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.

However the dilemma for the clinician 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.

**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: 2½ 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 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 P CRS-UK, says many patients will come in expecting antibiotics. The clinician should evaluate whether immediate antibiotics are needed (see box) and if not address their concerns and expectations, explain why an antibiotic will
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

not cure their symptoms and educate them that their condition will be self limiting.

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. 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 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 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 (e.g. temperature > 38 deg 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 isn’t 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 C-reactive protein concentration is less than 20 mg/litre
- consider a delayed antibiotic prescription if the C-reactive protein concentration is between 20 and 100 mg/litre
- do offer antibiotic therapy if C-reactive protein concentration is greater than 100 mg/litre

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 Confusion, raised Respiratory rate (>30/min in adults) low Blood 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.

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 if an antibiotic is needed patients should be given a five day course of a single antibiotic (e.g. amoxicillin 500mg tds or Clarithromycin 500mg tds) and asked to come back if their symptoms do not improve within three days. Patients should be told their fever will subside within a week but it may take up to six 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 clearing up within three weeks. However, 10 to 15% of patients return within one month.

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

He recommends a safety net approach - ask patients to report back if their cough is not better in three 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 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. Indications which require further investigation in adults include suspicion of inhaled foreign body or haemoptysis, prominent systemic illness, suspicion of lung cancer (Red Flag).
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 though 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 and 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.

Reference

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