

GETTING THE BASICS RIGHT



Managing dilemmas in respiratory tract infections and antibiotics prescribing

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Respiratory tract infections (RTIs) are the commonest acute problem dealt with in primary care. Most will be self-limiting, and in this case the risk of complications is likely to be small.

The dilemma for the clinician, however, is being able to spot whether an apparently minor RTI may be something more complicated. Careful decisions also have to be made about when to prescribe antibiotics. Antimicrobial resistance is one of the biggest threats to humanity. On 21 September 2016, 193 countries in the United Nations agreed a landmark declaration to rid the world of drug-resistant infections or 'superbugs'. The majority of antibiotics in the UK are prescribed in primary care and we all have a responsibility to prescribe responsibly.

What is a self-limiting infection?

Self-limiting RTIs will resolve on their own without treatment and will have no long-term effect on a person's health.

NICE says the duration of uncomplicated RTIs are:

- Acute otitis media: 4 days
- Acute sore throat/acute pharyngitis/acute tonsillitis: 1 week
- Common cold: 10 days
- Acute rhinosinusitis: 2.5 weeks
- Acute cough/acute bronchitis: 3 weeks

The clinical assessment should include a history (presenting symptoms, use of over-the-counter or self-medication, previous medical history, relevant risk factors, relevant comorbidities) and examination to identify relevant clinical signs

(temperature, respiratory rate and capillary refill time in children under 5).

It is important to understand why the patient is presenting at this point in their illness and what their ideas, concerns and expectations are.

The NICE 2008 'Respiratory tract infections (self-limiting): prescribing antibiotics' guideline says that, while most patients can be reassured that they are not at risk of major complications, the difficulty for prescribers lies in identifying the small number of patients who will suffer severe and/or

prolonged illness or, more rarely, go on to develop complications. The Guideline Development Group struggled to find much good evidence to inform this issue and says this is an area where further research is needed.

How to deal with patients expecting an antibiotic

Dr Gruffydd Jones, GP Principal and Joint Policy Lead PCRS-UK, says many patients will come in expecting antibiotics. The clinician should evaluate whether immediate antibiotics are needed (see Box). If not needed, the clinician should address their concerns and expectations, explain why an antibiotic will not cure their symptoms and educate them that their condition will be self-limiting.



When should antibiotics be prescribed?

No antibiotics or delayed antibiotic prescriptions should be given when patients have:

- Acute otitis media
- Acute sore throat/acute pharyngitis/acute tonsillitis
- Common cold
- Acute rhinosinusitis
- Acute cough/acute bronchitis

Unless patients are systemically unwell and/or have:

- Bilateral acute otitis media (in children younger than 2 years)
- Acute otitis media (in children with otorrhoea)
- Acute sore throat/acute pharyngitis/acute tonsillitis when three or more Centor criteria are present:
 - Fever (>38°C)
 - Tender cervical lymphadenopathy
 - Tonsillar exudate
 - Absence of cough
- Signs of community acquired pneumonia (CAP) (see below), in which case they should be considered for an immediate antibiotic prescribing strategy

Or:

- Patients have signs of developing complications
- If the patient is at high risk of serious complications because of pre-existing comorbidity. This includes patients with significant heart, lung, renal, liver or neuromuscular disease, immunosuppression, cystic fibrosis and young children who were born prematurely
- If the patient is older than 65 years with acute cough and two or more of the following criteria, or older than 80 years with acute cough and one or more of the following criteria:
 - hospitalisation in previous year
 - type 1 or type 2 diabetes
 - history of congestive heart failure
 - current use of oral glucocorticoids

The Royal College of General Practitioners has produced a toolkit – TARGET (Treating Antibiotics, Guidance, Education, Tools). It includes a range of resources that can be used to support prescribers' and patients' responsible antibiotic use and aid with difficult conversations with regard to antibiotic prescribing. These include leaflets for

An online tool, the Fever PAIN Clinical Score, can also be used to determine whether or not a patient needs an antibiotic when they present with a sore throat. The score consists of five items:

- Fever during previous 24 hours
- Purulence
- Attend rapidly (≤ 3 days)
- Very inflamed tonsils
- No cough/coryza

Using the sore throat tool enables rapid calculation of the score, gives a treatment guide and provides a summary to cut and paste into the notes.

the patients which aim to increase their confidence to self-care. They include information on illness duration, self-care advice, prevention advice and information on when to re-consult. Posters and videos for the TV in the waiting room are also available.

If the patient is still worried, issuing them with a delayed antibiotic prescription can be an effective strategy.

A paper published in the *BMJ* in March 2014 by Paul Little, Professor of Primary Care Research, University of Southampton and Chair of the NICE 'Respiratory tract infections (self-limiting): prescribing antibiotics' guideline, found that patients judged not to need immediate antibiotics but given a delayed antibiotic prescription resulted in fewer than 40% of patients using antibiotics.¹ Importantly, when these patients were interviewed again they said they would be less likely to come back to the doctor in future because they understood that antibiotics were unlikely to resolve a self-limiting infection. Patients given a delayed antibiotic had the same symptom outcomes as those given an immediate prescription.

When the no antibiotic prescribing strategy is adopted, patients should be offered:

- Reassurance that antibiotics are not needed immediately because they are unlikely to make a significant difference to symptoms and may have side effects
- A clinical review if their condition worsens or becomes prolonged

When the delayed antibiotic prescribing strategy is adopted, patients should be offered:

- Reassurance that antibiotics are not needed immediately because they are unlikely to make a significant difference to symptoms and may have side effects
- Advice about using the delayed prescription if symptoms are not starting to settle in accordance with the expected course of the illness or if a significant worsening of symptoms occurs
- Advice about re-consulting if there is a significant worsening of symptoms despite using the delayed prescription.

Community Acquired Pneumonia (CAP)

The typical symptoms of CAP are acute onset cough, fever, breathlessness and pleuritic chest pain. The BTS Guidelines on Community Acquired Pneumonia 2009 state that a diagnosis of CAP should be considered in the presence of typical symptoms and a patient who is systemically unwell (eg, temperature >38°C), presence of new focal signs in the chest and no other obvious explanation for these signs.

Recent NICE guidelines on pneumonia say that in primary care a chest X-ray is not essential to make a diagnosis of CAP. They recommend that a point of care C-reactive protein (CRP) blood test should be used to help decide whether patients presenting with mild pneumonia need antibiotics. However, Dr Gruffydd Jones says this is an extra refinement which is not currently available for most clinicians in UK general practice. The test is carried out routinely in a number of other countries but there is a cost issue about buying the equipment for GP surgeries in the UK. For many GPs, CRP testing has to be carried out in a local laboratory.

NICE advises:

- Do not routinely offer antibiotics if the CRP concentration is <20 mg/L
- Consider a delayed antibiotic prescription if the CRP concentration is 20–100 mg/L
- Offer antibiotic therapy if the CRP concentration is >100 mg/L

NICE also advises GPs to use the CRB65 risk score when making a judgement about whether patients should be referred to hospital. The CRB65 score assigns points based on the criteria of **C**onfusion, raised **R**espiratory rate (>30/min in adults) low **B**lood pressure (<90/60) and older age (≥65). NICE says GPs can consider home-based care for patients with a score of zero, but should consider hospital assessment for other patients, particularly those with a score of two or higher.

Dr Gruffydd Jones says that clinical judgement is still important, especially in the systemically unwell patient.

Treatment of CAP

The vast majority of patients with CAP have a mild form of the disease and can be managed effectively in the community by GPs.

NICE says that, if an antibiotic is needed, patients should be given a five-day course of a single antibiotic (eg, amoxicillin 500 mg tds or clarithromycin 500 mg tds) and asked to come back if their symptoms do not improve within 3 days. Patients should be told their fever will subside within a week but it may take up to 6 months for them to get completely back to normal.

Management of acute cough in children and adults

Acute cough is a common presentation, and whether it's a child or an adult, it is usually associated with a viral upper RTI. In the absence of any significant co-morbidity, acute cough is likely to be self-limiting but 10–15% of patients return within 1 month.

Dr Gruffydd Jones says the most important differential diagnosis of acute cough in adults is: Does the child have pneumonia and are they are going to require antibiotics?

He recommends the following safety net approach: ask patients to report back if their cough is not better in 3 weeks because this may be the first indication of a chronic condition. In a child it could be the first presentation of asthma or bronchiectasis and it is important to remember an inhaled foreign body. In particular, a child who has a

persistent wet cough for more than 4 weeks may have persistent bacterial bronchitis, a condition which might need a 2–4-week course of broad-spectrum antibiotics.

In an adult it may be the first presentation of COPD, bronchiectasis or lung cancer. 'Red flags', which are indications for further investigation in adults, include haemoptysis, prominent systemic illness and suspicion of lung cancer.

Bronchiolitis

Bronchiolitis is the most common disease of the lower respiratory tract during the first year of life.

Symptoms include:

- a rasping and persistent dry cough
- rapid or noisy breathing
- brief pauses in breathing
- feeding less and having fewer wet nappies
- vomiting after feeding
- being irritable

In primary care the condition may be confused with the common cold, although the presence of lower respiratory tract signs (wheeze and/or crackles on auscultation) in an infant would be consistent with bronchiolitis.

The symptoms are usually mild, may only last a few days and can be managed at home without needing treatment. In some cases, the disease can cause severe illness and infants will need to be treated in hospital.

Bronchiolitis is a viral infection so antibiotics are not indicated. NICE says corticosteroids are not recommended.

Learning objectives

After reading this article you will understand:

- How to deal with a self-limiting RTI
- When antibiotics should be prescribed for an RTI
- How to deal with patients who demand an antibiotic when they don't need one

Ideas for further study and reflection:

- Conduct a search of patients who were given antibiotics for an RTI and ask yourself whether those antibiotics were prescribed appropriately
- Read the NICE guideline 'Antimicrobial stewardship: system and processes for effective antimicrobial medicine use' to find out more about how to use antibiotics effectively
- Are you confident you could spot when a respiratory infection is CAP? Read up the BTS and NICE guidance

References

1. Little P, Moore M, Leydon G, *et al.* Delayed antibiotic prescribing strategies for respiratory tract infections in primary care: pragmatic, factorial, randomised controlled trial. *BMJ* 2014;**348**:g1606 <http://www.bmj.com/content/348/bmj.g1606>

The advice in this article has been collated from the following guidelines:

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- Pneumonia in adults: diagnosis and management. NICE guideline CG191, December 2014. <https://www.nice.org.uk/guidance/cg191>
- BTS guidelines on the management of community-acquired pneumonia in adults 2009. <https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/community-acquired-pneumonia-in-adults-guideline>
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- BTS guidelines for the management of community acquired pneumonia in adults: update 2009. http://thorax.bmj.com/content/64/Suppl_3/iii1.full
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- Antimicrobial stewardship: system and processes for effective antimicrobial medicine. NICE guideline NG15, August 2015. <http://www.nice.org.uk/guidance/ng15>
- TARGET Antibiotic Toolkit. <http://www.rcgp.org.uk/clinical-and-research/toolkits/target-antibiotic-toolkit.aspx>
- Fever PAIN Clinical Score. <https://ctu1.phc.ox.ac.uk/feverpain/index.php>

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Feedback from our Lay Reference Group

We asked our Lay Reference Group for their views on antibiotics and delayed prescriptions. They all said they were aware of the issues around antimicrobial resistance and would take antibiotics only if they really needed them.

Barbara Preston, who has bronchiectasis, says she routinely takes azithromycin 3 times a week because this reduces the number of courses of other antibiotics she needs to take when she gets an infection from eight or nine to two to three a year. She says she needs to take antibiotics for minor infections otherwise they take a hold and then she has to take a stronger course of medication.

"I really worry about taking antibiotics so often, not so much for my sake, as I will almost certainly become immune to the antibiotics I take eventually, but for the future of world medicine. I do worry that I'm adding to the present crisis of antibiotic resistance," she says.

Amanda Roberts, who has asthma, is also reluctant to take antibiotics. On the few occasions she is struggling to keep a lid on her asthma despite stepping up her respiratory medications, she has been offered antibiotics by her GP but she says she only takes them 'in extremis'.

Neil Jackson, who has who has alpha-1 antitrypsin deficiency, says if he was given a delayed prescription for an antibiotic he would hope this would be accompanied by a detailed conversation with the prescriber about when to take it. He said he would also find it helpful for that information to be written down as he would probably forget it after leaving the surgery if an infection was making him feel poorly.

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