Summer 2022
Issue 24

Primary Care Respiratory Update




Edition Highlights

- One Airway – Asthma and Allergic Rhinitis
- Asthma Symptoms - Myths and Misconceptions
- CRP Point of Care Testing
- Are You Trained to do the Job You Do?

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Note: Fixkoh Airmaster 50 microgram/100 micrograms is not appropriate in adults and children with severe asthma. **Chronic Obstructive Pulmonary Disease (COPD)** For the symptomatic treatment of patients with COPD, with a FEV1 < 60% predicted normal (pre-bronchodilator) and a history of repeated exacerbations, who have significant symptoms despite regular bronchodilator therapy. **Dosage and administration:** Fixkoh Airmaster must be used daily for optimal benefit, even when asymptomatic. Patients should be regularly reassessed by a doctor, so that the strength of Fixkoh Airmaster they are receiving remains optimal and is only changed on medical advice. **The dose should be titrated to the lowest dose at which effective control of symptoms is maintained. Where the control of symptoms is maintained with the lowest streâ€ngth of the combination given twice daily then the next step could include a test of inhaled corticosteroid alone.** Patients requiring a long-acting β2 agonist could be titrated to Fixkoh Airmaster given once daily if, in the opinion of the prescriber, it would be adequate to maintain disease control. In the event of once daily dosing when the patient has a history of nocturnal symptoms the dose should be given at night, a history of mainly daytime symptoms the dose should be given in the morning. Patients should be given the strength of Fixkoh Airmaster containing the appropriate fluticasone propionate dosage for the severity of their disease. If an individual patient should require dosages outside the recommended regimen, appropriate doses of β2 agonist and/or corticosteroid should be prescribed. **Recommended Doses: Asthma** Adults and adolescents 12 years and older: - One inhalation of 50 micrograms salmeterol and 100 micrograms fluticasone propionate twice daily. or - One inhalation of 50 micrograms salmeterol and 250 micrograms fluticasone propionate twice daily. or - One inhalation of 50 micrograms salmeterol and 500 micrograms fluticasone propionate twice daily. A short-term trial of Fixkoh Airmaster may be considered as initial maintenance therapy with moderate persistent asthma (defined as patients with daily symptoms, daily rescue use and moderate to severe airflow limitation) for whom rapid control of asthma is essential. In these cases, the recommended initial dose is one inhalation of 50 micrograms salmeterol and 100 micrograms fluticasone propionate twice daily. Once control of asthma is attained treatment should be reviewed and consideration given to use of an inhaled corticosteroid alone. Regular review of patients as treatment is stepped down is important. Fixkoh Airmaster is not intended for the initial management of mild asthma. Fixkoh Airmaster 50 microgram/100 micrograms is not appropriate in adults and children with severe asthma. Paediatric population Fixkoh Airmaster is not recommended for use in children aged under 12 years of age. COPD Adults: - One inhalation of 50 micrograms salmeterol and 500 micrograms fluticasone propionate twice daily. Special patient groups There is no need to adjust the dose in elderly patients or in those with renal impairment. Method of administration Inhalation use. Patients must also be advised to rinse their mouth afterwards with water and spit it out and/or brush their teeth after inhaling. Contraindications: Hypersensitivity to the active substances or to any of the excipients. Warnings and Precautions: Deterioration of disease. Fixkoh Airmaster should not be used to treat acute asthma symptoms for which a fast and short-acting bronchodilator is required. Patients should be advised to have their inhaler to be used for relief in an acute asthma attack available at all times. Patients should not be initiated on Fixkoh Airmaster during an exacerbation, or if they have significantly worsening or acutely deteriorating asthma. Serious asthma-related adverse events and exacerbations may occur during treatment. Patients should continue treatment but seek medical advice if asthma symptoms remain uncontrolled or worsen. Increased requirements for use of reliever medication, or decreased response to reliever medication indicate deterioration of control and patients should be reviewed by a physician. Sudden and progressive deterioration in control of asthma is potentially life-threatening and the patient should undergo urgent medical assessment. Once asthma symptoms are controlled, consideration may be given to gradually reducing the dose of Fixkoh Airmaster. Regular review of patients as treatment is stepped down is important. For patients with COPD experiencing exacerbations, treatment with systemic corticosteroids is indicated, therefore patients should be instructed to seek medical attention if symptoms deteriorate. Cessation of therapy Treatment should not be stopped abruptly in patients with asthma due to risk of exacerbation. Therapy should be down-titrated under supervision. For patients with COPD cessation of therapy may also be associated with symptomatic decompensation and should be supervised by a physician. Caution with special diseases Fixkoh Airmaster should be administered with caution in patients with active or quiescent pulmonary tuberculosis and fungal, viral or other infections of the airway. Cardiovascular effects Rarely, Fixkoh Airmaster may cause cardiac arrhythmias e.g. supraventricular tachycardia, extrasystoles and atrial fibrillation, and a mild transient reduction in serum potassium at high therapeutic doses. Fixkoh Airmaster should be used with caution in patients with severe cardiovascular disorders or heart rhythm abnormalities and in patients with diabetes mellitus, thyrotoxicosis, uncorrected hypokalaemia or patients predisposed to low levels of serum potassium. Hyperglycaemia Rare reports of increases in blood glucose levels. This should be considered when prescribing to patients with a history of diabetes mellitus. Paradoxical bronchospasm Paradoxical bronchospasm may occur with an immediate increase in wheezing and shortness of breath after dosing. Paradoxical bronchospasm responds to a rapid-acting bronchodilator and should be treated straightaway. Fixkoh Airmaster should be discontinued immediately. Beta 2 adrenoreceptor agonists Side effects of β2 agonist treatment, such as tremor, palpitations and headache, have been reported, but tend to be transient and reduce with regular therapy. Excipients Contains lactose. Patients with rare hereditary problems of galactose intolerance, total lactase deficiency or glucose-galactose malabsorption should not take this medicinal product. Systemic corticosteroid effects Possible systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, decrease in bone mineral density, cataract and glaucoma and more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression or aggression (particularly in children). **It is important, therefore, that the patient is reviewed regularly and the dose of inhaled corticosteroid is reduced to the lowest dose at which effective control of asthma is maintained.** Adrenal function Prolonged treatment of patients with high doses of inhaled corticosteroids may result in adrenal suppression and acute adrenal crisis. Very rare cases of adrenal suppression and acute adrenal crisis have also been described with doses of fluticasone propionate between 500 and less than 1,000 micrograms. Situations, which could potentially trigger acute adrenal crisis include trauma, surgery, infection or any rapid reduction in dosage. Presenting symptoms are typically vague and may include anorexia, abdominal pain, weight loss, tiredness, headache, nausea, vomiting, hypotension, decreased level of consciousness, hypoglycaemia, and seizures. Additional systemic corticosteroid cover should be considered during periods of stress or elective surgery. The benefits of inhaled fluticasone propionate therapy should minimise the need for oral steroids, but patients transferring from oral steroids may remain at risk of impaired adrenal reserve for a considerable time. These patients should be treated with special care and adrenocortical function regularly monitored. Patients who have required high dose emergency corticosteroid therapy may also be at risk. This possibility of residual impairment should always be borne in mind in emergency and elective situations likely to produce stress, and appropriate corticosteroid treatment must be considered. The extent of the adrenal impairment may require specialist advice before elective procedures. Pneumonia in patients with COPD An increase in the incidence of pneumonia, including pneumonia requiring hospitalisation. Physicians should remain vigilant for the possible development of pneumonia in patients with COPD as the clinical features overlap with the symptoms of COPD exacerbations. Risk factors for pneumonia in patients with COPD include current smoking, older age, low BMI and severe COPD. Visual disturbance If a patient presents with symptoms such as blurred vision or other visual disturbances, refer to an ophthalmologist for evaluation. Paediatric population Fixkoh Airmaster is not recommended for use in children under 12 years of age. Adolescents < 16 years taking high doses of fluticasone propionate (typically ≥ 1,000 micrograms/day) may be at particular risk. Systemic effects may occur, particularly at high doses prescribed for long periods. Possible systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, acute adrenal crisis and growth retardation in adolescents and more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression or aggression. Consideration should be given to referring the adolescent to a paediatric respiratory specialist. It is recommended that the height of adolescents receiving prolonged treatment with inhaled corticosteroid is regularly monitored. **The dose of inhaled corticosteroid should be reduced to the lowest dose at which effective control of asthma is maintained. Pregnancy and lactation:** Pregnancy Data on pregnant women indicate no malformative or foetal/neonatal toxicity related to salmeterol and fluticasone propionate. Animal studies have shown reproductive toxicity after administration of β2 adrenoreceptor agonists and glucocorticosteroids. Administration of Fixkoh Airmaster to pregnant women should only be considered if the expected benefit to the mother is greater than any possible risk to the foetus. The lowest effective dose of fluticasone propionate needed to maintain adequate asthma control should be used in the treatment of pregnant women. Breastfeeding It is unknown whether salmeterol and fluticasone propionate/metabolites are excreted in human milk. Studies have shown that salmeterol and fluticasone propionate, and their metabolites, are excreted into the milk of lactating rats. A risk to breastfed newborns/infants cannot be excluded. A decision must be made whether to discontinue breastfeeding or to discontinue Fixkoh Airmaster therapy taking into account the benefit of breastfeeding for the child and the benefit of therapy for the woman. **Undesirable effects:** For full list of side effects, consult SmPC. Very common and common events include: headache, nasopharyngitis, candidiasis of mouth and throat, pneumonia, bronchitis, hypokalaemia, headache, throat irritation, hoarseness/dysphonia, sinusitis, contusions, cramps, traumatic fractures, arthralgia, myalgia. Serious adverse events: bronchospasm, anaphylaxis, anaphylactic shock, Cushing's syndrome, growth retardation in children and adolescents, decreased bone mineral density, hyperglycaemia, anxiety, behavioural changes including hyperactivity (mainly in children), depression, aggression (mainly in children), tremor, cataract, glaucoma, blurred vision, palpitations, tachycardia, cardiac arrhythmias, atrial fibrillation, angina. **Overdose:** There are no data available from clinical trials on overdose with Fixkoh Airmaster. Overdose with both active substances are: Salmeterol Dizziness, increases in systolic blood pressure, tremor, headache and tachycardia. If Fixkoh Airmaster therapy has to be withdrawn due to overdose of the β agonist component of the medicinal product, provision of appropriate replacement steroid therapy should be considered. Additionally, hypokalaemia can occur and therefore serum potassium levels should be monitored. Potassium replacement should be considered. Fluticasone propionate Acute: Acute inhalation of fluticasone propionate doses in excess of those recommended may lead to temporary suppression of adrenal function. This does not need emergency action as adrenal function is recovered in a few days. **Chronic overdose of inhaled fluticasone propionate:** Adrenal reserve should be monitored and treatment with a systemic corticosteroid may be necessary. When stabilised, treatment should be continued with an inhaled corticosteroid. **Legal Category:** POM **Pack size:** 1 × 60 dose Fixkoh Airmaster or 2 x 60 dose Fixkoh Airmaster or 3 x 60 dose Fixkoh Airmaster or 10 x 60 dose Fixkoh Airmaster. Prices: 50/100mcg £14.47; Fixkoh Airmaster 50/250mcg £19.29; Fixkoh Airmaster 50/500mcg £16.12. **MA Number:** PL00240/0547, PL00240/0548, PL00240/0549. **MA Holder:** Thornton & Ross Ltd. (trading as 'STADA') Linthwaite, Huddersfield, HD7 5QH, UK. **Date of preparation:** December 2021 **Unique ID No.** FIX-004a.

Adverse events should be reported. Reporting forms and information can be found at: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store. Adverse events should also be reported to 01484 848164

References: * Thornton & Ross Ltd. Fixkoh Airmaster™ 51% cost saving based on approved NHS price: Fixkoh Airmaster™ 50/500 mcg: £16.12 vs Seretide® 500 Accuhaler® Drug Tariff Price £32.74 (available at https://bnf.nice.org.uk/medicinal-forms/fluticasone-with-salmeterol.html. accessed April 2022. **1.** Thornton & Ross Ltd. Fixkoh Airmaster™ % cost saving based on approved NHS prices for salmeterol/fluticasone dry powder inhalers (DPI): Fixkoh Airmaster™ 50/100 mcg: £14.47 Fixkoh Airmaster™ 50/250 mcg: £19.29 Fixkoh Airmaster™ 50/500 mcg: £16.12 versus NHS Drug Tariff price (available at https://bnf.nice.org.uk/medicinal-forms/fluticasone-with-salmeterol.html. accessed April 2022. **2.** Fixkoh 50mcg/100mcg SmPC: www.medicines.org.uk/emc/product/12079 accessed April 2022. **3.** Fixkoh 50mcg/250mcg SmPC: www.medicines.org.uk/emc/product/12080 accessed April 2022. **4.** Fixkoh 50mcg/500mcg SmPC: www.medicines.org.uk/emc/product/12082 accessed April 2022. **5.** Swedish Medical Products Agency. 2019. Public Assessment Report: Scientific discussion. Sipova Airmaster. Seretide® and Accuhaler® are registered trademarks of the GlaxoSmithKline group of companies. Job Code: FIX-028b. DoP: April 2022.

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Guest editorial

Nicola Standring-Brown, *Advanced Nurse Practitioner, Yorkshire, PCRS Executive Member*

Welcome to the Summer 2022 edition of the *Primary Care Respiratory Update (PCRU)*. My name is Nicola Standring-Brown. Some of you will know me from the PCRS conference and the PCRS's online education events, but for those of you who don't here is a little of my background. I am a primary care nurse working in South Yorkshire with a background as a respiratory specialist nurse supporting patients on the ward and in outpatient settings. I currently sit on the PCRS executive board, PCRS policy committee, PCRU editorial board and represent the PCRS externally on the NHS England sustainable medicines working group.

It is my great honor to act as guest editor for this edition of the *PCRU* both as an editorial board member but also as a long time reader of the *PCRU*. Looking through the contents of what promises to be yet another topical and useful publication from PCRS I am, as ever, impressed by the collective knowledge and passion of our members and writers. Of course, we rely upon the work of our many active members and have, this year, had the pleasure of welcoming six new members to our executive and sub committees.

Writing as guest editor today, it is impossible not to think of Iain Small, a man who has provided us with so many witty, insightful and inspiring editors round up's and left the rest of us on the *PCRU* editorial board with very big shoes to fill. Following his retirement as editor, the editorial board will now be taking turns to act as guest editor. We hope to provide you with a variety of voices from our professional circle and will strive to uphold the excellent standards that have been set.

In this Summer edition of *PCRU* we take a welcome look at the airway as a whole (yes, nose and all!) as Carol Stonham reminds us that while for some, allergic rhinitis is merely uncomfortable and inconvenient, for others it is the difference between well controlled lung disease and persistent problems and repeated hospital admissions throughout the summer season. She has written an excellent article reminding us of both the mechanisms by which allergic rhinitis occurs and how we can best support our asthma patients in managing these troublesome symptoms.

Speaking of troublesome, too many of us will be oh so familiar with the sentence 'Of course I have a cough/wheeze, I have asthma you know', or words to that effect; and as we try to tackle SABA over-reliance these 'asthma myths' can make life quite hard. The unfortunate truth is that despite the difficult facts unearthed by the NRAD report, asthma is still not taken seriously by many patients and, very sadly, by some clinicians also. Asthma Right Care (ARC) have put together an excellent collection of resources and Darush Attar-Zadeh has taken the time to write us a brief summary of some common misconceptions and how we can begin to tackle them and start to turn the tide on this outdated thinking.

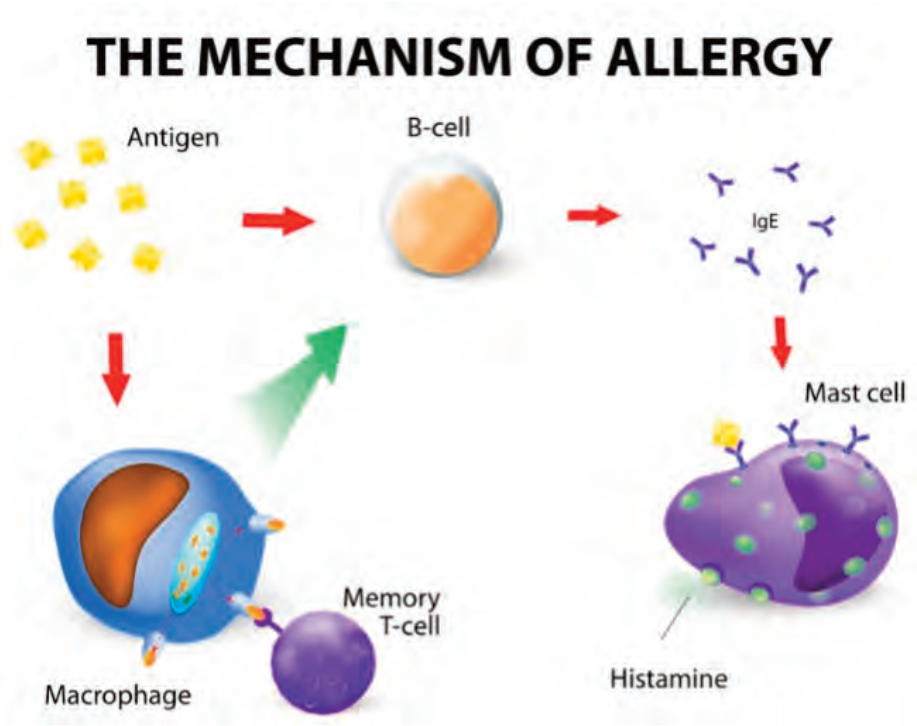
I hope this edition of the *PCRU* leaves you feeling equipped to tackle some of the challenges we face routinely in practice and that I see many of you in Telford for what promises to be a truly excellent PCRS 2022 annual conference.

Getting the Basics Right

Allergic Rhinitis: A common problem, not to be sneezed at!

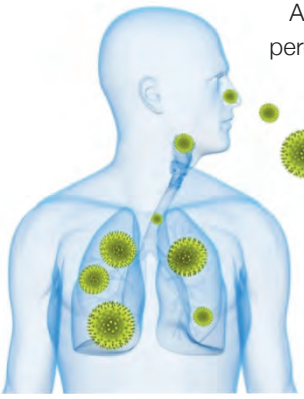
Carol Stonham, *Chair, PCRS Executive Committee*

There are various forms of rhinitis, which is defined as inflammation of the nasal mucosa and can be due to various causes such as an allergen, infection, vaso-motor abnormality (caused by an irritant). The condition may also involve the sinuses and is known as rhino-sinusitis.



Allergic rhinitis is caused by inhalation of allergens such as pollen, dust, or animal dander that trigger an abnormal IgE reaction in the nose of susceptible people, especially those with asthma or a family history of atopy. It is more common in children and younger adults. The pathophysiology of allergic rhinitis is very similar to that seen in asthma or eczema. Release of mediators from cells causes the inflammation and symptoms experienced by the individual.

Allergic rhinitis is a common problem in the UK, affecting approximately 20% of the population, with 80% of asthmatics having nasal symptoms as well as asthma.[2] Patients may also have symptoms of allergic conjunctivitis and/or eczema. Despite being the root cause of a high level of morbidity and health care costs[3] allergic rhinitis is often seen by patients and health care professionals as trivial, which it is not.



Allergic rhinitis may be seasonal, perennial or both. The classical seasonal rhinitis, known as hay fever, is widely recognised, occurring in the summer months, triggered by grass and tree pollens, and causing streaming eyes (allergic conjunctivitis) sneezing, itchy nose/palate and runny or blocked and snuffly nose. However, seasonal rhinitis may occur in any season e.g. Autumn, when it may be due to spores from moulds. Symptoms may start as early as January and February when the trees start to produce their pollen. The chart opposite illustrates the year round pollen triggers; others triggers include house dust mite (HDM), animal dander, hobbies or occupational allergens.

Diagnosis of allergic rhinitis

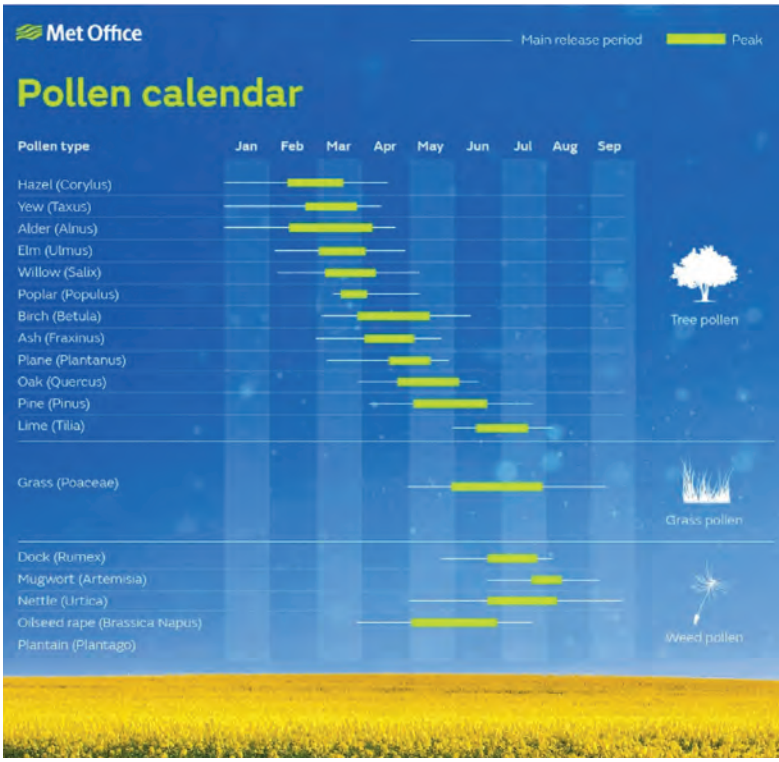
The diagnosis of allergic rhinitis starts with simply asking questions about any nasal symptoms. An ideal opportunity to do this with patients with asthma is during an asthma review. Asthma templates should include read codes relating to rhinitis to prompt the clinician to ask about any symptoms.

Symptoms of allergic rhinitis could be any or all of the following:

- Sneezing
- Nasal discharge which is usually clear and runny or
- Nasal blockage/stuffy, usually bilateral
- Post nasal drip
- Itchy Palate
- General debility (headaches, tiredness)

Symptoms are bilateral, further investigation and possible referral may be needed if symptoms are persistently unilateral, as this could be a sign of blockage caused by polyps or more seriously, a carcinoma.

The ARIA Guidelines classify allergic rhinitis as intermittent or persistent, and mild, moderate or severe, depending on symptoms and their frequency.[1] Although the mechanism it is not quite clear, poorly treated rhinitis is linked with sub optimal control of asthma.[1,2] It is thought this may be due to mediator release triggering both rhinitis and asthma or direct trickling of inflammatory products into the lower respiratory system.



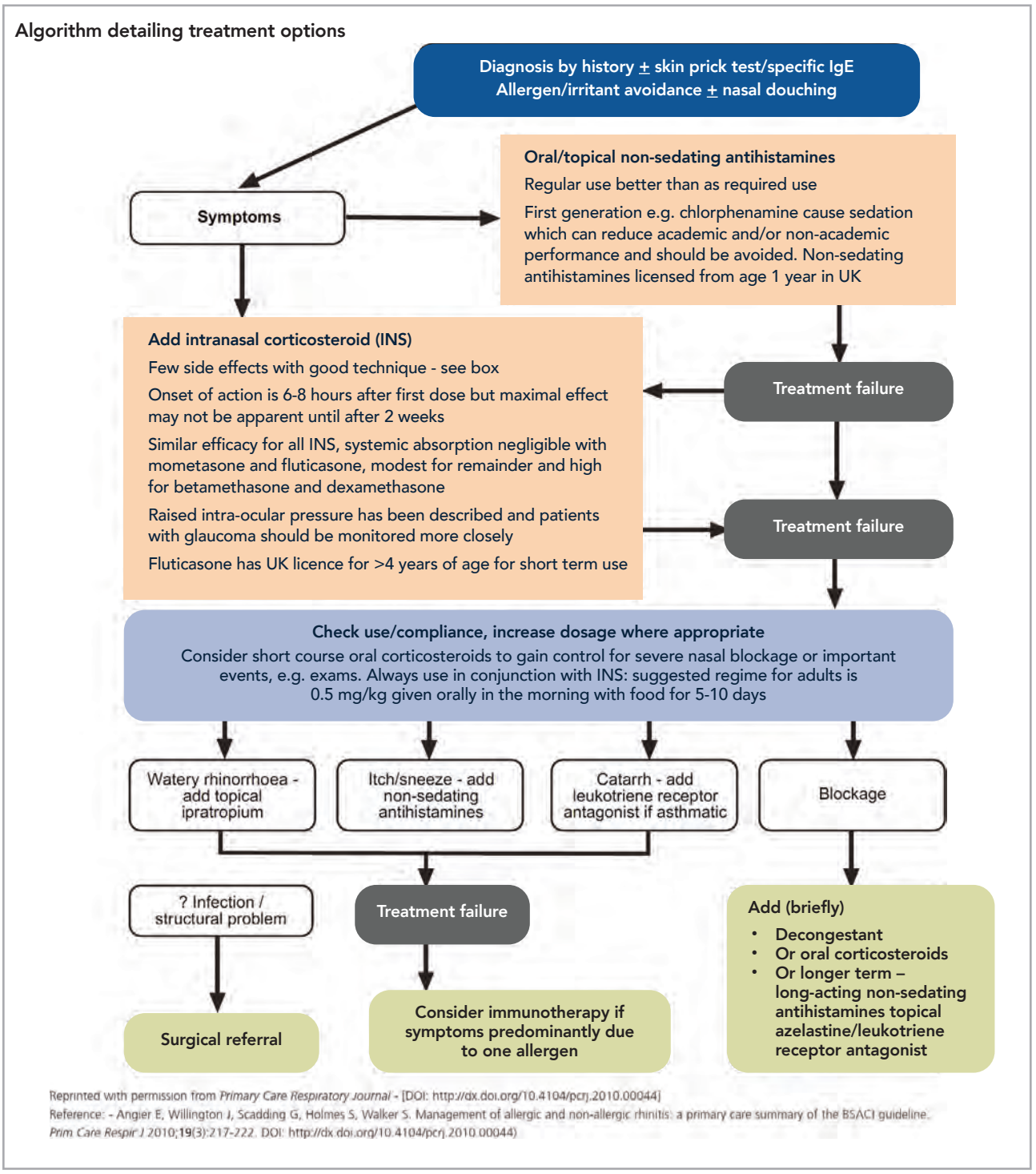
Adapted from the Met Office pollen chart
https://www.metoffice.gov.uk/weather/warnings-and-advice/seasonal-advice/health-wellbeing/pollen/could-pollen-research-offer-hope-to-hay-fever-sufferers
For free pollen forecast visit https://www.metoffice.gov.uk/weather/warnings-and-advice/seasonal-advice/pollen-forecast

Allergic rhinitis may be triggered by a person's occupation and therefore questions about occupational history and when symptoms occur are important.[4] The rhinitis may precede asthma by several years; so removal from exposure to the allergen is essential to stop this "allergic march".

Allergic rhinitis is mainly diagnosed on clinical history, supported by nasal examination and in some cases, allergy testing (although availability of this in primary care is variable). Allergy testing is useful if the allergen causing the symptoms can be avoided e.g animal dander. This is more difficult if the allergen identified is a pollen, although exposure can be minimised. Various web sites e.g. Met Office[5] and mobile phone applications may be accessed to provide awareness of pollen counts, enabling the sufferer to reduce exposure by staying indoors, closing windows or wearing sunglasses if venturing outside. Drying laundry in a tumble dryer to prevent bringing pollen indoors may be useful. Avoidance of the allergen, if known and possible, should be encouraged.

Management of allergic rhinitis

Management will depend on the severity of symptoms. See page 8 for an algorithm detailing treatment options.[6]



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Reference: - Angier E, Willington J, Scadding G, Holmes S, Walker S. Management of allergic and non-allergic rhinitis: a primary care summary of the BSACI guideline. *Prim Care Respir J* 2010;**19**(3):217-222. DOI: http://dx.doi.org/10.4104/pcrj.2010.00044)

A once daily, non sedating, antihistamine may be all that is needed to control the symptoms. Antihistamines are commonly taken orally, but are also available as nasal sprays. More recently a combination of nasal steroid with an antihistamine can be prescribed for more severe cases where prior treatment has failed. Many patients prefer to buy these products at a pharmacy ('over the counter') as a prescription is not always required and it may be cheaper. In some areas patients have to purchase nasal sprays as they are no longer available on the formulary. It is worth remembering to ask patients if they have already tried any 'OTC' products.

Nasal douching has become more popular in recent years and can be tried. Douching removes the triggers from the nasal passages together with the inflammatory products.

TOP TIPS Rhinitis

1. **Allergic rhinitis lasts longer than a cold** – but colds trigger more asthma attacks. The main difference between a cold and rhinitis is how long the patient has been having symptoms. Cold symptoms that continue longer than a week, regardless of the time of year, are usually due to something other than a virus. If the patient does in fact have a cold and not rhinitis remind them to be vigilant about their asthma. The cold virus is the most common trigger for asthma and this can be especially difficult for children as they catch colds more frequently than adults.
2. **Think Christmas** – Think Rhinitis. Alder, birch and hazel can come into pollen as early as January. If you have patients who have seasonal rhinitis caused by these trees then they need to start their nasal spray or drops and antihistamine tablets two weeks before their rhinitis symptoms begin. Asthma reviews for these patients should ideally be in December so their medications are up to date and ready for them to start taking in the New Year. Grass pollen affects some people mainly May – July so for this group of people preventive treatments need to start in April. As well as seasonal rhinitis there is also perennial allergic rhinitis and these commonly relate to indoor allergens such as dust mites, pets, mould and smoking.
3. **Nasal spray technique is paramount**. Using the nasal spray correctly is the key to avoiding rhinitis flare ups. Key points are: point the spray slightly outwards and don't sniff! People often stop using their nasal spray because "it's not working" but in fact they are not using it properly. An excellent video is available at http://www.itchysneezywheezy.co.uk/RhinitisVideos.html .
4. **Prevention is better than cure for rhinitis**. Patients need to keep using their nasal spray even when they don't have symptoms. They might be using their nasal spray for months with no symptoms – tell them this is OK.
5. **Decongestants can help occasionally but should only be taken for a short period of time**. If the patient has a 'special day' eg exam or wedding nasal sprays that contains decongestant may be useful but should not be used regularly because after a few days they can actually make symptoms worse. In addition to proper treatment, proprietary non-drug solutions that douche or wash-out mucus from blocked noses and sinuses give temporary relief.

Item reproduced with permission from Asthma UK - http://www.asthma.org.uk/Sites/healthcare-professionals/news/top-tips-rhinitis

If nasal symptoms persist, nasal corticosteroid sprays should be introduced, these are particularly useful in treating nasal blockage. Allergic rhinitis has been likened to "asthma in the nose" therefore, it is not surprising that a nasal corticosteroid spray should be used to treat the condition. It must be stressed that, as with inhaled corticosteroids for asthma, use of the nasal spray should be regular, usually daily, and not just when symptoms are troublesome. Nasal inhaler technique is also very important and often incorrectly done by patients.

Short term use (< 7days) of a nasal or oral decongestant may be advised during particularly severe episodes, especially if nasal blockage is a problem.

Leukotriene receptor antagonists (LTRAs) are another treatment which is particular helpful to treat persistent symptoms in patients with asthma as they treat both conditions.

It is also worth considering the total steroid daily dose if a patient is already on an ICS for asthma and possibly steroid creams for eczema. Systemic absorption between ICS and nasal steroids varies and should be considered when recommending treatments.

Unfortunately, the peak hay fever season often coincides with examination time for teenagers. It has been found that untreated/poorly managed allergic rhinitis can affect exam results.[7,8] It is good practice to start treatment at least 2 weeks ahead of the expected onset of the hay fever season so that treatment is well established when the pollen count begins to rise. This preventative action could be included in a Personal Asthma Action Plan (PAAP). Routine reviews could be planned so that recall occurs just before the expected onset of hay fever.

If all treatments have been explored and found not to fully control rhinitis symptoms, despite checking adherence and technique, it may be advisable to prescribe a short course of oral steroids to cover a particularly important event (e.g. exam time).

In very severe cases, referral and immunotherapy may be needed, although this tends to be only suitable for patients without asthma and having a single trigger causing their rhinitis symptoms.

Allergic rhinitis can usually be very effectively managed in primary care, however, it is essential that patients and clinicians alike are aware of it's significance and impact on the lives of sufferers.

Further Information

- ARIA (Allergic Rhinitis Impact in Asthma) guidelines https://www.sciencedirect.com/science/article/abs/pii/S009167491931187X
- Allergy UK https://www.allergyuk.org/types-of-allergies/hayfever/
- British Society for Allergy and Clinical Immunology (BSACI) Primary Care Guidelines https://www.bsaci.org/guidelines/primary-care-guidelines/

This article has been adapted and updated from a previously published article written by Stephanie Wilfe, Norfolk.

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Professional Development – Further Study and Reflection

Visit the Asthma & Lung UK website at https://www.asthma.org.uk/advice/triggers/pollen/ for further information on allergic rhinitis including access to a pollen calendar

The British Society for Allergy and Clinical Immunology provide information on events and workshops taking place on allergy related issues https://www.bsaci.org/education-and-events/workshops-and-short-courses/

One airway, one disease

This article provides a summary of a detailed review of the implications of the 'one airway, one disease' view for healthcare professionals (HCPs) caring for patient with rhinitis. Our intention is for the upper airways to be considered in tandem with the lower airways to avoid misdiagnosis and undermanagement. Implications for diagnosis and treatment are discussed and an algorithm offered. Both the original document and this summary have been produced as a consensus document based on a working group comprising PCRS members Dr Katherine Hickman, Dr Steve Holmes, Thushy Kailayanathan and Vikki Knowles. You can read the full review online https://www.pcrs-uk.org/resource/one-airway

Introduction

Allergic rhinitis (AR) is often under recognised and poorly managed.[1,2] AR and chronic rhinosinusitis (CRS) impact quality of life (QoL) not only because of the physical discomfort, but also because of the associated detrimental effects on the psychological and social aspects of patients' lives.[3,4] Indeed, even when accurately diagnosed and well-managed, patients tend to be poorly adherent to treatment, generally self-medicate and use on-demand treatment when symptomatic.[5] AR is not a discreet disease. The respiratory tract runs continuously from the nasal vestibule to the alveoli[6] and considerable epidemiological, pathophysiological and clinical evidence now suggests that the upper and lower airways are a single functional and morphological unit.[7–9] This understanding prompted Interasma (Global Asthma Association) to publish a manifesto stressing that patients with 'United Airways Diseases', such as AR, nasal polyposis and asthma, need "timely and adequate diagnosis, treatment, and, when recommended, referral for management in a specialized center".[10] According to the so-called 'one airway, one disease' view, asthma, polyposis, AR are on "a continuum of inflammation" and inter-related with other respiratory diseases within one airway.[11]

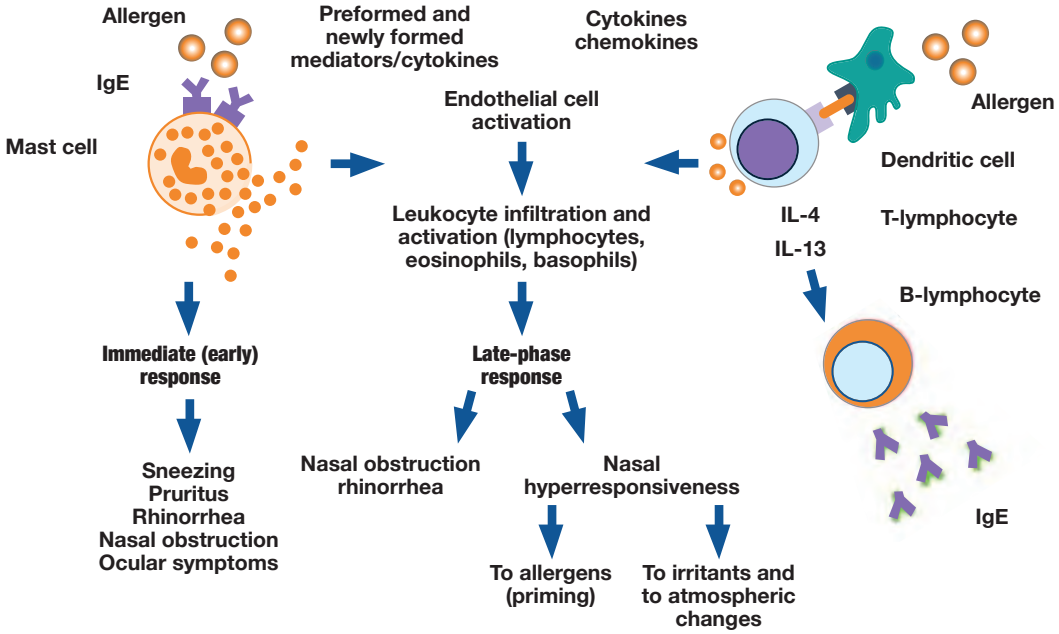
The complexity of rhinitis

Rhinitis refers to inflammation of the nasal mucosa.[1] Clinically, patients experience nasal discharge, itching, sneezing and blockage or congestion of varying severity and frequency (Table 1).[1,12] There are several types of rhinitis including AR, non-allergic rhinitis (NAR), infective and mixed.[1]

Table 1: The ARIA classification of AR[12]

Characteristic	Definition
Intermittent	Symptoms are present <4 days a week or <4 consecutive weeks
Persistent	Symptoms are present >4 days a week and >4 consecutive weeks
Mild	Patient does not experience any of the following: • Sleep disturbance • Impairment of daily activities, leisure and/or sport • Impairment of school or work • Symptoms present but not troublesome
Moderate/ severe	Patient experiences one or more of the following • Sleep disturbance • Impairment of daily activities, leisure and/or sport • Impairment of school or work • Troublesome symptoms

Figure 1. A cascade of inflammatory mediators causes allergic reactions[23]



Reproduced by permission from Independent Nurse magazine/Mark Allen Healthcare. Image adapted from Dhruve *et al* 2013[23].

Numerous lines of evidence support the "one airway, one disease" concept. Common inflammatory mediators, some disease susceptibility genes and pathophysiological profiles seem to underlie asthma, AR and CRS.[7,9] The same factors (e.g. house dust mite faeces, fungi, saliva and urine of domestic animals and pollen) can trigger AR and asthma.[3] In addition, common immunological pathways seem to link asthma with CRS with nasal polyps (CRSwNP), including those involving interleukin (IL)-4 and IL-13.[7] Eosinophilia in peripheral blood, which indicates systemic inflammation (Figure 1), is often identified in AR and asthma.[13] Asthma patients with AR tend to show worse disease control and more intense airway inflammation than those with asthma alone.[7] Indeed, untreated or poorly managed rhinitis can increase the risk of an asthma exacerbation.[3]

Differential diagnosis

History, examination and, when necessary, specific allergy tests are the foundation of AR diagnosis. Table 2 summarises some red flags that should alert clinicians to potentially important other causes that could warrant specialist referral. Figure 2 offers an algorithm summarising the diagnosis and management of AR in people with asthma.

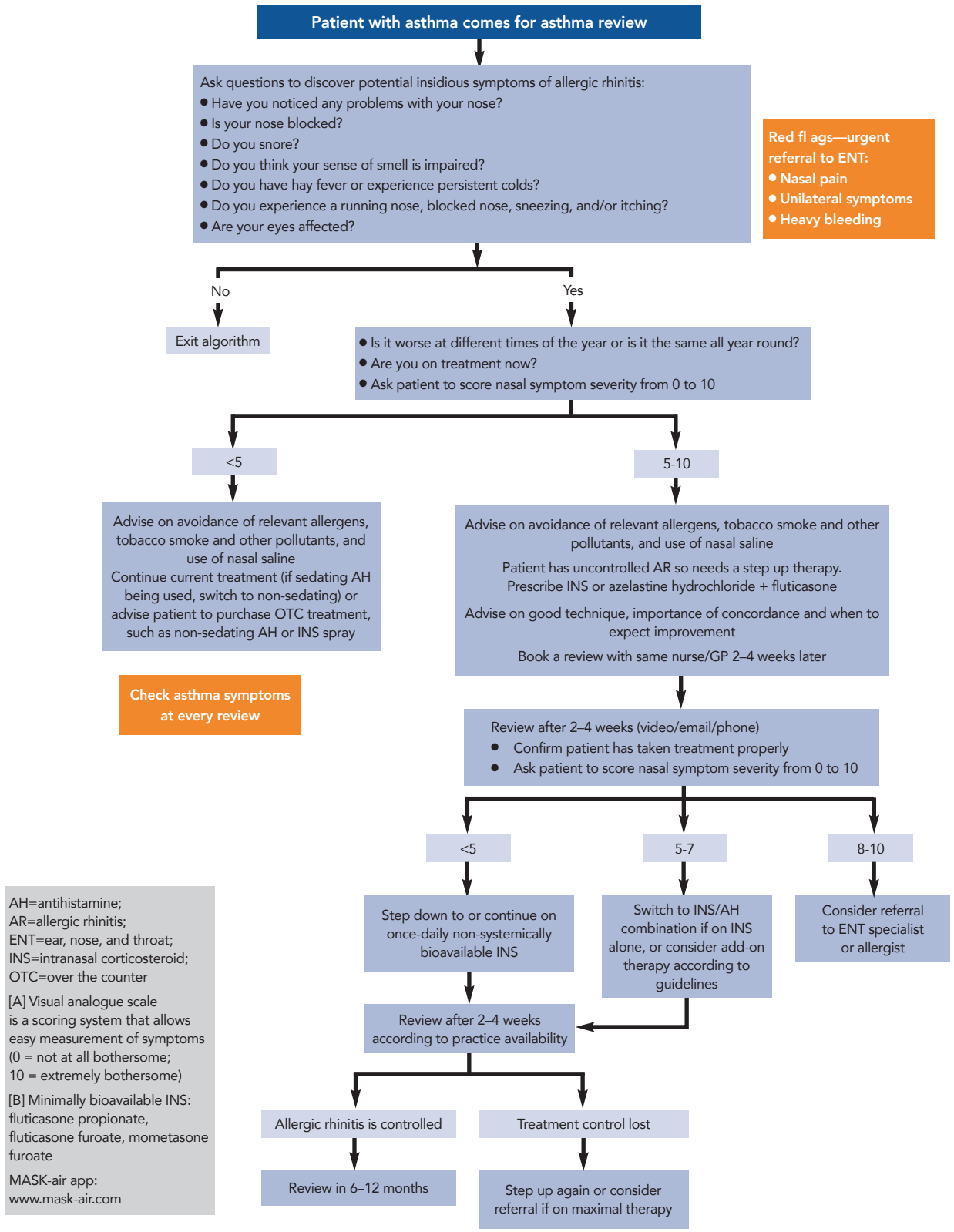
Allergic rhinoconjunctivitis

Unilateral rhinorrhoea (Table 3) is uncommon and, because of the risk of cerebrospinal fluid (CSF) leak, is a red flag.[1] Visual inspection and anterior rhinoscopy can aid the differential diagnosis (Tables 4 and 5).[1] AR patients often develop lower respiratory tract symptoms, including cough, wheeze and

Table 2: "Red flags" and other indications for ENT referral[1,35]

Speciality	Indication for referral
Red flags	Heavily blood-stained nasal discharge
	Nasal pain
	Recurrent epistaxis
	Unilateral symptoms
Other indications	Nasal blockage inadequately relived by drug treatment
	Structural deviations (eg septal deviation) that make drug treatment difficult

Figure 2. Identifying and managing AR in the asthma population[24]



The suggestions in this algorithm are informed by evidence-based guidance.

Table 3: Interpreting rhinorrhoea[1]

Colour	Interpretation
Continuously clear	Infection unlikely; secretions are clear in early viral rhinitis
Unilateral and clear	Exclude CSF leak
Yellow	Allergy or infection
Green	Usually infection; secretions may show small amounts of blood
Unilateral and coloured	Tumour, foreign body, nose picking or nasal spray misapplication
Bilateral and coloured	Nasal spray misapplication, granulomatous disorder, bleeding diathesis, infection, nose picking

CSF, cerebrospinal fluid.

Table 4: Interpreting visual assessment

Observation	Interpretation
Allergic salute	Supports AR diagnosis
Horizontal nasal crease across nasal dorsum	Supports AR diagnosis
Conjunctivitis and other eye involvement	Bilateral, non-sticky conjunctivitis that is associated with other symptoms supports AR diagnosis; Unilateral conjunctivitis, sticky eyes or reduced visual acuity should warrant further assessment
Chronic mouth breathing	Several causes need consideration, especially in children, including enlarged tonsils, habitual mouth breaking and, mainly, causes of blocked nose
Allergic shiners	Supports AR diagnosis, but a non-specific appearance may indicate other causes of oedema
Assessment of nasal airflow (eg metal spatula misting)	Supports a diagnosis of nasal blockage with many potential causes (e.g. allergic and non-allergic AR; foreign body, tumour)
Depressed nasal bridge	Post-surgery, granulomatous polyangiitis, cocaine misuse, infections (e.g. syphilis, leishmaniosis, leprosy), racial background
Widened nasal bridge	Polyps and nasal polyposis
Changes to nasal appearance	Sarcoidosis (purple nasal tip); seborrhoeic dermatitis (nasal crease); rosacea (phymatous changes)

AR, allergic rhinitis.
Based on Scadding *et al* 2017,[1] Andrade *et al* 1999,[19] Park *et al* 2015,[20] Zhang *et al* 2021[21] and the authors' clinical experience and expertise.

dysponea.[1] AR is also associated with co-morbidities, such as asthma and other allergic diseases, loss of smell, middle ear, throat and laryngeal problems, chronic obstructive pulmonary disease (COPD), obstructive sleep apnoea and sleep-related breathing disorder and ocular involvement.[1,2,10] Consider exposure to pets and other animals, and whether certain medicines (e.g. alpha and beta-blockers, other anti-hypertensives, aspirin and other non-steroidal anti-inflammatory drugs) could cause or aggravate rhinitis.[1] Consider referral for skin prick tests (SPTs), measurement of specific IgE or both. FeNO testing may also aid the differential diagnosis of AR and asthma.[14,15]

Non-allergic and occupational rhinitis

NAR is a diagnosis of exclusion which HCPs should consider in patients with nasal symptoms and negative SPT.[1] Occupational rhinitis is 2 to 3 times more common than, and often precedes, occupational asthma, which often co-exist.[1] The diagnosis of occupational rhinitis depends on a detailed history, which a symptom diary facilitates helping to determine sea-

Table 5: Interpreting anterior rhinoscopy

Finding	Interpretation
Hypertrophic, pale and boggy inferior or middle turbinates	Inflammation (nasal appearance may be normal in AR); Nasal polyps are usually described as boggy and non-tender; middle turbinates are very sensitive if touched
Presence or absence of clear, coloured or purulent secretions	See table 1
Deviated septum	Unlikely cause of rhinitis, although deviated nasal septum and AR are both common
Presence or absence of nasal polyps	Polyps and nasal polyposis
"Cobblestone" yellow submucosal nodules	Sarcoidosis (Rare presentation)
Crusting and granulations	May suggest infection and, possibly vasculitis
Septal perforation	Septal surgery, chronic vasoconstriction (cocaine, alpha agonists), granulomatous polyangiitis, anti-phospholipid antibody syndrome and nose picking

AR, allergic rhinitis.
Based on Scadding *et al* 2017[1] and the authors' clinical experience and expertise.

sonality and whether the symptoms occur indoors, outdoors or both.[1] The symptom pattern may also indicate possible triggers.[1] Removing a possible allergen from the individual's environment or vice versa can help confirm the diagnosis.[3]

Rhinitis in children

In general, the approach to diagnosis is similar to that in adults: history, SPT and anterior rhinoscopy. HCPs should refer children with entopy (local allergic rhinitis) for nasal allergen challenge.[1] Acute viral rhinitis is common in children, particularly during the winter. Most children experience up to 10 episodes per year. The number of cases peaks between 6 months and 6 years of age. After this age, children typically experience 1–2 episodes a year, mainly during the winter.[1] Chronic infective rhinitis (rhinosinusitis) persists for more than 3 months and, particularly if severe, can be a manifestation of underlining pathologies such as primary ciliary dyskinesia, cystic fibrosis or antibody deficiency, requiring referral to clarify the diagnosis.[1] AR may also be associated with otitis media with effusion, adenoidal hypertrophy or both. AR often presents alongside other atopic disorders, especially asthma, eczema and food allergy.

Treatment

Allergen and irritant avoidance

Advise rhinitis patients to avoid, where possible, irritants, including smoke and traffic pollution.[1] Suggest that people with allergies to animals limit their exposure as far as possible.[1] People with allergies to house dust mite could consider allergen-impermeable bedding and using acaricides on carpets and soft furnishing.[1]

Drug treatments

Medication is appropriate if patients experience persistent symptoms despite making best efforts to avoid allergens and irritants.[1]

Antihistamines: The BSACI guidelines suggest oral antihistamines as first-line therapy for mild-to-moderate intermittent and mild persistent rhinitis (Table 1).[1] Second-generation oral antihistamines (Table 6) are long acting, generally non-sedating and have no clinically significant anti-cholinergic activity.[1] Nasal antihistamines are more effective than oral formulations at reducing rhinitis symptoms and nasal obstruction, and act more rapidly (within 15 minutes) allowing use as rescue therapy, although continuous use is more effective than on-demand treatment. The BSACI guidelines suggest mast cell stabilisers (e.g. sodium cromoglycate, nedocromil sodium and lodoxamide) as the first-line treatment for ocular symptoms.[1]

Oral corticosteroids: Oral steroids are rarely indicated in AR but may be useful in specific circumstances, such as short-courses before a wedding.[1] Consider a short-course (0.5 mg/kg in the morning for 5–10 days) for adults with severe, uncontrolled symptoms that significantly affect QoL.[16]

Nasal corticosteroids: Intranasal corticosteroids (INS) are the main anti-inflammatory for AR and are the treatment of choice for moderate to severe persistent AR.[1] If monotherapy fails to adequately control symptoms, INS plus intranasal antihis-

Table 6: Examples of first and second generation anti-histamines[22]

Generation	Example
First-generation (should not be used in allergic rhinitis because of risk of drowsiness)	Brompheniramine
	Chlorpheniramine
	Dexchlorpheniramine
	Hydroxyzine
	Ketotifen
	Promethazine
Second-generation	Cetirizine
	Desloratadine
	Ebastine
	Fexofenadine
	Levocetirizine
	Loratadine

AR, allergic rhinitis.

tamine is more effective than either alone.[1] Advise patients that the onset of action of INS is 6–8 hours after the first dose and maximal effect may not be apparent for several weeks.[1] Consider combining an INS plus intranasal antihistamine during the first two weeks of treatment.[17]

Intranasal decongestants: Intranasal decongestants cause vasoconstriction which relieves severe nasal congestion within minutes and can address eustachian tube dysfunction when flying and increase nasal patency before douching or INS administration allowing delivery beyond the inferior turbinates.[1] The BSACI guidelines recommend using intranasal decongestants for <10 days.[1]

Leukotriene receptor antagonists: In general, LTRAs are as effective as loratadine in seasonal AR, but are less effective than INS.[1] In addition, the response to LTRAs is less consistent than to antihistamines.[1] Nevertheless, LTRAs may have a place in some asthma patients (especially those with exercise-induced or aspirin-exacerbated symptoms) with seasonal AR.[1,17]

Topical anti-cholinergics: Ipratropium bromide can be used three times daily to reduce rhinorrhoea, but does not improve other nasal symptoms. Add-on topical anti-cholinergics may be effective when INS and antihistamines fail to adequately control watery rhinorrhoea but can cause dry nose and epistaxis.

Biologics: Dupilumab, a monoclonal antibody against IL-4Ra, is approved for severe asthma with type 2 inflammation and CRS with nasal polyps (CRSwNP). Omalizumab, an antibody targeting IgE is approved for asthma mediated by this immunoglobulin and CRSwNP. Benralizumab and mepolizumab, which block IL-5, are indicated for severe refractory eosinophilic asthma. Biologics are currently prescribed in secondary care, have very specific criteria for initiation and monitoring, and are expensive.

Immunotherapy

Immunotherapy is the only treatment that can modify the course of AR and induce long-term tolerance to allergens.[18] There are two approaches: subcutaneous injection immunotherapy (SCIT) and sublingual Immunotherapy (SLIT). The choice depends on patient preference.

Subcutaneous injection immunotherapy: SCIT is effective for seasonal rhinitis due to pollens and perennial rhinitis due to house dust mite and cat allergens.[1] SCIT requires weekly treatment with increasing doses followed by 4–6 weekly maintenance injections for 3–5 years. Because of the risk of anaphylaxis, SCIT should be given only in specialist clinics by trained personnel with immediate access to adrenaline and resuscitation facilities.[1]

Sublingual Immunotherapy: SLIT is effective and safe for treatment of AR with and without seasonal asthma caused by grass pollen, ragweed and house dust mite.[1] In children with seasonal AR, SLIT reduces progression to asthma and prevents the development of new allergen sensitisation.[1] A physician supervises the first dose followed by a one-hour observation. SLIT is then administered daily at home.[1] The most common side-effects are local itching and mouth and throat swelling.[1] Oral antihistamines before starting SLIT and for the first two weeks can reduce local oral irritation.[1]

Pregnancy and breastfeeding

At least 20% of pregnant women experience rhinitis, which can arise at any time during gestation and may be due to nasal vascular engorgement and placental growth hormone.[1] Women with pre-existing AR tend to be the more severely affected during pregnancy.[1] Most medications cross the placenta so, medicines should only be prescribed when the apparent benefit is greater than the risk to the foetus.[1] Clinical studies have not established the safety of INS during in pregnancy.[1] The BSACI guidelines note, however, that beclomethasone, fluticasone propionate and budesonide have good safety records and are widely used in pregnant women with asthma.[1] Among the antihistamines, there is considerable clinical experience with chlorphenamine, loratadine and cetirizine in pregnancy. Nasal lavage is safe and effective in pregnant women, reducing the need for antihistamines. The guidelines suggest avoiding decongestants.[1] Patients on immunotherapy may continue if they have already reached the maintenance phase, but HCPs need to consider the risks and benefits in

each case. Immunotherapy should neither be started nor the dose increased during pregnancy. Similar recommendations can be made about treating AR during lactation.[1]

Children

Treatment of children follows the same principles as adults, including encompassing the 'one airway, one disease' concept. Nasal saline irrigation is effective for AR in children.[1] A 3-day course of topical decongestants can be helpful in children with significant nasal blockage to aid INS introduction. Monitor growth in children, especially those who receive steroids by multiple routes.[1] Consider a short-course of oral steroids (10–15 mg in the morning for 3–7 days) for children with severe, uncontrolled symptoms that significantly affect QoL.[16] The BSACI guidelines recommend immunotherapy if children do not adequately respond to maximal pharmacotherapy. SCIT or SLIT may be appropriate for children with seasonal pollen induced rhinoconjunctivitis whose symptoms persist despite INS and antihistamines taken regularly and perennial allergic rhinoconjunctivitis in patients with an allergy to house dust mite who respond inadequately to anti-allergic drug.[1]

Summary and conclusion

AR the most common immunological disease, remains under recognised and poorly managed, with an under-appreciated socioeconomic impact. Diagnosing and treating AR can prove challenging. Clinicians need to be vigilant that AR does not mask an underlying serious conditions and seek red flags at each review. Considerable epidemiological, pathophysiological and clinical evidence now suggests that the upper and lower airways are a single functional and morphological unit. Therefore, considering the upper airways in tandem with the lower airways avoids misdiagnosis and undermanagement. The overlap is not total and HCPs need to use their clinical acumen to individualise treatment to the patient.

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Intended for UK healthcare professionals

Prescribing information and adverse event reporting details can be found overleaf

GB-36193 | May 2022

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Indication: Trixeo Aerosphere is indicated as a maintenance treatment in adult patients with moderate to severe chronic obstructive pulmonary disease (COPD) who are not adequately treated by a combination of an inhaled corticosteroid and a long-acting beta2-agonist or combination of a long-acting beta2-agonist and a long-acting muscarinic antagonist.

Presentation: Each single actuation (delivered dose, ex-actuator) contains 5mcg of formoterol fumarate dihydrate, glycopyrronium bromide 9mcg, equivalent to 7.2mcg of glycopyrronium and budesonide 160mcg. This corresponds to a metered dose of 5.8mcg of formoterol fumarate dihydrate, glycopyrronium bromide 10.4mcg, equivalent to 8.2mcg of glycopyrronium and budesonide 182mcg.

Dosage and Administration: The recommended and maximum dose is two inhalations twice daily (two inhalations morning and evening). If a dose is missed, take as soon as possible and take the next dose at the usual time. A double dose should not be taken to make up for a forgotten dose. **Special populations: Elderly:** No dose adjustments required in elderly patients. **Renal impairment:** Use at recommended dose in patients with mild to moderate renal impairment. Can also be used at the recommended dose in patients with severe renal impairment or end-stage renal disease requiring dialysis, only if expected benefit outweighs the potential risk. **Hepatic impairment:** Use at recommended dose in patients with mild to moderate hepatic impairment. Can also be used at the recommended dose in patients with severe hepatic impairment, only if expected benefit outweighs the potential risk. For inhalation use. To ensure proper administration of the medicinal product, the patient should be shown how to use the inhaler correctly by a physician or other healthcare professional, who should also regularly check the adequacy of the patient's inhalation technique. Patients who find it difficult to coordinate actuation with inhalation may use Trixeo Aerosphere with a spacer to ensure proper administration of the medicinal product.

Contraindications: Hypersensitivity to the active substances or to any of the excipients.

Warnings and Precautions: **Not for acute use:** Not indicated for treatment of acute episodes of bronchospasm, i.e. as a rescue therapy. **Paradoxical bronchospasm:** Administration of formoterol/glycopyrronium/budesonide may produce paradoxical bronchospasm with an immediate wheezing and shortness of breath after dosing and may be life-threatening. Treatment should be discontinued immediately if paradoxical bronchospasm occurs. Assess patient and alternative therapy instituted if necessary. **Deterioration of disease:** Recommended that treatment should not be stopped abruptly. If patients find the treatment ineffective, continue treatment but seek medical attention. Increasing use of reliever bronchodilators indicates worsening of the underlying condition and warrants reassessment of the therapy. Sudden and progressive deterioration in the symptoms of COPD is potentially life-threatening, patient should undergo urgent medical assessment. **Cardiovascular effects:** Cardiovascular effects, such as cardiac arrhythmias, e.g. atrial fibrillation and tachycardia, may be seen after the administration of muscarinic receptor antagonists and sympathomimetics, including glycopyrronium and formoterol. Use with caution in patients with clinically significant uncontrolled and severe cardiovascular disease such as unstable ischemic heart disease, acute myocardial infarction, cardiomyopathy, cardiac arrhythmias and severe heart failure. Caution should also be exercised when treating patients with known or suspected prolongation of the QTc interval (QTc > 450 milliseconds for males or > 470 milliseconds for females), either congenital or induced by medicinal products. **Systemic corticosteroid effects:** May occur with any inhaled corticosteroid, particularly at high doses prescribed for long periods. These effects are much less likely to occur with inhalation treatment than with oral corticosteroids. Systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, decrease in bone mineral density, cataract and glaucoma. Potential effects on bone density should be considered particularly in patients on high doses for prolonged periods that have co-existing risk factors for osteoporosis. **Visual disturbances:** May be reported with systemic and topical corticosteroid use. If patient presents symptoms such as blurred vision or other visual disturbances, consider ophthalmologist referral for evaluation of possible causes which may include cataract, glaucoma or rare diseases such as central serous chorioretinopathy (CSCR). **Transfer from oral therapy:** Care is needed in patients transferring from oral steroids, since they may remain at risk of impaired adrenal function for a considerable time. Patients who have required high dose corticosteroid therapy or prolonged treatment at the highest recommended dose of inhaled corticosteroids, may also be at risk. These patients may exhibit signs and symptoms of adrenal insufficiency when exposed to severe stress. Additional systemic corticosteroid cover should be considered during periods of stress or elective surgery. **Pneumonia in patients with COPD:** An increase in the incidence of pneumonia, including pneumonia requiring hospitalisation, has been observed in patients with COPD receiving inhaled corticosteroids. Remain vigilant for the possible development of pneumonia in patients with COPD as the clinical features of such infections overlap with the symptoms of COPD exacerbations. Risk factors include current smoking, older age, low body mass index (BMI) and severe COPD. **Hypokalaemia:** Potentially serious hypokalaemia may result from ß2-agonist therapy. This has potential to produce adverse cardiovascular effects. Caution is advised in severe COPD as this effect may be potentiated by hypoxia. Hypokalaemia may also be potentiated by concomitant treatment with other medicinal products which can induce hypokalaemia, such as xanthine derivatives, steroids and diuretics. **Hyperglycaemia:** Inhalation of high doses of ß2-adrenergic agonists may produce increases in plasma glucose. Blood glucose should be monitored during treatment following established guidelines in patients with diabetes. **Co-existing conditions:** Use with caution in patients with thyrotoxicosis. **Anticholinergic activity:** Due to anticholinergic activity, use with caution in patients with symptomatic prostatic hyperplasia, urinary retention or with narrow-angle glaucoma. Patients should be informed about the signs and symptoms of acute narrow-angle glaucoma and should be informed to stop using this medicinal product and to contact their doctor immediately should any of these signs or symptoms develop. Co-administration of this medicinal product with other anticholinergic containing medicinal products is not recommended. **Renal impairment:** Patients with severe renal impairment (creatinine clearance of <30 mL/min), including those with end-stage renal disease requiring dialysis, should only be treated with this medicinal product if the expected benefit outweighs the potential risk. **Hepatic impairment:** In patients with severe hepatic impairment, use only if the expected benefit outweighs the potential risk. These patients should be monitored for potential adverse reactions.

Drug Interactions: Co-treatment with strong CYP3A inhibitors, e.g. itraconazole, ketoconazole, HIV protease inhibitors and cobicistat-containing products are expected to increase the risk of systemic side effects. Should be avoided unless the benefit outweighs the increased risk, in which case patients should be monitored for systemic corticosteroid adverse reactions. This is of limited clinical importance for short-term (1-2 weeks) treatment. **Other antimuscarinics and sympathomimetics:** Co- administration with other anticholinergic and/or long-acting ß2-adrenergic agonist containing medicinal products is not recommended as it may potentiate known inhaled muscarinic antagonist or ß2-adrenergic agonist adverse reactions. Concomitant use of other beta-adrenergic medicinal products can have potentially additive effects, caution required when prescribed concomitantly with formoterol. **Medicinal product- induced hypokalaemia:** Possible initial hypokalaemia may be potentiated by xanthine derivatives, steroids and non-potassium sparing diuretics. Hypokalaemia may increase the disposition towards arrhythmias in patients who are treated with digitalis glycosides. **ß-adrenergic blockers:** ß-adrenergic blockers (including eye drops) can weaken or inhibit the effect of formoterol. Concurrent use of ß-adrenergic blockers should be avoided unless the expected benefit outweighs the potential risk. If required, cardio-selective ß-adrenergic blockers are preferred. **Other pharmacodynamic interactions:** Concomitant treatment with quinidine, disopyramide, procainamide, antihistamines, monoamine oxidase inhibitors, tricyclic antidepressants and phenothiazines can prolong QT interval and increase the risk of ventricular arrhythmias. L-dopa, L-thyroxine, oxytocin and alcohol can impair cardiac tolerance towards beta2-sympathomimetics. Concomitant treatment with monoamine oxidase inhibitors, including medicinal products with similar properties such as furazolidone and procarbazine, may precipitate hypertensive reactions. Elevated risk of arrhythmias in patients receiving concomitant anaesthesia with halogenated hydrocarbons.

Pregnancy and Lactation: Administration to pregnant women/women who are breast-feeding should only be considered if the expected benefit to the mother justifies the potential risk to the foetus/child.

Ability to Drive and Use Machines: Dizziness is an uncommon side effect which should be taken into account.

Undesirable events: Consult SmPC for full list of adverse events. **Common (≥ 1/100 to < 1/10):** Oral candidiasis, pneumonia, hyperglycaemia, anxiety, insomnia, headache, palpitations, dysphonia, cough, nausea, muscle spasms, urinary tract infection. **Uncommon (≥ 1/1,000 to < 1/100):** Hypersensitivity, depression, agitation, restlessness, nervousness, dizziness, tremor, angina pectoris, tachycardia, cardiac arrhythmias (atrial fibrillation, supraventricular tachycardia and extrasystoles), bronchospasm, bruising, urinary retention, chest pain. **Very Rare (< 1/10,000):** Signs or symptoms of systemic glucocorticosteroid effects, e.g. hypofunction of the adrenal gland, abnormal behaviour. **Not known:** Angioedema, vision blurred, cataract, glaucoma.

Legal Category: POM.

Marketing Authorisation Number: EU/1/20/1498/002

Presentation & Basic NHS cost: 1 inhaler x 120 actuations: £44.50

Marketing Authorisation Holder: AstraZeneca AB, SE-151 85, Södertälje, Sweden.

Further Information is Available From: AstraZeneca UK Ltd
600 Capability Green, Luton, LU1 3LU, UK.

Date of preparation: 10/2020 RSP 20 0059

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store. Adverse events should also be reported to AstraZeneca by visiting https://contactazmedical.astrazeneca.com or by calling 0800 783 0033.

Common asthma myths and misconceptions that form barriers to effective symptom control – and how to counter them

Darush Attar-Zadeh, *PCRS Executive, London*

Introduction

Asthma is a common long-term respiratory condition that is thought to affect 5.4 million people in the UK;[1] it can affect people of all ages and prevalence tends to be highest in the most deprived locations.[2] Asthma attacks in the UK have increased by a third over the last decade and the number of people affected by asthma in the UK is amongst the highest in the world.[3]

In nearly two-thirds (65%) of cases, the National Review of Asthma Deaths (NRAD) identified one or more avoidable factors.[4]

As clinicians, are we taking the symptoms of an asthma attack or worsening asthma control as seriously as somebody presenting with a rash or a high, unexplained temperature for example? For most clinicians. missing a diagnosis of meningicocal septicaemia can fill them with a sense of dread. Fortunately, due to high profile media and NHS campaigns, death rates continue to fall and between 2019-20, 30 deaths from meningococcal septicaemia were reported compared with 1400 deaths from asthma in the same time-period.[5]

This article will emphasise the role clinicians and other MDT members can play in countering and not perpetuating myths around asthma not being a serious disease (Myth & Truth sub-headings will be used throughout). Many patients have a poor perception of their asthma and mistakenly believe that symptoms such as cough, breathlessness, chest tightness, wheeze, night-time awakening are a normal part of life and should just be accepted. Patients in the REALISE study displayed a large gap between their perception of asthma control and their actual GINA-defined asthma control.[6]

Another indicator that asthma isn't taken seriously, and there may be a gap in knowledge, is that adherence to preventive medicine is only around 22-63%.[7] It is certainly possible to improve this; Finland is a good example of how guided self-management and running a national co-ordinated programme can reduce the burden of asthma.[8]

Asthma Right Care resources[9] can be used to aid conversations with patients and clinicians and will be signposted throughout this article.

Myth:
It's normal for people with asthma to **'have symptoms'**.
Truth:
Most people with asthma can **'live well and in complete control'**.

Pathology - Adopt a 'keep it simple' approach for people living with asthma so they can better manage their condition.

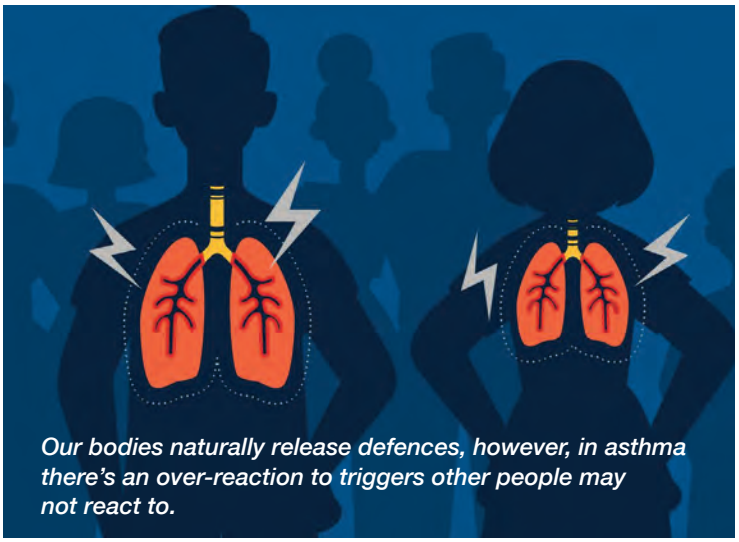
Myth:
Asthma is a disease of bronchoconstriction (tightened airways/muscles) alone and can be treated with a blue inhaler.
Truth:
Asthma is predominantly a disease of inflammation which is the main cause of the narrowed airways; a blue inhaler will not treat the inflammation. It will help with the bronchospasm/bronchoconstriction on the outside of the airways, and this might be why people perceive the blue inhaler to work best. This is a risky perception; blue inhalers should be considered "Emergency" inhalers just like the blue light of an ambulance.

Reputable videos[10] or airway models[11] can be helpful in explaining the pathology in patient friendly terms.

Asthma can affect a person's 'lung openness' (airway walls swell) and make it harder to breathe. This is usually caused by an over-reaction to certain triggers, e.g. house dust mites, smoke, chest infections, weather changes, anxiety/stress, laughter. Most people with asthma have an allergic/atopic type. All our bodies **naturally**[12] release defences, however, in asthma there's an over-reaction (lungs **react too strongly**) to triggers other people may not react to. These can cause swelling with the release of inflammatory mediators (a little like a volcano that remains dormant and is ready to erupt at certain times).

Myth:
People with asthma have **weak lungs**
Truth:
There's an over-reaction in asthma where the lungs react **too strongly**

In some ways, the lungs look like trees. The bronchi (left and right large tubes/branches lead to the smaller airways/branches (bronchioles)) which can become inflamed, narrowed and more sensitive than normal. If a person has poorly managed asthma it can feel like trying to **breathe through a straw** with mucous in it rather than trying to breathe through a more open and **wider hose pipe**.[13]



Our bodies naturally release defences, however, in asthma there's an over-reaction to triggers other people may not react to.

Symptoms resulting from poor control of underlying inflammation are common and vary in frequency and severity. It can have a significant impact on both physical and emotional health and wellbeing for the person and other family members.

With good inhaler technique, an everyday low dose 'anti-inflammatory medicine' (inhaled corticosteroid (ICS)) can help maintain that **natural balance**[14] and keep the volcano dormant with minimal side effects.

Over-reliance on short acting B2 agonist (SABA) (sometimes referred to as the 'blue', 'reliever', 'rescue', 'emergency' medicine) and underuse of Inhaled Corticosteroids (ICS) does have an impact on the quality of people's lives. Some people may try and avoid triggers, not undertake exercise. A reduction in activity can increase deconditioning.

Regular use of SABA can cause tremors, headache, increased heart rate, palpitations, and muscle cramps for example.[15] Rebound hyperresponsiveness and downregulation of the receptors can become problematic.[16]

≥3 (200 puff) SABA canisters is associated with increased hospitalisations.[17]

The SABA slide rule, Reliever Reliance Test, Posters & Question & Challenge cards can help clinicians start the sometimes-awkward conversation.[18]

Myth:
People with mild asthma can't die of it.
Truth:
People with all severities of asthma can have an 'asthma attack' and inflammation exists in mild, moderate, and severe disease and needs to be treated with an anti-inflammatory medicine.

Myth:
One SABA canister a month on repeat prescription isn't too much.
Truth:
For a person with good asthma control, one canister (200 puffs) in theory should be **sufficient to last 6 months**.[19]
If a person needs every puff of the 6 SABA canisters, according to the SABA slide rule the person has potentially experienced 600-1200 breathless moments in the year, 23 puffs a week, more than 3 puffs per day.
An extra SABA canister can be justified in certain circumstances e.g. school but still means less than three per year should be sufficient in most circumstances.

Myth:
Using the blue inhaler is less costly to the NHS than using ICS and won't have a significant environmental impact.
Truth:
Good asthma control = good for the person (less symptoms & risk) and the planet.

#nowastenoharm

22.5 million blue inhalers are dispensed to asthma patients each year (an average of 5 per diagnosed asthma patient; ≥3 blue (reliever) canisters per year is associated with a two-fold increased risk of severe asthma attack.[21]

The SABINA observational study demonstrated that healthcare resource utilisation (HCRU) costs were higher among patients prescribed high-SABA (≥3 canisters).[22]

Eliminating SABA over-reliance could support the NHS to address their sustainability goal
In asthma 83% of SABAs prescribed go to patients using ≥3 inhalers/year.[23]
70% of the **total carbon footprint** of inhaler devices in the UK is represented by SABAs.

Innovative approaches have also been demonstrated on the ground in order to achieve SABA reduction. A 2018 study commissioned by *The Lancet* suggested that in some patients, where clinically appropriate, a MART strategy involving use of a combination steroid and long acting beta agonist would allow a SABA-free regimen and therefore be an effective way to reduce SABA overuse.[24]

The three elements of basic asthma care are needed more than ever[25]:

1) Co-creating a personalised asthma action plan, or MART plan, is important to help consolidate what's been discussed during the asthma reviews including recognising when symptoms deteriorate, adherence to everyday treatment, when to use SABA 'emergency medicine', trigger avoidance and what to do when symptoms escalate.
2) Inhaler and spacer technique coaching Utilising the whole multidisciplinary workforce including community pharmacy
3) Annual asthma reviews as a basic minimum and including face to face for the more high-risk patients.

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Summary
Clinicians can do a lot in practice to help people live better with asthma. The time we invest and the words we use really do matter to promote 'self-care' as myths still exist that can be countered with the right clinical skills and resources to aid.

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The place of point of care testing for C-reactive protein in the community care of respiratory tract infections

The high rate of empirical antibiotic use for the treatment of suspected respiratory tract infections (RTIs) and COPD exacerbations remains a cause for concern in the face of increasing antibiotic resistance. Historically, clinical decision rules have been used to guide antibiotic prescribing for patients presenting with signs and symptoms that indicate possible RTIs or infectious exacerbations of chronic obstructive pulmonary disease (IE-COPD). Use of point of care testing (POCT) for C-reactive protein (CRP) addresses clinical uncertainty to support not prescribing antibiotics in appropriate low-risk patients. This approach has been shown to reduce unnecessary antibiotic use and is therefore an important tool in ensuring antibiotics are used appropriately. As further research is undertaken and local and national policy makers work towards integration of CRP-POCT into standards of care, PCRS has developed a pragmatic guide to support clinical decision making, especially when antibiotics are not indicated, and ensure antibiotics are deployed appropriately. This summary article provides an overview of the pragmatic guide and the evidence base to support it. You can read the full article online https://www.pcrs-uk.org/crp-point-care-testing

Introduction

Respiratory tract infections (RTIs) and infectious exacerbations of chronic obstructive pulmonary disease (IE-COPD) are frequent primary care presentations.[1] In 2017, there were 18.2 cases of clinically suspected pneumonia per 1000 person-years.[1] A study that followed 2138 patients with COPD found that they experienced at least two acute exacerbations during a year-long follow up.[2] Infections are estimated to cause about 70% of COPD exacerbations and while the majority are caused by bacterial infections, pathogenic viruses are detected in about half of IE-COPD cases, sometimes alongside a bacterial infection.[3,4] Less commonly, fungi can cause RTIs, particularly in immunocompromised patients.[5,6] Across Europe, primary care accounts for between 80% and 90% of antibiotic prescriptions, mostly for RTIs.[7,8] As a result, several pathogens that cause RTIs, including *Streptococcus pneumoniae, Haemophilus influenzae, Pseudomonas aeruginosa* and *Mycobacterium tuberculosis*, show reduced susceptibility to several classes of antibiotics.[9] Inappropriate antibiotic use in primary care, therefore, contributes to the growing problem posed by antimicrobial resistance. The Primary Care Respiratory Society (PCRS) takes the position that patients with diagnosed COPD who present with acutely worsening symptoms should receive antibiotics only when an exacerbation has been determined as the cause of the deterioration and then only when bacterial infection is considered to be the most likely trigger.

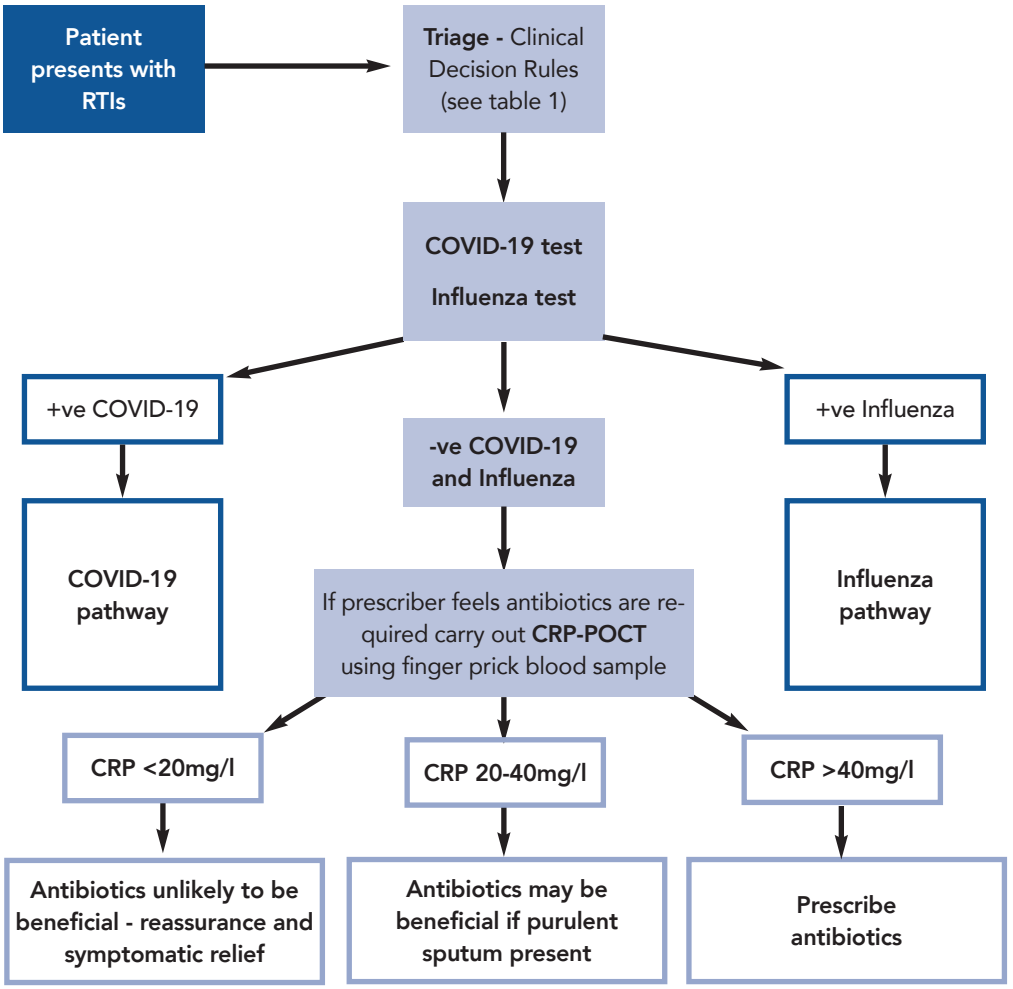
Pragmatic guide to the use of CRP-POCT in primary care

A multidisciplinary panel of PCRS members developed this 'pragmatic guide', based around two algorithms, one for IE-COPD (Figure 1) and one for RTIs that are not associated with COPD (Figure 2), to help reduce inappropriate antibiotic prescribing and implement point of care testing (POCT) for C-reactive protein (CRP). Fundamentally, the panel agreed that CRP POCT addresses clinical uncertainty to support not prescribing antibiotics in appropriate low-risk patients as well as being used educate and reassure patients when antibiotics are not needed.

Why CRP?

In 1930, Tillet and Francis reported that serum from people infected with *S. pneumoniae* contained a protein that could precipitate the C polysaccharide in bacterial cell walls. Levels of CRP, an acute phase reactant, rose in the early stages of *S. pneumoniae* infection.[10,11] Levels of CRP increase within hours of tissue injury or bacterial infection and can rise more than 1000-fold during acute inflammation.[11] CRP POCT in primary care may help reduce unnecessary prescribing of antibiotics by enabling a more considered diagnostic approach to people with suspected IE-COPD (Figure 1) and RTIs (Figure 2). Not only will a more considered diagnostic approach slow the spread of antibacterial resistance, but fewer people will experience avoidable adverse events such as hypersensitivity reactions, overgrowth of pathogenic bacteria, gastrointestinal

Figure 1. Algorithm for IE-COPD[28-30]



disturbances and nephrotoxicity.[12] A number of studies have demonstrated the usefulness CRP-guided decisions in reducing antibiotic prescribing and use, without any evidence of harm.[13–15]

Using CRP POCT in primary care

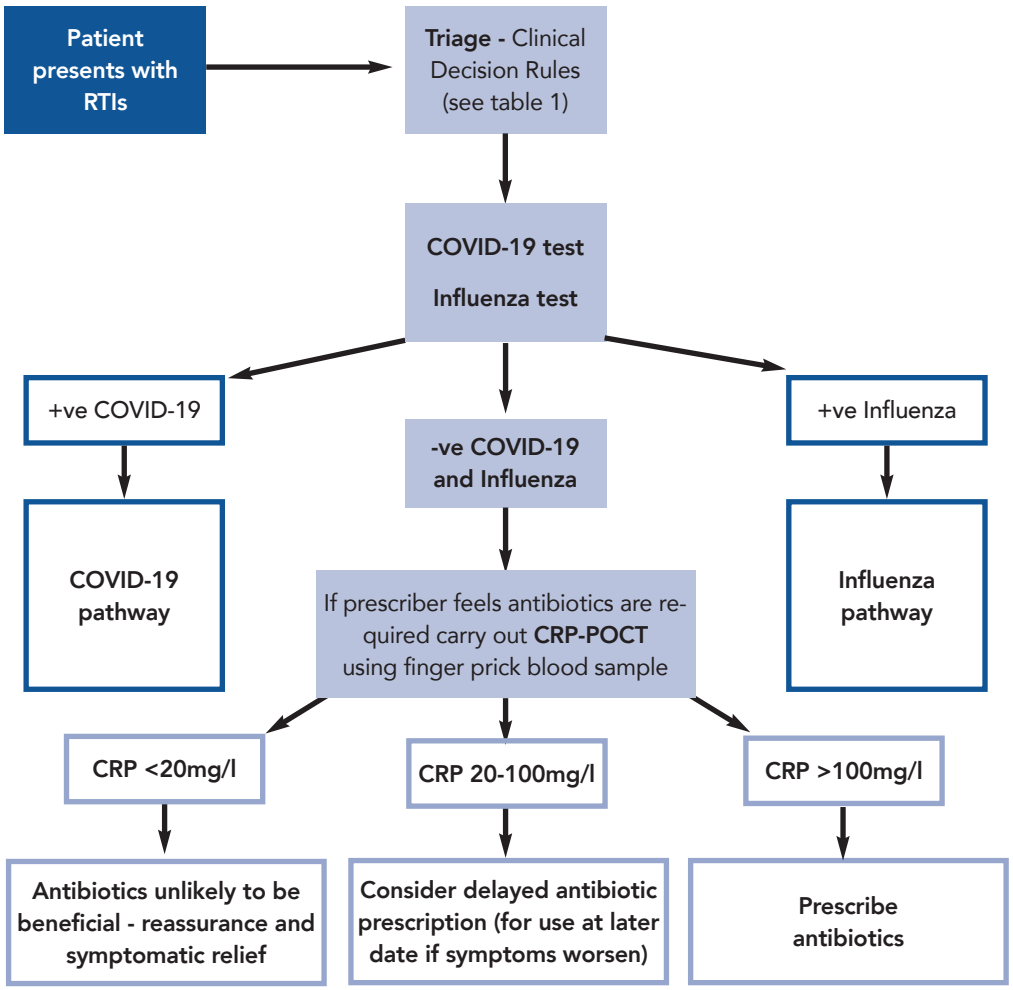
Clinical decision rules

Until the advent of CRP POCT, patients who presented with signs and symptoms (Table 1) consistent with possible RTI or IE-COPD were diagnosed and treated empirically, based on, for example, sputum colour.[4] An example of such a chart can be viewed at https://rdcu.be/cJJrK.[16] Sputum culture testing early in the course of management to guide antibiotic choice and limit the spread of antimicrobial resistance driven by overuse of broad-spectrum antibiotics. Other signs and symptoms can support an empirical diagnosis of IE-COPD and RTIs including respiratory rate ≥20 per minute, temperature ≥38°C, pulse rate >100 per minute and crackles on auscultation.[5] Clinical decision rules can also be used to determine whether people with RTI require hospitalisation (Figure 3).[16–18] Nevertheless, clinical decision rules still rely on non-specific clinical observations and laboratory tests including procalcitonin and CRP better predictors of an infectious causation for pneumonia among adults in primary care than clinical signs and symptoms alone.[5]

Diagnostic work up

Nasal antigen test or polymerase chain reaction should be used to exclude COVID-19 and influenza (Figures 1 and 2) before considering other pathogens and all potential triggers including tobacco exposure, air quality, psychosocial factors, viruses and bacterial infection should be considered. CRP POCT should be performed if the presentation suggests bacterial infection as cause of a COPD exacerbation (Figure 1) or antibiotics are needed for another RTI (Figure 2). In some circumstances (e.g. based on sputum purulence, auscultation), antibiotics may be clinically indicated without CRP testing (Table 1). CRP POCT

Figure 2. Algorithm for RTIs that are not associated with COPD[28-30]



will still be valuable in equivocal cases. Management depends on the CRP threshold and whether patients have RTI or COPD (Figures 1 and 2).

Follow up

CRP POCT can inform follow up. For example, if CRP levels do not change or increase further after 72 hours, the prescriber should consider whether the antibiotic is appropriate.

Overcoming barriers

Numerous barriers potentially hinder implementation of CRP POCT in the management of RTIs and IE-COPD.

Barriers related to healthcare setting

CRP POCT for IE-COPD and RTIs needs to be implemented in the right setting, delivered to the right patients and used in the right way to support clinical decision making to not prescribe antibiotics in appropriate low-risk patients. For instance, to realise economies of scale and an adequate caseload to ensure quality, the CRP POCT needs to be used routinely and regularly in GP practices, pharmacies,[19] diagnostic hubs and nursing homes. The place of testing needs to offer good accessibility for patients, particularly given the functional limitations of some people with COPD, such as those who experienced deconditioning during the COVID-19 pandemic. A system needs to be in place to ensure the results are fed-back to responsible healthcare professionals and recorded in the medical records.

Barriers related to staffing

Patients with possible IE-COPD or RTIs face a potential barrier accessing GPs in a timely fashion, especially given the pressures on the NHS arising from the COVID-19 pandemic. Limited work-force capacity, even aside from the pandemic, presents a barrier in terms of training (e.g. in using POCT equipment and clinical examination skills), reimbursement and having the staff to perform testing. CRP POCT could be

encompassed by the increasing number of Clinical Support Services, supported by an expansion of the range of health-care professionals eligible to prescribe antibiotics.

Barriers related to finance

Introducing CRP POCT is associated with upfront costs in terms of equipment, training and External Quality Assessment system. A negative or subthreshold CRP valve may also increase costs due to the greater need for inhaled therapies and step-up to triple therapy (inhaled corticosteroid, long-acting muscarinic antagonist and long-acting β2-agonist) in people with COPD. Reduced prescribing of antibiotics, costs associated side effects of antibiotics and contribution to antimicrobial resistance may offset some of the additional expenditure. CRP POCT is unlikely to impact hospitalisation rates, at least during a 6 month follow-up.[14] CRP POCT is, however, likely to reduce unscheduled reattendance, which can help build the business case supporting implementation. Considering COPD-related health-care costs only, CRP POCT was associated with similar costs as usual care in the PACE study: savings in healthcare resource use slightly offset the cost of £11.31 per CRP POCT. The cost per quality-adjusted life-year (QALY) gained at 6 months was £15,251,20 suggesting that CRP POCT is cost effective. NICE uses a cost-effectiveness threshold of £20,000 to £30,000 per QALY for reimbursing new drugs.[21] Primary care should work with diagnostic companies to introduce CRP POCT as cost-effectively as possible, which may depend on the setting. Integrated Care Systems should introduce incentives to adopt CRP POCT and other innovative diagnostic processes as soon as practicable in routine primary care.

A pilot study could aid implementation

A pilot study would be useful to demonstrate the benefits of CRP POCT in terms of antibiotic prescribing, patient-reported outcomes and other measures. The pilot study could also explore how to overcome the barriers and offer a benchmark for future development. As part of this, the Medicine Management Team should work with diagnostic companies to identify the best model and CRP POCT system for a particular location. The panel suggested that identifying a local champion can help build a case for CRP POCT in primary care. The OpenPrescribing website allows comparisons of antibiotic prescribing between practices in England. The pilot study should be based in a practice with at least one of the following to maximise patient enrolment: high users of antibiotics despite efforts to improve stewardship by the practice and local Medicine Management Team; a large cohort of COPD patients, which could be in areas of high socioeconomic deprivation; a large proportion of COPD patients attending accident and emergency departments; or a large proportion of COPD patients who frequently exacerbate.

Future perspectives

Political and managerial perspectives

The algorithms in Figures 1 and 2 should help improve the integration of diagnostics into primary care, which aligns with government recommendations in the report *Rapid Diagnostics: Stopping Unnecessary Use of Antibiotics*.[22] PCRS suggests that NICE should re-open the review of the current COPD management guideline and come to a position regarding the use of CRP POCT. The discussions should consider the growing body of high-quality data showing that testing can reduce inappropriate prescribing of antibiotics without compromising patient safety.[3,7,13–15,17,23–25] Without national guidance, the NHS could face 'postcode diagnostics' and, possibly, differences in antimicrobial resistance patterns. The use of CRP POCT also aligns with the current pan-national environmental agenda by reducing

Table 1: Clinical signs and symptoms that indicate possible bacterial causes of RTI or IE-COPD

Chest crackles: In people with raised temperature, chest crackles could indicate the need for antibiotics irrespective of CRP levels
Cough: prescribers should exclude post-infective cough
History of recent antibiotic use
Increased breathlessness
Oxygen saturation <95%
Possible fever (≥38ºC); viral infections are more likely than bacterial pathogens to cause a fever
Raised heart rate >100 beats per minute
Raised respiratory rate ≥20 breathes per minute
Sputum colour (especially green or yellow)

Based on a consensus of the PCRS panel and Htun and colleagues[5]

Figure 3. Matrix showing clinical decision rules used in RTIs

	Confusion	Urea >7mmol/l	Resp Rate >30/min	Low systolic BP <90mmHg Diastolic <60mmHg	Age >65 years	
CURB 65	+	+	+	+	+	
CRB 65	+		+	+	+	Temp
	Inter-subcostal recession	Illness duration <4 days	Vomiting in last 24 hours	Wheeze present	Age <2 years	>37.8 in last 24 hours
STARWAVe (children)	+	+	+	+	+	+
	Pulse rate >100/min	Crackles	Resp Rate >20/min	Pro-Calcitonin	C-Reactive Protein	>38
HTun	+	+	+	+	+	+

the carbon footprint associated with antibiotic production and minimising environmental contamination with antibiotics and environmental levels of multidrug resistant bacteria.[26,27]

Further research

There are numerous areas for further research, including characterising cost-effectiveness encompassing the costs of antibiotics, changes in drug costs and the cost of antimicrobial resistance. Studies should, for example, characterise the proportion of patients with IE-COPD who subsequently develop exacerbations with 'resistant' bacteria in those managed based on CRP POCT compared with usual care. Economic analyses could also estimate the indirect costs associated with IE-COPD, RTI and antimicrobial resistance, such as absenteeism, presentism and environmental footprint. Future studies also need to characterise the place of CRP POCT in the management of paediatric RTIs and the least distressing way to obtain a sample from children and adults with needle phobia. Capturing real-world epidemiologic data on the proportion of patients with a COPD exacerbation who have microbiologically confirmed bacterial infection at the various CRP levels could facilitate implementation and decision making. Finally, there is a pressing need to assess long-term outcomes associated with timely appropriate management and early referral to palliative care, the long-term implications for service utilisation and distinguishing true and frequent exacerbators from patients who need a different management approach.

Summary

The PCRS CRP POCT pragmatic guide has been developed to encourage the use of CRP POCT to support not prescribing antibiotics in appropriate low-risk patients with the aim of ensuring appropriate antibiotic prescribing and slowing the spread of antimicrobial resistance.

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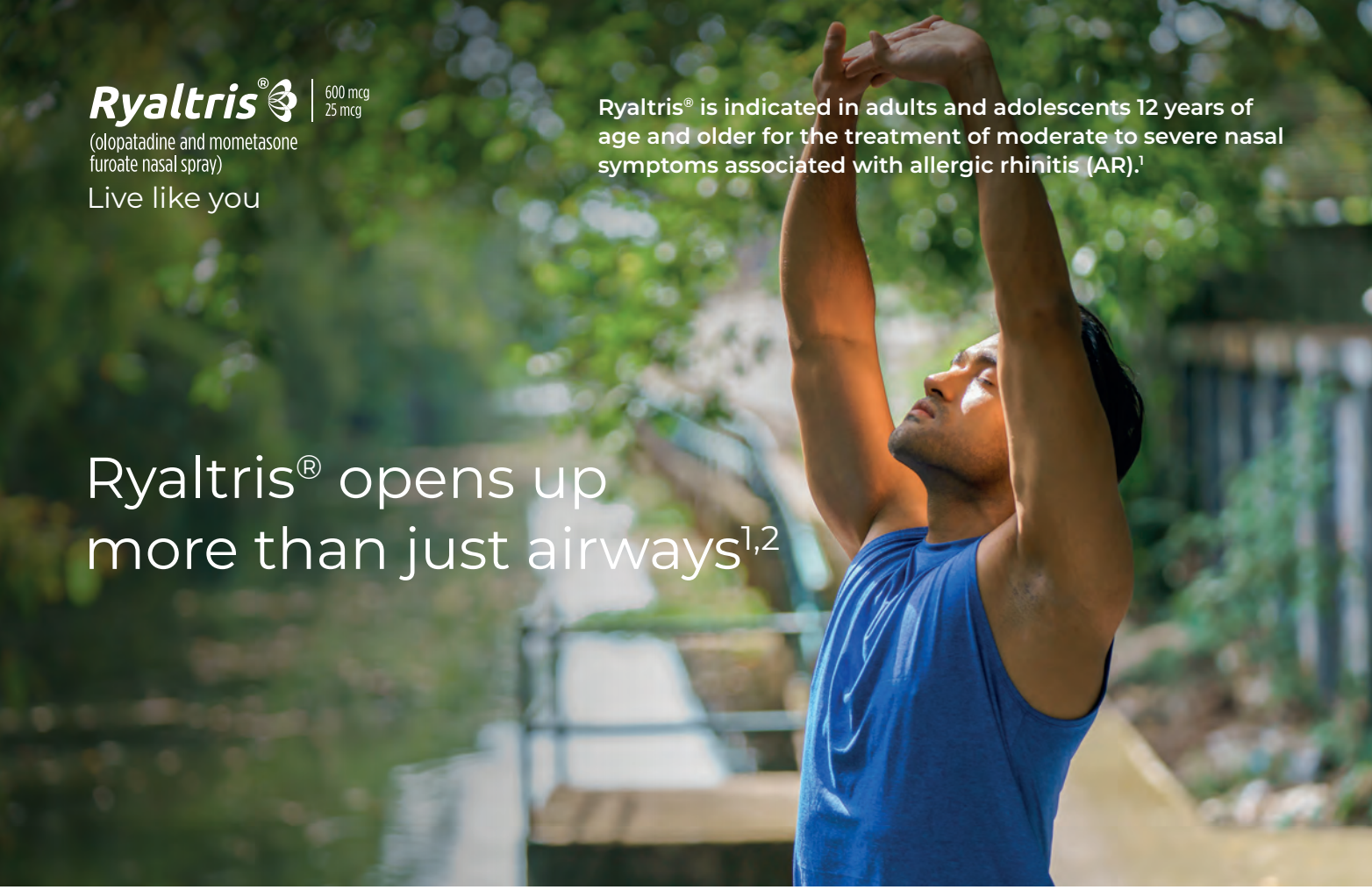

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Ryaltris (mometasone furoate and olopatadine hydrochloride) **Please refer to the Summary of Product Characteristics (SmPC) before prescribing.** One delivered dose contains mometasone furoate monohydrate equivalent to 25 microgram mometasone furoate and olopatadine hydrochloride equivalent to 600 micrograms olopatadine. **Indication:** treatment of moderate to severe nasal symptoms associated with allergic rhinitis in adults and adolescents 12 years of age and older **Posology and method of administration:** The usual recommended dose is two actuations in each nostril twice daily (morning and evening). *Children below 12 years:* Ryaltris is not recommended. Elderly: No dose adjustment required. *Renal and hepatic impairment:* there are no data in patients with renal and hepatic impairment, however no dose adjustment is expected to be required. **Contraindications:** Hypersensitivity to the active substances or to any of the excipients. Ryaltris should not be used in the presence of untreated localised infection involving the nasal mucosa, such as herpes simplex. Patients who have experienced recent nasal surgery or trauma should not use a nasal corticosteroid until healing has occurred. **Precautions:** *Local nasal effects:* nasal ulceration and nasal septal perforation have been reported in patients following intranasal antihistamines. Nasal septal perforation has been reported following intranasal corticosteroids. Patients using Ryaltris over several months or longer should be examined periodically for possible changes in the nasal mucosa. Ryaltris is not recommended in cases of nasal septum perforation. In clinical studies with mometasone furoate administered intranasally, the development of localised infections of the nose and pharynx with *Candida albicans* has occurred; may require treatment and discontinuation of Ryaltris. Patients using Ryaltris over several months or longer should be examined periodically for evidence of Candida infection or other signs of adverse effects on the nasal mucosa. *Visual disturbances* may be reported with systemic and topical corticosteroid use. Symptoms such as blurred vision or other visual disturbances should be considered for ophthalmologist referral for evaluation of possible causes including cataract, glaucoma or rare diseases such as central serous chorioretinopathy (CSCR). *Hypersensitivity Reactions* including instances of wheezing, may occur. Discontinue Ryaltris if such reactions occur. *Immunosuppression:* Chickenpox and measles, for example, can have a more serious or even fatal course in susceptible patients and those using corticosteroids. In children or adults who have not had these diseases or been properly immunized, particular care should be taken to avoid exposure. Corticosteroids should be used with caution, if at all, in patients with active or quiescent tuberculous infections of the respiratory tract, untreated local or systemic fungal or bacterial infections, systemic viral or parasitic infections, or ocular herpes simplex because of the potential for worsening of these infections. *Systemic Effects of Corticosteroids:* potential systemic effects may include Cushing's syndrome, Cushingoid features, adrenal suppression, growth retardation in children and adolescents, cataract, glaucoma and more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression or aggression (particularly in children). When intranasal steroids are used at higher than recommended dosages or in susceptible individuals at recommended dosages, systemic corticosteroid effects such as hypercorticism and adrenal suppression may appear. If such changes occur, the dosage of Ryaltris should be discontinued slowly, consistent with accepted procedures for discontinuing oral corticosteroid therapy. The concomitant use of intranasal corticosteroids with other inhaled corticosteroids could increase the risk of signs or symptoms of hypercorticism and/or suppression of the HPA axis. If there is evidence for higher than recommended doses being used, then additional systemic corticosteroid cover should be considered during periods of stress or elective surgery. The replacement of a systemic corticosteroid with a topical corticosteroid can be accompanied by signs of adrenal insufficiency, and some patients may experience symptoms of withdrawal. Patients previously treated for prolonged periods with systemic corticosteroids and transferred to topical corticosteroids should be carefully monitored for acute adrenal insufficiency in response to stress. In those patients who have asthma or other clinical conditions requiring long term systemic corticosteroid treatment, too rapid a decrease in systemic corticosteroids may cause a severe exacerbation of their symptoms. *Somnolence:* in isolated cases dizziness, lethargy, fatigue and somnolence may occur when using Ryaltris. In these cases, the ability to drive and use machines may be impaired. Alcohol and other CNS depressants may enhance this effect. *Antihistamine effects:* concomitant use of other antihistaminic drugs administered may increase the risk of antihistamine adverse effects. *Paediatric population:* It is recommended that the height of children receiving prolonged treatment with nasal corticosteroids is regularly monitored. If growth is slowed, therapy should be reviewed with the aim of reducing the dose of nasal corticosteroid if possible, to the lowest dose at which effective control of symptoms is maintained. *Excipients:* Ryaltris contains 0.02 mg benzalkonium chloride in each actuation. Benzalkonium chloride may cause irritation or swelling inside the nose, especially if used for a long time. **Adverse reactions:** *Common (≥1/100 to <1/10):* dysgeusia (unpleasant taste), epistaxis, nasal discomfort. *Uncommon (≥1/1,000 to <1/100):* dizziness, headaches, somnolence, nasal dryness, dry mouth, abdominal pain, nausea, fatigue. *Rare (≥1/10,000 to <1/1000)* bacterial vaginosis, anxiety, depression, insomnia, lethargy, migraine, blurred vision, dry eye, eye discomfort, ear pain, nasal inflammation, nasal mucosal disorder, oropharyngeal pain, sneezing, throat irritation, constipation, sore tongue, laceration. *Incidence not known (reported from use of corticosteroids):* pharyngitis, upper respiratory tract infection, hypersensitivity including anaphylactic reactions, angioedema, bronchospasm, and dyspnoea, cataracts, glaucoma, increased intraocular pressure, nasal septum perforation. **Marketing authorisation number:** PL 25258/0331 **Marketing Authorisation Holder and distributer:** Glenmark Pharmaceuticals Europe Limited, Laxmi House, 2B Draycott Avenue Kenton, Middlesex, HA3 0BU. United Kingdom **Legal classification:** POM **Cost:** £13.32. 1 bottle with 29 g suspension (240 actuations) **Date of preparation:** June 2021. **Job number:** PP-UK-RYAL-0001

Adverse events should be reported. Reporting forms and information can be found at https://yellowcard.mhra.gov.uk. Adverse events should also be reported to Glenmark Pharmaceuticals Europe Ltd medical_information@glenmarkpharma.com or call 0800 458 0383

References: 1. Ryaltris® Summary of Product Characteristics. **2.** Gross GN, *et al.* Ann Allergy Asthma Immunol 2019;122:630–638.

Date of preparation: February 2022 PP-UK-RYAL-0085

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Fit to Care – Key knowledge skills and training for clinicians providing respiratory care – a local experience

Carol Stonham, *MBE, Chair, Primary Care Respiratory Society Executive and Queens Nurse, Gloucestershire CCG*

There are no mandatory training requirements for healthcare professionals delivering respiratory care. The quality of care and patient pathways are variable throughout the country depending on the knowledge, skills, competence and confidence of those delivering care.

Locally, we have found that using ***Fit To Care*** has enabled us to undertake a baseline training needs assessment which has highlighted strengths of respiratory services, and gaps in care delivery which could be better supported with appropriate education and training.

The exercise was considered from two perspectives. From a commissioning perspective we considered what services could the acute and community respiratory team provide across the patient pathway. We also reviewed, as we move toward an integrated service, that we have an appropriately skilled workforce to deliver the service and found opportunities to improve the pathway with additional training and education.

From a professional development perspective of the individual team members, each member self-assessed their competency against the framework, then discussed their role within the team highlighting perceived strengths, and weaker areas with their manager with a view to planning training requirements. Our team includes nurses, physiotherapists, pharmacists, and paramedics so it was reassuring that ***Fit To Care*** is appropriate for all registered healthcare practitioners.

The overall training analysis was presented to the working group with recommendations for the number of places required for relevant training courses. The remit was wider than respiratory education. We were able to recruit to leadership courses, non-medical prescribing, shared decision making, as well as asthma and COPD diploma courses. One area of overall weakness was the non-medical management of breathlessness which we addressed by commissioning training for CBT in Breathlessness for all team members to attend.

We continue to revisit ***Fit To Care*** at annual appraisal with individual team members and use the document as a baseline for new members of the team.

We have also used ***Fit To Care*** as a reference document for commissioned service specifications. During the pandemic, to address the backlog and unavailability of spirometry in primary care, we were able to work with a provider organisation to provide diagnostic spirometry from a hub-based model. There was value in providing a diagnostic service rather than simply performing the test and returning the results to the referrer, but it was vital that the provider could staff the hub with appropriately trained, competent practitioners. Had we been simply providing a spirometry service ARTP certification would have been the only requirement but a diagnostic service requires skills and training beyond that yet there are no national standards. As part of the service specification, we were able to state the service provider was trained to at least advanced level with the knowledge and skills to underpin this. The provider was then very clear on what was required and was able to staff the hub appropriately to deliver a quality assured diagnostic service.

Fit To Care has been updated recently and now includes a section on appropriate delegation. Multidisciplinary teams are expanding, there are increasing numbers of non-registered team members who are vital for delivering care but this must not be at the expense of quality and safety. Appropriate delegation needs thought and consideration. In summary, ***Fit To Care*** has provided us with a tool to assess service delivery, development and the continued professional development of the individuals that are vital to making up our team.

SCAN ME

Fit to Care – Key knowledge skills and training for clinicians providing respiratory care

Ren Lawlor, *MSc, Advanced Nurse Practitioner, Respiratory Nurse Specialist Primary Care, Chair, PCRS Education Committee*

Introduction

People living with respiratory disease require a significant amount of support, guidance and intervention to manage their condition effectively. These interventions should be delivered by clinicians with an appropriate level of expertise in this field. There is currently variation in the standard of respiratory care provided to patients, demonstrated by national reports such as the National Review of Asthma Deaths (NRAD)[1] and the National Asthma and COPD Audit (NACAP).[2] This variation is affected not only by the services patients are engaged with/referred to but also the level of training, education and experience of the clinicians responsible for the provision of such care.

We recognise that, although there are respiratory specialists working within the UK who have taken a clear focus on respiratory disease, there is a wider community of practitioners who work as generalists but are still heavily involved in the day-to-day management of this patient group. The COVID-19 pandemic has seen primary care take an increased role in vaccination, breathlessness assessment and support for people living with post COVID syndromes that include respiratory symptoms, and may benefit from some therapies usually associated with chronic respiratory disease.

The aim of this document is to provide guidance for commissioners and clinicians about the skills, knowledge and training required by healthcare professionals working with patients with a respiratory condition in a primary or community care setting including:

How to use national evidence-based guidance

- To aid healthcare professionals to assess their own competence to deliver care, and identify and seek appropriate training and ongoing professional development
- To provide a reference for service managers to ensure the provision of appropriate educational support programmes for healthcare professionals. Such programmes should support ongoing professional development, appraisal, revalidation and training to facilitate the delivery of high quality respiratory care, staff retention and also support employee satisfaction
- To ensure all healthcare professionals have an accountability framework and feel assured that they are trained to provide such care to a given standard, thereby reducing variation in care and ensuring patients can expect high-quality evidence-based respiratory care irrespective of who is delivering such care or where in the community that care is being provided.

Delegation and Supervision

As this diversity of healthcare professionals continues to grow in within primary care, it is essential that those who have responsibility for the delegation and supervision of tasks have sufficient knowledge and expertise to do so safely. Clinical supervision is recognised as a professional skill that requires training and CPD. The skills of supervision are often easier for clinicians in your own professional speciality but with many other disciplines working in primary care good supervision requires an understanding of the training and skills of other

professional groups as well as understanding the experience that each individual brings. It is easy, but dangerous to assume that clinicians have all been trained in and think in similar ways. This multi-disciplinary approach to the provision of patient centred care requires any person acting as a clinical supervisor to have a knowledge of the clinician that they intend to support and delegate to. This includes understanding their normal working practice, competency and skill level. It also requires a responsibility of a more senior clinician to oversee, support and provide regular review to ensure all clinicians involved in delegation and supervision maintain their own competence and skills as part of their mandatory appraisal and revalidation.

Key knowledge and skills required for clinicians providing standard respiratory care

Definition of level

For clinicians working with patients with accurately diagnosed chronic respiratory disease or those working as generalists who are in a position to opportunistically consider an underlying or undiagnosed respiratory condition.

Key considerations

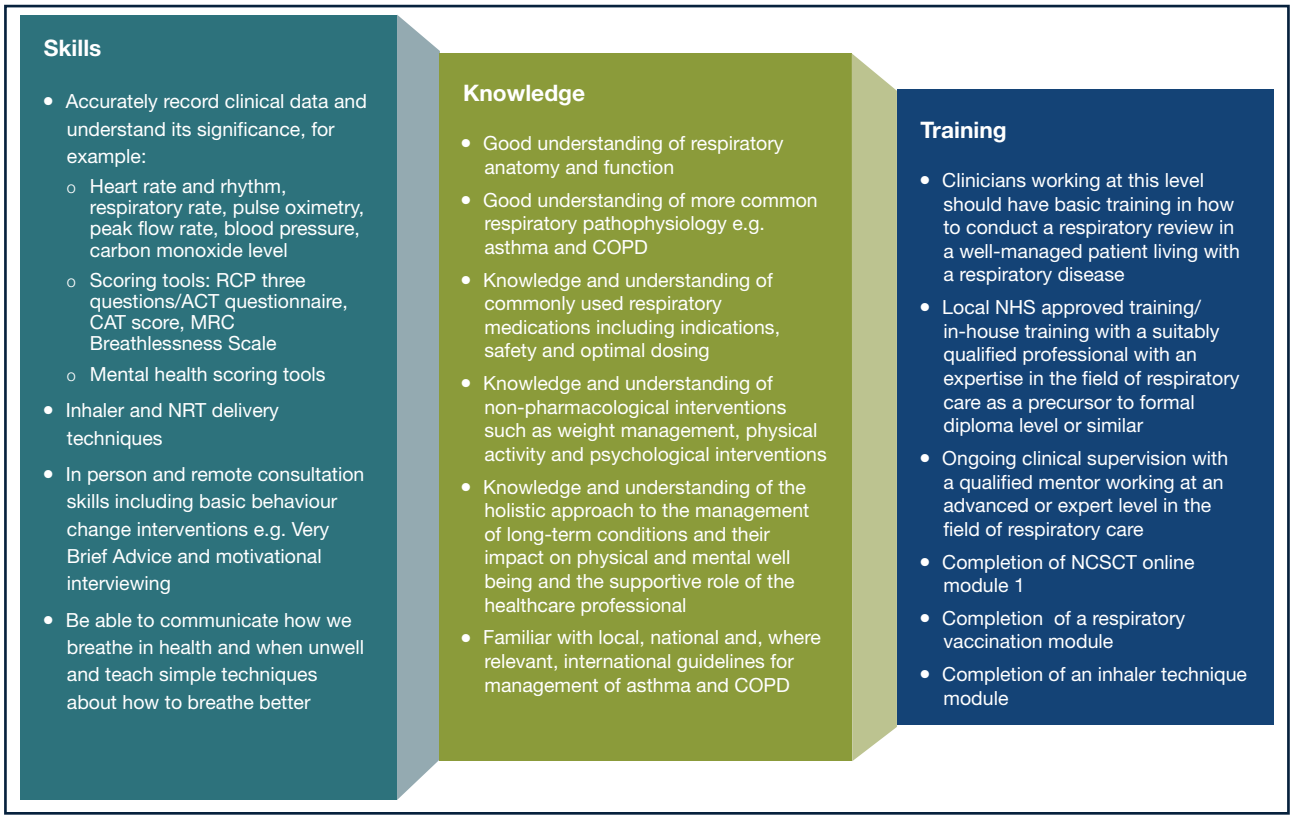
A recognition of one's own limitations and competencies is paramount and clinicians require access to an experienced mentor for advice and/or ongoing supervision and reflective learning.

Clinicians should regularly source training updates and consider a reflective CPD journal using real case studies. These can be discussed during clinical supervision to support safe practice and be part of a professional revalidation process where necessary.

Clinicians remain accountable for their own practice and to their regulating body and must work to local and national protocols and guidelines.

Desirable skills, knowledge and training

- Completion of or working towards completion of respiratory assessment module/s, for example:
  - Diploma module in asthma
  - Diploma module in COPD
  - Module in current respiratory related vaccination
  - Diploma module in child and young persons asthma care
  - Remote consultation methods
  - NCSCT Training and Assessment Programme for Smoking Cessation or equivalent (https://www.ncsct.co.uk/)
  - ARTP spirometry certification +/- CYP component



Key knowledge and skills required for clinicians providing advanced respiratory care

Definition of level

Individuals will be able to work autonomously with patients living with respiratory disease (e.g. running chronic respiratory clinics). This includes – but is not limited to – responsibility for assessing, treating, reviewing and providing ongoing management and support including treating tobacco dependency (with support/supervision where necessary).

These clinicians have the ability to diagnose or question a current diagnosis in someone who:

- Presents with respiratory symptoms
- Present with symptoms or treatment responses inconsistent with current diagnosis
- Can recognise, assess and recommend treatment for acute exacerbation or change in status of chronic respiratory diseases

Key considerations

Clinicians working at this level should be competent in the criteria expected for standard level, plus:

- Advanced clinicians are expected to act as the role model in a team and, as such, provide education and clinical advice to colleagues responsible for the care of patients living with respiratory conditions.

Desirable skills, knowledge and training

- Degree level module in acute and chronic respiratory assessment and/or conditions such as COPD and asthma and acute respiratory infection (including COVID-19) or acute breathlessness
- Clinical examination skills including percussion and auscultation
- Understanding of possible differential diagnoses for respiratory symptoms such as acute and chronic breathlessness, wheeze and cough (e.g. heart failure, gastric reflux, anaemia)
- Nationally recognised spirometry certificate (minimum in performing test and referring to qualified mentor for interpretation)
- Able to mentor and advise clinicians providing standard levels of respiratory care

All skills, knowledge and training required for standard level plus:

Skills

- Able to perform spirometry with reversibility testing correctly
- Making referrals for relevant investigations e.g. FBC, BNP and CXR
- Making referrals for pulmonary rehabilitation and respiratory specialist review e.g. recognises criteria for severe or difficult asthma
- Making referrals to appropriate mental health and social care professionals
- Able to formulate and review self-management plans with patients and their families/carers

Knowledge

- Specialist knowledge and understanding of anatomy and physiology with regard to the cardiopulmonary system e.g. able to explain atrial fibrillation and impact of deconditioning on skeletal muscle
- Specialist knowledge and understanding of the pathophysiology of both common and less common respiratory conditions e.g. interstitial lung disease and bronchiectasis
- In-depth knowledge of evidence-based treatments for tobacco dependency/ to assist smoking cessation attempts
- Understands how to individualise pharmacological and non pharmacological options in asthma and COPD according to patient status
- Specialist knowledge and understanding of the psychosocial implications of respiratory disease and its impact on the person and their family and carers?

Training

- Diploma level clinical skills module/s in respiratory assessment relevant to practice; asthma; COPD
- Completed NCSCT Training and Assessment Programme for Smoking Cessation and be on the NCSCT register of certified practitioners Level 2

Key knowledge and skills required for clinicians providing expert respiratory care

Definition of level

For clinicians working at a high level with clinical complexity requiring extensive multifaceted intervention including those:

- With worsening/progressive/poorly managed symptoms
- Living with co-morbidities/multiple diagnoses
- Requiring advanced care planning
- Living with mental health conditions including but not limited to addiction and substance misuse
- Requiring oxygen therapy, biologic medications, surgical interventions

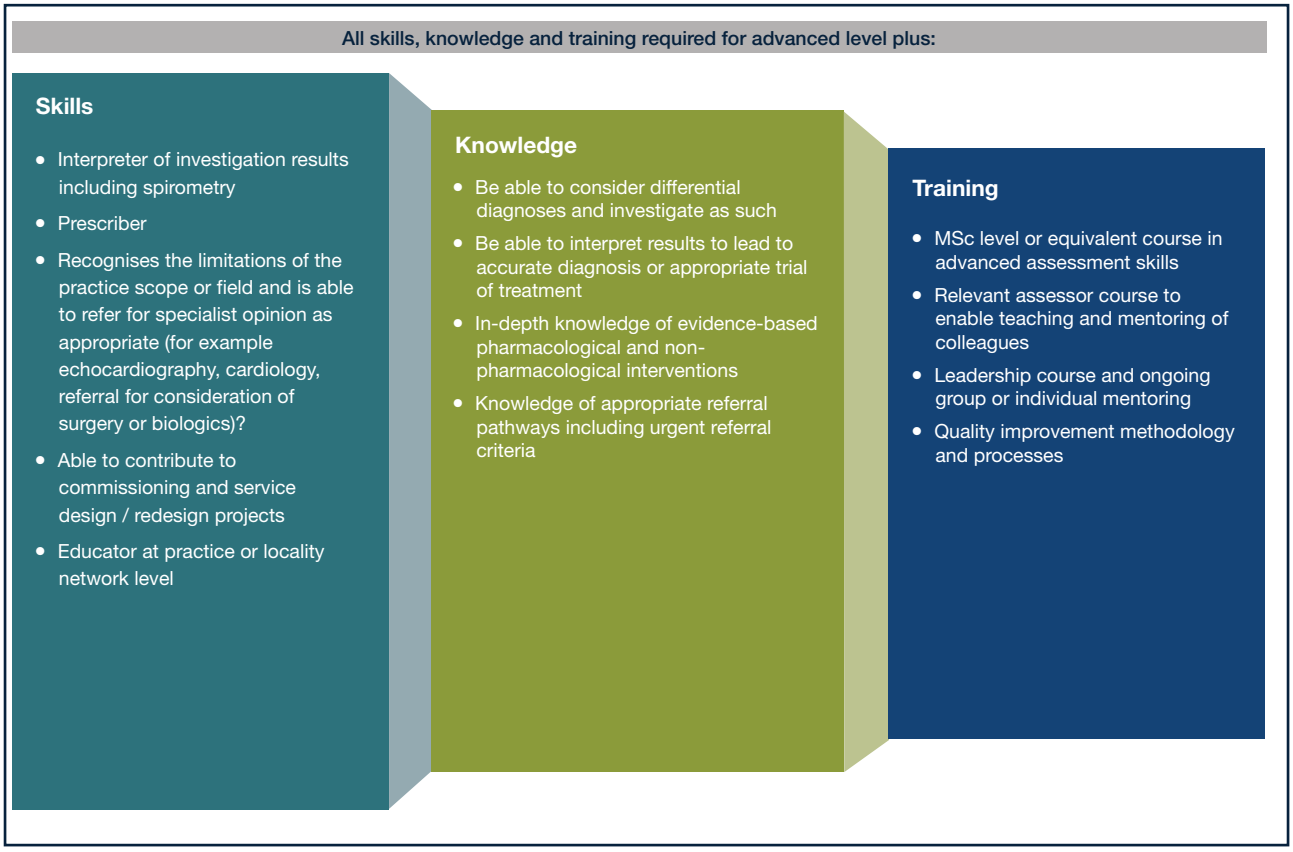
Key considerations

Clinicians working at this level should be competent in the criteria expected for advanced level plus:

- Have good understanding of the identification and basic management of co-morbidities in patients living with respiratory disease?
- Demonstrate the ability to work with patients living with both respiratory disease and mental health conditions and liaise closely with members of the MDT to ensure high standards of care and exceptional communication between disciplines.
- Recognises the limitations of the practice scope or field and is able to refer for specialist opinion as appropriate?
- Provides shared care with hospital services

Desirable skills, knowledge and training

- Masters level module/s clinical assessment skills in respiratory assessment/asthma/COPD
- Independent/non-medical prescribing qualification
- Leadership involvement in primary care networks, patient safety, clinical governance
- Understanding audits, risk stratification and quality improvement tools and strategy and their uses.
- Understands and critiques primary research in relevant fields
- Able to interpret tests (including blood, radiology and spirometry) in a clinical context



Training Providers

PCRS-UK does not take responsibility for assessing individual skill levels or competencies.

The following core organisations offer accredited respiratory training programmes:-

- Association of Chartered Physiotherapists in Respiratory Care (http://www.acprc.org.uk)
- Association for Respiratory Technology and Physiology (http://www.artp.org.uk)
- Education for Health (https://www.educationforhealth.org)
- NCSCT (http://www.ncsct.co.uk)
- Primary Care Respiratory Training Centre (http://pcrtc.co.uk/pcrtc/)
- Rotherham Respiratory (https://rotherhamrespiratory.com/)

There are a number of other regional and national organisations, professional bodies, academic universities and charities who offer respiratory training programmes. Individuals can check with their local postgraduate deanery, professional body and employer for information on local and national courses.

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What Three Things?

Our new series to support delegation

Ren Lawlor, *Advanced Nurse Practitioner and PCRS Education Lead*

The Fit to Care document was initially developed to guide and support clinicians working with patients with respiratory disease. Since it's first publication, primary care has seen huge changes in the dynamics of the workforce providing this care. The document now applies equally to doctors, nurses, pharmacists, physiotherapists, paramedics and other allied healthcare professionals involved in the care of people with respiratory conditions. This variation in disciplines aligns with national programmes aimed at improving patient care such as Getting it Right First Time – GIRFT (NHS England & NHS Improvement) and the Primary Care Improvement Portfolio (Health Improvement Scotland). These programmes work on the principle that a patient should expect to receive equitable, timely and effective investigations, treatment and outcomes wherever care is delivered, irrespective of who delivers that care. The programmes also advocate the sharing of responsibility within practice teams and the wider primary care system, and promoting effective multidisciplinary working.

As this diversity of healthcare professionals continues to grow within primary care, it is essential that those who have responsibility for the delegation and supervision of clinical interactions between members of staff and patients, not only have sufficient knowledge and expertise to do so safely, but are also willing to provide education, updates, and support to ensure accurate approaches to safe practice. The skills of supervision are often easier for clinicians in your own professional speciality but with many other disciplines working in primary care good supervision requires an understanding of the training and skills of other professional groups as well as understanding the experience that each individual brings. It is easy, but dangerous, to assume that clinicians have all been trained in and think in similar ways.

To help with this responsibility Primary Care Respiratory Update will be providing you with regular suggestions of how you can help your colleagues. This regular piece will consider three things that you can incorporate into clinical supervision, whole team meetings or protected learning times.

This issue's What Three Things: Asthma Control and Allergy

1. Monitoring asthma reviews – What about the nose?

Co-morbid allergic and non-allergic rhinitis affect over 80% of people with asthma. People with asthma with severe rhinitis symptoms are four times more likely to have poorly controlled asthma than those without.[1] Patients with nasal symptoms are often chronic mouth breathers meaning particles bypass nasal filtration and go straight to the lungs. Adults with concomitant allergic rhinitis and asthma had more annual visits to their general practitioner and increased risk of being hospitalised compared to adults with asthma alone.[2] Patients with asthma and allergic rhinitis also receive 50% more prescription for asthma-related medications annually than those with asthma only.[3]

This research demonstrates how important and effective having a discussion with patients around allergy and rhinitis can be. The potential risks of not exploring these

symptoms and treating them, is an increased reliance on reliever inhalers and/or an overall increase in inhaled corticosteroid potency to gain symptomatic control. Advising clinicians to open discussions with patients about nasal symptoms can avoid over treatment of inhalers and improve quality of life particularly in hay fever season.

See pages 6-17 for more information on Asthma and Allergy.

2. Hay fever and asthma

Hay fever affects between 10-15% of children and approx. 26% of adults although recent data suggests this could be as high as 49%. The length, duration, and intensity of the pollinating season varies from year to year, which can complicate identification of the responsible allergen. Trees generally pollinate in the spring, grasses pollinate at the end of spring and beginning of summer and weeds may pollinate from early spring to late autumn. This means that although most people consider hay fever to be a 'spring' condition it can actually impact all year round. The 2016 revision of the Allergic Rhinitis and its Impact on Asthma (ARIA) international guideline[4] notes that asthma is found in 15–38% of people with allergic rhinitis.

Although antihistamine treatment is a first line consideration for this population there are other approaches that patients can take to avoid/reduce the impact:

- Wear a mask, wraparound sunglasses and or a hat with a peak or large brim to keep pollen allergens out of the eyes and face.
- On high pollen days, shower, wash hair and change clothes when you arrive home.
- Keep windows closed. This is most important in the early mornings, when pollen is being released, and in the evening when the air cools.
- Avoid mowing lawns or raking leaves.
- Avoid drying clothes/linen outside when pollen counts are high.
- Wipe pets down with damp cloth to remove pollens.

For more information on managing hay fever see pages 6-10.

3. Asthma and Inhaler Technique – Potential implications of sub optimal technique

Inhaler errors are common with between 52% and 87% depending on the device in use. Ensuring that all clinicians are prepared to provide guidance and direction on inhaler use and nasal spray use can help to reduce:

- Poor symptom control
- Increase in side effects
- Increased dose
- Escalation of treatment
- Increased hospital admission
- Increased costs

93% of HCPs make at least one error throughout the seven steps of correct actuation of a pMDI so teaching and updating members of staff about the correct techniques can be beneficial for patients during reviews. Reference to online resources such as RightBreathe (https://www.rightbreathe.com/) and the UK Inhaler Group (https://www.ukinhalergroup.co.uk/) can help with training.

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PCRS News Round-Up

ALL CHANGE AT PCRS COMMITTEES

The importance of the work of our Executive and sub-committees cannot be over-emphasised and we are truly grateful for their expertise and the valuable time they give to PCRS. This year, in addition to a number of re-appointments of existing members we have welcomed six new members to our committees including Dr Maisun Elftise to the Executive, Corrine Beirne and Alicia Piwko to the Education committee, Helen Cummings to the service development committee, Hetal Dhruve to the respiratory leaders programme board and Maisun Elftise and Andy Dickens to the conference organising committee. Our multidisciplinary committees help ensure we stay relevant to all healthcare professionals working in primary and community respiratory care. Our thanks go to all those committee members who have completed their terms of office.

PCRS CHALLENGING COPD PERCEPTIONS - TRAIN THE TRAINER EVENT

This year we'll be undertaking a new campaign which aims to challenge the perceptions that exist in COPD and explore how, with the right support, treatment and help, people with COPD can live a full and active life. We'll be launching a series of videos, webinar and resources in due course but in the meantime, if you have an example that you'd be willing to share on how an intervention you have made has improved the quality of life of a patient do tell us about it (https://bit.ly/3sGCex5) and you could feature in one of our new video shorts.

As part of this new campaign, PCRS is delighted to invite members to a brand new 'train the trainer' programme. This exclusive and fantastic two-day residential, free-to-members, course on 10th-11th October will provide participants with training and development skills as well as deepening clinical insight and expertise on COPD. Participants will be equipped to share new clinical insights with peers at a regional and wider level and support the national movement to facilitate and empower people with COPD to live well. Places are limited so book early - https://bit.ly/3litNUL.

ARE YOU A GREENER RESPIRATORY HEALTHCARE HERO?

We are looking for Greener Respiratory Healthcare Heroes to share their experiences. Whether you've started small with recycling bins in communal areas or have aimed higher and joined forces with local communities to address air pollution, we want to celebrate your achievements. Complete this simple form (just 3 questions - https://bit.ly/3LjWNpx) and let us know briefly what you've been up to and we'll be in touch.

JUST A FEW DAYS LEFT TO TAKE UP THIS SPECIAL OFFER

If you introduce someone new to PCRS and they join as a paid member before 30 June, we'll give you £5 off your next annual membership fee. Introduce more than one new member and we'll give you £10 off your next annual fee. Simply get the new member(s) to add your name and email where indicated in the sign-up box and, subject to their joining and paying before 30 June 2022, we'll arrange for you to receive the discount. Anyone joining before 30 June will be eligible for the early bird rate at conference so there's never been a better time to sign up.

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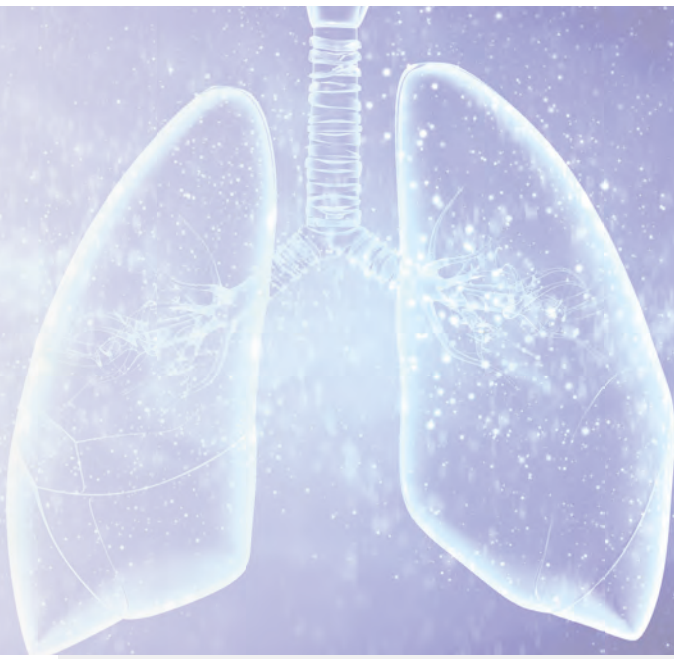
Call for Papers



npj Primary Care Respiratory Medicine is an open access, online-only, multidisciplinary journal dedicated to publishing high-quality research in all areas of the primary care management of respiratory and respiratory-related allergic diseases. Papers published by the journal represent important advances of significance to specialists within the fields of primary care and respiratory medicine. We are particularly interested in receiving papers in relation to the following aspects of respiratory medicine, respiratory-related allergic diseases and tobacco control:

- Epidemiology
- Prevention
- Clinical care
- Service delivery and organisation of healthcare (including implementation science)
- Global health

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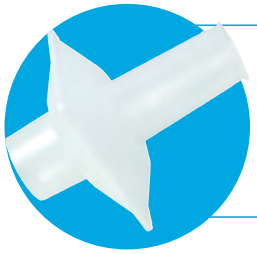

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