PEARLS for the MANAGEMENT of PHARYNGITIS

- The majority of pharyngitis cases do **NOT** require antibiotics as they are viral infections (80-90% in adults, >70% in children).
- Pharyngitis is typically self-limiting (often 3-7 days; up to ≤10 days).
- A validated clinical decision rule e.g. modified Centor score can help identify low risk patients who do not require diagnostic testing (see below) or antibiotics.
- For confirmed Group A Streptococcus (GAS) pharyngitis, penicillin for 10 days is the drug of choice. There is no documented GAS resistance to penicillin.
- Advise on treatments that will provide **symptomatic relief**: NSAIDs, acetaminophen, medicated throat lozenges, topical anesthetics, warm liquids.
- Patients should see their prescriber if: 1) symptoms worsen, 2) symptoms take longer than 3 to 5 days to resolve, &/or 3) unilateral neck swelling develops.

PRE-TREATMENT CONSIDERATIONS

- Inappropriate antibiotic use is driving resistance & leading to a crisis. Please examine your own prescribing practices.
- A validated clinical decision rule, like the modified Centor score, can be used to help identify low risk patients who do not require diagnostic testing or antibiotics.

<table>
<thead>
<tr>
<th>Modified Centor (or Mcissac) Score</th>
<th>Points</th>
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<tbody>
<tr>
<td><strong>Criteria</strong></td>
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</tr>
<tr>
<td>Temperature &gt; 38°C (≥100.5 °F)</td>
<td>1</td>
</tr>
<tr>
<td>oral temperature used in Centor score (adults)</td>
<td></td>
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<tr>
<td>Absence of cough</td>
<td>1</td>
</tr>
<tr>
<td>Swollen, tender anterior cervical nodes</td>
<td>1</td>
</tr>
<tr>
<td>Tonsillar swelling or exudate</td>
<td>1</td>
</tr>
<tr>
<td>Age 3 to 14 years</td>
<td>0</td>
</tr>
<tr>
<td>Age 15 to 44 years</td>
<td>0</td>
</tr>
<tr>
<td>Age ≥45 years</td>
<td>-1</td>
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</table>

Score | Risk of Streptococcal Infection | Suggested Management |
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<tbody>
<tr>
<td>-1 to 2</td>
<td>1 to 2.5%</td>
<td>Symptomatic treatment</td>
</tr>
<tr>
<td>1</td>
<td>5 to 10%</td>
<td>No RADT, culture or antibiotic needed</td>
</tr>
<tr>
<td>2</td>
<td>11 to 17%</td>
<td>RADT or throat swab for culture.</td>
</tr>
<tr>
<td>3</td>
<td>28 to 35%</td>
<td>If positive for GAS ⇒ antibiotic.</td>
</tr>
<tr>
<td>24</td>
<td>51 to 53%</td>
<td>-</td>
</tr>
</tbody>
</table>

Modified Centor score: sensitivity 94% (95% CI 92-97%), specificity 54% (95% CI 49-59%). Lower specificity leans to false positives & over-treatment.

**Back-up throat cultures are recommended for negative lateral flow RADT in children.**

- Diagnostic testing is **not** recommended if:
  - A modified Centor score of ≤1
  - Symptoms of a viral infection, rhinorrhea, cough, oral ulcers, hoarseness **IDSA 2012 (strong, high)**
  - <3yrs, unless other risk factors e.g. sibling with GAS infection **IDSA 2012 (strong, moderate)**
  - Asymptomatic contact of patient with GAS pharyngitis **IDSA 2012 (strong, moderate)**

- **Exceptions**: the modified Centor score may not accurately predict risk of GAS during epidemics or in high risk populations, e.g. individuals with a history of rheumatic fever, valvular heart disease, or immunosuppression. Use clinical judgment & consider testing (RADT/throat swab) more broadly.

SHOULD ANTIBIOTICS BE USED TO TREAT PHARYNGITIS?

- 80-90% of adults (>70% of children) do **NOT** require antibiotics as infection likely viral.
- Patients with a positive throat swab should receive an antibiotic to → the risk of complications. See modified Centor score on left column, & antibiotic table below.
- The turn-around-time for throat swab results can take a few days. However, antibiotics started within 9 days of symptom onset in confirmed GAS will prevent rheumatic fever.
- If antibiotics are started empirically, ensure agent is discontinued if throat swab negative.

**MOST COMMON BACTERIAL PATHOGEN**

- Group A Streptococcus (GAS) (outpatient Group C and G strep do not require antibiotics)

**EMPIRIC DRUG REGIMENS OF CHOICE & SUSCEPTIBILITY CONCERNS**

<table>
<thead>
<tr>
<th><strong>FIRST LINE</strong></th>
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<th><strong>SECOND LINE</strong></th>
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<tbody>
<tr>
<td><strong>No antibiotic</strong></td>
<td>- Majority of cases are viral. - Only use antibiotics in confirmed bacterial pharyngitis.</td>
<td>- See Symptom Management following page.</td>
</tr>
<tr>
<td><strong>Penicillin V</strong></td>
<td>Peds: ≤27 kg: 40mg/kg/day ÷ BID or TID x10 days (maximum 750mg/day)</td>
<td>Compared to penicillin: - broader spectrum than required; as effective</td>
</tr>
<tr>
<td>PEN-V, g</td>
<td>&gt;27 kg &amp; Adults: 300mg TID x 10 days, or 600mg BID x 10 days max absorption when given on an empty stomach</td>
<td>- liquid more palatable for peds</td>
</tr>
<tr>
<td><strong>Amoxicillin</strong></td>
<td>Peds: 40-50mg/kg/day ÷ BID x10 days (maximum 1000mg/day)</td>
<td></td>
</tr>
<tr>
<td>AMOXIL, g</td>
<td>Adults: 500mg BID x 10 days</td>
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**PENICILLIN ALLERGY: TYPE IV HYPERSENSITIVITY (e.g. rash)**

- Do not use the following antibiotics unless confirmed GAS & confirmed type I reaction to penicillin, due to concerns with ↑ resistance to macrolides & adverse events e.g. C. diff.

| **Clindamycin** | Peds: 20mg/kg/day ÷ TID x10 days (maximum 900mg/day) | Macrolide considerations:
| DALACIN C, g | Adults: 300mg TID x 10 days | - Clarithromycin x 10 days was superior to azithromycin x 5 days for bacterial eradication (NNT=9) in adults, but probably equivalent for clinical cure.
| **Clarithromycin** | Peds: 15mg/kg/day divided BID x10 days (maximum 500mg/day) | ↑ GI side effects with erythromycin. |
| BIAxin, g | Adults: 250mg BID x 10 days | - Azithromycin 3 vs 5 days: no head-to-head trials. Both regimens provide same total dose over the course of therapy (i.e. 500mg/kg/d; 1.5g).
| **Erythromycin** | Peds: 40mg/kg/day ÷ BID or TID x10 days (maximum 2000mg/day) | |
| | Adults: 250mg QID x 10 days | |
| **Azithromycin** | Peds: 12mg/kg/day daily x5 days, or 20mg/kg/day daily x3 days (max 500mg/d) | |
| ZITHROMAX, g | Adults: 500mg Day 1, 250mg x Days 2-5, or 500mg daily x3 days | |

**PENICILLIN ALLERGY: TYPE I HYPERSENSITIVITY (i.e. anaphylaxis)**
Duration of Antibiotic Therapy:
- Confirmed bacterial pharyngitis should be treated with 10 days of antibiotics (exception: if azithromycin is used in penicillin allergic patients; other options available).
- Patients will likely have clinical improvement within the first few days of therapy, but 10 days of therapy is recommended for preventing acute rheumatic fever, & short courses are not as effective for treating the infection.
  - E.g. a meta-analysis comparing 5 vs 10 days of penicillin (2 RCTs, n=309) concluded short courses were inferior in achieving bacterial cure, OR 0.29 (CI 95% 0.13-0.63).

**SYMPTOM MANAGEMENT**

<table>
<thead>
<tr>
<th>SYMPTOM MANAGEMENT</th>
<th>ADJUVANTS</th>
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<tr>
<td>e.g. Ibuprofen ADVI, g</td>
<td>- Ibuprofen ↓ associated pain more than acetaminophen &amp; placebo.</td>
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<tr>
<td>Peds: 5-10mg/kg po q6-8hr PRN (maximum 40mg/kg/day)</td>
<td>- Reduces fever.</td>
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<tr>
<td>Adults: 400mg po q6-8hr PRN</td>
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<tr>
<td>Acetaminophen TYLENOL, g</td>
<td>- Less effective than NSAIDs for ↓ associated pain but more effective than placebo.</td>
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<tr>
<td>Peds: 10-15mg/kg po q4-6hr PRN (maximum 75mg/kg/day)</td>
<td>- Reduces fever.</td>
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<td>Adults: 1000mg po q4-6hr PRN</td>
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**SYSTEMIC ANALGESICS**

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<tr>
<td>Benzocaine CEPACOL ES, CHLORASEPTIC</td>
<td>- Alleviates throat pain if used frequently.</td>
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<tr>
<td>10mg lozenge q2hr PRN</td>
<td>- Avoid in children due to: choking &amp; methemoglobinemia concerns.</td>
</tr>
<tr>
<td>Phenol CHLORASEPTIC</td>
<td>- No evidence, but anecdotally may provide relief from associated pain.</td>
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<td>5 sprays q2hr PRN</td>
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**MEDICATED LOZENGES**

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<tr>
<td>Gargling or drinking warm liquids e.g. warm salt water rinse, tea</td>
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<tr>
<td>Benzydamine TANTUM, PHARIXIA, g 15mL gargle or rinse q1.5-3hr PRN</td>
<td>- Little evidence, but anecdotally provide relief from associated pain.</td>
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**MEDICATED SPRAYS**

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**RINSES**

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**Not recommended for symptom management:** corticosteroids NICE’18, IDSA’12 (weak, moderate), however, opinions vary (e.g., may consider dexamethasone 10mg po x 1 dose). BMJ’17 (weak)
- A systematic review of 10 RCTs (1426 participants) found a single, low-dose (usually dexamethasone max 10mg) vs standard care ↑ pain relief at 24h & the number of patients’ experiencing no pain at 48h (NNT=6, high quality). Pain resolved ~11h (-0.4 to -21.8, low quality) earlier with corticosteroid treatment, but wide variability. AEs were not different, but multiple corticosteroid doses were not studied & would likely lead to greater harms e.g., ↑ glucose. Sadeghirad’17
- Some may consider ↓ in duration of pain is not considered clinically significant, and NSAIDs/acetaminophen have less adverse events. Shared decision-making is required.

**Treatment Evidence Summary**

**Penicillin vs Cephalosporins vs Macrolides:** penicillin remains the antibiotic of choice
- There is no clinically relevant difference in symptom resolution between antibiotics.
- Penicillin has the most evidence for preventing complications; has a narrow spectrum; is efficacious, safe, inexpensive; & there is no documented resistance to GAS.

**Clinical Q&A**

**What is the risk of acute rheumatic fever?**
- In Canada, the current prevalence of acute rheumatic fever is 0.1 to 2 cases per 100,000.
  - The incidence in some remote, Canadian Aboriginal communities may be higher (i.e. Northern Ontario 8.33/100,000).
  - The risk may also be higher in immigrants from endemic areas, e.g. Philippines, China.
- It is difficult to estimate the risk of acute rheumatic fever due to untreated pharyngitis:
  - as the majority of studies comparing antibiotics versus placebo were conducted prior to the 1960s (higher rate of acute rheumatic fever, and in young males from the US Armed Forces)
  - bacterial versus viral etiology was often not confirmed
  - newer studies have either no documented cases or did not assess this outcome
- In an effort to balance unnecessary antibiotic use with preventing rheumatic fever:
  - use the modified Centor score to identify patients who require a throat swab/RADT
  - wait to prescribe antibiotics until the results of the throat swab are available
  - starting antibiotics within 9 days of symptom onset prevents acute rheumatic fever
  - if antibiotics are started empirically, discontinue if throat swab is negative
  - children are at a greater risk of complications (e.g. otitis media, peritonsillar abscess, rheumatic fever); may initiate antibiotics sooner
- A full 10 day course of penicillin is recommended for confirmed GAS pharyngitis.

Pharyngitis caused by *Chlamydia trachomatis*
- It is rare that *Chlamydia trachomatis* causes pharyngitis, but rates appear to be ↑.
- Risk factors include: age 15-24 years, sexually active, engagement in oral sex.
- In Saskatchewan, *Chlamydia trachomatis* screening requires a different lab requisition.
- Treatment: doxycycline 100mg po BID x 7days, or azithromycin 1g x 1 dose.

Management of Recurrent Pharyngitis
- Potential causes: recurrent pharyngitis due to inadequate eradication, new infection, viral infection in an asymptomatic carrier ~20% of the population are GAS carriers.
- Controversial as to whether or not asymptomatic carriers with recurrent pharyngitis need to be identified.
  - Identification may help avoid antibiotics in those with recurrent viral pharyngitis.
  - Avoid identifying asymptomatic carriers without recurrent pharyngitis.
- Consider age, season, signs/symptoms to rule out viral etiology (see modified Centor score).
- Avoid continuous long-term antibiotic therapy (i.e. repeated courses or prophylaxis).

**Abbreviations:** NICE=tastes good GAS=Group A Streptococcus GI=gastrointestinal IDSA=Infectious Diseases Society of America NSAID=non-steroidal anti-inflammatory drug NNT=number needed to treat OR=odds ratio PRN=as needed RADT=rapid antigen detecting test RCT=randomized controlled trial RR=relative risk
References – Pharyngitis - RxFiles.ca

Guidelines:
2019 Sanfords
2018 NICE Sore throat (acute): antimicrobial prescribing (published January 2018). Available at: https://www.nice.org.uk/guidance/ng84
2012Bugs & Drugs

General:

 Antibiotics:


**Rheumatic Fever:**


**Symptom Management**


