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Pharmacy First Clinical Pathways: Acute Sore Throat

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What we are going to cover

- Definition of a ‘sore throat’ and terminology
- Causes of sore throats
- Prevalence
- Complications
- Prognosis
- NHS Pharmacy First Pathway: Diagnosis
- NHS Pharmacy First Pathway: Management

Definition of a sore throat

- **Acute upper respiratory tract infection affects the mucosa of the throat.**

- Acute sore throat include:
  - **Acute pharyngitis:** inflammation of the part of the throat behind the soft palate (oropharynx).
  - **Tonsillitis:** inflammation of the tonsils. May occur in isolation or as part of a generalised pharyngitis.

[Kenealy, 2014; BMJ Best Practice, 2023a; BMJ Best Practice, 2023b]

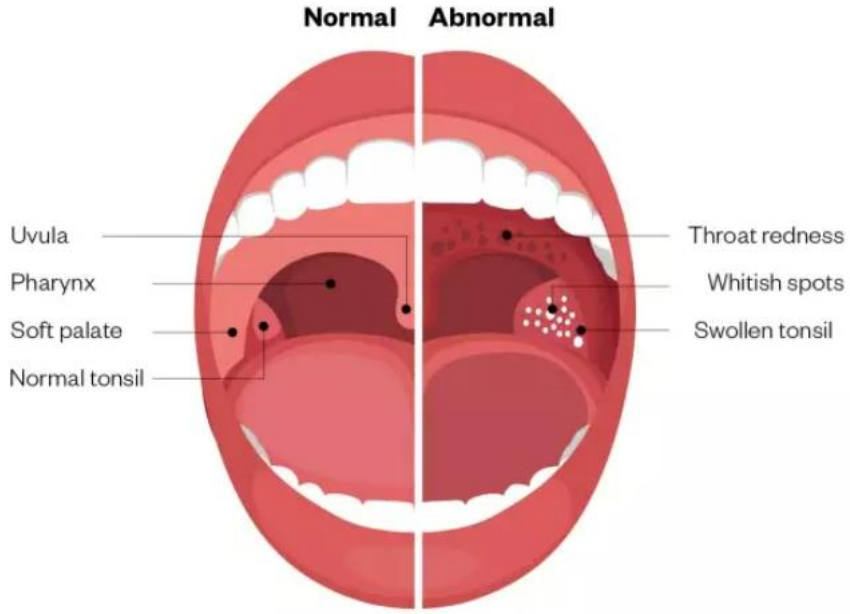

Figure: Characteristics of a normal throat compared with an infected sore throat

SOURCE: HTTPS://THEYDIFFER.COM/DIFFERENCE-BETWEEN-STREP-THROAT-AND-TONSILLITIS

https://cks.nice.org.uk/topics/sore-throat-acute/
https://pharmaceutical-journal.com/article/ld/case-based-learning-sore-throat

Causes of sore throat symptom

Acute sore throat is most commonly due to viral organisms [BMJ Best Practice, 2023a].

•Common infectious causes of acute sore throat include [Kenealy, 2014; BMJ Best Practice, 2023a]:

- **Rhinovirus, coronavirus, parainfluenza virus.**
- **Influenza types A and B.**
- **Streptococcal infection**.
  - **Group A** beta-haemolytic streptococcus (GABHS), also known as *Streptococcus pyogenes*, is the most common bacterial cause of sore throat and may cause pharyngitis, tonsillitis, or scarlet fever.
  - Group C and G beta-haemolytic streptococci may cause pharyngitis and tonsillitis and have been associated with food-borne outbreaks of pharyngitis.
- **Adenovirus,** leading to pharyngoconjunctival fever.
- **Herpes simplex virus type 1** (and more rarely type 2), leading to acute herpetic pharyngitis.
- **Epstein-Barr virus,** leading to infectious mononucleosis (glandular fever).
- *Fusobacterium necrophorum*, can (very rarely) lead to Lemierre syndrome (septic phlebitis of the internal jugular vein).

•Non-infectious causes are uncommon, and include [Kenealy, 2014]**:**

- Physical irritation (e.g. from a nasogastric tube or from smoke).
- Hayfever.
- Gastro-oesophageal reflux disease.
- Kawasaki disease — usually presents with fever and the diagnosis is established on the presence of clinical criteria. Throat symptoms may occur.
- Oral mucositis secondary to radiotherapy or chemotherapy, which may become secondarily infected.
- Haematological disorders [Viani and Donnelly, 1998]:
  - Leukaemia: ulceration and haemorrhage of the mucous membrane of the pharynx may occur.
  - Aplastic anaemia: sloughing and ulceration of the mouth and pharynx may occur.
- Drugs which can cause blood disorders (e.g. neutropenia, agranulocytosis, thrombocytopenia) leading to infection and acute sore throat. These include cytotoxic drugs, carbimazole, clozapine, and sulfasalazine [BNF, 2023].

https://cks.nice.org.uk/topics/sore-throat-acute/

Introduction

Sore throats are a common presentation in UK primary care, accounting for around 3.5 million appointments per year.[1] The majority of infections are viral, and risk of progression to serious complications is low (approximately 1% of patients).[2] Despite this, antibiotics are frequently prescribed; roughly 60%–70% of consultations in 2010–2011.[1] Sore throats are more frequently associated with inappropriate prescriptions than any other condition.[3]

https://bjgpopen.org/content/5/6/BJGPO.2021.0122

https://cks.nice.org.uk/topics/sore-throat-acute/

BJGP Open

RESEARCH

Diagnostic accuracy of Fever-PAIN and Centor criteria for bacterial throat infection in adults with sore throat: a secondary analysis of a randomised controlled trial

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Abstract

Background: Sore throat is a common and self-limiting condition. There remains ambiguity in stratifying patients to immediate, delayed, or no antibiotic prescriptions. The National Institute for Health and Care Excellence (NICE) recommends two clinical prediction rules (CPRs), FeverPAIN and Centor, to guide decision making.

Aim: To describe the diagnostic accuracy of CPRs in identifying streptococcal throat infections.

Design & setting: Adults presenting to UK primary care with sore throat, who did not require immediate antibiotics.

Method: As part of the Treatment Options without Antibiotics for Sore Throat (TOAST) trial, 565 participants, aged ≥18 years, were recruited on day of presentation to general practice. Physicians could opt to give delayed prescriptions. CPR scores were not part of the trial protocol but were calculated post hoc from baseline assessments. Diagnostic accuracy was calculated by comparing scores with throat swab cultures.

Results: It was found that 81/502 (16.1%) patients had group A, C, or G streptococcus cultured on throat swab. Overall diagnostic accuracy of both CPRs was poor: area under receiver operating characteristics (ROC) curve 0.62 for Centor; and 0.59 for FeverPAIN. Post-test probability of a positive or negative test was 27.3% (95% confidence interval [CI] = 6.0% to 61.0%) and 84.1% (95% CI = 80.6% to 87.2%) for FeverPAIN ≥4; versus 25.7% (95% CI = 16.2% to 37.2%) and 85.5% (95% CI = 81.8% to 88.7%) for Centor ≥3. Higher CPR scores were associated with increased delayed antibiotic prescriptions (χ^2 = 8.42, P = 0.004 for FeverPAIN ≥4; χ^2 = 32.0, P<0.001 for Centor ≥3).

Conclusion: In those who do not require immediate antibiotics in primary care, neither CPR provides a reliable way of diagnosing streptococcal throat infection. However, clinicians were more likely to give delayed prescriptions to those with higher scores.

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https://bjgpopen.org/content/5/6/BJGPO.2021.0122

Prevalence

•The highest incidence is in children during the winter months [BMJ Best Practice, 2023a].

•Recurrent sore throat has an incidence in general practice in the UK of 100 per 1,000 population per year [Georgalas et al, 2014].

•Bacterial pharyngitis is more common in winter (or early spring), while enteroviral infection is more common in the summer and autumn [BMJ Best Practice, 2023a].

•Colonisation with group A Streptococcus (leading to pharyngitis) reaches its peak in school-aged children (up to 20%) during the winter months. However, group A Streptococcus infection typically accounts for less than one third of all cases of acute pharyngitis [BMJ Best Practice, 2023a].

https://cks.nice.org.uk/topics/sore-throat-acute/

Complications

Complications of streptococcal pharyngitis/tonsillitis are rare.

- Scarlet fever is simply the presence of a characteristic 'scarlatina' rash due to infection with an erythrogenic toxin-producing strain of streptococci (usually group A but also can be type B or C).
- Suppurative complications include:
  - Otitis media (most common).
  - Acute sinusitis — rare, occurring in approximately 0.4% of untreated cases within 2 weeks of an acute tonsilitis.
  - Peri-tonsillar abscess (quinsy) — occurs in approximately 2% of cases within 2 months of an acute tonsilitis, and can pose a risk of airway compromise, aspiration of pus, and death due to vascular involvement.
- Non-suppurative complications include acute rheumatic fever, acute glomerulonephritis and reactive arthritis, although these are rare in developed countries.

•Pharyngitis/tonsillitis as a result of *Fusobacterium necrophorum* infection can (very rarely) lead to Lemierre disease (sepsis and jugular vein thrombosis).

[Georgalas et al, 2014; Kenealy, 2014; BMJ Best Practice, 2023a; BMJ Best Practice, 2023b]

https://cks.nice.org.uk/topics/sore-throat-acute/
https://bjgp.org/content/72/716/136

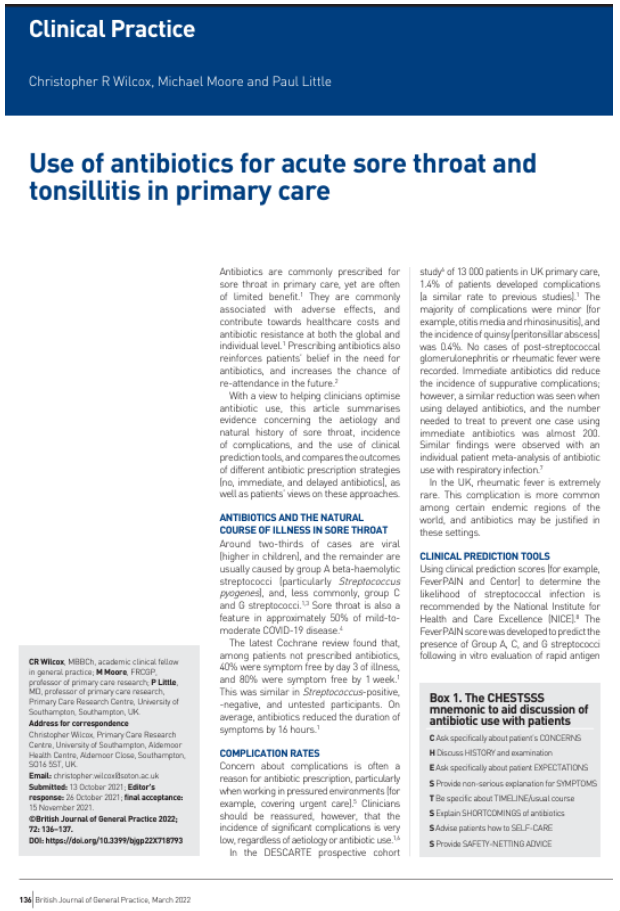
Complications

COMPLICATION RATES

Concern about complications is often a reason for antibiotic prescription, particularly when working in pressured environments (for example, covering urgent care).[5] Clinicians should be reassured, however, that the incidence of significant complications is very low, regardless of aetiology or antibiotic use.[1,6]

In the DESCARTE prospective cohort study[6] of 13 000 patients in UK primary care, 1.4% of patients developed complications (a similar rate to previous studies).[1] The majority of complications were minor (for example, otitis media and rhinosinusitis), and the incidence of quinsy (peritonsillar abscess) was 0.4%. No cases of post-streptococcal glomerulonephritis or rheumatic fever were recorded. Immediate antibiotics did reduce the incidence of suppurative complications; however, a similar reduction was seen when using delayed antibiotics, and the number needed to treat to prevent one case using immediate antibiotics was almost 200. Similar findings were observed with an individual patient meta-analysis of antibiotic use with respiratory infection.[7]

In the UK, rheumatic fever is extremely rare. This complication is more common among certain endemic regions of the world, and antibiotics may be justified in these settings.



Clinical Practice

Christopher R Wilcox, Michael Moore and Paul Little

Use of antibiotics for acute sore throat and tonsillitis in primary care

Antibiotics are commonly prescribed for sore throat in primary care, yet are often of limited benefit.[1] They are commonly associated with adverse effects, and contribute towards healthcare costs and antibiotic resistance at both the global and individual level.[1] Prescribing antibiotics also reinforces patients' belief in the need for antibiotics, and increases the chance of re-attendance in the future.[2]

With a view to helping clinicians optimise antibiotic use, this article summarises evidence concerning the aetiology and natural history of sore throat, incidence of complications, and the use of clinical prediction tools, and compares the outcomes of different antibiotic prescription strategies [no, immediate, and delayed antibiotics], as well as patients' views on these approaches.

ANTIBIOTICS AND THE NATURAL COURSE OF ILLNESS IN SORE THROAT

Around two-thirds of cases are viral [higher in children], and the remainder are usually caused by group A beta-haemolytic streptococci [particularly *Streptococcus pyogenes*], and, less commonly, group C and G streptococci.[3,5] Sore throat is also a feature in approximately 50% of mild-to-moderate COVID-19 disease.[4]

The latest Cochrane review found that, among patients not prescribed antibiotics, 40% were symptom free by day 3 of illness, and 80% were symptom free by 1 week.[1] This was similar in *Streptococcus*-positive, -negative, and untested participants. On average, antibiotics reduced the duration of symptoms by 16 hours.[1]

COMPLICATION RATES

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CLINICAL PREDICTION TOOLS

Using clinical prediction scores [for example, FeverPAIN and Centor] to determine the likelihood of streptococcal infection is recommended by the National Institute for Health and Care Excellence [NICE].[4] The FeverPAIN score was developed to predict the presence of Group A, C, and G streptococci following in vitro evaluation of rapid antigen

Box 1. The CHESTSSS mnemonic to aid discussion of antibiotic use with patients

C Ask specifically about patient's CONCERNS
H Discuss HISTORY and examination
E Ask specifically about patient EXPECTATIONS
S Provide non-serious explanation for SYMPTOMS
T Be specific about TIMELINE/usual course
S Explain SHORTCOMINGS of antibiotics
S Advise patients how to SELF-CARE
S Provide SAFETY-NETTING ADVICE

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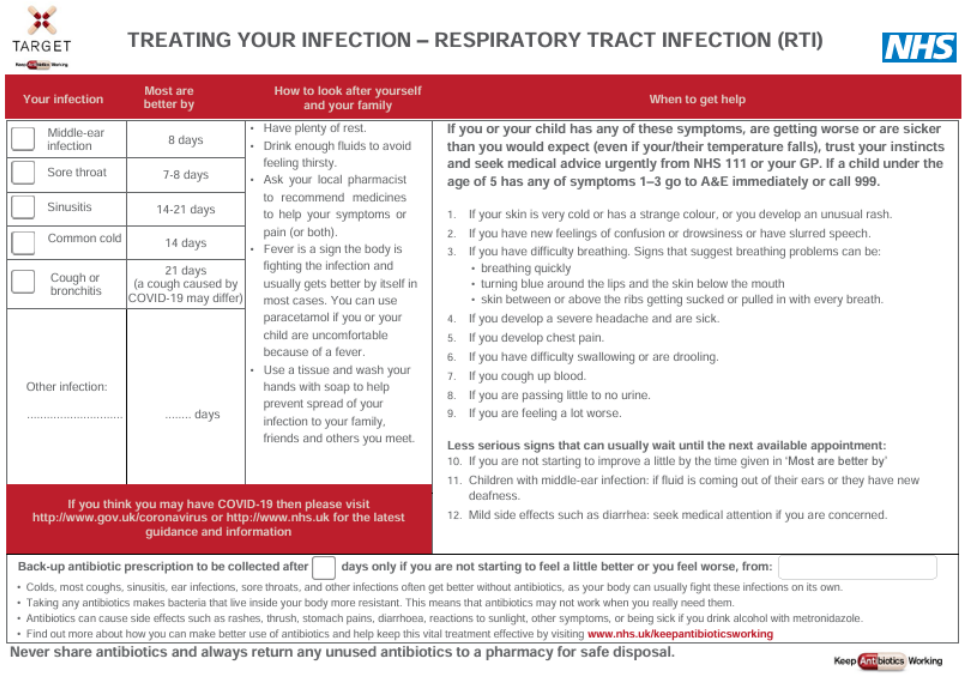
https://cks.nice.org.uk/topics/sore-throat-acute/
https://bjgp.org/content/72/716/136

Prognosis

- **Sore throat due to a viral or bacterial cause is a self-limiting condition which generally resolves within two weeks** [Georgalas et al, 2014; Kenealy, 2014; BMJ Best Practice, 2023a]**:**
  - A sore throat will spontaneously resolve by 3 days in about 40% of people.
  - By 7 days, approximately 85% of people are symptom-free.

- **The symptoms of infectious mononucleosis usually resolve within 1–2 weeks although mild cases may resolve within days.** However lethargy continues for some time afterwards and in rare cases may continue for months or years [Rezk, 2015; De Paor, 2016].



TARGET

TREATING YOUR INFECTION – RESPIRATORY TRACT INFECTION (RTI)

NHS

Your infection	Most are better by	How to look after yourself and your family	When to get help
☐ Middle-ear infection	8 days	• Have plenty of rest. • Drink enough fluids to avoid feeling thirsty. • Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). • Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable because of a fever. • Use a tissue and wash your hands with soap to help prevent spread of your infection to your family, friends and others you meet.	**If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your/their temperature falls), trust your instincts and seek medical advice urgently from NHS 111 or your GP. If a child under the age of 5 has any of symptoms 1–3 go to A&E immediately or call 999.** 1. If your skin is very cold or has a strange colour, or you develop an unusual rash. 2. If you have new feelings of confusion or drowsiness or have slurred speech. 3. If you have difficulty breathing. Signs that suggest breathing problems can be: • breathing quickly • turning blue around the lips and the skin below the mouth • skin between or above the ribs getting sucked or pulled in with every breath. 4. If you develop a severe headache and are sick. 5. If you develop chest pain. 6. If you have difficulty swallowing or are drooling. 7. If you cough up blood. 8. If you are passing little to no urine. 9. If you are feeling a lot worse. **Less serious signs that can usually wait until the next available appointment:** 10. If you are not starting to improve a little by the time given in 'Most are better by' 11. Children with middle-ear infection: if fluid is coming out of their ears or they have new deafness. 12. Mild side effects such as diarrhea: seek medical attention if you are concerned.
☐ Sore throat	7-8 days		
☐ Sinusitis	14-21 days		
☐ Common cold	14 days		
☐ Cough or bronchitis	21 days (a cough caused by COVID-19 may differ)		
Other infection:	..... days		

If you think you may have COVID-19 then please visit http://www.gov.uk/coronavirus or http://www.nhs.uk for the latest guidance and information

Back-up antibiotic prescription to be collected after ☐ days only if you are not starting to feel a little better or you feel worse, from:

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- Taking any antibiotics makes bacteria that live inside your body more resistant. This means that antibiotics may not work when you really need them.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
- Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting www.nhs.uk/keepantibioticsworking

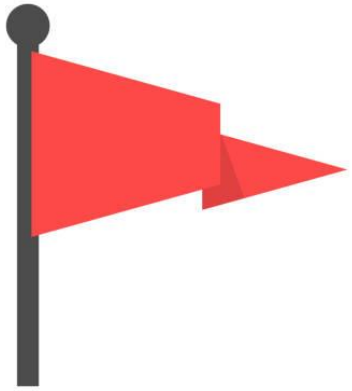
Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal.

Keep Antibiotics Working

https://cks.nice.org.uk/topics/sore-throat-acute/
https://elearning.rcgp.org.uk/mod/book/view.php?id=12647&chapterid=444

NHS Pharmacy First Pathway: Diagnosis

Initial Presentation

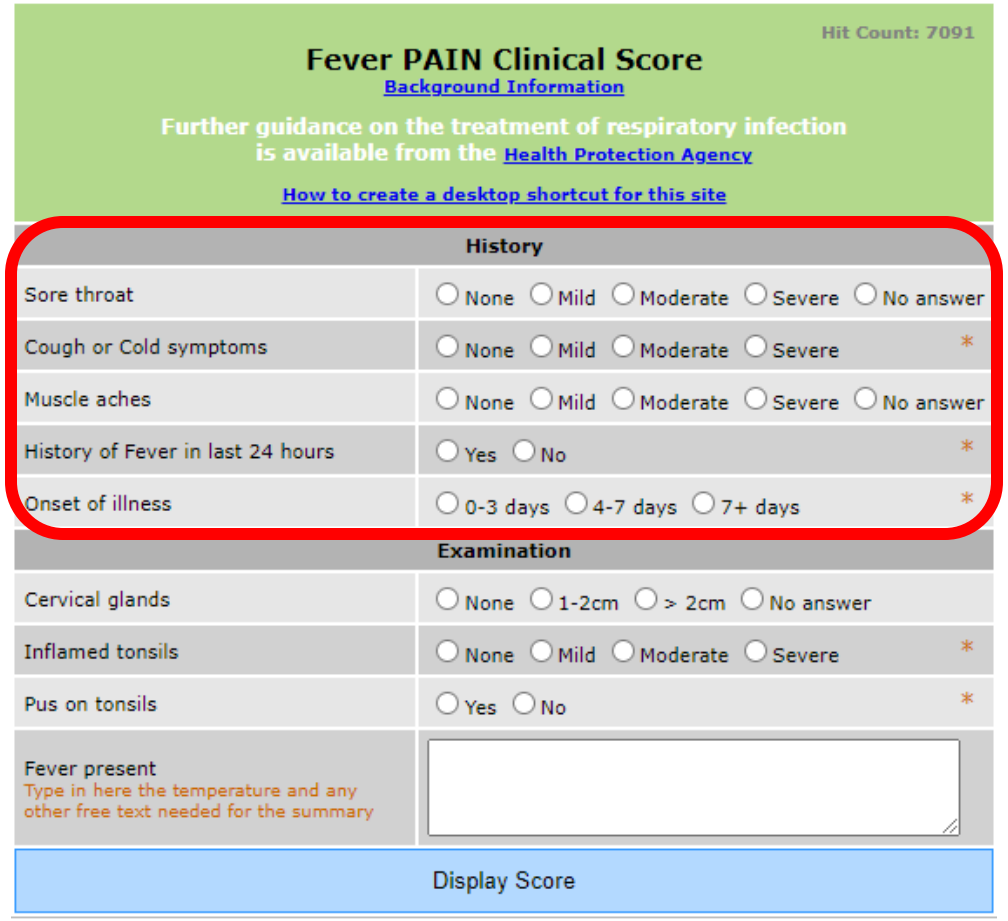


- Does the patient walk in? Normal gait?
- Is the patient able to speak in complete, full, clear sentences?
- Drooling? Unable to move mouth? Unable to swallow?
- Signs of difficulty breathing? High-pitch sounds, stridor? Leaning forward?
- Skin appearance? Good perfusion? Mottled skin? Clammy?
- Any signs of confusion?

START history taking

HISTORY OF PRESENTING COMPLIANT (HxPC)

- **O**nset
- **L**ocation
- **D**uration
- **C**haracteristics
- **A**ggravating factors
- **R**eliving factors
- **T**iming/**T**emporal – what does the patient think it is?
- **S**everity



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Fever PAIN Clinical Score

Background Information

Further guidance on the treatment of respiratory infection is available from the Health Protection Agency

How to create a desktop shortcut for this site

History	
Sore throat	None Mild Moderate Severe No answer
Cough or Cold symptoms	None Mild Moderate Severe *
Muscle aches	None Mild Moderate Severe No answer
History of Fever in last 24 hours	Yes No *
Onset of illness	0-3 days 4-7 days 7+ days *
Examination	
Cervical glands	None 1-2cm > 2cm No answer
Inflamed tonsils	None Mild Moderate Severe *
Pus on tonsils	Yes No *
Fever present Type in here the temperature and any other free text needed for the summary	

Display Score

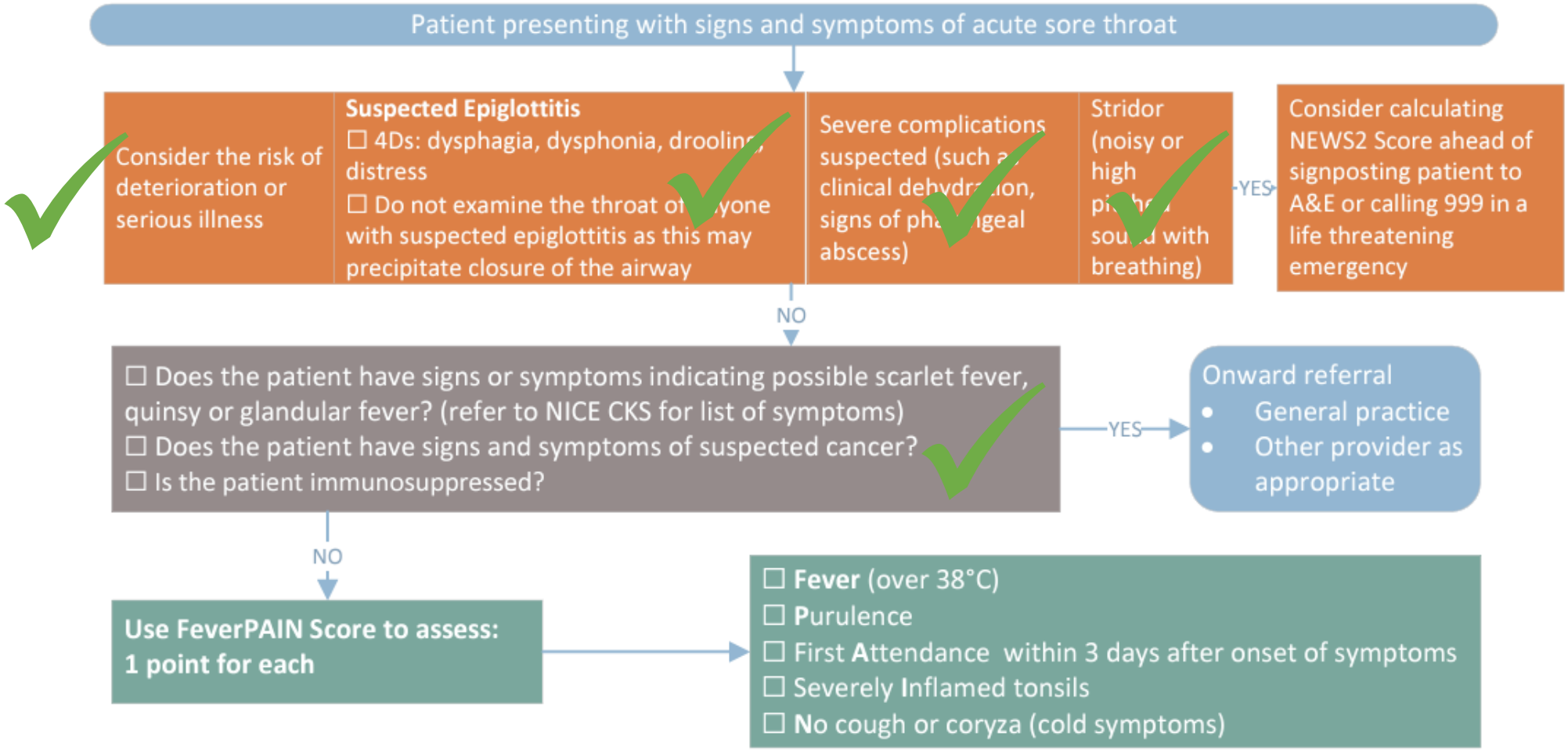
https://ctu1.phc.ox.ac.uk/feverpain/index.php

Comprehensive history taking

- **Past Medical History (PMHx)** – known long term conditions, immunisations
- **Family History (FHx)**
- **Drug History (DHx)** – OTC tried, adverse reaction to Rx meds, borrowed, online
- **Allergy History** – medicines, food, environment; nature of reaction, hospitalisation
- **Social History (SHx)** – smoking, alcohol intake, occupation
- **Review of system – Think head to toe**

Acute Sore Throat
(For adults and children aged 5 years and over)

Exclude: pregnant individuals under 16 years



https://www.england.nhs.uk/wp-content/uploads/2023/11/PRN00936_ii_Pharmacy-First-Clinical-Pathways-v.1.6.pdf

Physical health assessment

Hit Count: 7091

Fever PAIN Clinical Score

Background Information

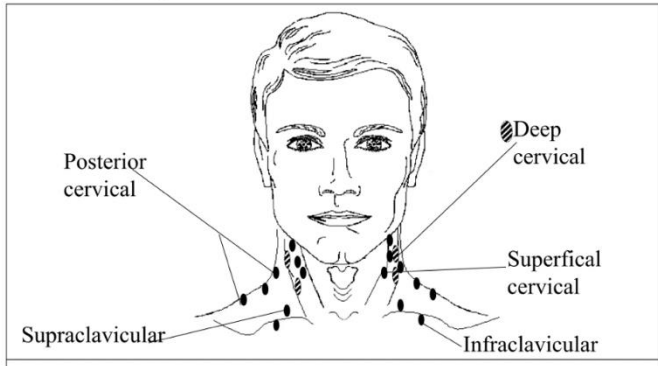
Further guidance on the treatment of respiratory infection is available from the Health Protection Agency

How to create a desktop shortcut for this site

History	
Sore throat	None / Mild / Moderate / Severe / No answer
Cough or Cold symptoms *	None / Mild / Moderate / Severe
Muscle aches	None / Mild / Moderate / Severe / No answer
History of Fever in last 24 hours *	Yes / No
Onset of illness *	0-3 days / 4-7 days / 7+ days
Examination	
Cervical glands	None / 1-2cm / > 2cm / No answer
Inflamed tonsils *	None / Mild / Moderate / Severe
Pus on tonsils *	Yes / No
Fever present Type in here the temperature and any other free text needed for the summary	

Display Score

Anterior view of Lymph nodes of head and neck



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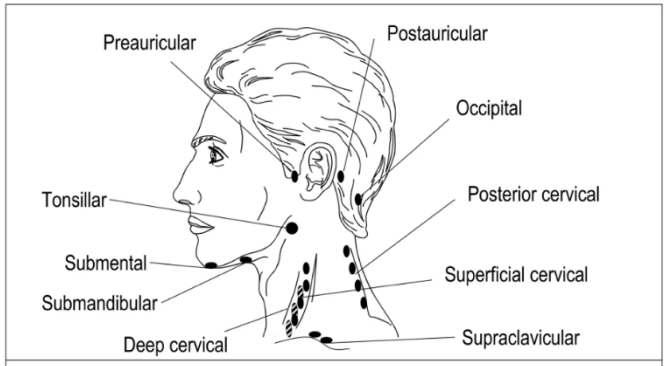
Lateral view of Lymph nodes of the neck



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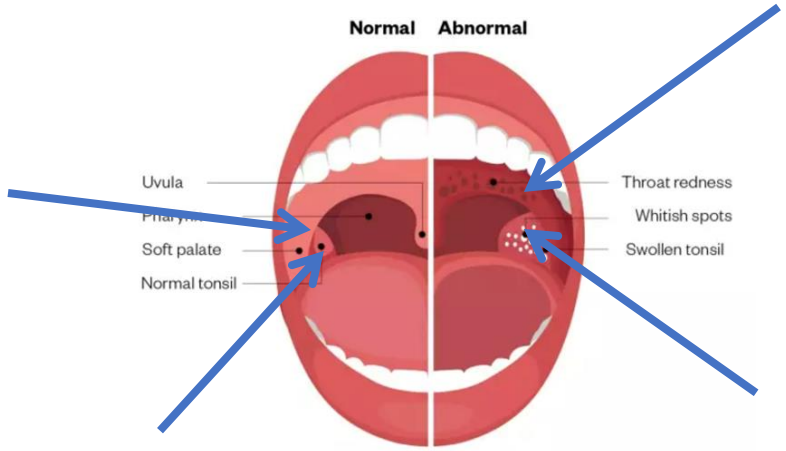
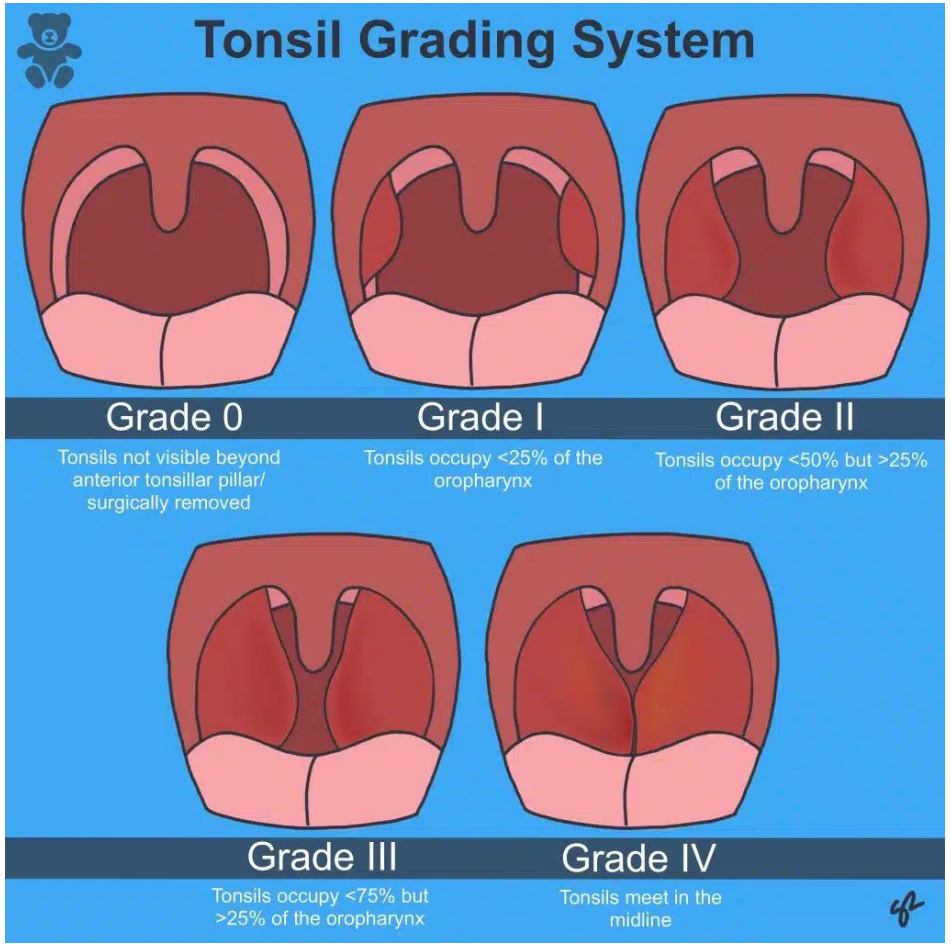


Figure: Characteristics of a normal throat compared with an infected sore throat

SOURCE: HTTPS://THEYDIFFER.COM/DIFFERENCE-BETWEEN-STREP-THROAT-AND-TONSILLITIS

https://ctu1.phc.ox.ac.uk/feverpain/index.php
https://pharmaceutical-journal.com/article/ld/case-based-learning-sore-throat
https://www.slideshare.net/slideshow/lymph-node-examination/57321211#4

Physical health assessment



https://teachmepaediatrics.com/ent/throat/tonsillitis/

Tips:

- Good light in the consultation room
- High quality penlight/torch
- Ask patient to stick out
- Check the tongue also
- Check buccal region

NHS Pharmacy First Pathway:

Management

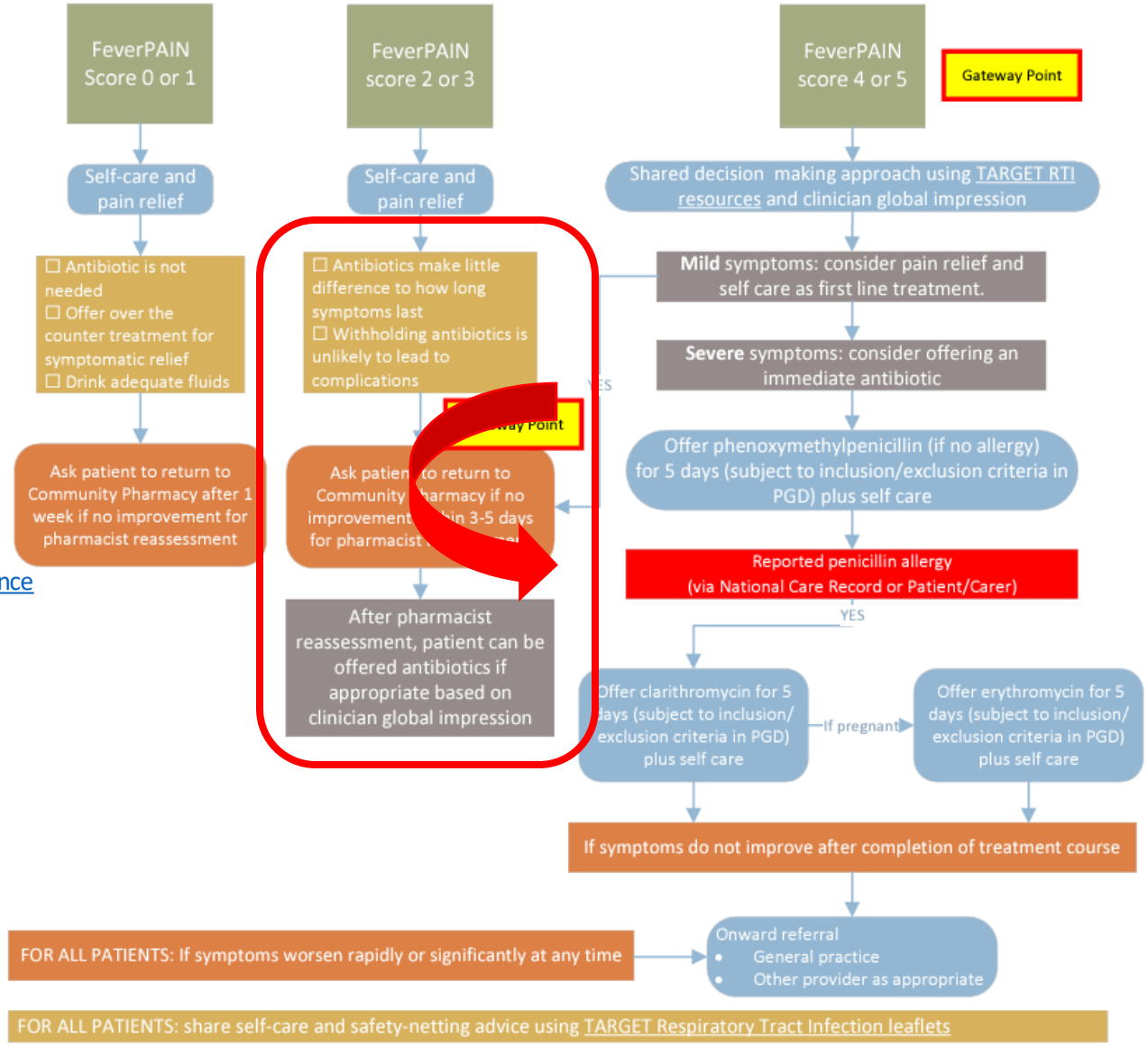
FeverPAIN Scores

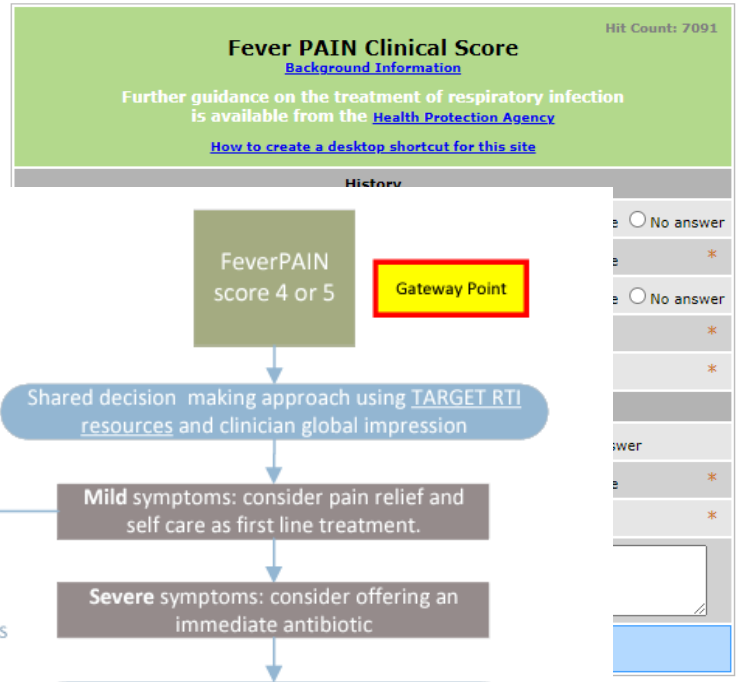
FACTS & FIGURES

Score interpretation:

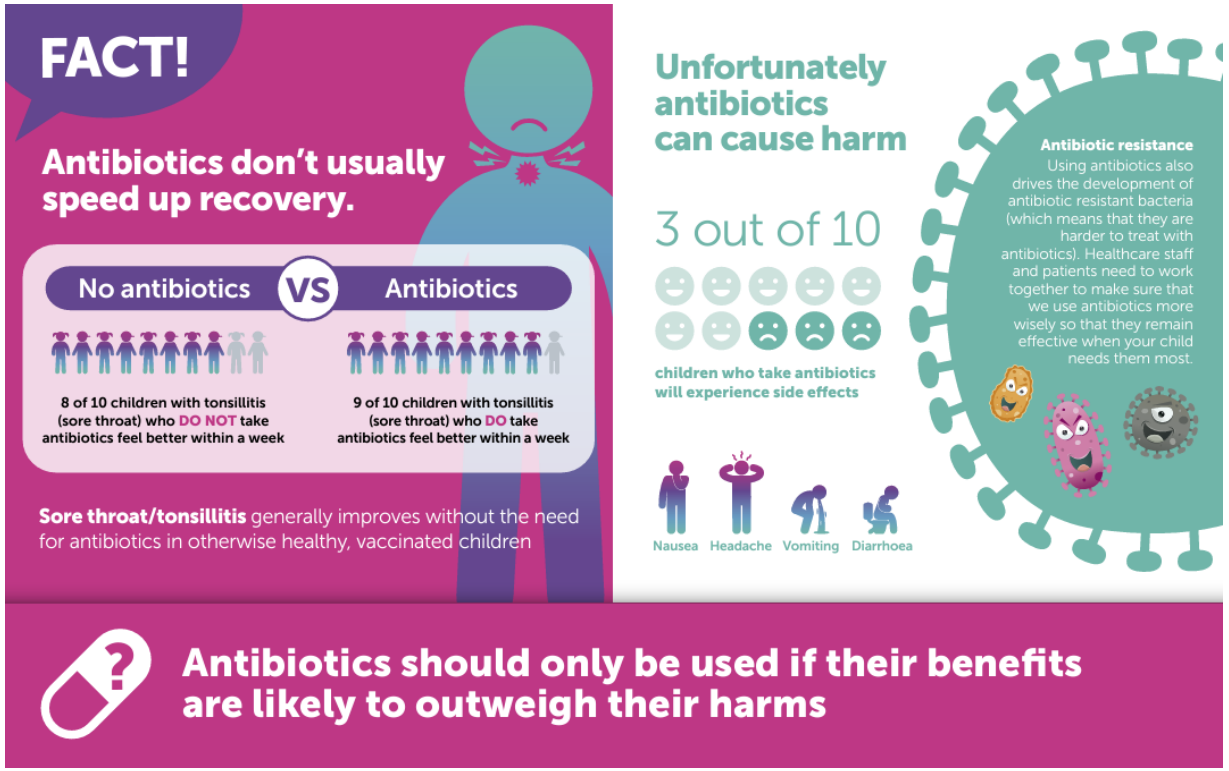
- A score of 0-1 is associated with 13-18% isolation of streptococcus (close to background carriage rates).
  - No antibiotics recommended.
- A score of 2 is associated with 30-35% isolation of streptococcus.
  - Delayed antibiotic may be appropriate.
- A score of 3 is associated with 39-48% isolation of streptococcus.
  - Delayed antibiotic may be appropriate.
- A score of 4 or more is associated with 62-65% isolation of streptococcus.
  - Consider antibiotics if symptoms are severe or a short delayed prescribing strategy may be appropriate (48 hours).

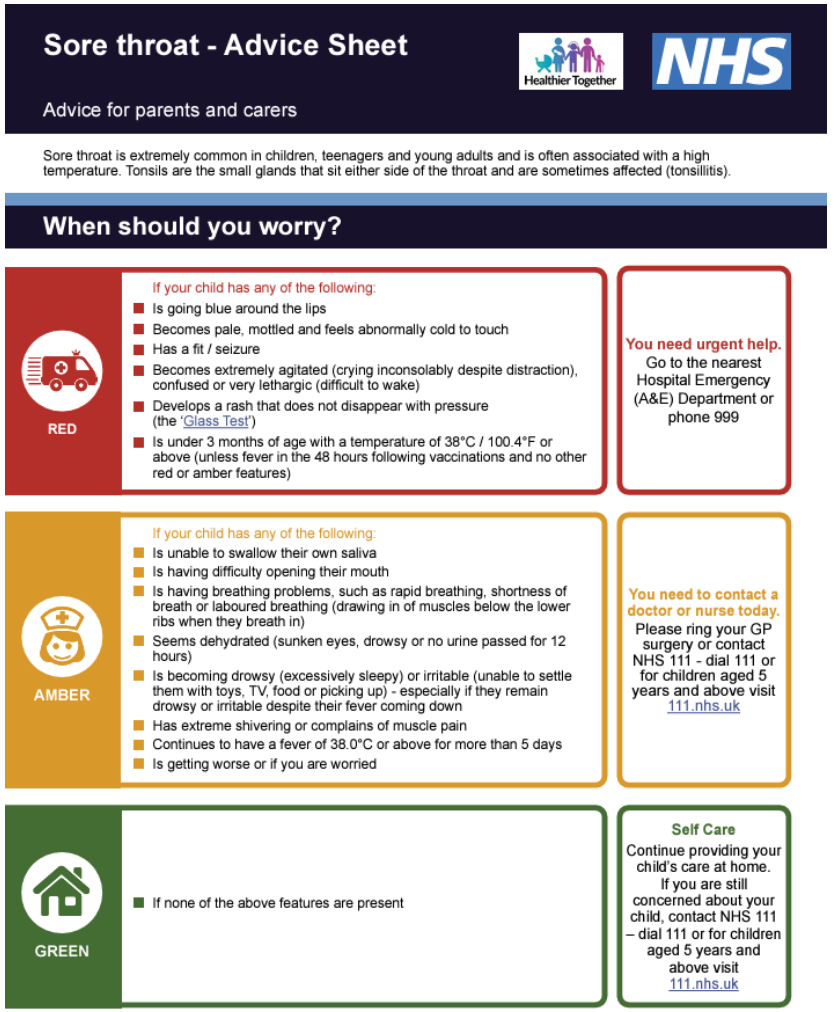
https://www.mdcalc.com/calc/3316/feverpain-score-strep-pharyngitis#evidence





To treat or not to treat...





https://www.what0-18.nhs.uk/professionals/pharmacists/safety-netting-documents-parents/sore-throat-advice-sheet

Treatment options

Document

5a: Supply of phenoxymethylpenicillin (penicillin V) tablets/oral solution/oral suspension for the treatment of acute sore throat due to suspected streptococcal infection under the NHS England commissioned Pharmacy First Service

PDF 374 KB 17 pages

Summary

Published 19 December 2023.

Document

5b: Supply of clarithromycin tablets/oral suspension/oral solution for the treatment of acute sore throat due to suspected streptococcal infection under the NHS England commissioned Pharmacy First Service

PDF 400 KB 18 pages

Summary

Published 19 December 2023.

Document

5c: Supply of erythromycin tablets/oral suspension/oral solution for the treatment of acute sore throat due to suspected streptococcal infection in pregnant individuals (aged 16 years and over) under the NHS England commissioned Pharmacy First Service

PDF 392 KB 17 pages

Summary

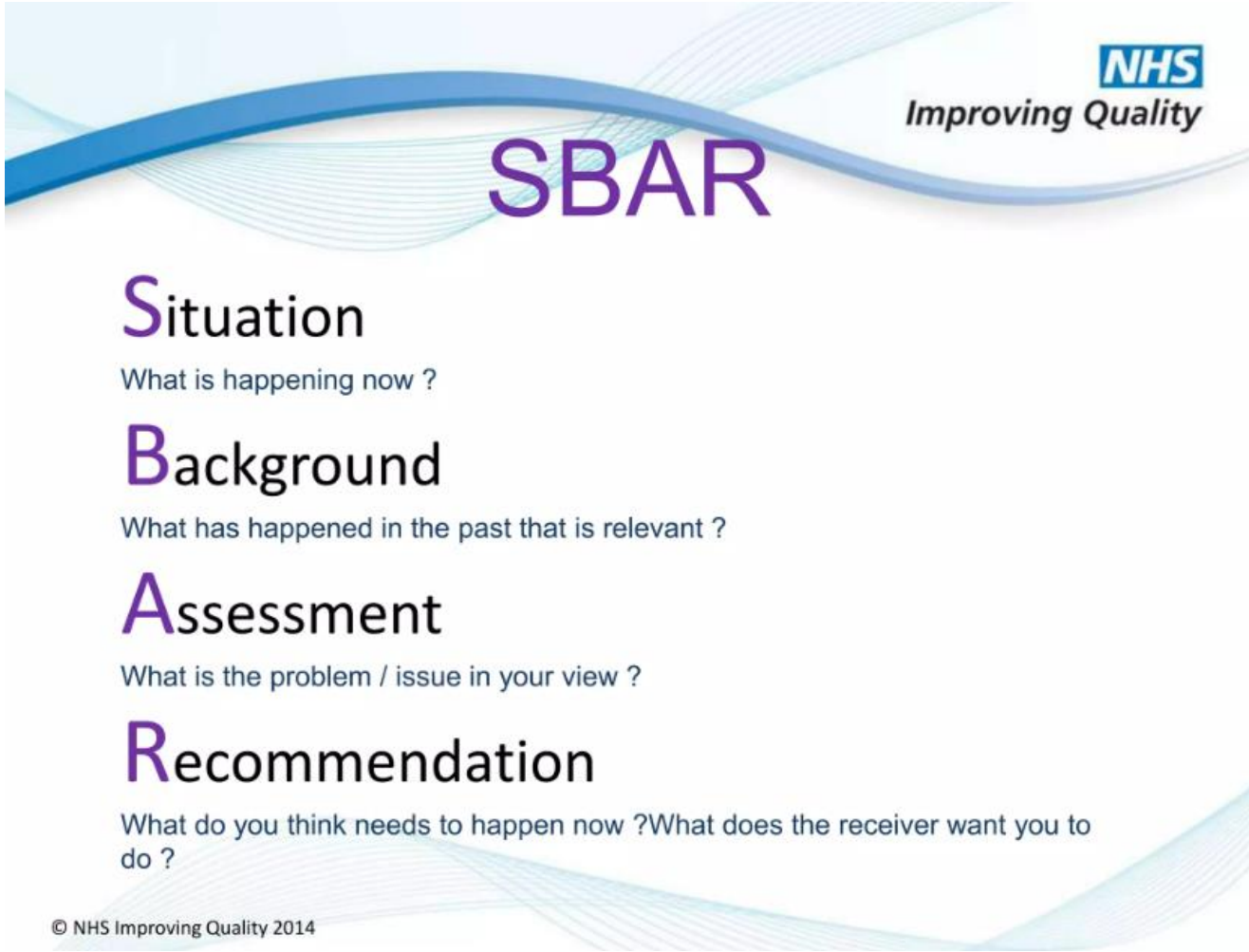
Published 19 December 2023.

Escalate & refer on…

IF POSSIBLE,

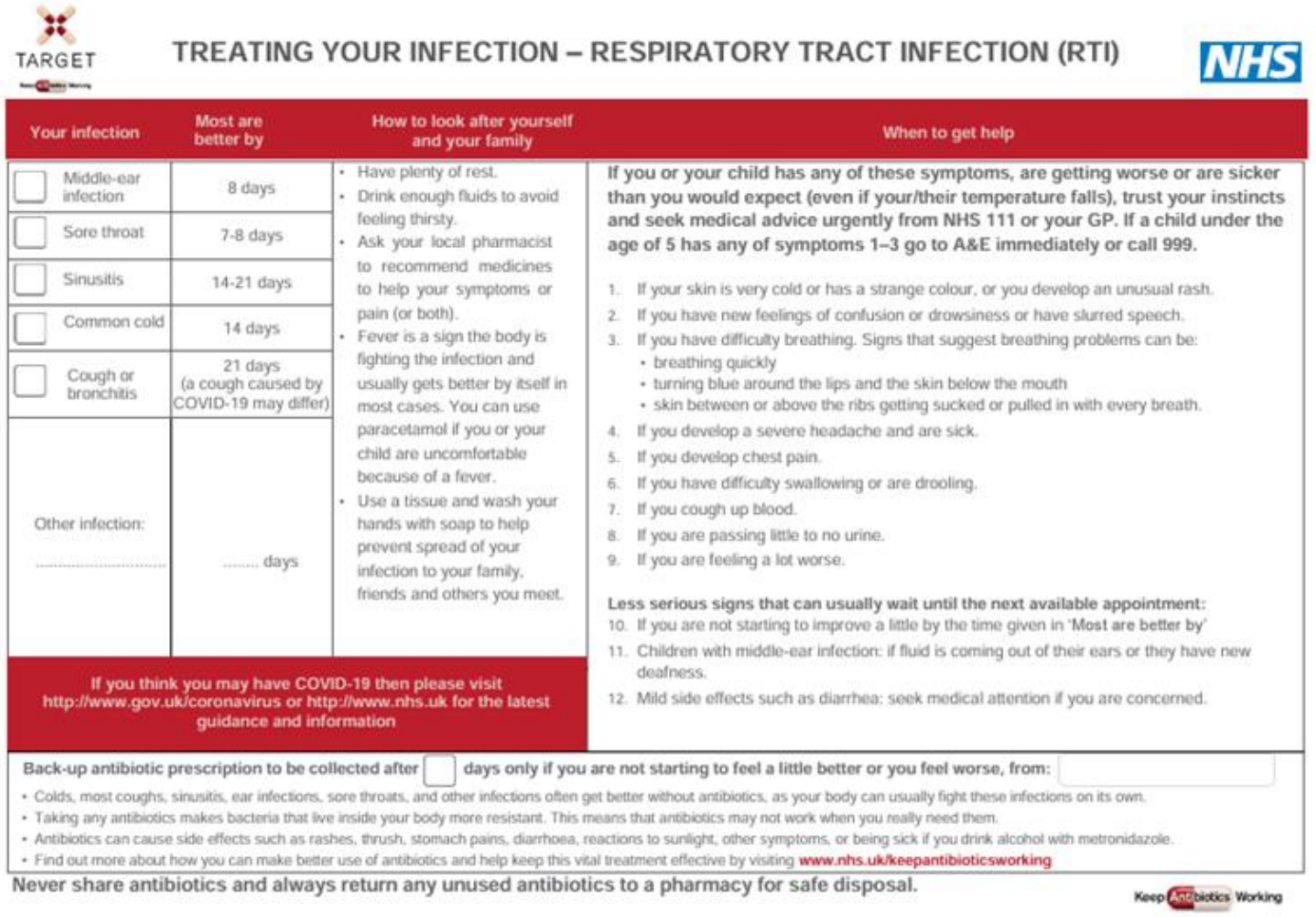
INCLUDE VITAL SIGNS:

- **Temperature**
- **Peripheral Oxygen Saturation**
- **Blood pressure**
- **Heart rate**
- **Respiratory rate**
- **Capillary refill time (children)**
- **Pulse**



https://www.slideshare.net/slideshow/communication-using-the-sbar-tool/37948126#5

Safety netting & self care



TARGET

TREATING YOUR INFECTION – RESPIRATORY TRACT INFECTION (RTI)

NHS

Your infection	Most are better by
☐ Middle-ear infection	8 days
☐ Sore throat	7-8 days
☐ Sinusitis	14-21 days
☐ Common cold	14 days
☐ Cough or bronchitis	21 days (a cough caused by COVID-19 may differ)
Other infection:	..... days

How to look after yourself and your family

- Have plenty of rest.
- Drink enough fluids to avoid feeling thirsty.
- Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both).
- Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable because of a fever.
- Use a tissue and wash your hands with soap to help prevent spread of your infection to your family, friends and others you meet.

If you think you may have COVID-19 then please visit http://www.gov.uk/coronavirus or http://www.nhs.uk for the latest guidance and information

When to get help

If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your/their temperature falls), trust your instincts and seek medical advice urgently from NHS 111 or your GP. If a child under the age of 5 has any of symptoms 1–3 go to A&E immediately or call 999.

1. If your skin is very cold or has a strange colour, or you develop an unusual rash.
2. If you have new feelings of confusion or drowsiness or have slurred speech.
3. If you have difficulty breathing. Signs that suggest breathing problems can be:
   - breathing quickly
   - turning blue around the lips and the skin below the mouth
   - skin between or above the ribs getting sucked or pulled in with every breath.
4. If you develop a severe headache and are sick.
5. If you develop chest pain.
6. If you have difficulty swallowing or are drooling.
7. If you cough up blood.
8. If you are passing little to no urine.
9. If you are feeling a lot worse.

Less serious signs that can usually wait until the next available appointment:

10. If you are not starting to improve a little by the time given in 'Most are better by'
11. Children with middle-ear infection: if fluid is coming out of their ears or they have new deafness.
12. Mild side effects such as diarrhea: seek medical attention if you are concerned.

Back-up antibiotic prescription to be collected after ☐ days only if you are not starting to feel a little better or you feel worse, from: .....

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- Taking any antibiotics makes bacteria that live inside your body more resistant. This means that antibiotics may not work when you really need them.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
- Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting www.nhs.uk/keepantibioticsworking

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal.

Keep Antibiotics Working

TARGET is operated by the UK Health Security Agency. Developed in collaboration with professional medical bodies. Version 9.7. Published: Nov 2017. Review: Nov 2021. · KAW18-07 © Crown copyright 2018.

- **NHS symptom checker**
- **What 0-18 website**
- **NHS Conditions**
- **Education**
- **Reassurance**
- **TIME**

Thank you for listening & your participation