NPS NEWS
National Prescribing Service Newsletter

63 2009

ISSN 1441-7421 June 2009

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Managing expectations for antibiotics in respiratory tract infections

Most upper respiratory tract infections resolve without antibiotics but health professionals can feel pressure to prescribe unnecessary antibiotics for sore throat, cough or cold. This *NPS News* explores the limited role of antibiotics in respiratory tract infections and provides strategies that may help convince patients that antibiotics are unnecessary.

Symptoms of respiratory illnesses take time to resolve

Many acute respiratory tract infection symptoms resolve within a week but some (e.g. cough) may linger for 3–4 weeks (Table 1). People who have had symptoms for longer or perceive their symptoms as being more severe are more likely to consult a general practitioner.[1] About 20% of people revisit their GP for the same symptoms within a month.[2]

Table 1: Duration of symptoms in respiratory tract infections

Condition	Duration
Common cold symptoms	Typically 7–10 days but can be up to 3 weeks[3-5]
Acute sore throat / pharyngitis / tonsillitis	1 week[3,4,6]
Acute cough	May be up to 3–4 weeks[3,7,8]
Acute sinusitis	2–3 weeks[3,4,9]
Acute otitis media	1–4 days[3,4,10]

Providing realistic information about the expected duration of symptoms reduces re-consultation rates and may reduce the expectation for antibiotics.[2] Yet, health professionals may not provide this information or may underestimate the time for full recovery.[7,11] This can leave patients with the impression that symptoms should get better in a few days and that symptoms that don't resolve in this time require further medical attention and antibiotic treatment.

Antibiotics are of limited value for most people

Antibiotics are not usually indicated for sore throat or acute cough: they may shorten the illness by 1 day but may also cause adverse effects (e.g. diarrhoea, rash).[6,12] Almost 200 people with acute sore throat must receive antibiotics to prevent 1 case of acute otitis media (AOM).[6] Most cases of AOM resolve spontaneously and 15 children must receive antibiotics to prevent 1 child having some pain after 2 days.[13] Antibiotics do not appear to improve hearing problems associated with AOM.[13] Finally, antibiotics may offer some relief among people who have had acute sinusitis > 7 days but improvement rates are similar at 2 weeks with or without antibiotics (90% vs 80%).[9]

NPS is an independent, non-profit organisation for Quality Use of Medicines, funded by the Australian Government Department of Health and Ageing.

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When should I consider antibiotics?

Antibiotics should be considered in some patients (Table 2). In particular, antibiotics should be given to Aboriginal and Torres Strait Islander children with otitis media — due to a high risk of suppurative complications — or those who are living in remote areas with a high prevalence of rheumatic fever.[4]

Table 2: When to consider antibiotics[4,14]

Condition	Antibiotics if…	Preferred antibiotic	For symptomatic relief
Acute sore throat / pharyngitis / tonsillitis	• Aboriginal and Torres Strait Islander people, aged 2–25 years, living in remote communities • Existing rheumatic heart disease • Scarlet fever • Peritonsillar abcess (quinsy) • Tonsillitis with confirmed or highly suspected group A *Streptococcus* infection (see below)	**Adults** Penicillin V 500 mg orally, 12-hourly for 10 days **Children** Penicillin V 10 mg/kg up to 500 mg orally 12-hourly for 10 days	Paracetamol or ibuprofen Quinsy usually requires drainage in hospital.
Acute otitis media	• Aboriginal and Torres Strait Islander children • Children who are systemically unwell (i.e. vomiting and fever) • Children < 6 months • Children 6–24 months with symptoms that last more than 24 hours • Children > 2 years with symptoms that last more than 48 hours	**Adults** Amoxycillin 500 mg 8-hourly for 5 days **Children** Amoxycillin 15 mg/kg up to 500 mg orally 8-hourly for 5 days	Paracetamol or ibuprofen
Sinusitis	Consider antibiotic therapy when there are at least 3 of the following features: • persistent mucopurulent nasal discharge (> 7–10 days) • facial pain • poor response to nasal decongestants • tenderness over the sinuses, especially unilateral maxillary tenderness • tenderness on percussion of maxillary molar and premolar teeth that cannot be attributed to a single tooth	**Adults** Amoxycillin 500 mg 8-hourly for 5–7 days **Children** Amoxycillin 15 mg/kg up to 500 mg orally 8-hourly for 5–7 days	Paracetamol or ibuprofen Topical or oral decongestants may relieve symptoms

What if I suspect streptococcal sore throat?

Acute sore throat is usually viral but may also be due to group A *Streptococcus*. Antibiotics are an option for people with confirmed or suspected group A *Streptococcus*.[4] However, the natural history of symptoms in untreated people with and without group A *Streptococcus* is similar; most are asymptomatic within a week.[6]

Symptoms associated with group A *Streptococcus* infections are fever > 38°C, exudate on the tonsils, tender cervical lymphadenopathy and absence of cough.[3,4]

Children aged 3–12 years and those in close contact with someone who has had streptococcal sore throat are also more likely to be infected with group A *Streptococcus*.[4,15]

The rationale for treating streptococcal sore throat with antibiotics was to prevent rheumatic fever but this is now rare in the general population.* The risk of adverse effects from antibiotics probably outweighs any benefit in preventing rheumatic fever in the general population.[4] However, antibiotics should be prescribed for children and adolescents from remote Aboriginal and Torres Strait Islander communities as rheumatic fever is much more common in these communities.[4,16]

* The best data comes from the Northern Territory. In 2002, there were no cases of acute rheumatic fever in non-Indigenous children compared to an incidence of 346 per 100 000 Aboriginal and Torres Strait Islander children aged 5–14 years.[16]

Infection with Epstein-Barr virus (EBV) may cause severe pharyngitis. Glandular fever should be suspected in adolescents and young adults who have fever, fatigue, malaise, pharyngitis, and cervical or generalised lymphadenopathy. Antibiotics are not indicated for the treatment of glandular fever.[4]

Penicillin V twice daily for 10 days

Prescribe penicillin V (phenoxymethylpenicillin) if treating streptococcal sore throat. Penicillin V has proven efficacy, a narrow antimicrobial spectrum and is inexpensive.[17]

Twice-daily dosing is as effective as 3–4-times-daily dosing.[4] Prescribe 500 mg (child: 10 mg/kg up to 500 mg) orally, 12-hourly for 10 days [4]

Amoxycillin has a higher rate of adverse effects than penicillin V.[18] It is also likely to cause a severe rash if given to a person with undiagnosed glandular fever.[4]

Help reduce antibiotic resistance by reserving macrolides for people who are allergic to penicillin.[19]

Cough and cold medicines

There is no good evidence for the effectiveness of over-the-counter cough and cold medicines.[20]

Over-the-counter cough and cold medicines may contain an antitussive, a sedating antihistamine, a decongestant, an expectorant or other compounds, either singly or in various combinations. Most of the medicines have been in use for over 40 years, so were approved before current regulatory requirements for demonstrating efficacy were in place.

If recommending a cough and cold medicine, choose a simpler formulation with ingredients you know well. Avoid recommending cough and cold combination products which include both an expectorant and an anti-tussive (such a combination is illogical) or an expectorant and an antihistamine (the anticholinergic effect of the antihistamine opposes the effect of the expectorant).

A home remedy such as honey and lemon is the simplest and cheapest treatment.[21]

Cough and cold medicines — not for infants under 2 years

There are rare reports of deaths and serious adverse effects (seizures, psychosis, ataxia) among very young children who have been given over-the-counter cough and cold medicines.[22-25] These were often associated with inadvertent or non-intentional overdose by carers who gave the infant more than one formulation, an adult formulation, or made dosage errors.[22,26]

Trials of these medicines in children, where they exist, are often small and of poor quality.[22] As there is little evidence that cough and cold medicines are effective and there is evidence of toxicity, Australian and US regulatory authorities advise that cough and cold medicines should not be given to infants under **2 years**.[26,27] UK authorities advise that these medicines should not be given to children under **6 years**.[28]

Advise parents of children > 2 years of age that there is little or no evidence that cough and cold medicines are effective.[20,28,29] If they are used parents should:

- not use more than one cough or cold medicine
- follow the instructions on the label precisely to avoid overdose
- never use medicines intended for older age groups.[26,27]

Symptomatic relief for children under 2 years

While there is limited evidence behind alternatives to cough and cold medicines for sick infants some practical suggestions for parents are to[29–31]

- Avoid smoking near their child.
- Comfort their child and calm them because breathing is harder if children are upset.
- Offer frequent, small drinks as these are often easier for children to consume when suffering a cold.
- Use saline nose drops (sodium chloride 0.9%) if a blocked nose is interfering with feeding. A few drops in each nostril just before feeding will loosen and liquefy the mucous.
- Place a pillow or blanket under a baby's mattress to elevate their head and allow them to breathe more easily.
- Use an occasional dose of simple paracetamol as per instructions to relieve pain.

A glimpse of what your patients think

The NPS has run the "Common colds need common sense" campaign annually since 2000. Surveys each year show that most consumers agree that antibiotics do not work on colds and that taking antibiotics for a cold has disadvantages. However, a third of consumers believes antibiotics have some advantages when used to treat a cold and may speed up or assist recovery.[32]

Managing patient expectations

Patients may not expect antibiotics yet some prescriptions may be written because of this perceived pressure. People who mention antibiotics do not necessarily expect to be prescribed one.[33] They may instead be seeking reassurance, advice, pain relief or a medical certificate.

Patient satisfaction with a consultation does not revolve around antibiotic prescriptions.[34] Patients are more likely to be dissatisfied if they feel the consultation is rushed or that their illness is not taken seriously.[34] Explaining why antibiotics are inappropriate, providing advice on analgesia and reassuring the patient may be as important.

Manage patient expectations by:

- Providing information on the expected course of the illness (Table 1).[34]
- Explaining that antibiotics are unlikely to shorten the illness or speed up a return to work or school.
- Advising on appropriate symptomatic relief (e.g. simple analgesia, saline for congestion).[34]
- Listing symptoms that warrant a return visit.
- Highlighting the advantages of not taking antibiotics — no side effects, cost savings and a reduced likelihood that antibiotics will fail if they needed for a serious illness in the future.

NPS publishes patient materials to explain how to treat the symptoms of colds without antibiotics. These resources can be ordered from NPS or downloaded (at www.nps.org.au/patient_leaflets).

'Wait-and-see' prescribing

'Wait-and-see' or delayed prescribing allows time for the natural resolution of symptoms. Patients fill their prescription only if symptoms persist or deteriorate after a specified time. Providing a delayed prescription offers an opportunity to educate patients about appropriate antibiotic use in acute respiratory illnesses.[35] Many who expect antibiotics are satisfied with a delayed prescription, regardless of whether they take the antibiotic.[3]

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The opinions expressed do not necessarily represent those of the reviewers.

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The information contained in this material is derived from a critical analysis of a wide range of authoritative evidence.
Any treatment decisions based on this information should be made in the context of the clinical circumstances of each patient.

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