TONSILLOPHARYNGITIS

CHI Formulary Indication Review

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Council of Health Insurance

INDICATION UPDATE

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ADDENDUM to the CHI Original Treatment And Prevention Of Bacterial Tonsillopharyngitis In Adults And Children Clinical Guidance- Issued May 2020

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- IDF-FR-P-02-01-IndicationsReview&IDFUpdates
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- IDF-FR-WI-01-01SearchMethodologyGuideForNewIndications

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Abbreviations

ARF	Acute Rheumatic Fever
CHI	Council of Health Insurance
COC	Combined Oral Contraceptive
CPG	Clinical Practice Guideline
EMA	European Medicines Agency
FDA	U.S. Food and Drug Administration
GAS	Group A Streptococcus
GCP	Good Clinical Practice
HIC	High-Income Countries
IAP	Indian Academy of Pediatrics
IDF	CHI Drug Formulary
IM	Intramuscularly
LMIC	Low- and Middle-Income Countries
NICE	National Institute for Health and Care Excellence (UK)
NSAID	Nonsteroidal Anti-Inflammatory Drug
OTC	Over the Counter
RCT	Randomized Controlled Trial
SFDA	Saudi Food and Drug Authority
TdP	Torsades De Pointes

Executive Summary

Tonsillopharyngitis refers to the inflammation of both the tonsils and the pharynx (the back of the throat). It is typically caused by viral or bacterial infections and is characterized by symptoms such as sore throat, difficulty swallowing, fever, and swollen tonsils. This condition is commonly referred to as "sore throat" and can be caused by various pathogens, with streptococcal bacteria being a common bacterial cause. Tonsillopharyngitis can be quite uncomfortable and is a common condition, especially in children and adolescents. Treatment may involve rest, fluids, and in some cases, antibiotics if a bacterial infection is suspected[1].

The two most common types of tonsillopharyngitis are:

1. **Viral Tonsillopharyngitis**: Viruses like rhinovirus, adenovirus, coronavirus, and influenza virus can cause viral tonsillopharyngitis, often associated with symptoms such as sore throat, runny or stuffy nose, cough, sneezing, and sometimes fever. The tonsils may appear red and swollen.
2. **Bacterial Tonsillopharyngitis**: **Streptococcal Tonsillopharyngitis (Strep Throat)**: Group A Streptococcus bacteria (Streptococcus pyogenes) are the most common cause of bacterial tonsillopharyngitis. Symptoms include severe sore throat, painful swallowing, fever, headache, and swollen and red tonsils with or without white yellow spots (exudate). In addition to Streptococcus, other bacteria like Hemophilus influenzae, Arachanobacterium hemolyticum and Neisseria gonorrhoeae can cause bacterial tonsillopharyngitis[1].

This report focuses on the management of bacterial tonsillopharyngitis.

Risk factors associated with tonsillopharyngitis include age (more common in children and adolescents). Being in close contact with someone who has a contagious throat infection, such as streptococcal or viral tonsillopharyngitis, increases the risk of transmission, weakened immune system, exposure to irritants like tobacco smoke, air pollution, or allergens can lead to chronic irritation of the throat and increase the risk of tonsillopharyngitis. Living in crowded environments or attending institutions like schools, daycare centers, or military barracks can increase the risk of exposure to contagious infections. Poor hygiene, smoking, alcohol use and prolonged or frequent antibiotic use may all contribute to increased tonsillopharyngitis infection[2].

Some potential complications of tonsillopharyngitis include peritonsillar abscess, chronic or recurrent tonsillitis, abscess formation, airway obstruction, spread of infection, secondary bacterial infections, and dehydration.

Tonsillopharyngitis is one of the most common infections encountered in children.

A 2005 review that assessed the prevalence of diseases caused by Group A Streptococcus (Strep A) estimated that there are more than 616 million cases of Strep A sore throat occurring worldwide each year. However, since then, a sole systematic review and meta-analysis focusing on the incidence of sore throat, including Strep A sore throat, has been published. This analysis reported a combined incidence of 10.8 episodes of Strep A sore throat per 100 child-years based on data from six studies. It's important to note that both published reviews had notable limitations. The initial review relied on just four studies, with the most recent study being nearly two decades old. On the other hand, the second review examined studies only within populations deemed at risk of acute rheumatic fever (ARF), such as children from low- and middle-income countries (LMICs) or Indigenous children residing in high-income countries (HICs). As a result, there are currently no up-to-date estimates available for the global incidence or burden of sore throat and Strep A sore throat[3].

An analysis of data from 1,200 outpatient visits in Saudi Arabia uncovered that 313 of these visits (approximately 26.08%) were related to cases of acute respiratory infection. Among individuals with acute respiratory infections, the majority were children under 15 years old, constituting 56.5% of the cases, with a higher prevalence among those under the age of five, specifically at 36.1%. The most frequently observed presenting illnesses were acute bronchitis, accounting for 37.1% of cases, and pharyngitis, which represented 28.4% of the cases. Other reported conditions included pneumonia (9.3%), acute tonsillitis (8.3%), common cold (7%), and otitis media (5.4%). Among those under 15 years old, pharyngitis was the prevailing ailment, while individuals older than 45 years old most commonly presented with acute bronchitis[4].

The burden of Tonsillopharyngitis refers to the physical, emotional, social, and economic impact that the condition places on individuals, their families, healthcare systems, and society as a whole. Tonsillopharyngitis causes an economic burden of $224 to $539 million annually in the US[5].

Drug therapy is an integral component for the management of Bacterial Tonsillopharyngitis. Tonsillopharyngitis drug therapy aims to effectively treat the infection caused by Group A Streptococcus, relief symptoms, prevent complications, prevent the further spread of the bacteria, and minimize the risk of relapse or drug resistance. Tonsillopharyngitis drug therapy typically involves antibiotics and the choice of antibiotic, and the duration of treatment may vary depending on several factors, including the patient's age, allergies, and local antibiotic resistance patterns. Commonly prescribed antibiotics for bacterial tonsillopharyngitis include penicillin, cephalosporins, and macrolides (erythromycin, azithromycin, clarithromycin) and clindamycin. Additionally, supportive care measures can be beneficial in managing

the symptoms of tonsillopharyngitis: pain relievers, throat lozenges, hydration and rest and warm saline gargles. Resurgence of severe forms of disease caused by S. pyogenes has been detected in various parts of the world. However, there is a concern that a significant incidence of resistance of S. pyogenes has been reported to macrolide and other antibiotics except penicillin from the various regions of the world. Therefore, alternative agents and strategies are needed in both the short- and long-term treatment of tonsillopharyngitis[1].

CHI issued Tonsillopharyngitis clinical guidance after thorough review of renowned international and national clinical guidelines in May 2020. Updating clinical practice guidelines (CPGs) is a crucial process for maintaining the validity of recommendations.

This report functions as an addendum to the prior CHI Tonsillopharyngitis clinical guidance and seeks to offer guidance for the effective management of Tonsillopharyngitis. It provides an **update on the Tonsillopharyngitis Guidelines** for CHI Formulary with the ultimate objective of updating the IDF (CHI Drug Formulary) while addressing **the most updated best available clinical and economic evidence related to drug therapies.**

Main triggers for the update are summarized, being **the issuance of updated versions of previously reviewed guidelines** namely Treatment and prevention of streptococcal pharyngitis: Group A Streptococcus (GAS), Bacterial Tonsillopharyngitis in Adults and Children. Up-To Date **(2023).**

Moreover, **new guidelines are added to the report** such as Rheumatic Fever New Zealand Guidelines for Group A Streptococcal Sore Throat Management Guideline (**2019 Update)**; German Clinical practice guidelines sore throat **(2021);** Indian Academy of Pediatrics (IAP) Standard Treatment Guidelines: Acute Pharyngitis/Acute Tonsillopharyngitis **(2022)**,NICE guidelines on Sore throat (acute): antimicrobial prescribing **(2018), The Royal Children Hospital Melbourne for the management of sore throat (2021) and The Royal Children Hospital Melbourne for the Invasive group A streptococcal infections: management of household contacts (2023)**

After carefully examining clinical guidelines and reviewing the SFDA drug list, it is important to note that there has been **withdrawal** of the following drugs:

- Clavulanic Acid
- Dextromethorphan hydrobromide, chlorpheniramine maleate, ammonium, sodium citrate

Moreover, there has been **no newly FDA/EMA approved drug** for the treatment of Tonsillopharyngitis.

Additionally, there have been **updates** regarding previously mentioned drugs in terms of drug information and prescribing edits since May 2020.

Table 1. Prescribing Edits (PE) Modifications for Tonsillopharyngitis Medications

DRUGS	PE MODIFICATIONS
Aceclofenac	Add AGE: not recommended for use in children/adolescents < 18yo except in specific situations determined by healthcare providers
Chlorpheniramine Maleate	Add AGE: FDA does not recommend OTC use in children < 2 years old due to risk of serious and life-threatening adverse events (including death) and recommends use with caution in pediatric patients >=2 years old
Dexketoprofen	Add AGE: Not recommended for use in children/adolescents < 18yo except in specific situations determined by healthcare providers
Dextromethorphan	Add AGE: Not for OTC use in children < 4 years of age
Phenylephrine hydrochloride, chlorpheniramine maleate	Add AGE: FDA does not recommend OTC use in children < 2 years old and recommends use with caution in pediatric patients >=2 years old.
Promethazine	Add AGE: safety and efficacy have not been established in children < 2yo.
Pseudoephedrine hydrochloride, dextromethorphan hydrobromide, chlorpheniramine maleate	Add AGE: Not for OTC use in children < 6 years of age
Pseudoephedrine hydrochloride, dextromethorphan hydrobromide, triprolidine	Add AGE: Not for OTC use in children < 12 years of age
Rifampicin	Add MD: needs to be prescribed by physician and followed-up

All recommendations are well supported by reference guidelines, Grade of Recommendation (GoR), Level of Evidence (LoE) and Strength of Agreement (SoA) in all tables reflecting specific drug classes' role in the Influenza therapeutic management.

Below is a table summarizing the major changes based on the different Tonsillopharyngitis guidelines used to issue this report:

Table 2. General Recommendations for the Management of Tonsillopharyngitis

Management of Tonsillopharyngitis		
General Recommendations	**Level of Evidence/Grade of Recommendation**	**Reference**
Preferred treatment for Group A Streptococcus (GAS) pharyngitis is penicillin due to its effectiveness, safety, and cost-effectiveness. No reported penicillin resistance in clinical GAS isolates	Not graded[6]	UpToDate[6]
Treat group A streptococcal infections as soon as possible	Grade C, level IV[7]	The Heart Foundation of New Zealand[7]
Use clinical scoring systems to determine antibiotic prescription (FeverPAIN score or Centor score)	Not graded[8]	NICE[8]
Antibiotics are recommended for systemically very unwell patients or those at high risk of complications	Not graded[8] Not graded[9]	NICE[8] The Royal Children Hospital Melbourne[9]
For most children, oral penicillin V or amoxicillin is recommended, with amoxicillin preferred for young children	Not graded[6] Grade A, level I[7]	UpToDate[6] The Heart Foundation of New Zealand[7]
Patients with a history of acute rheumatic fever can choose from oral penicillin, oral amoxicillin, or single-dose intramuscular benzathine penicillin based on patient values and preferences	Not graded[6]	UpToDate[6]
Do not use tetracyclines, sulfonamides, or fluoroquinolones for GAS pharyngitis	Grade D, level IV[7]	The Heart Foundation of New

		Zealand[7]
Corticosteroids should not be used for analgesic treatment	Not graded[6] A, 1a[10] Not graded[11]	UpToDate[6] German guidelines[10] IAP[11]
Tonsillectomy is rarely indicated for patients with recurrent GAS pharyngitis and should be considered on a case-by-case basis	Not graded[6]	UpToDate[6]
Tonsillectomy may be considered for severe recurrent tonsillitis in children. Insufficient data for tonsillectomy recommendations in adults.	Grade B, level I[7] GCP[10] Not graded[11]	The Heart Foundation of New Zealand[7] German guidelines[10] IAP[11]
Emphasize hand hygiene to prevent the spread of GAS	Not graded[6]	UpToDate[6]
Postexposure prophylaxis is not routinely recommended but may be considered in specific situations.	Not graded[6]	UpToDate[6]
Paracetamol and NSAIDs can be used for symptom control. Avoid aspirin in children.	Expert opinion[7] Statement, Ia[10] Not graded[11] Not graded[8] Not graded[9]	The Heart Foundation of New Zealand[7] German guidelines[10] IAP[11] NICE[8] The Royal Children Hospital Melbourne[9]
10 days of oral penicillin is the gold standard for treating GAS pharyngitis	Not graded[7]	The Heart Foundation of New Zealand[7]
Strongly discourage throat remedies containing local antiseptics and antibiotics	Not graded[10]	German guidelines[10]
Be aware that no evidence was found on non-medicated lozenges, mouthwashes, or local anesthetic mouth spray used on its own	Not graded[8]	NICE[8]

Some experts and guidelines suggest the use of antibiotic chemoprophylaxis to lower the chances of invasive GAS infection in household contacts, although this approach hasn't been thoroughly investigated. Regardless of whether chemoprophylaxis is prescribed, it is essential to ensure that all household contacts are informed about their heightened risk of invasive GAS and the early indicators of invasive GAS that necessitate immediate medical attention.	Not graded[12]	The Royal Children Hospital Melbourne[12]
Options for household contacts chemoprophylaxis include cefalexin for 10 days. It should be given as soon as possible after exposure (ideally within 24 hours).	Not graded[12]	The Royal Children Hospital Melbourne[12]

At the end of the report, a **key recommendation synthesis section** is added highlighting the latest updates in **Tonsillopharyngitis clinical and therapeutic management.**

Section 1.0 Summary of Reviewed Clinical Guidelines & Evidence

This section is divided into two parts; one part includes recommendations from **updated versions of guidelines** mentioned in the previous CHI Tonsillopharyngitis report, and the other part includes **newly added guidelines** that have helped generate this report.

1.1 Revised Guidelines

The following segment contains the updated versions of the guidelines mentioned in the May 2020 CHI Tonsillopharyngitis Report and the corresponding recommendations:

Table 3. Guidelines Requiring Revision

Guidelines Requiring Revision	
Old Versions	**Updated versions**
1.1 Group A Streptococcus (GAS), Bacterial Tonsillopharyngitis in Adults and Children. Up-To Date **(Jan 16, 2020)**	Treatment and prevention of streptococcal pharyngitis: Group A Streptococcus (GAS), Bacterial Tonsillopharyngitis in Adults and Children. Up-To Date **(Sep 29, 2023**)

1.1.1 Treatment and Prevention of Streptococcal Pharyngitis: Group A Streptococcus (GAS), Bacterial Tonsillopharyngitis in Adults and Children. Up-To-Date (Sep 29, 2023)

*Please refer to **Section 1.1** of CHI Clinical Guidelines for Treatment and Prevention of Bacterial Tonsillopharyngitis in Adults and Children.*

UpToDate authors and editors review the available clinical evidence and best clinical practices to provide a detailed synthesis on a specific topic. While not typically used as a clinical guideline, it was detailed in the previous CHI report, and it was therefore relevant to include the revised edition of the "Treatment and Prevention of Bacterial Tonsillopharyngitis in Adults and Children" released in September 2023.

Updated recommendations:

- The antibiotic treatment recommendations provided below closely align with the guidelines issued by the Infectious Diseases Society of America, the American Heart Association, and the American Academy of Pediatrics.

- Penicillin stands as the preferred treatment for cases of group A Streptococcus (GAS) pharyngitis due to its effectiveness, safety, limited spectrum, and cost-effectiveness. There have been no reported instances of penicillin resistance in clinical GAS isolates. It is the sole antibiotic that has undergone thorough study and demonstrated efficacy in reducing the incidence of acute rheumatic fever. Specific dosing and treatment duration details can be found in the provided tables.

Table 4. Treatment of Tonsillopharyngitis Due to Group A Streptococcus in Adults

Antibiotic class	Drug	Dosing in adults*	Advantages	Disadvantages
Penicillins (preferred)	Penicillin V	500 mg orally two to three times daily for 10 days	Narrow spectrum No documented resistance Low cost	Three-times-daily dosing; however, twice-daily regimen appears to be as effective as thrice daily
	Amoxicillin*	500 mg orally twice daily for 10 days 1000 mg (immediate release) once daily for 10 days		
	Penicillin G benzathine* (Bicillin L-A)	1.2 million units IM as a single dose	Can be given as a single dose Ensured adherence Only drug studied for prevention of acute rheumatic fever	Variable availability High cost Injection site pain
Cephalosporins (potential alternatives for mild reactions	Cephalexin* (first generation)	500 mg orally twice daily for 10 days	High efficacy rate Narrower spectrum than	Broader spectrum than penicillin Greater potential

to penicillin[Δ])			later-generation cephalosporins	to induce antibiotic resistance
	Cefadroxil* (first generation)	1 g orally daily for 10 days	Once daily High efficacy rate Narrower spectrum than later-generation cephalosporins	Broader spectrum than penicillin Greater potential to induce antibiotic resistance
	Cefuroxime* (second generation)	250 mg orally twice daily for 10 days	High efficacy rate Narrower spectrum than later-generation cephalosporins	Broader spectrum than penicillin and first-generation cephalosporins Greater potential to induce antibiotic resistance
	Cefpodoxime* (third generation)	100 mg orally twice daily for 5 to 10 days	High efficacy rate FDA approved for 5-day course	Broader spectrum than penicillin and earlier-generation cephalosporins Greater potential to induce antibiotic resistance
	Cefdinir* (third generation)	300 mg orally twice daily for 5 to 10 days or 600 mg orally once daily for 10 days	Once-daily option High efficacy rate FDA approved for 5-day course	Broader spectrum than penicillin and earlier-generation cephalosporins Greater potential

				to induce antibiotic resistance
	Cefixime (third generation)	400 mg orally once daily for 10 days	Once daily High efficacy rate	Broader spectrum than penicillin Greater potential to induce antibiotic resistance
Macrolides (alternatives for patients with anaphylaxis or other IgE-mediated reactions or severe delayed reactions to penicillin[Δ])	Azithromycin	12 mg/kg/day (maximum 500 mg/dose) 5 days[◊]	Once daily	Growing rates of resistance Associated with QTc prolongation and, rarely, life-threatening cardiovascular events including TdP; assess risk (eg, history of long QT interval, interacting medications, electrolyte abnormalities)
	Clarithromycin*	250 mg orally twice daily for 10 days		Growing rates of resistance Greater gastrointestinal side effects than azithromycin Causes CYP3A4 drug interactions

				QTc prolongation: Refer to azithromycin
Lincosamides (alternative when macrolide resistance is a concern and penicillins and cephalosporins cannot be used)	Clindamycin	300 mg orally three times daily for 10 days		Growing rates of resistance High side-effect profile (ie, gastrointestinal)

IM: intramuscularly; FDA: US Food and Drug Administration; TdP: torsades de pointes.

* Dose alteration may be needed for renal insufficiency.

¶ Once-daily immediate-release amoxicillin appears to be non-inferior to penicillin V or amoxicillin administered in multiple daily doses, primarily based on studies in children and adolescents. The dose in adults is 775 mg orally once daily for 10 days.

Δ Approach to patients with penicillin allergy varies among experts and allergy severity; refer to the UpToDate text for additional detail.

◊ A 3-day course is approved and widely prescribed in Europe and other regions.

Table 5. Treatment of Tonsillopharyngitis Due to Group A Streptococcus in Children and Adolescents

Antibiotic class	Drug	Dosing in children and adolescents*	Advantages	Disadvantages
Penicillins (preferred)	Penicillin V	If ≤27 kg: 250 mg 2 to 3 times daily for 10 days If >27 kg: 500 mg 2 to 3 times daily for 10 days	Narrow spectrum No documented resistance Low cost	Thrice-daily dosing; however, twice-daily regimen appears to be as effective as thrice daily
	Amoxicillin*	50 mg/kg per day orally (maximum 1000 mg per day) for 10 days	Taste of suspension more palatable than penicillin, often preferred for	

		May be administered once daily or in 2 equally divided doses	children	
	Penicillin G benzathine (Bicillin L-A)	If ≤27 kg: Penicillin G benzathine (Bicillin L-A) 600,000 units IM as a single dose[¶] If >27 kg: Penicillin G benzathine (Bicillin L-A) 1.2 million units IM as a single dose	Can be given as a single dose Ensured adherence Only drug studied for prevention of acute rheumatic fever	Variable availability High cost Injection site pain
Cephalosporins (potential alternatives for mild reactions to penicillin[Δ])	Cephalexin* (first generation)	40 mg/kg/day divided twice daily for 10 days (maximum 500 mg/dose)	High efficacy rate Narrower spectrum than later-generation cephalosporins	Broader spectrum than penicillin Greater potential to induce antibiotic resistance
	Cefuroxime* (second generation)	10 mg/kg/dose orally twice daily for 10 days (maximum 250 mg/dose)	High efficacy rate Narrower spectrum than later-generation cephalosporins	Broader spectrum than penicillin and first-generation cephalosporins Greater potential to induce antibiotic resistance
	Cefpodoxime* (third generation)	5 mg/kg/dose orally every 12 hours (maximum 100 mg/dose) for 5 to 10 days	High efficacy rate FDA approved for 5-day course	Broader spectrum than penicillin and earlier-generation cephalosporins

				Greater potential to induce antibiotic resistance
	Cefdinir* (third generation)	7 mg/kg/dose orally every 12 hours for 5 to 10 days or 14 mg/kg/dose every 24 hours for 10 days (maximum 600 mg/day)	High efficacy rate FDA approved for 5-day course when dosed twice daily	Broader spectrum than penicillin and earlier-generation cephalosporins Greater potential to induce antibiotic resistance
Macrolides (alternatives for patients with anaphylaxis or other IgE-mediated reactions or severe delayed reactions to penicillin[Δ])	Azithromycin	12 mg/kg/day (maximum 500 mg/dose) for 5 days	Can be given as a 5-day course due to extended half-life	Growing rates of resistance Associated with QTc prolongation and, rarely, life-threatening cardiovascular events including TdP; assess risk (eg, history of long QT interval, interacting medications, electrolyte abnormalities)
	Clarithromycin*	7.5 mg/kg/dose (maximum 250 mg per dose) orally twice daily for 10 days		Growing rates of resistance Greater gastrointestinal side effects than azithromycin

				Causes CYP3A4 drug interactions QTc interval prolongation: Refer to azithromycin
Lincosamides (alternative when macrolide resistance is a concern and penicillins and cephalosporins cannot be used)	Clindamycin	7 mg/kg/dose (maximum 300 mg per dose) orally 3 times daily for 10 days		Growing rates of resistance High side effect profile (ie, gastrointestinal)

IM: intramuscularly; FDA: US Food and Drug Administration; TdP: torsades de pointes.

* Dose alteration may be needed for renal insufficiency.

¶ In children weighing ≤27 kg, the combination IM formulation of 900,000 units benzathine penicillin G with 300,000 units procaine penicillin G (Bicillin C-R 900/300) is a less painful alternative. Efficacy in larger children and adults has not been established.

Δ Approach to patients with penicillin allergy varies among experts and allergy severity; refer to UpToDate text for additional details.

Missing recommendations:

- For most children, we use either oral penicillin V or amoxicillin. Amoxicillin is often preferred for young children because the taste of the amoxicillin suspension is more palatable than that of penicillin. Amoxicillin can also be given once daily. In several randomized trials, standard-dose and once-daily dosing of amoxicillin appeared to have equivalent efficacy as oral penicillin.
- For patients with a history of acute rheumatic fever (who are not receiving antibiotic prophylaxis), options include oral penicillin, oral amoxicillin, or single-dose intramuscular (IM) benzathine penicillin. Because adherence is critical for patients with a history of acute rheumatic fever, we base our choice on patient values and preferences. While IM benzathine penicillin can be given as a single dose, the drug is expensive in some regions, frequently unavailable, and causes injection site pain. In contrast, oral options are readily available but carry the risk of incomplete adherence.
- Supportive care: avoid using systemic glucocorticoids for symptom relief because antibiotics and systemic analgesics are generally effective, and the

addition of systemic glucocorticoids increases the likelihood of adverse events.

- Tonsillectomy is rarely indicated for patients with recurrent GAS pharyngitis. We determine the need for tonsillectomy in each individual case based on the patient's age, the frequency and severity of infections, history of antibiotic use, and patient values and preferences.

Prevention:

- Hand hygiene — Hand hygiene is a key measure for preventing spread to others, especially after coughing or sneezing and before preparing foods or eating, and we remind all patients of its importance.
- Postexposure prophylaxis — Testing and treatment of asymptomatic persons who have been exposed to a patient with group A Streptococcus (GAS) pharyngitis are not routinely recommended [23], except for patients with a history of acute rheumatic fever, during outbreaks of acute rheumatic fever and/or poststreptococcal glomerulonephritis, or when GAS infections are recurring in households or other close-contact settings.

1.2 Additional Guidelines

This part includes the added guidelines to the previous CHI Tonsillopharyngitis report, along with their recommendations.

Table 6. List of Additional Guidelines

Additional Guidelines
Update Rheumatic Fever New Zealand Guidelines for Group A Streptococcal Sore Throat Management Guideline **(2019)**
German Clinical practice guidelines sore throat **(2021)**
Indian Academy of Pediatrics (IAP) Standard Treatment Guidelines: Acute Pharyngitis/Acute Tonsillopharyngitis **(2022)**
NICE guidelines on Sore throat (acute): antimicrobial prescribing **(2018)**
The Royal Children Hospital Melbourne for the management of sore throat (**2021**)
The Royal Children Hospital Melbourne for the Invasive group A streptococcal infections: management of household contacts (**2023**)

1.2.1 Update Rheumatic Fever New Zealand Guidelines for Group A Streptococcal Sore Throat Management Guideline (2019)

The 2019 New Zealand Guidelines[7] have opted for the following Grading Scheme/Level of Evidence:

Table 7. Grading the Certainty of Evidence and Strength of Recommendations of the New Zealand Clinical Guidelines (2019)

Grade of Recommendation	
A	Rich body of high-quality randomized controlled trial (RCT) data
B	Limited body of RCT data or high-quality non-RCT data
C	Limited evidence
D	No evidence available – panel consensus judgement
Evidence Level (Quality of Evidence)	
I	Evidence obtained from a systematic review of all relevant randomized controlled trials (RCT)
II	Evidence obtained from at least one properly designed randomized controlled trial
III-1	Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method)
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomized (cohort studies), case-control studies or interrupted time series with a control group
III-3	Evidence obtained from comparative studies with historical control, 2 or more single-arm studies or interrupted time series with a parallel control group
IV	Evidence obtained from case series, either post-test or pre-test and posttest

The New Zealand Guidelines has issued the recommendations below[7]:

- Patients presenting in primary care or emergency departments with pharyngitis who are at high-risk for rheumatic fever should have a throat swab taken. Consider commencing empiric antibiotics if follow-up is problematic (Grade D, Expert Opinion).
- Treat group A streptococcal infections as soon as possible (Grade C, level IV).
- Amoxicillin is not inferior to oral penicillin in treating GAS Pharyngitis (Grade A, level I).

- Do not prescribe courses of oral antibiotics with a duration of less than 10 days to treat GAS pharyngitis in populations at high-risk of ARF (Grade B, level I).
- **Benzathine Penicillin Cut Off Weight:**

  Children < 30kg: 600,000 U

  Adults and children ≥ 30kg: 1,200,000 U (Expert opinion)
- **Lignocaine with Benzathine Penicillin Injection**
  - Low-dose lignocaine can safely be used with IM benzathine penicillin to reduce pain associated with administration (Grade C, level III-2).
  - In pregnant women, low-dose lignocaine may be co-administered with IM benzathine penicillin to reduce associated pain (Grade C, level III-2).
  - In breast-feeding women, lignocaine may be co-administered with IM benzathine penicillin to reduce associated pain (Grade C, level IV).
- For women on oral contraception, additional contraception (barrier or abstinence) is not required when taking antibiotics except for **rifampicin** where:
  - Combined oral contraceptives (COCs) require additional contraception during and 28 days after stopping rifampicin as well as:
  - Combined hormonal contraceptive continuously for >3 weeks until breakthrough bleeding occurs for 3-4 days, **or**
  - Tricycling (taking three monophasic 21-day pill packs continuously without a break) and a shortened pill-free interval of 4 days
  - A minimum COC strength of 30µg ethinyl estradiol
  - Progestogen-only pill (POP) or implant should be advised to use an alternative method of contraception (Grade D, Expert Opinion).
- Do not use tetracyclines, sulfonamides or fluoroquinolones antibiotics in the treatment of GAS pharyngitis (Grade D, level IV).
- Paracetamol and NSAIDs can be used in the symptom control of GAS pharyngitis. Aspirin should be avoided in children (Expert Opinion).
- 10 days of oral penicillin twice daily is the gold standard for treating GAS pharyngitis. Once daily oral amoxicillin is a reasonable alternative, as is IM benzathine penicillin. Evidence for shorter regimens remains insufficient, nor is there sufficient evidence to make firm recommendations on clinical measures to increase compliance.
- No recommendation is possible regarding seasonal prophylaxis (Grade D, insufficient evidence to make a judgment)

- In children, tonsillectomy for severe recurrent tonsillitis reduces the number of sore throats in the short term (12 months) (Grade B, level I)
- For adults there is insufficient data to allow the Advisory Group to make a recommendation (Grade B, level II).

1.2.2 German Clinical Practice Guidelines Sore Throat (2021)

The 2021 German Clinical Practice Guidelines[10] have opted for the following Grading Scheme/Level of Evidence:

Table 8. Grading the Certainty of Evidence and Strength of Recommendations of American Thoracic Society Guidelines

Grade	Strength of Recommendation
A	High strength of recommendation
B	Medium strength of recommendation
O	Low strength of recommendation
Grade	**Level of Evidence**
Ia	Highest level, evidence from meta-analyses or systematic reviews of randomized controlled trials
Ib	Evidence from individual randomized controlled studies
II	Evidence from cohort studies
III	Evidence from case-control studies
IV	Evidence from case series
V	Expert consensus with systematic literature search, no studies found
GCP	Expert consensus without a systematic literature search: Good Clinical Practice

The German Clinical Practice Guidelines has issued the recommendations below[10]:

- The guideline provides only a weak recommendation for the use of throat remedies like lozenges, gargle solutions, and sprays containing local anesthetics and/or non-steroidal anti-inflammatory drugs (NSAIDs).
- Corticosteroids should not be used for analgesic treatment of sore throat (A, 1a).
- Ibuprofen or naproxen can be offered for the short-term symptomatic treatment of sore throat (O, Ib).

- Sore throat (even of bacterial etiology) does not represent a general indication for antibiotic administration (Statement, Ia).
- Thus, the primary goal of antibiotic treatment in patients aged ≥ 3 years with acute sore throat is to shorten the duration of the disease rather than to prevent complications. If the physician is considering—or the patient is expecting—antibiotic treatment in the absence of red flags, the guideline recommends that the treatment decision be made on the basis of one of the three clinical scores (strength of recommendation B, II).
- If antibiotic treatment is to be performed, either by DP or by immediate administration, the following active substances are recommended (strength of recommendation A, Ia):
  - Adolescents (> 15 years) and adults:
    - Penicillin V 0.8–1.0 million IU orally three times daily for 5–7 days.
    - In the case of penicillin intolerance: clarithromycin 250–500 mg orally twice daily for 5 days.
  - Children (3–15 years):
    - Penicillin V 0.05–0.1 million IU/kg body weight/day divided into three single oral doses for 5–7 days.
    - In the case of penicillin intolerance: clarithromycin 15 mg/kg body weight/day divided into two single oral doses for 5 days.
  - The risk of adverse drug reactions and the development of resistance increases with increasing duration of antibiotic use. Therefore, it is recommended restricting the duration of use to between 5 and a maximum of 7 days. Pathogen eradication with 10-day penicillin should be reserved for individual cases at increased risk for a severe course (GCP). Taking penicillin at midday may be difficult in patients aged 3–15 years (for example, if they attend community facilities). In these cases, it is possible to divide the daily dose of penicillin V into two doses (mornings and evenings) (Statement; Ia).
- Frequent or recurrent episodes of sore throat can be burdensome for the patient and justify the desire for causal treatment. When considering surgical treatment, an assessment of (ideally medically documented and treated) episodes of sore throat, defined as follows, is recommended:
  - Elevated temperature > 38.3 °C (oral) or
  - Purulent tonsils or
  - New-onset painful cervical lymph node swelling or

- Detection of streptococcus in the swab.

- From a frequency of six episodes or more in the preceding 12 months, tonsillectomy or tonsillotomy is a therapeutic option (GCP). Given the heterogeneous quality of data, the basis for decision-making in this regard is consensus-based and applies to patients aged 3 years and older.
- If tonsillectomy is not possible or undesired, a one-off attempt at pharmacological eradication of the pathogens with amoxicillin/clavulanic acid or clindamycin can be made during the sore throat episode (0, Ia).

1.2.3 Indian Academy of Pediatrics (IAP) Standard Treatment Guidelines: Acute Pharyngitis/Acute Tonsillopharyngitis (2022)

The Indian Academy of Pediatrics (IAP) published in 2022 clinical practice guidelines for the standard treatment of acute pharyngitis and tonsillopharyngitis. The main recommendations are summarized below[11]:

Table 9. Treatment Regimens for Group A Streptococcal (GAS) Infection

Drug	Dose/dosage	Duration
Patients without penicillin allergy		
Penicillin V, oral	*Children:* 250 mg twice or thrice daily *Adolescents and adults:* 250 mg four times daily or 500 mg twice daily	10 days
Amoxicillin, oral	50 mg/kg daily in two to three divided dose (maximum = 1,000 mg) *Alternative:* 25 mg/kg twice daily (maximum = 500 mg)	10 days
Penicillin G benzathine, intramuscular	<27 kg: 600,000 U ≥27 kg: 1,200,000 U	Single dose
Patients with penicillin allergy		
Cephalexin, oral*	20 mg/kg/dose twice daily (maximum = 500 mg/dose)	10 days
Cefadroxil, oral*	30 mg/kg once daily (maximum = 1 g)	10 days
Clindamycin, oral	7 mg/kg/dose thrice daily (maximum = 300 mg/dose)	10 days
Azithromycin oral†	12 mg/kg once daily (maximum = 500 mg)	5 days
Clarithromycin oral†	7.5 mg/kg/dose twice daily (maximum = 250 mg/dose)	10 days

*Avoid in individuals with immediate hypersensitivity to penicillin.

†Resistance of group A Streptococcus to these agents is well-known and varies geographically and temporally.

Adjunctive therapy:

- Analgesic or antipyretic (e.g., acetaminophen and nonsteroidal anti-inflammatory drugs) can be considered to treat moderate-to-severe symptoms or control a high fever.
- Aspirin and adjunctive corticosteroids are not recommended.

Surgical management:

Tonsillectomy is indicated for the individuals who have experienced the following:

- More than six episodes of streptococcal pharyngitis (confirmed by positive culture) in 1 year.
- Five episodes of streptococcal pharyngitis in 2 consecutive years.
- Three or more infections of the tonsils and/or adenoids per year for 3 years in a row despite adequate medical therapy.

Chronic or recurrent tonsillitis associated with the streptococcal carrier state that has not responded to beta-lactamase–resistant antibiotics.

1.2.4 NICE Guidelines on Sore Throat (Acute): Antimicrobial Prescribing (2018)

The NICE Clinical Practice Guidelines has issued the recommendations below[8]:

Management of Acute Sore Throat

- Acute sore throat (including pharyngitis and tonsillitis) is self-limiting and often triggered by a viral infection of the upper respiratory tract.
- Symptoms can last for around 1 week, but most people will get better within this time without antibiotics, regardless of cause (bacteria or virus).
- People who are unlikely to benefit from an antibiotic (FeverPAIN score of 0 or 1, or Centor score of 0, 1 or 2): **do not offer an antibiotic prescription**
- People who are most likely to benefit from an antibiotic (FeverPAIN score of 4 or 5, or Centor score of 3 or 4): **consider an immediate antibiotic prescription** or a back-up antibiotic prescription with advice taking account of: the unlikely event of complications if antibiotics are withheld and possible adverse effects, particularly diarrhea and nausea.

- When an immediate antibiotic prescription is given, as well as the general advice in recommendation, give advice about seeking medical help if symptoms worsen rapidly or significantly or the person becomes systemically very unwell.

Table 10. FeverPAIN Criteria

F	Fever (during previous 24 hours)
P	Purulence (pus on tonsils)
A	Attend rapidly (within 3 days after onset of symptoms)
I	Severely Inflamed tonsils
N	No cough or coryza (inflammation of mucus membranes in the nose)

Each of the FeverPAIN criteria score 1 point (maximum score of 5). Higher scores suggest more severe symptoms and likely bacterial (streptococcal) cause. A score of 0 or 1 is thought to be associated with a 13 to 18% likelihood of isolating streptococcus. A score of 2 or 3 is thought to be associated with a 34 to 40% likelihood of isolating streptococcus. A score of 4 or 5 is thought to be associated with a 62 to 65% likelihood of isolating streptococcus.

Centor criteria:

- Tonsillar exudate
- Tender anterior cervical lymphadenopathy or lymphadenitis
- History of fever (over 38 degrees Celsius)
- Absence of cough

Each of the Centor criteria score 1 point (maximum score of 4). A score of 0, 1 or 2 is thought to be associated with a 3 to 17% likelihood of isolating streptococcus. A score of 3 or 4 is thought to be associated with a 32 to 56% likelihood of isolating streptococcus.

People who are systemically very unwell, have symptoms and signs of a more serious illness or condition, or are at high-risk of complications:

- Offer an immediate antibiotic with advice.
- Refer people to hospital if they have acute sore throat associated with any of the following:
  - a severe systemic infection
  - severe suppurative complications (such as quinsy [peri-tonsillar abscess] or cellulitis, parapharyngeal abscess or retropharyngeal abscess or Lemierre syndrome).

Self-care: All people with acute sore throat

- Consider paracetamol for pain or fever, or if preferred and suitable, ibuprofen.
- Advise about the adequate intake of fluids.
- Explain that some adults may wish to try medicated lozenges containing either a local anesthetic, a non-steroidal anti-inflammatory drug (NSAID) or an antiseptic. However, they may only help to reduce pain by a small amount.
- Be aware that no evidence was found on non-medicated lozenges, mouthwashes, or local anesthetic mouth spray used on its own.

Choice of antibiotic

Table 11. Antibiotics for Adults Aged 18 Years and Over

Treatment	Antibiotic, dosage, and course length
First-choice oral antibiotic	**Phenoxymethylpenicillin**: 500 mg four times a day or 1,000 mg twice a day for 5 to 10 days Five days may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure
Alternative first choice for penicillin allergy or intolerance (for people who are not pregnant)	**Clarithromycin**: 250 mg to 500 mg twice a day for 5 days
Alternative first choice for penicillin allergy in pregnancy	**Erythromycin**: 250 mg to 500 mg four times a day or 500 mg to 1,000 mg twice a day for 5 days Erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms.

Table 12. Antibiotics for Children and Young People Under 18 Years

Treatment	Antibiotic, dosage, and course length
First-choice oral antibiotic	**Phenoxymethylpenicillin**: ▪ 1 month to 11 months, 62.5 mg four times a day or 125 mg twice a day for 5 to 10 days ▪ 1 year to 5 years, 125 mg four times a day or

	250 mg twice a day for 5 to 10 days ▪ 6 years to 11 years, 250 mg four times a day or 500 mg twice a day for 5 to 10 days ▪ 12 years to 17 years, 500 mg four times a day or 1,000 mg twice a day for 5 to 10 days Five days may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure
Alternative first choice for penicillin allergy or intolerance (for people who are not pregnant)	**Clarithromycin**: 1 month to 11 years: ▪ Under 8 kg, 7.5 mg/kg twice a day for 5 days ▪ 8 kg to 11 kg, 62.5 mg twice a day for 5 days ▪ 12 kg to 19 kg, 125 mg twice a day for 5 days ▪ 20 kg to 29 kg, 187.5 mg twice a day for 5 days ▪ 30 kg to 40 kg, 250 mg twice a day for 5 days 12 years to 17 years, 250 mg to 500 mg twice a day for 5 days
Alternative first choice for penicillin allergy in pregnancy	**Erythromycin**: 8 years to 17 years, 250 mg to 500 mg four times a day or 500 mg to 1,000 mg twice a day for 5 days Erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms.

1.2.5 The Royal Children Hospital Melbourne for the Management of Sore Throat (2021)

The Royal Children Hospital Melbourne guidelines has issued the recommendations below[9]:

Supportive management is adequate for most sore throats including scarlet fever:

SIMPLE ANALGESIA

- Combining non-pharmacological and pharmacological approaches in multi-modal strategies yields the highest effectiveness.
- In cases of persistent pain, it is advisable to provide scheduled analgesic prescriptions rather than on an "as needed" basis.

Non-pharmacological methods

- Age-appropriate techniques should be used in all children with pain.
- These include:
  - When feasible, having a parent present and providing soothing physical contact.
  - Utilizing the services of a child life specialist if accessible, or employing distraction techniques such as videos, music, toys, bubble-blowing, storytelling by the child, and counting.
  - For infants, consider practices like swaddling, feeding, skin-to-skin care, and the use of a pacifier.
  - Implementing breathing exercises to manage discomfort.
  - In the case of injuries, effective approaches include swiftly immobilizing potential fractures, applying ice and elevating injured limbs, promptly dressing burns.

Pharmacological agents

Use a stepwise approach to guide pain management with plan to escalate agents according to pain severity.

Table 13. Oral Supportive Care for Pain Associated with Tonsillopharyngitis

Analgesic	Route	Dose	Maximum dosing	Notes
Mild to moderate pain				
Sucrose	oral	0.1–0.5 mL increments	<3 months: 5 mL/day ≥3 months: 10 mL/day	Children 0–18 months (most effective in younger children) Provide dose 2 minutes prior to painful procedure (with dummy if available)
and / or				
Paracetamol	oral	15 mg/kg (max 1 g) 4–6 hourly	Birth - 1 month: 60 mg/kg/day >1 month: 90	Dose on ideal body weight Dose commercial syrup carefully as available in several strengths

			mg/kg (up to 4 g/day)	
	PR	15–20 mg/kg (max 1 g) 6 hourly	Birth - 1 month: 60 mg/kg/day > 1 month: 90 mg/kg (up to 4 g/day)	If oral not tolerated Dose on ideal body weight 125 mg, 250 mg, 500 mg suppositories available PR medication should be avoided in immunocompromised children
	IV	<1 month 10 mg/kg 6 hourly >1 month 15 mg/kg 6 hourly (max 1 g)	< 1 month: 40 mg/kg/day > 1 month: 60 mg/kg (up to 4 g/day)	If oral/PR not tolerated Dose on ideal body weight Dose (mg) and volume (mL) errors have caused significant overdoses in young children
and / or				
Ibuprofen	oral	>3 months: 10 mg/kg (max 400 mg) 6–8 hourly with food	30 mg/kg (up to 2.4 g/day)	Precautions include renal impairment, dehydration, bleeding, and anticoagulant use Asthma is not a contraindication Dose commercial syrup carefully as available in several strengths
Moderate to severe pain				
Use medications above, and consider adding the following				
Oxycodone	oral	1–12 months: 0.05–0.1 mg/kg, >12 months: 0.1–0.2 mg/kg 4 hourly	5–10 mg 4 hourly	For short term use Do not prescribe for outpatient use if no clear diagnosis Higher / more frequent dosing can be used in inpatient settings
or				

Morphine	IV / subcutaneous	0.05 mg/kg >12 months: up to 0.2 mg/kg (max 5–10 mg)	Cumulative maximum <1 month: 0.1 mg/kg 4–6 hourly 1–12 months: 0.1 mg/kg 2–4 hourly >12 months: 0.2 mg/kg 2–4 hourly	Higher / more frequent dosing can be used in inpatient settings
or				
Fentanyl	Intranasal	>12 months: 0.75–1.5 microg/kg (max 75 microg) 10 minutely	Total dose of 3 microg/kg	Rapid onset (5 minutes) Divide dose between nostrils Consider alternative ongoing analgesia after second dose Not recommended <12 months of age
or				
Tramadol	oral / IV	1–18 years 0.5–1 mg/kg (max 100 mg) 6–8 hourly	8 mg/kg (up to 400 mg/day)	Can give up to 2 mg/kg if no risk sleep apnea/risk factors for respiratory depression Avoid in epilepsy (lowers seizure threshold) and patients on SSRIs (risk of serotonin syndrome)

Topical agents

Table 14. Topical Supportive Care for Pain

Context	Suggested topical agent
Open wounds in preparation for closure	Amethocaine, lignocaine and adrenaline (ALA/Laceraine®)

Prior to intravenous access and venepuncture	Anaesthetic creams, ice, Coolsense® or BUZZY®
Prior to suprapubic aspirate and lumbar puncture	Anaesthetic creams
Nasal / pharyngeal foreign body removal, NGT insertion	Lignocaine - Phenylephrine (CoPhenylcaine Forte®) nasal spray
Teething	Salicylate teething gels (NB risk of Reye syndrome)
Gingivostomatitis	Lignocaine viscous gel
Mouth ulcers	Triamcinolone acetonide (Kenalog® in Orabase®)
Eye pain / corneal abrasions	Topical amethocaine eye drops
Severe, acute ear pain	Short-term use of topical 2% lignocaine, 1–2 drops applied to an intact tympanic membrane

- Corticosteroids can be considered in patients with severe pain unresponsive to simple analgesia:

  dexamethasone 0.15 mg/kg (max 10 mg) oral/IV/IM as a single dose

  OR

  prednisolone 1 mg/kg (max 50 mg) oral as a single dose
- Maintain hydration.
- Admissions for analgesia and hydration are not commonly required.

Antibiotic therapy for suspected group A streptococcal pharyngitis

- Antibiotic therapy is recommended only for high-risk groups. Antimicrobial recommendations may vary according to local antimicrobial susceptibility patterns.

Table 15. Antibiotic Therapy for Suspected Group A Streptococcal Pharyngitis

Antibiotic	Route	Dose	Duration
Phenoxymethylpenicillin	Oral	15 mg/kg (max 500 mg) two times daily	10 days
Amoxicillin**	Oral	50 mg/kg (max 1 g) once daily **	10 days
Poor compliance or oral therapy not tolerated			
Benzathine Penicillin	IM	< 10 kg 450,000 units (0.9 mL) 10 - <20 kg 600,000 units (1.2 mL)	Single dose

		> 20 kg 1,200,000 units (2.3 mL)	
Hypersensitivity to penicillins (exclude immediate hypersensitivity)			
Cefalexin	Oral	25 mg/kg (max 1 g) two times daily	10 days
Anaphylaxis to beta-lactams			
Azithromycin	Oral	Children: 12 mg/kg (max 500 mg) once daily Adults: 500 mg once daily	5 days

** second line therapy for improved oral adherence

1.2.6 The Royal Children Hospital Melbourne for the Invasive Group A Streptococcal Infections (IGAS): Management of Household Contacts (2023)

The Royal Children Hospital Melbourne guidelines has issued the recommendations below[12]:

- Some experts and guidelines suggest the use of antibiotic chemoprophylaxis to lower the chances of IGAS infection in household contacts, although this approach hasn't been thoroughly investigated.
- Regardless of whether chemoprophylaxis is prescribed, it is essential to ensure that all household contacts are informed about their heightened risk of IGAS and the early indicators of IGAS that necessitate immediate medical attention. These symptoms encompass:
    - Fever
    - Severe muscle aches
    - Sore throat
    - Cellulitis
    - Diarrhea or vomiting
    - Severe headache
- Conducting throat swabs to check for GAS carriage in asymptomatic close contacts is not beneficial.
- Asymptomatic household contacts are not obligated to undergo isolation or activity restrictions.

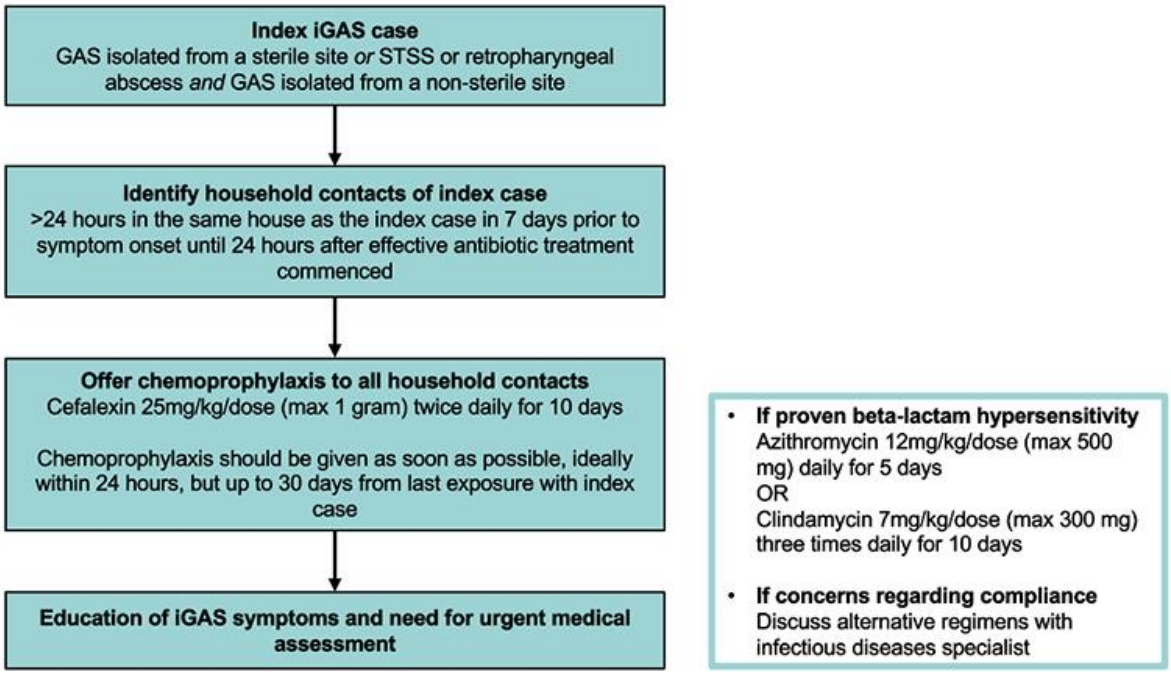

Figure 1. *Management of Household Contacts for Invasive Group A Streptococcal Infections*

Section 2.0 Drug Therapy in Tonsillopharyngitis

This section comprises three subsections: the first contains the newly recommended drugs, the second covers drug modifications, and the third outlines the drugs to delist due to withdrawal from the market among others.

2.1 Additions

No new drugs have been approved by the SFDA for the treatment of Tonsillopharyngitis since May 2020.

2.2 Modifications

The following modifications and adjustments have been implemented since the 2020 report:

Table 16. PE Modifications for Tonsillopharyngitis Medications

DRUGS	PE MODIFICATIONS
Aceclofenac	Add AGE: not recommended for use in children/adolescents < 18yo except in specific situations determined by healthcare providers
Chlorpheniramine Maleate	Add AGE: FDA does not recommend OTC use in children < 2 years old due to risk of serious and life-threatening adverse events (including death) and recommends use with caution in pediatric patients >=2 years old
Dexketoprofen	Add AGE: Not recommended for use in children/adolescents < 18yo except in specific situations determined by healthcare providers
Dextromethorphan	Add AGE: Not for OTC use in children < 4 years of age
Phenylephrine hydrochloride, chlorpheniramine maleate	Add AGE: FDA does not recommend OTC use in children < 2 years old and recommends use with caution in pediatric patients >=2 years old.
Promethazine	Add AGE: safety and efficacy have not been established in children < 2yo.
Pseudoephedrine hydrochloride, dextromethorphan hydrobromide, chlorpheniramine	Add AGE: Not for OTC use in children < 6 years of age

maleate	
Pseudoephedrine hydrochloride, dextromethorphan hydrobromide, triprolidine	Add AGE: Not for OTC use in children < 12 years of age
Rifampicin	Add MD: needs to be prescribed by physician and followed-up

2.3 Delisting

The medications below are no longer SFDA registered[13], therefore, it is recommended to delist the following drug from CHI formulary:

- Clavulanic Acid
- Dextromethorphan hydrobromide, chlorpheniramine maleate, ammonium, sodium citrate

Section 3.0 Key Recommendations Synthesis

- Preferred treatment for Group A Streptococcus (GAS) pharyngitis is penicillin due to its effectiveness, safety, and cost-effectiveness. No reported penicillin resistance in clinical GAS isolates[6].
- Treat group A streptococcal infections as soon as possible[7].
- Use clinical scoring systems to determine antibiotic prescription (FeverPAIN score or Centor score)[8].
- Antibiotics are recommended for systemically very unwell patients or those at high risk of complications[8].
- For most children, oral penicillin V or amoxicillin is recommended, with amoxicillin preferred for young children[6,7].
- Patients with a history of acute rheumatic fever can choose from oral penicillin, oral amoxicillin, or single-dose intramuscular benzathine penicillin based on patient values and preferences[6].
- Do not use tetracyclines, sulfonamides, or fluoroquinolones for GAS pharyngitis.
- Corticosteroids should not be used for analgesic treatment[7].
- Tonsillectomy is rarely indicated for patients with recurrent GAS pharyngitis and should be considered on a case-by-case basis[6].
- Tonsillectomy may be considered for severe recurrent tonsillitis in children. Insufficient data for tonsillectomy recommendations in adults[7,10,11].
- Emphasize hand hygiene to prevent the spread of GAS[6].
- Postexposure prophylaxis is not routinely recommended but may be considered in specific situations[6].
- Paracetamol and NSAIDs can be used for symptom control. Avoid aspirin in children[7,10,11].
- 10 days of oral penicillin is the gold standard for treating GAS pharyngitis[7].
- Strongly discourage throat remedies containing local antiseptics and antibiotics[10].
- Be aware that no evidence was found on non-medicated lozenges, mouthwashes, or local anesthetic mouth spray used on its own[8].

Section 4.0 Conclusion

This report serves as **an annex to the previous CHI Tonsillopharyngitis report** and aims to provide recommendations to aid in the management of Tonsillopharyngitis. It is important to note that these recommendations should be utilized to support clinical decision-making and not replace it in the management of individual patients with Tonsillopharyngitis. Health professionals are expected to consider this guidance alongside the specific needs, preferences, and values of their patients when exercising their judgment.

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Section 6.0 Appendices

Appendix A. Prescribing Edits Definition

Some covered drugs may have additional requirements, rules, or limits on coverage. These requirements and limits may include:

Prescribing edits Tools	Description
AGE (Age):	Coverage may depend on patient age
CU (Concurrent Use):	Coverage may depend upon concurrent use of another drug
G (Gender):	Coverage may depend on patient gender
MD (Physician Specialty):	Coverage may depend on prescribing physician's specialty or board certification
PA (Prior Authorization):	Requires specific physician request process
QL (Quantity Limits):	Coverage may be limited to specific quantities per prescription and/or time period
ST (Step Therapy):	Coverage may depend on previous use of another drug
EU (Emergency Use only):	This drug status on Formulary is only for emergency use
PE (Protocol Edit):	Use of drug is dependent on protocol combination, doses and sequence of therapy

Appendix B. Tonsillopharyngitis Scope

Section	Rationale/Updates
Section 1.1 Treatment and prevention of streptococcal pharyngitis: Group A Streptococcus (GAS), Bacterial Tonsillopharyngitis in Adults and Children. Up-To Date (**Sep 29, 2023**)[6]	**Missing recommendation:** o For most children, we use either oral penicillin V or amoxicillin. Amoxicillin is often preferred for young children because the taste of the amoxicillin suspension is more palatable than that of penicillin. Amoxicillin can also be given once daily. In several randomized trials, standard-dose and once-daily dosing of amoxicillin appeared to have equivalent efficacy as oral penicillin o For patients with a history of acute rheumatic fever (who are not receiving antibiotic prophylaxis), options include oral penicillin, oral amoxicillin, or single-dose intramuscular (IM) benzathine penicillin. Because adherence is critical for patients with a history of acute rheumatic fever, we base our choice on patient values and preferences. While IM benzathine penicillin can be given as a single dose, the drug is expensive in some regions, frequently unavailable, and causes injection site pain. In contrast, oral options are readily available but carry the risk of incomplete adherence. o Supportive care: avoid using systemic glucocorticoids for symptom relief because antibiotics and systemic analgesics are generally effective, and the addition of systemic glucocorticoids increases the likelihood of adverse events. o Tonsillectomy is rarely indicated for patients with recurrent GAS pharyngitis. We determine the need for tonsillectomy in each individual case based on the patient age, the frequency and severity of infections, history of antibiotic use, and patient values and preferences. **Prevention:** o Hand hygiene — Hand hygiene is a key measure for preventing spread to others, especially after coughing or sneezing and before preparing foods or eating, and we remind all patients of its importance. o Postexposure prophylaxis — Testing and treatment of asymptomatic persons who have been exposed to a patient with group A Streptococcus (GAS) pharyngitis are not routinely recommended [23], except for patients with a history of acute rheumatic fever, during outbreaks of acute rheumatic fever and/or poststreptococcal glomerulonephritis, or when GAS infections are recurring in households or other close-contact

	settings.
Addition of a new section: Rheumatic Fever New Zealand Guidelines for Group A Streptococcal Sore Throat Management Guideline: **2019 Update**[7]	Patients presenting in primary care or emergency departments with pharyngitis who are at high-risk for rheumatic fever should have a throat swab taken. Consider commencing empiric antibiotics if follow-up is problematic (Grade D, Expert Opinion). Treat group A streptococcal infections as soon as possible (Grade C, level IV). Amoxicillin is not inferior to oral penicillin in treating GAS Pharyngitis (Grade A, level I). Do not prescribe courses of oral antibiotics with a duration of less than 10 days to treat GAS pharyngitis in populations at high-risk of ARF (Grade B, level I). **Benzathine Penicillin Cut Off Weight:** Children < 30kg: 600,000 U Adults and children ≥ 30kg: 1,200,000 U (Expert opinion) Lignocaine with Benzathine Penicillin Injection o Low-dose lignocaine can safely be used with IM benzathine penicillin to reduce pain associated with administration (Grade C, level III-2). o In pregnant women, low-dose lignocaine may be co-administered with IM benzathine penicillin to reduce associated pain (Grade C, level III-2). o In breast-feeding women, lignocaine may be co-administered with IM benzathine penicillin to reduce associated pain (Grade C, level IV). For women on oral contraception, additional contraception (barrier or abstinence) is not required when taking antibiotics except for **rifampicin** where: • Combined oral contraceptives (COCs) require additional contraception during and 28 days after stopping rifampicin as well as: • Combined hormonal contraceptive continuously for >3 weeks until breakthrough bleeding occurs for 3-4 days, **or** • Tricycling (taking three monophasic 21-day pill packs continuously without a break) and a shortened pill-free interval of 4 days

	• A minimum COC strength of 30µg ethinyl estradiol • Progestogen-only pill (POP) or implant should be advised to use an alternative method of contraception (Grade D, Expert Opinion). Do not use tetracyclines, sulfonamides or fluoroquinolones antibiotics in the treatment of GAS pharyngitis (Grade D, level IV). Paracetamol and NSAIDs can be used in the symptom control of GAS pharyngitis. Aspirin should be avoided in children (Expert Opinion). 10 days of oral penicillin twice daily is the gold standard for treating GAS pharyngitis. Once daily oral amoxicillin is a reasonable alternative, as is IM benzathine penicillin. Evidence for shorter regimens remains insufficient, nor is there sufficient evidence to make firm recommendations on clinical measures to increase compliance. No recommendation is possible regarding seasonal prophylaxis (Grade D, insufficient evidence to make a judgment) In children, tonsillectomy for severe recurrent tonsillitis reduces the number of sore throats in the short term (12 months) (Grade B, level I). For adults there is insufficient data to allow the Advisory Group to make a recommendation (Grade B, level II).
Addition of a new section: German Clinical practice guidelines sore throat (**2021**)[10]	o The guideline provides only a weak recommendation for the use of throat remedies like lozenges, gargle solutions, and sprays containing local anesthetics and/or non-steroidal anti-inflammatory drugs (NSAIDs). o Strongly discourages the use of throat remedies containing local antiseptics and/or antibiotics, and this recommendation is based on solid evidence. This is because the majority of acute sore throat cases are caused by viral infections. Using these substances can lead to severe allergic reactions. However, there is currently no available data regarding the frequency of such reactions. o Corticosteroids should not be used for analgesic treatment of sore throat (A, 1a). o Ibuprofen or naproxen can be offered for the short-term symptomatic treatment of sore throat (O, Ib). o Sore throat (even of bacterial etiology) does not represent a general indication for antibiotic administration (Statement, Ia).

	○ Thus, the primary goal of antibiotic treatment in patients aged ≥ 3 years with acute sore throat is to shorten the duration of the disease rather than to prevent complications. If the physician is considering—or the patient is expecting—antibiotic treatment in the absence of red flags, the guideline recommends that the treatment decision be made on the basis of one of the three clinical scores (strength of recommendation B, II). ○ If antibiotic treatment is to be performed, either by DP or by immediate administration, the following active substances are recommended (strength of recommendation A, Ia): ▪ Adolescents (> 15 years) and adults: – Penicillin V 0.8–1.0 million IU orally three times daily for 5–7 days – In the case of penicillin intolerance: clarithromycin 250–500 mg orally twice daily for 5 days. ▪ Children (3–15 years): – Penicillin V 0.05–0.1 million IU/kg body weight/day divided into three single oral doses for 5–7 days – In the case of penicillin intolerance: clarithromycin 15 mg/kg body weight/day divided into two single oral doses for 5 days. ▪ The risk of adverse drug reactions and the development of resistance increases with increasing duration of antibiotic use (7). Therefore, it is recommended restricting the duration of use to between 5 and a maximum of 7 days. Pathogen eradication with 10-day penicillin should be reserved for individual cases at increased risk for a severe course (GCP). Taking penicillin at midday may be difficult in patients aged 3–15 years (for example, if they attend community facilities). In these cases, it is possible to divide the daily dose of penicillin V into two doses (mornings and evenings) (Statement; Ia). ○ Frequent or recurrent episodes of sore throat can be burdensome for the patient and justify the desire for causal treatment. When considering surgical treatment, an assessment of (ideally medically documented and treated) episodes of sore throat, defined as follows, is recommended: - Elevated temperature > 38.3 °C (oral) or - Purulent tonsils or - New-onset painful cervical lymph node swelling or - Detection of streptococcus in the swab. ○ From a frequency of six episodes or more in the preceding 12 months, tonsillectomy or tonsillotomy is a therapeutic option (GCP). Given the heterogeneous quality of data, the basis for

<table>
<tr><td></td><td>decision-making in this regard is consensus-based and applies to patients aged 3 years and older.
o If tonsillectomy is not possible or undesired, a one-off attempt at pharmacological eradication of the pathogens with amoxicillin/clavulanic acid or clindamycin can be made during the sore throat episode (0, Ia).</td></tr>
<tr><td>Addition of a new section:
IAP; Standard Treatment Guidelines: Acute Pharyngitis/Acute Tonsillopharyngitis (2022)[11]</td><td>Adjunctive therapy
o Analgesic or antipyretic (e.g., acetaminophen and nonsteroidal anti-inflammatory drugs) can be considered to treat moderate-to-severe symptoms or control a high fever.
o Aspirin and adjunctive corticosteroids are not recommended

TABLE 3: Treatment regimens for group A streptococcal (GAS) infection.
<table>
<tr><th>Drug</th><th>Dose/dosage</th><th>Duration</th></tr>
<tr><td colspan="3">Patients without penicillin allergy</td></tr>
<tr><td>Penicillin V, oral</td><td>Children: 250 mg twice or thrice daily
Adolescents and adults: 250 mg four times daily or 500 mg twice daily</td><td>10 days</td></tr>
<tr><td>Amoxicillin, oral</td><td>50 mg/kg daily in two to three divided dose (maximum = 1,000 mg)
Alternative: 25 mg/kg twice daily (maximum = 500 mg)</td><td>10 days</td></tr>
<tr><td>Penicillin G benzathine, intramuscular</td><td><27 kg: 600,000 U
≥27 kg: 1,200,000 U</td><td>Single dose</td></tr>
<tr><td colspan="3">Patients with penicillin allergy</td></tr>
<tr><td>Cephalexin, oral*</td><td>20 mg/kg/dose twice daily (maximum = 500 mg/dose)</td><td>10 days</td></tr>
<tr><td>Cefadroxil, oral*</td><td>30 mg/kg once daily (maximum = 1 g)</td><td>10 days</td></tr>
<tr><td>Clindamycin, oral</td><td>7 mg/kg/dose thrice daily (maximum = 300 mg/dose)</td><td>10 days</td></tr>
<tr><td>Azithromycin oral†</td><td>12 mg/kg once daily (maximum = 500 mg)</td><td>5 days</td></tr>
<tr><td>Clarithromycin oral†</td><td>7.5 mg/kg/dose twice daily</td><td>10 days</td></tr>
</table></td></tr>
</table>

	(maximum = 250 mg/dose) *Avoid in individuals with immediate hypersensitivity to penicillin. †Resistance of group A Streptococcus to these agents is well-known and varies geographically and temporally. **Surgical management:** Tonsillectomy is indicated for the individuals who have experienced the following: o More than six episodes of streptococcal pharyngitis (confirmed by positive culture) in 1 year. o Five episodes of streptococcal pharyngitis in 2 consecutive years. o Three or more infections of the tonsils and/or adenoids per year for 3 years in a row despite adequate medical therapy. o Chronic or recurrent tonsillitis associated with the streptococcal carrier state that has not responded to beta-lactamase–resistant antibiotics.
Addition of a new section: NICE guidelines on Sore throat (acute): antimicrobial prescribing **(2018)**[8]	**Managing acute sore throat** **All people with acute sore throat needs to be aware that**: o acute sore throat (including pharyngitis and tonsillitis) is self-limiting and often triggered by a viral infection of the upper respiratory tract o symptoms can last for around 1 week, but most people will get better within this time without antibiotics, regardless of cause (bacteria or virus). o **People who are unlikely to benefit from an antibiotic FeverPAIN score of 0 or 1, or Centor score of 0, 1 or 2):** Do not offer an antibiotic prescription o **People who are most likely to benefit from an antibiotic (FeverPAIN score of 4 or 5, or Centor score of 3 or 4)** Consider an immediate antibiotic prescription or a back-up antibiotic prescription with advice taking account of: the unlikely event of complications if antibiotics are withheld and possible adverse effects, particularly diarrhea and nausea. o When an immediate antibiotic prescription is given, as well as the general advice in recommendation, give advice about seeking medical help if symptoms worsen rapidly or significantly or the person becomes systemically very unwell. **People who are systemically very unwell, have symptoms and signs of a more serious illness or condition, or are at high-risk of**

complications:

- Offer an immediate antibiotic with advice
- Refer people to hospital if they have acute sore throat associated with any of the following:

- a severe systemic infection
- severe suppurative complications (such as quinsy [peri-tonsillar abscess] or cellulitis, parapharyngeal abscess or retropharyngeal abscess or Lemierre syndrome).

Self-care: All people with acute sore throat

- Consider paracetamol for pain or fever, or if preferred and suitable, ibuprofen.
- Advise about the adequate intake of fluids.
- Explain that some adults may wish to try medicated lozenges containing either a local anesthetic, a non-steroidal anti-inflammatory drug (NSAID) or an antiseptic. However, they may only help to reduce pain by a small amount.
- Be aware that no evidence was found on non-medicated lozenges, mouthwashes, or local anesthetic mouth spray used on its own.

Choice of antibiotic

Table 1 Antibiotics for adults aged 18 years and over

Treatment	**Antibiotic, dosage and course length**
First-choice oral antibiotic	**Phenoxymethylpenicillin**: 500 mg four times a day or 1,000 mg twice a day for 5 to 10 days Five days may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure
Alternative first choice for penicillin allergy or intolerance (for people who are not pregnant)	**Clarithromycin**: 250 mg to 500 mg twice a day for 5 days

Alternative first choice for penicillin allergy in pregnancy	**Erythromycin**: 250 mg to 500 mg four times a day or 500 mg to 1,000 mg twice a day for 5 days Erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms.

Table 2 Antibiotics for children and young people under 18 years

Treatment	Antibiotic, dosage and course length
First-choice oral antibiotic	**Phenoxymethylpenicillin**: 1 month to 11 months, 62.5 mg four times a day or 125 mg twice a day for 5 to 10 days 1 year to 5 years, 125 mg four times a day or 250 mg twice a day for 5 to 10 days 6 years to 11 years, 250 mg four times a day or 500 mg twice a day for 5 to 10 days 12 years to 17 years, 500 mg four times a day or 1,000 mg twice a day for 5 to 10 days Five days may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure

<table>
<tr><td></td><td><table>
<tr><td>Alternative first choice for penicillin allergy or intolerance (for people who are not pregnant)</td><td>Clarithromycin:
1 month to 11 years:
Under 8 kg, 7.5 mg/kg twice a day for 5 days
8 kg to 11 kg, 62.5 mg twice a day for 5 days
12 kg to 19 kg, 125 mg twice a day for 5 days
20 kg to 29 kg, 187.5 mg twice a day for 5 days
30 kg to 40 kg, 250 mg twice a day for 5 days
12 years to 17 years, 250 mg to 500 mg twice a day for 5 days</td></tr>
<tr><td>Alternative first choice for penicillin allergy in pregnancy</td><td>Erythromycin:
8 years to 17 years, 250 mg to 500 mg four times a day or 500 mg to 1,000 mg twice a day for 5 days
Erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms.</td></tr>
</table></td></tr>
<tr><td>Addition of a new section:
The Royal Children Hospital Melbourne for the management of sore throat (2021)</td><td>Supportive management is adequate for most sore throats including scarlet fever:
SIMPLE ANALGESIA
• Combining non-pharmacological and pharmacological approaches in multi-modal strategies yields the highest effectiveness.
• In cases of persistent pain, it is advisable to provide scheduled analgesic prescriptions rather than on an "as needed" basis.
o Non-pharmacological methods
• Age-appropriate techniques should be used in all children with pain
• These include:
• When feasible, having a parent present and providing soothing physical contact.</td></tr>
</table>

- Utilizing the services of a child life specialist if accessible, or employing distraction techniques such as videos, music, toys, bubble-blowing, storytelling by the child, and counting.
- For infants, consider practices like swaddling, feeding, skin-to-skin care, and the use of a pacifier.
- Implementing breathing exercises to manage discomfort.
- In the case of injuries, effective approaches include: Swiftly immobilizing potential fractures, applying ice and elevating injured limbs, promptly dressing burns

- **Pharmacological agents**

Use a stepwise approach to guide pain management with plan to escalate agents according to pain severity.

Oral Supportive care for pain associated with tonsillopharyngitis:

Analgesic	Route	Dose	Maximum dosing	Notes
Mild to moderate pain				
Sucrose	oral	0.1–0.5 mL increments	<3 months: 5 mL/day ≥3 months: 10 mL/day	Children 0–18 months (most effective in younger children) Provide dose 2 minutes prior to painful procedure (with dummy if available)
and / or				
Paracetamol	oral	15 mg/kg (max 1 g) 4–6 hourly	Birth - 1 month: 60 mg/kg/day >1 month: 90 mg/kg (up to 4 g/day)	Dose on ideal body weight Dose commercial syrup carefully as available in several strengths
	PR	15–20 mg/kg (max 1 g) 6 hourly	Birth - 1 month: 60 mg/kg/d	If oral not tolerated Dose on ideal body weight 125 mg, 250 mg,

				ay > 1 month: 90 mg/kg (up to 4 g/day)	500 mg suppositories available PR medication should be avoided in immunocompromised children
		IV	<1 month 10 mg/kg 6 hourly >1 month 15 mg/kg 6 hourly (max 1 g)	< 1 month: 40 mg/kg/day > 1 month: 60 mg/kg (up to 4 g/day)	If oral/PR not tolerated Dose on ideal body weight Dose (mg) and volume (mL) errors have caused significant overdoses in young children
	and / or				
	Ibuprofen	oral	>3 months: 10 mg/kg (max 400 mg) 6–8 hourly with food	30 mg/kg (up to 2.4 g/day)	Precautions include renal impairment, dehydration, bleeding and anticoagulant use Asthma is not a contraindication Dose commercial syrup carefully as available in several strengths
	Moderate to severe pain				
	Use medications above, and consider adding the following				
	Oxycodone	oral	1–12 months: 0.05–0.1 mg/kg, >12 months:	5–10 mg 4 hourly	For short term use Do not prescribe for outpatient use if no clear diagnosis Higher / more

			0.1–0.2 mg/kg 4 hourly		frequent dosing can be used in inpatient settings
	or				
	Morphine	IV / subcutaneous	0.05 mg/kg >12 months: up to 0.2 mg/kg (max 5–10 mg)	Cumulative maximum <1 month: 0.1 mg/kg 4–6 hourly 1–12 months: 0.1 mg/kg 2–4 hourly >12 months: 0.2 mg/kg 2–4 hourly	Higher / more frequent dosing can be used in inpatient settings
	or				
	Fentanyl	Intranasal	>12 months: 0.75–1.5 microg/kg (max 75 microg) 10 minutely	Total dose of 3 microg/kg	Rapid onset (5 minutes) Divide dose between nostrils Consider alternative ongoing analgesia after second dose Not recommended <12 months of age
	or				
	Tramadol	oral / IV	1–18 years 0.5–1 mg/kg (max 100 mg)	8 mg/kg (up to 400 mg/day)	Can give up to 2 mg/kg if no risk sleep apnea/risk factors for respiratory

		6–8 hourly		depression Avoid in epilepsy (lowers seizure threshold) and patients on SSRIs (risk of serotonin syndrome)

Topical agents

Topical Supportive care for pain

Context	Suggested topical agent
Open wounds in preparation for closure	Amethocaine, lignocaine and adrenaline (ALA/Laceraine®)
Prior to intravenous access and venepuncture	Anaesthetic creams, ice, Coolsense® or BUZZY®
Prior to suprapubic aspirate and lumbar puncture	Anaesthetic creams
Nasal / pharyngeal foreign body removal, NGT insertion	Lignocaine - Phenylephrine (CoPhenylcaine Forte®) nasal spray
Teething	Salicylate teething gels (NB risk of Reye syndrome)
Gingivostomatitis	Lignocaine viscous gel
Mouth ulcers	Triamcinolone acetonide (Kenalog® in Orabase®)
Eye pain / corneal abrasions	Topical amethocaine eye drops
Severe, acute ear pain	Short-term use of topical 2% lignocaine, 1–2 drops applied to an intact tympanic membrane

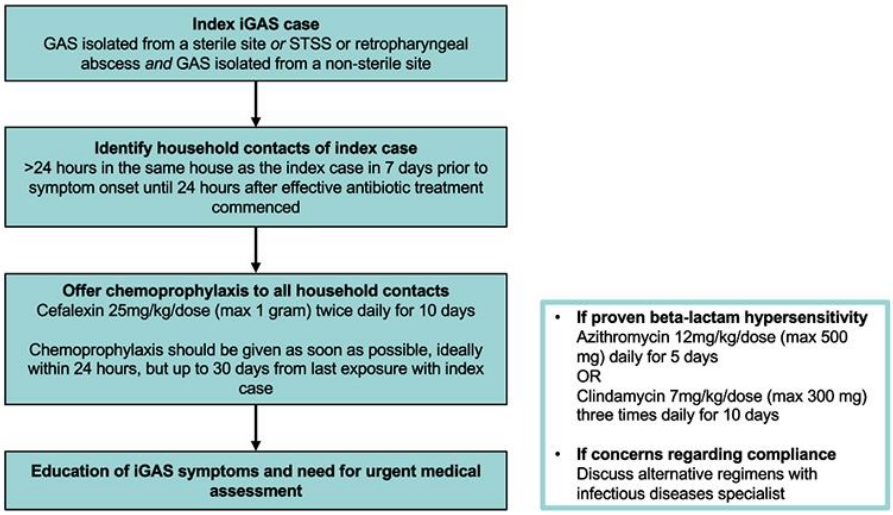
- Corticosteroids can be considered in patients with severe pain unresponsive to simple analgesia:
  dexamethasone 0.15 mg/kg (max 10 mg) oral/IV/IM as a single dose

  OR

  prednisolone 1 mg/kg (max 50 mg) oral as a single dose
- Maintain hydration
- Admissions for analgesia and hydration are not commonly required

<table>
<tr><td></td><td>
Antibiotic therapy for suspected group A streptococcal pharyngitis

o Antibiotic therapy is recommended only for high risk groups. Antimicrobial recommendations may vary according to local antimicrobial susceptibility patterns.
<u>Antibiotic therapy for suspected group A streptococcal pharyngitis</u>
<table>
<tr><th>Antibiotic</th><th>Route</th><th>Dose</th><th>Duration</th></tr>
<tr><td>Phenoxymethylpenicillin</td><td>Oral</td><td>15 mg/kg (max 500 mg) two times daily</td><td>10 days</td></tr>
<tr><td>Amoxicillin**</td><td>Oral</td><td>50 mg/kg (max 1 g) once daily **</td><td>10 days</td></tr>
<tr><td colspan="4">Poor compliance or oral therapy not tolerated</td></tr>
<tr><td>Benzathine Penicillin</td><td>IM</td><td><10 kg 450,000 units (0.9 mL)
10- <20 kg 600,000 units (1.2 mL)
>20 kg 1,200,000 units (2.3 mL)</td><td>Single dose</td></tr>
<tr><td colspan="4">Hypersensitivity to penicillins (exclude immediate hypersensitivity)</td></tr>
<tr><td>Cefalexin</td><td>Oral</td><td>25 mg/kg (max 1 g) two times daily</td><td>10 days</td></tr>
<tr><td colspan="4">Anaphylaxis to beta-lactams</td></tr>
<tr><td>Azithromycin</td><td>Oral</td><td>Children: 12 mg/kg (max 500 mg) once daily
Adults: 500 mg once daily</td><td>5 days</td></tr>
</table>
** second line therapy for improved oral adherence
</td></tr>
<tr><td>Addition of a new section:
The Royal</td><td>o Some experts and guidelines suggest the use of antibiotic chemoprophylaxis to lower the chances of iGAS infection in household contacts, although this approach hasn't been</td></tr>
</table>

Children Hospital Melbourne for the Invasive group A streptococcal infections: management of household contacts **(2023)**	thoroughly investigated. o Regardless of whether chemoprophylaxis is prescribed, it is essential to ensure that all household contacts are informed about their heightened risk of iGAS and the early indicators of iGAS that necessitate immediate medical attention. These symptoms encompass: - Fever - Severe muscle aches - Sore throat - Cellulitis - Diarrhea or vomiting - Severe headache o Conducting throat swabs to check for GAS carriage in asymptomatic close contacts is not beneficial. o Asymptomatic household contacts are not obligated to undergo isolation or activity restrictions. 

Appendix C. PubMed Search Methodology Terms

The following PubMed Search Methodology was opted:

Query	Filters	Search Details	Results
((((Pharyngitis[MeSH Terms]) OR (Pharyngitides[Title/Abstract])) OR (Sore Throat[Title/Abstract])) OR (Sore Throats[Title/Abstract])) OR (Throat, Sore[Title/Abstract])	Guideline, in the last 5 years	("pharyngitis"[MeSH Terms] OR "Pharyngitides"[Title/Abstract] OR "sore throat"[Title/Abstract] OR "sore throats"[Title/Abstract] OR "throat sore"[Title/Abstract]) AND ((y_5[Filter]) AND (guideline[Filter]))	3
(Tonsillitis[MeSH Terms]) OR (Tonsillitides[Title/Abstract])	Guideline, in the last 5 years	("tonsillitis"[MeSH Terms] OR "Tonsillitides"[Title/Abstract]) AND ((y_5[Filter]) AND (guideline[Filter]))	0

Appendix D. Tonsillopharyngitis Treatment Algorithm

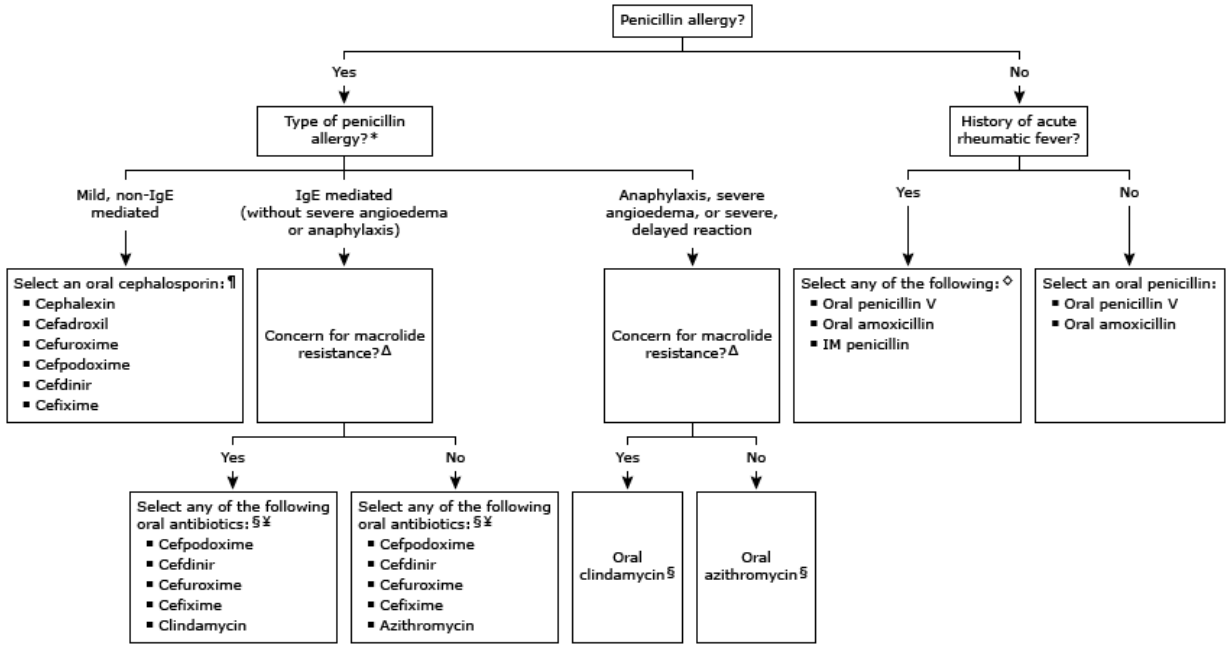


Figure 2. *Treatment Algorithm for the Management of Streptococcal Pharyngitis in Children and Adults*

IgE: immunoglobulin E; IM: intramuscular.

* Examples of mild, non-IgE-mediated reactions include maculopapular rashes. Examples of IgE-mediated reactions include hives, wheezing, angioedema, and anaphylaxis. Examples of severe, delayed reactions include Steven-Johnson syndrome, toxic epidermal necrolysis, acute interstitial nephritis, drug-induced hepatitis, and serum sickness.

¶ Approach to selecting among cephalosporins varies among experts. Some prefer to use a first-generation cephalosporin (e.g., cephalexin) because of its narrow spectrum and low likelihood of cross reactivity. Others select a third-generation cephalosporin with a side chain that is dissimilar to penicillin (e.g., cefpodoxime, cefdinir), although these agents have a broader spectrum.

Δ Macrolide resistance varies considerably by region, with higher rates observed in Asia and Europe when compared with the United States. Knowledge of local resistance patterns should guide antibiotic selection.

◊ Selection among these agents should be based on drug availability and patient preference. For patients with a history of acute rheumatic fever and penicillin allergy, antibiotic selection should be individualized.

§ Many patients with IgE-mediated reactions can tolerate cephalosporins. These patients should be referred for allergy consultation following treatment for streptococcal pharyngitis.

¥ Approach to selecting among these agents varies among experts. Some prefer cephalosporins due to their high efficacy and low risk of cross-reactivity, while others favor selecting a non-cephalosporin alternative to avoid any possibility of cross-reactivity.