Society UK. All rights reserved.

E Angier *et al.* *Prim Care Resp J* 2010; 19(3): 217-222

doi:10.4104/pcrj.2010.00044

Keywords rhinitis, allergic, non-allergic, management, guideline, primary care, treatment, referral

Introduction

The British Society for Allergy and Clinical Immunology (BSACI) Standards of Care Committee guideline on the management of allergic and non-allergic rhinitis was published in 2008¹ following an extensive systematic review of the literature, and is aimed at specialists working within secondary and tertiary care. However, its length and complexity, and assumptions about access to diagnostic and other tests, makes it less relevant and accessible to primary care clinicians.

Given that a significant proportion of patients with rhinitis first present in primary care, members of the Primary Care Group of the BSACI decided that the production of a clear and succinct primary care summary of the original guideline¹ would encourage dissemination of the key guideline messages. This paper is the result. It was written by a multi-

professional group of allergy-interested clinicians, and contains useful primary care-based recommendations. The paper covers the definitions and classifications of rhinitis, offers tips on diagnosis and differential diagnosis, and covers treatment and management in special situations. Further information is available from the BSACI website (www.bsaci.org) or the ARIA website (www.whiar.org).

Background

Rhinitis is a common presenting problem in primary care and is associated with considerable morbidity. It affects quality of life, performance and attendance at both school² and work, and has a significant impact on health care costs.³ Although the majority of cases of rhinitis are benign, short-lasting and self-limiting, there are a considerable number who suffer more significant symptoms often over a prolonged period of

* **Corresponding author:** Dr Samantha Walker, Director of Education & Research, Education for Health, The Athenaeum, 10 Church Street, Warwick, UK. Tel: +44 (0)1926 838975 Fax: +44 (0)1926 493224 E-mail: s.walker@educationforhealth.org

time. There is also emerging evidence to suggest that comorbid rhinitis affects up to 75% of those with asthma.⁴ Optimal management of upper airway inflammation may lead to better asthma control in those whose asthma is poorly controlled.^{5,6}

Definitions and classification

Rhinitis describes inflammation of the nasal mucosa, but clinically is defined by several common symptoms of nasal discharge, itching, sneezing, nasal blockage or congestion. There are three types of rhinitis commonly seen in clinical practice; allergic, non-allergic and infective. Mixed forms also occur. For the purposes of this article infective rhinitis will not be covered in detail.

Allergic rhinitis

Allergic rhinitis has increased in prevalence steadily over the last three decades and affects more than 20% of the UK population. Allergic rhinitis is more common in children and in those with a personal or family history of atopy (defined as having positive skin prick tests or specific IgE to common aeroallergens).

Allergic rhinitis can be caused by:

Common causes

- House dust mite
- Pollens (e.g. trees, grasses); the main cause of seasonal rhinitis
- Animals (e.g. cats, dogs, horses, rodents)

Less common

- Moulds (e.g. *Alternaria cladosporium*, *aspergillus*); can be seasonal or perennial
- Occupational (e.g. flour, laboratory animals, wood dusts, enzymes); an important cause since it is potentially reversible if caught early after initial exposure – but with prolonged exposure it becomes chronic

Infective rhinitis

The common cold and many viruses (rhinovirus, coronavirus, RSV etc) commonly cause rhinitis. It should be remembered that following an episode of infective rhinitis sinus changes can be present on CT scanning for up to six weeks. Only a small number of viral infections have a superinfected bacterial component (0.5-2%). Most normal children will have on average 6-8 "colds" per year.

Bacterial infections (with *Streptococcus*, *Haemophilus*, *Moraxella*) are less common but can progress to rhinosinusitis commonly with nasal obstruction, facial pain, crusting and mucopurulent discharge.

Although rare in primary care, fungal and other opportunistic infections should be considered in immunosuppressed individuals.

Non-allergic rhinitis

Non-allergic rhinitis includes some conditions that are

relatively common in primary care and some which are important to diagnose early. If tested, these patients are non-atopic (i.e. skin prick test/sIgE test negative). The common causes are:

- **Autonomic** (vasomotor) rhinitis triggered by physical / chemical agents and common in middle age with rhinorrhoea especially in the morning. This is thought to be due to parasympathetic hyperactivity.
- **Drugs and medications** are an increasingly common cause, in particular the alpha-adrenergic blockers, ACE inhibitors, aspirin, NSAIDs and prolonged use of nasal decongestants common culprits. Cocaine is a recognised cause.
- **Alcohol** can cause rhinorrhoea and facial flushing.
- **Hormonal** changes include symptoms with pregnancy, puberty, hormone replacement therapy, the contraceptive pill and these are common in primary care
- **Nasal blockage** – foreign body and structural abnormalities (nasal septal deviation, polyps or tumour)
- **Irritants** – cold air, smoke, formaldehyde, glues and solvents can aggravate allergic and non-allergic rhinitis.

Rarer causes of rhinitis include:

- Eosinophilic or non-allergic rhinitis with eosinophilia syndrome (NARES); 50% develop aspirin-sensitive disease with asthma and nasal polyposis
- Hypothyroidism
- Primary mucus defect (cystic fibrosis)

Diagnosis and differential diagnosis

The general practitioner (GP) or practice nurse is well placed to take a detailed history since they are often familiar with the patient's occupation and family background. It is often helpful to ask the patient to list their main symptoms as this may reveal a short list of differential diagnoses:

Symptoms

Sneezing, itchy nose and palate

- Allergic rhinitis likely. Ask if symptoms are intermittent or persistent as this will guide treatment.
- If seasonal think about pollens or moulds
- At home – pets or house dust mites
- At work – consider occupational trigger
- On holiday – remission suggests occupational or environmental cause

Rhinorrhoea (watery, runny nose)

- Can be anterior, or lead to post nasal drip.
- If discharge is clear, infection is unlikely
- If discharge is yellow consider allergy or infection; if green, infection
- Unilateral rhinorrhoea is rare but consider CSF leak or malignancy
- Blood tinged: if unilateral consider nose picking, tumour,

foreign body, misplaced spray; if bilateral consider nose picking, bleeding diathesis, granulomatous disorder

Nasal obstruction

- Unilateral – this is usually caused by septal deviation, but may be foreign body, polyp, or tumour
- Bilateral – septal deviation – more likely rhinitis or polyps
- Blockage in alternating nostrils is a normal manifestation of rhinitis

Nasal Crusting

- Consider nose picking.
- Unusual causes include Wegener's granulomatosis, sarcoid disease, atrophic rhinitis or topical steroid use.

Eye symptoms

Bilateral itchy, red, swollen eyes are usually associated with allergic rhinitis

Cough, wheeze, shortness of breath

The majority of people with asthma have rhinitis (~78%) and a significant number of people with rhinitis have asthma. Peak seasonal wheezing as a result of pollen exposure is common in patients who do not have asthma at other times of the year. In patients with aspirin-sensitive asthma, 36-96% have nasal polyps with rhinosinusitis.

Other questions to confirm the diagnosis:

Family History

If personal and/or family history suggests atopy (history of hayfever, asthma or eczema in infancy, other allergies) then allergic rhinitis and asthma are more likely.

Social History

If relevant ask about housing, pets, occupation and possible triggers and snoring

Examination:

In primary care the following signs can be observed:

- Reduced nasal airflow / mouth breathing
- Horizontal nasal crease across nose dorsum in severe rhinitis
- Depressed nasal bridge; cocaine use, post-surgery, Wegeners
- Widened bridge; polyps and adenoidal hypertrophy
- Polyps, crusting, perforated septum, mucosal congestion, type of nasal discharge (using a nasal speculum/auroscope)

Routine investigations

At times routine blood tests may be indicated depending on clinical suggestions arising from the history, examination or inconclusive results from skin prick or specific IgE tests. These should help to exclude other conditions being considered and include full blood count, plasma viscosity (inflammatory/infective processes), liver function tests (alcohol-related rhinorrhoea), and thyroid function tests (rhinorrhoea).

Further investigations

Investigations in secondary or tertiary care include rhinoscopy,

objective measures of the nasal airway (e.g. nasal inspiratory flow rate, acoustic rhinometry and rhinomanometry), nasal endoscopy, CT scanning, blood tests for underlying disorders, analysis of nasal fluid to exclude CSF leak, measurement of nasal and expired nitric oxide.

Allergy testing

The clinical history should determine whether allergy testing is required. Allergy testing can be useful to identify or exclude an allergic trigger which may influence management.^{3,8,9} In the majority of cases in primary care, treatments with antihistamines and/or nasal corticosteroids will control symptoms; however, patients with poorly controlled or persistent symptoms may benefit from testing to identify a specific allergen trigger.

Although airborne allergens are difficult to avoid and there is only limited evidence for successful avoidance, some aspects of management may be improved by allergen identification:

- Confirmation of pet allergen as a trigger allows the option for avoidance of exposure and/or prophylactic treatment prior to exposure
- Confirmation of grass or tree pollens as a trigger allows initiation of effective treatment pre-seasonally which is likely to result in better symptom control
- In perennial rhinitis, exposure to dust mites in those sensitised may contribute to symptoms. Mite-sensitised patients may wish to consider the use of acaricides as part of a combination of bedroom-based environmental control programmes which may be of benefit in reducing rhinitis symptoms. Clinical trial data suggests that the use of single interventions is unlikely to prove effective.¹⁰
- Confirmation that an allergen trigger is NOT the cause may prevent unnecessary lifestyle changes and discourage further allergy investigations

In community settings, blood tests are available to identify IgE-mediated disease, although these are not commonly used. Allergy testing kits are now available to buy over-the-counter, although patients should be advised that results need to be interpreted in the light of their clinical history and therefore clinical expertise is required.

If allergen avoidance is not possible,¹¹ empirical treatment can be justified as an initial step for rhinitis patients with a convincing history of allergy.

Skin prick tests

- The clinical history is the most important factor and so it's important to remember to interpret the results of any tests in the light of this
- Skin prick tests have a high negative predictive value; that is, patients with negative skin prick tests are highly unlikely to be sensitised to that allergen
- Results can be suppressed by antihistamines, tricyclic

- antidepressants and topical (but not oral) steroids
- Systemic reactions to skin prick tests to airborne allergens are rare. However, emergency rescue treatment should be immediately available and staff should be trained to recognise the symptoms of a systemic reaction.

Serum total and specific immunoglobulin E

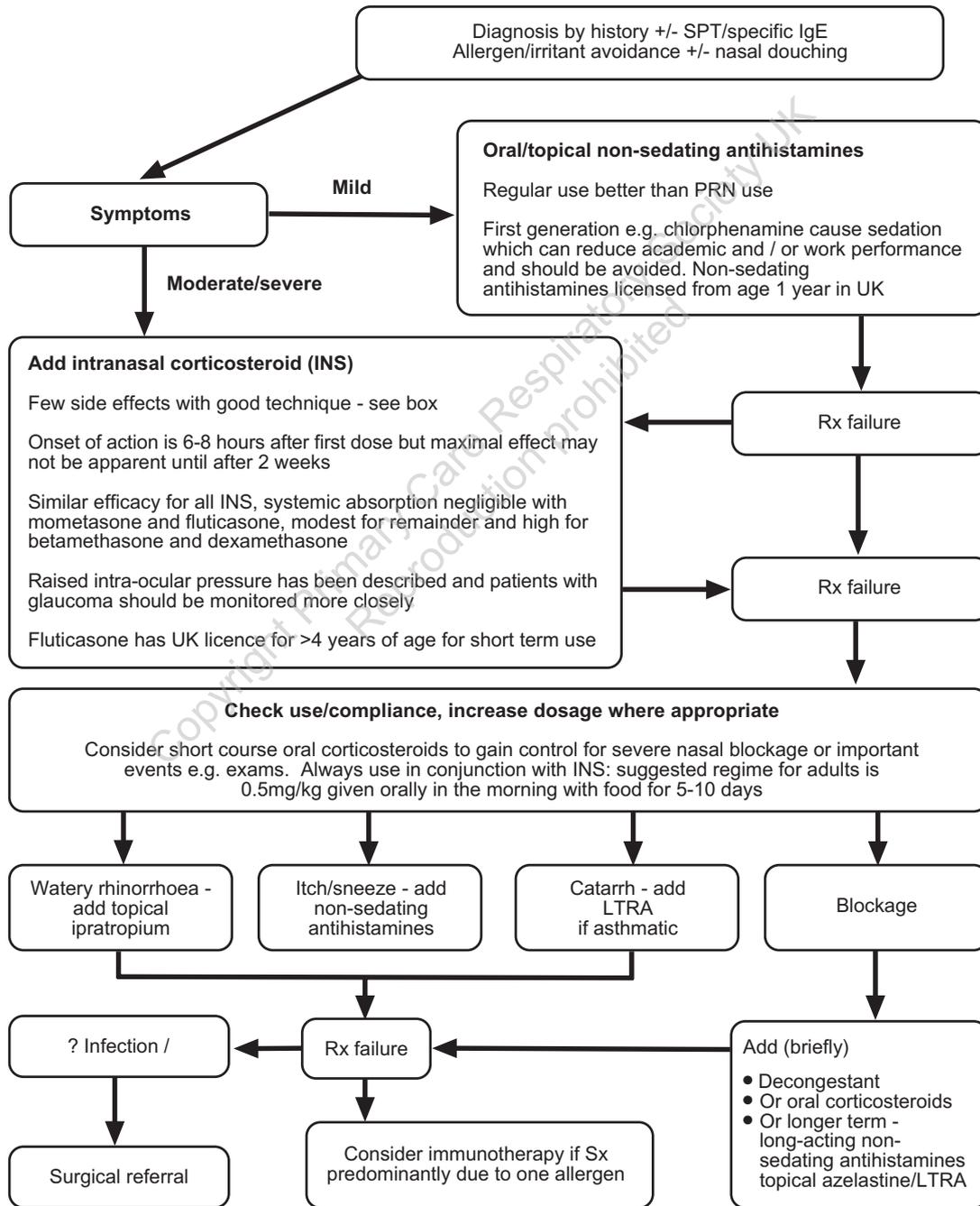
- Specific IgE can be requested if skin prick tests are not available.

- Levels of total IgE are not diagnostic
- Levels of allergen-specific IgE broadly correlate well with skin prick tests although both need interpretation in the light of the patient's history.

Treatment of rhinitis

Guidelines recommend non-sedating antihistamines, topical nasal corticosteroids or anti-histamines, and anti-

Algorithm for the treatment of rhinitis



inflammatory (cromone or anti-histamine) eye drops,¹² or a combination depending on symptoms and severity of symptoms. Part of the management strategy should also be to arrange adequate follow-up until patient self-management results in optimal symptom control.

Special situations

Rhinitis and pregnancy

Pregnancy-induced rhinitis can occur in 20% of women and is often self-limiting. Since most medications cross the placenta, the prescriber needs to look at the benefits to the patient versus the risk to the foetus.

General rules in pregnancy

- Avoid decongestants
- Regular nasal douching may be helpful
- Beclomethasone, fluticasone and budesonide nasal sprays have good safety profiles and are widely used in pregnant asthmatic women
- Chlorphenamine, loratadine and cetirizine are likely to be safe, but decongestants should be avoided
- Chromones (e.g. sodium cromoglycate; available as eye drops and a nasal spray) have not shown teratogenic effects in animals and are the safest drugs recommended in the first three months of pregnancy although they require multiple (qds) daily administrations
- Women who get pregnant whilst receiving immunotherapy should continue with treatment. The initiation and up dosing phases of immunotherapy are contraindicated in pregnancy.

Co-morbid associations

Asthma and rhinitis usually co-exist. Rhinitis is a risk factor for the development of asthma, and exposure to allergens can affect both the nose and the lungs. Allergy to house dust mite and cat dander is a risk factor for both asthma and rhinitis. Studies show that bronchial inflammation is associated with nasal inflammation.

Allergic rhinitis in children

It is important to explain all the treatment options to the parents, to encourage compliance, and to demonstrate how to use nasal sprays.

First line treatment should include once-daily long-acting antihistamines or intranasal corticosteroid given continuously or prophylactically for symptoms of rhinorrhoea, sneezing, rash or conjunctivitis or nasal obstruction.

Nasal Steroids

- Useful for nasal congestion and obstruction
- Use preparations with low systemic bioavailability at the lowest possible dose
- Intermittent use can be beneficial

Second line treatments

- For nasal congestion the combination of corticosteroid

Nasal spray



nasal drops and a topical decongestant can be useful for short term use only (less than 14 days.)

- In severe seasonal allergic rhinitis, particularly before exams or other important events, a short course (25mg/day for 5-7 days) of oral steroids can be very effective (in children 2mg/kg/day up to 25mg)
- Injectable depot steroid preparations are not recommended except in exceptional circumstances
- For refractory rhinorrhoea try ipratropium bromide 0.03%
- In seasonal allergic rhinitis, saline irrigation (nasal douching) during the pollen season may improve symptoms
- Leukotriene receptor antagonists can be useful in concomitant rhinitis/asthma
- Immunotherapy (IT) is effective and sublingual IT is now available for children as well as adults.

Referral

Primary care health professionals should be aware of the availability of local secondary/tertiary care-based allergy services (www.bsaci.org) and know when to refer patients.

Patients who should be referred for specialist care include:

- children with asthma with suspected IgE-mediated food allergy who are at increased risk of fatal food reactions
- those children in whom there is diagnostic uncertainty or who need specialist investigations or specialist care.
- those with suspected occupational rhinitis or asthma, as

early identification offers possibility of a cure.

- patients with seasonal allergic rhinitis who are unresponsive or intolerant to conventional treatment may benefit from referral for consideration for immunotherapy.
- 'red flag' symptoms to look out for include bloody purulent discharge, pain and nasal blockage (often unilateral and may be signs of malignancy), nasal pain, stuffiness, nosebleeds, rhinitis, crusting, and nasal deformity due to a perforated septum which may be the first signs of suspected Wegener's granulomatosis (see the BSACI guideline¹ for further details of other referral criteria).

Allergy management in primary care

Guidelines such as these can be used to improve the primary care management of allergic disease. One example of an extended allergy service within a primary care setting used such guidelines to develop community care pathways with links and back up from allergy specialists as necessary. The clinic appeared to cater adequately for the majority of primary care referrals whilst reducing inappropriate referrals and leading to an overall saving in costs.¹³ This may be a useful model to explore in areas without access to specialist allergy services.

Summary

The majority of rhinitis symptoms can be treated in the general practice setting. Regular topical nasal corticosteroids and non-sedating anti-histamines used in conjunction with anti-inflammatory eye drops will control symptoms in most patients. Clinicians should be aware of rare and serious presentations and should refer patients for a specialist opinion where appropriate.

Conflict of Interest

EA is a advisory board/consultant for Schering Plough.

JW has no conflicts of interest.

GS is a consultant / advisory board member for ALK, Britannia Pharmaceuticals, CMP Therapeutics, Grupo Uriach, GSK, Merck, Sanofi- Aventis, Schering Plough, UCB. Has received research funds from ALK, GSK, UCB, Schering Plough and has given talks for ALK, GSK, Merck, Schering Plough, UCB and has co-written articles for Schering Plough and GSK.

SH within the last five years has received travel grants to attend medical conferences, attended advisory boards and received speaker fees from AstraZeneca, GlaxoSmithKline, Schering Plough, Novartis, Nycomed and Merck Sharp Dome. He is a member of the RCGP, BSACI, PCRS and has worked for the Department of Health. He has also acted as an advisor to Asthma UK, the British Thoracic Society, Scottish Intercollegiate Guideline Network and RCGP.

SW has received research monies and honoraria for writing, consultancy and lecturing from Schering Plough UK and Astra Zeneca UK. She has also received honoraria from UCB, Glaxo SmithKline and MSD for lectures and consultancy'.

References

1. Scadding GK, Durham S.R., Mirakian R, et al. BSACI guidelines for the management of allergic and non-allergic rhinitis. *Clin Exp Allergy* 2008;**38**:19-42.
2. Walker S, Khan-Wasti S, Fletcher M, Cullinan P, Harris J, Sheikh A. Seasonal allergic rhinitis is associated with a detrimental impact on exam performance in UK teenagers: case-control study. *J Allergy Clin Immunol* 2007;**120**(2):381-7.
3. Malone DC, Lawson KA, Smith DH, Arrighi HM, Battista C. A cost of illness study of allergic rhinitis in the United States. *J Allergy Clin Immunol* 1997;**99**:22-7.
4. Bachert C, Vignola A, Gevaert P, Leynaert B, Van Cauwenberge P, Bousquet J. Allergic rhinitis, rhinosinusitis and asthma: one airway disease. *Immunology Allergy Clin North Am* 2004;**24**:19-43. [http://dx.doi.org/10.1016/S0889-8561\(03\)00104-8](http://dx.doi.org/10.1016/S0889-8561(03)00104-8)
5. Price D, Zhang Q, Kocevar VS, Yin DD, Thomas M. Effect of a concomitant diagnosis of allergic rhinitis on asthma-related health care use by adults. *Clin Exp Allergy* 2005;**35**(3):282-7. <http://dx.doi.org/10.1111/j.1365-2222.2005.02182.x>
6. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens W. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 Update. *Allergy* 2008;**63**(s86):8-160. <http://dx.doi.org/10.1111/j.1398-9995.2007.01620.x>
7. Walker SM, Sheikh A. Self-reported rhinitis is a significant problem for patients with asthma: results from a national (UK) survey. *Prim Care Resp J* 2005;**14**:83-7. <http://dx.doi.org/10.1016/j.pcrj.2004.10.005>
8. Gendo K, Larson EB. Evidence-based diagnostic strategies for evaluating suspected allergic rhinitis. *Ann Intern Med* 2004;**140**(4):278-89.
9. Walker SM, Morton C, Sheikh A. Diagnosing allergy in primary care: are the history and clinical examination sufficient? *Prim Care Resp J* 2006;**15**:219-21. <http://dx.doi.org/10.1016/j.pcrj.2006.05.008>
10. Sheikh A, Hurwitz B, Shehata YA. House dust mite avoidance measures for perennial rhinitis (Review). *Cochrane Database Syst Rev* 2009;(2).
11. Gotzsche PC, Hammarquist C, Burr M. House dust mite control measures in the management of asthma: meta-analysis. *BMJ* 1998;**317**:1105-10.
12. Price D, Bond C, Bouchard J, et al. International Primary Care Respiratory Group (IPCRG) Guidelines: Management of allergic rhinitis. *Prim Care Resp J* 2006;**15**:58-70. <http://dx.doi.org/10.1016/j.pcrj.2005.11.002>
13. Levy ML, Walker SM, Woods A, Sheikh A. Service evaluation of a UK primary care-based allergy clinic: quality improvement report. *Prim Care Resp J* 2009;**18**(4):313-19. <http://dx.doi.org/10.4104/pcrj.2009.00042>

Available online at <http://www.thepcrj.org>