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 McIsaac) Score</th>
<th>Suggested Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria</td>
<td>Points</td>
</tr>
<tr>
<td>Temperature &gt; 38°C</td>
<td>1</td>
</tr>
<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>1</td>
</tr>
<tr>
<td>Age 15 to 44 years</td>
<td>0</td>
</tr>
<tr>
<td>Age ≥ 45 years</td>
<td>-1</td>
</tr>
</tbody>
</table>

Score | Risk of Streptococcal Infection | Suggested Management |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>-1 to 0</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

FIRST LINE

No antibiotic
- Majority of cases are viral.
- Only use antibiotics in confirmed bacterial pharyngitis. Choosing Wisely IDSA’15
- See Symptom Management following page.

Penicillin V PEN-VK, g
- Peds: ≤27 kg: 40mg/kg/day ÷ BID or TID x10 days (maximum 750mg/day)
- >27 kg & Adults: 300mg TID x 10 days, or 600mg BID x 10 days
  - max absorption when given on an empty stomach
- Compared to penicillin:
  - broader spectrum than required; as effective
  - liquid more palatable for pediatrics

Amoxicillin AMOXIL, g
- Peds: 40-50mg/kg/day ÷ BID x10 days (maximum 1000mg/day)
- Adults: 500mg BID x 10 days

PENICILLIN ALLERGY: TYPE IV HYPERSENSITIVITY (e.g. rash)

- Cephalexin KEFLEX, g
  - Peds: 25-50mg/kg/day ÷ BID or QID x10 days (maximum 1000mg/day)
  - Adults: 250mg QID x 10 days, or 500mg BID x 10 days
- No documented resistance to GAS.

PENICILLIN ALLERGY: TYPE I HYPERSENSITIVITY (i.e. anaphylaxis)

- Clindamycin DALACIN C, g
  - Peds: 20mg/kg/day ÷ TID x10 days (maximum 900mg/day)
  - Adults: 300mg TID x 10 days
- Macrolide considerations:
  - Clarithromycin x 10 days was superior to azithromycin x 5 days for bacterial eradication (NNT=9) in adults, but equivalent for clinical cure.
  - ↑ GI side effects with erythromycin.
  - 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).
**PHARYNGITIS: Management Considerations**

### 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).

### Systemic Analgesics

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Peds:</th>
<th>Adults:</th>
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<tbody>
<tr>
<td>e.g. Ibuprofen ADVIL®</td>
<td>5-10 mg/kg po q6-8hr PRN (maximum 40mg/kg/day)</td>
<td>400mg po q6-8hr PRN</td>
</tr>
<tr>
<td>Acetaminophen TYLENOL®,®</td>
<td>10-15mg/kg po q4-6hr PRN (maximum 75 mg/kg/day)</td>
<td>1000mg po q4-6hr PRN</td>
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</table>

- Ibuprofen ↓ associated pain more than acetaminophen & placebo. Reduces fever.
- Less effective than NSAIDs for ↓ associated pain but more effective than placebo. Reduces fever.

### Medicated Rinses

- Benzocaine CEPACOL ES, CHLORASEPTIC
  - 10mg lozenge q2hr PRN
  - Alleviates throat pain if used frequently.
  - **Avoid in children due to:** choking & methemoglobinemia concerns.

- Phenol CHLORASEPTIC
  - 5 sprays q2hr PRN
  - No evidence, but anecdotally may provide relief from associated pain.

### Medicated Sprays

- Gargling or drinking warm liquids
  - e.g. warm salt water rinse, tea
- Benzylamine TANTUM, PHARIXIA,®
  - gargle or rinse q1.5-3hr PRN

- Little evidence, but anecdotally provide relief from associated pain.

**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).

- 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**:  ⊙=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


