
WHAT CAUSES SORE THROATS AND COUGHS?

Sore throats and coughs are remarkably common, and both can be caused by either viruses or bacteria. Viruses are the commonest cause of both throat infections and coughs or chest infections. Data from numerous studies suggests that viruses cause between 85-95% of throat infections in adults and children <5 years of age, and 70% of throat infections among individuals aged 5-15; the remaining proportions in both groups being caused by bacteria, usually a type of bacteria called group A Streptococcus.¹ Similarly, other evidence has shown that up to 80% of acute respiratory infections are caused by viruses, along with 75-85% of asthma exacerbations.

Whilst it is true that the overwhelming majority of sore throats, coughs, colds, and chest infections are caused by viruses, which are usually mild and self-resolving, it is important to be able to notice signs and symptoms which may indicate bacterial disease. Equally, it is good to be aware of when it is important to visit the GP even in the context of a likely viral illness.

HOW TO ASSESS WHETHER IT IS A VIRAL OR BACTERIAL CAUSE:

There are 2 symptom scoring systems you can use to assess the likelihood your sore throat is as a result of bacterial infection: FeverPAIN and Centor. Both produce a score out of 5, with higher scores indicating a higher likelihood of a bacterial cause.

FeverPAIN Criteria	Yes	No
Fever in the past 24 hours	1	0
Absence of cough or coryza	1	0
Symptom onset <= 3 days	1	0
Pus on tonsils	1	0
Sever tonsil inflammation	1	0

Centor Criteria	Yes	No
Age 3-14*	1	0
Temperature >38C	1	0
Absence of cough	1	0
Exudate on/swollen tonsils	1	0
Tender/swollen lymph nodes	1	0

*>45yrs constitutes a score of -1.

These scores are used in general practice to indicate the likelihood that throat infections, also called pharyngitis, are caused by Streptococcus bacteria. The Centor score is geared more towards children with pharyngitis and group A streptococcal infection specifically, whilst the FeverPAIN score has been developed to account better for a wider range of bacterial strains and ages. Scores from either system are used by healthcare professionals to inform how appropriate antibiotic use would be, and thus reduce inappropriate antibiotic prescribing: scores of 4+ are a good indication for antibiotics; 0-1 suggest no antibiotics should be needed; whilst 2-3 are less conclusive, meaning at the judgment of your doctor further tests or delayed antibiotic use may be appropriate (discussed further in delayed prescription).²

Both the FeverPAIN and Centor scores are valuable in predicting a viral or bacterial cause, though neither should be used to assess children under the age of 3, as bacterial infection is remarkably rare in this age group and will present differently. Similarly, both scores should be used with caution when determining the need for treatment in patients with symptoms worsening after three days, as this may be indicative of a more worsening bacterial infection.

ANTIBIOTICS ARE NOT EFFECTIVE AGAINST VIRUSES.

Prescribing antibiotics when a sore throat is caused by a virus will not help to fight the infection. Whilst antibiotics are a very broad group of drugs, they all work by targeting specific molecules within bacteria to kill them or prevent their growth. Not all antibiotics are effective against all bacteria but none of them are able to kill viruses.

Viruses do not have the specific features that antibiotics target in bacteria so these drugs will have no effect on viruses' ability to replicate, spread and cause infection. Whilst you may have had sore throats in the past for which antibiotics were prescribed and seemed effective, viral sore throats usually get better within a week (although an accompanying cough can last much longer) so the sore throat may have healed in the same amount of time without antibiotics. Furthermore, there are several disadvantages to the overuse of antibiotics, as discussed below, that make it important to limit any unnecessary use of antibiotics.

WHY AVOID ANTIBIOTIC OVERUSE?

Antibiotic overuse has several pitfalls. The immediate repercussion to you of using antibiotics when there is no underlying bacterial infection is that the side effects, naturally, outweigh the benefits, as there are no antibacterial actions from which to benefit. In the context of bacterial throat or chest infections, commonly prescribed antibiotics include amoxicillin, penicillin V, clarithromycin, and erythromycin. Common side effects of these antibiotics include diarrhoea, nausea, and vomiting, as well as dizziness, headache, and visual disturbance. Further to this, there also exists more uncommon but well-reported side effects such as inflammation of the bowel, joint pain, and anxiety.^{3,4}

Beyond the more immediate drawbacks of antibiotic overuse is the fact that unnecessarily taking antibiotics contributes to the development of antibiotic resistance. Antibiotic resistance refers to the change in bacteria over time that means antibiotics are no longer effective in killing said bacteria. These resistant bacterial strains become harder to treat in future as the antibiotic options available to tackle them become more limited.

DELAYED PRESCRIPTION AND TREATING VIRAL INFECTIONS.

One option for the treatment of sore throat that you can discuss with your GP is delayed, or 'backup', prescription. This is a prescription that is post-dated at the initial consultation and can be collected at a later date if symptoms change in accordance with instructions from your GP. This method of prescribing gives you the safety net of an antibiotic prescription whilst preventing unnecessary use.⁵

Other treatment for viral throat infections includes paracetamol (including both tablets and CALPOL®) and ibuprofen as well as anti-inflammatory mouthwash (e.g., Difflam™ Oral Rinse) and medicated lozenges to reduce pain. Making sure to drink lots of water and keep hydrated is also very important.

REFERENCES.

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