

**Clinical Pearls**

- Pharyngitis is usually self-limiting (4-5d; up to ≤10d), and the **majority of cases do NOT require antibiotics as they are viral infections** (80-90% in adults, >70% in children).
- 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 10d is the drug of choice**. There is no documented GAS resistance to penicillin. Consider stewardship strategies such as delayed antibiotics while awaiting throat swab results.
- 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.

**Overview**

- Etiology: viral 85-95% of adults (>70% of children), therefore, majority do **NOT** require antibiotics; minority bacterial Group A Streptococcus (GAS).
- A validated clinical decision rule e.g. **modified Centor**, FeverPAIN can be used to help identify low-risk patients who do not require diagnostic testing or antibiotics.
- Exception**: modified Centor score may not accurately predict risk during epidemics or in high-risk groups e.g. hx of rheumatic fever, valvular heart disease, immunosuppression. Use clinical judgment & consider testing (RADT/throat swab) more broadly.
- Diagnostic testing (RADT, culture) are **not** recommended if:
  - A modified Centor score of ≤1 (see right, Table 1)
  - sxs of a viral infection rhinorrhea, cough, oral ulcers, hoarseness IDSA'12 (strong, high)
  - <3y, unless other risk factors e.g. outbreak, sibling with GAS IDSA'12 (strong, moderate), CPS
  - asymptomatic contact of patient with GAS pharyngitis IDSA'12 (strong, moderate)
- RADT useful for ruling in a diagnosis when results are positive. Back-up throat cultures recommended to confirm negative RADT in some kids (e.g. 5-15 years<sup>IDSA</sup>) & may be used in others. Note: low incidence of GAS in adults.

**Table 1. Modified Centor (or McIsaac) Score**

Criteria		Points
Temp > 38°C (>100.5 °F)	oral temp used in Centor score (adults)	1
Absence of cough		1
Swollen, tender anterior cervical nodes		1
Tonsillar swelling or exudate		1
Age 3 years to 14 years		1
Age 15 to 44 years		0
Age ≥ 45 years		-1
Score	Risk of GAS Infection	Suggested Management
-1 to 0	1 to 2.5%	Symptomatic treatment. No RADT, culture, or ABX needed.
1	5 to 10%	
2	11 to 17%	RADT or throat swab for culture. If positive for GAS ⇒ antibiotic.
3	28 to 35%	
≥4	51 to 53%	

**An Approach to Treatment**

- 80-90% of adults (>70% of children) do **NOT** require antibiotics as infection likely viral.
- Possible strategies**: watchful waiting, delayed ABX, empiric ABX (stop if throat swab negative).
- Use validated clinical decision tool (Table 1) to determine risk of GAS infection. **If ≥2, RADT or throat swab**. Patients with a **positive throat swab should receive an antibiotic** (see Table 3) to decrease risk of complications.
- The turn-around-time for throat swab results can take a few days. However, antibiotics started **within 9 days of symptom onset and given for 10 days** in confirmed GAS will prevent rheumatic fever (see Case'05, BMJ'19)
  - Risk of acute rheumatic fever is rare in the general population in Canada (0.1 to 2 cases per 100,000) but may be higher remote Indigenous communities or immigrants from endemic areas e.g. Philippines.

**Table 2. Symptom Management**

(all available OTC)

SYSTEMIC ANALGESICS	LOZENGE	SPRAY	RINSES
e.g. Ibuprofen <b>ADVIIL, g</b> Peds: 5-10 mg/kg po q6-8hr PRN (maximum=40mg/kg/day) Adults: 400mg q6-8hr PRN (maximum=2.4-3.2g/day)	Benzocaine <b>CEPACOLE, CHLORASEPTIC</b> 10mg lozenge q2hr PRN	Phenol <b>CHLORASEPTIC</b> 5 sprays q2hr PRN	Gargling or drinking warm liquids e.g. warm salt water rinse, tea Benzylamine <b>TANTUM, PHARIXIA, g</b> 15mL gargle or rinse q1.5-3hr PRN X 7
- Ibuprofen ↓ associated pain more than acetaminophen & placebo. Reduces fever. - Alternative: Naproxen <b>NAPROSYN, g</b> Peds (>2yr): 5-7mg/kg/dose q8-12hr (max=1000mg/d) Adults: 250-500mg BID (maximum=1-1.5g/day)	- Alleviates throat pain if used frequently. - Avoid in children due to: choking & methemoglobinemia concerns. - Alternative: hard candy e.g. <b>HALLS</b> , honey (>12mos)	- No evidence, but anecdotally may provide relief from associated pain.	- Little evidence, but anecdotally provide relief from associated pain. - One recipe: ¼ to ½ tsp salt per 240mL warm water.
Acetaminophen <b>TYLENOL, g</b> Peds: 10-15mg/kg po q4-6hr PRN (maximum=75 mg/kg/day) Adults: 1000mg q4-6hr PRN max=4g/d			

**Not recommended for symptom management**: corticosteroids NICE'18, IDSA'12 (weak, moderate); however, **opinions vary** (e.g. may consider dexamethasone 10mg adults or 0.6mg/kg peds po x 1 dose). BMJ'17 (weak), AFP'23

- po or IM corticosteroids, in addition to antibiotics and analgesics, ↑ pain relief at 24 hours (**NNT~5 ~38%** vs ~16%, high certainty evidence) and at 48 hours. AEs were not different, but most did not study multiple corticosteroid doses were not studied & would likely lead to greater harms e.g. ↑ glucose. de Cassan'2020
- Some may consider ↓ in duration of pain is not clinically significant, and NSAIDs/acetaminophen have less adverse events. Shared decision-making is required.

**Table 3. Empiric Drug Regimens of Choice & Susceptibility Concerns**

FIRST LINE		
<b>No antibiotic</b>	- Majority of cases are viral. - Only use antibiotics in <b>confirmed bacterial pharyngitis</b> . <sup>Choosing Wisely IDSA'15</sup>	- See Symptom Management following page.
<b>Penicillin V PEN-VK, g</b>	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 <i>max absorption when given on an empty stomach</i>	- 1 <sup>st</sup> line due to narrow spectrum, efficacy, safety & low cost. No documented resistance to GAS. - No suspension available CDN.
<b>Amoxicillin AMOXIL, g ☺</b>	Peds: 40-50mg/kg/day ÷ BID x10 days (maximum 1000mg/day) or 50mg/kg/day daily x10 days (max 1g/d) <sup>CPS</sup> Adults: 500mg BID x 10 days	Compared to penicillin: - broader spectrum than required; as effective - liquid more palatable for peds - if mononucleosis, may cause rash
PENICILLIN ALLERGY: TYPE IV HYPERSENSITIVITY (e.g. rash)		
<b>Cephalexin KEFLEX, g</b>	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. Alt: <b>Cefadroxil</b> <sup>AFP'23</sup> <b>DURICEF, g</b> - Peds: 30mg/kg daily or ÷ BID x 10d - Adults: 1000mg po daily x 10 days
PENICILLIN ALLERGY: TYPE I HYPERSENSITIVITY (i.e. anaphylaxis)		
Do <b>not</b> use the following antibiotics unless confirmed GAS & confirmed type I reaction to penicillin, due to concerns with ↑ resistance to macrolides & adverse events e.g. <i>C. diff</i> .		
<b>Clindamycin DALACIN C, g</b>	Peds: 20mg/kg/day ÷ TID x10 days (maximum 900mg/day) Adults: 300mg TID x 10 days	<b>Macrolide considerations:</b> - <b>Clarithromycin</b> x 10 days was superior to azithromycin x 5 days for bacterial eradication ( <b>NNT=9</b> ) in adults, but equivalent for clinical cure. - ↑ GI side effects with <b>erythromycin</b> . - <b>Azithromycin</b> 3 vs 5 days: no head-to-head trials. Both regimens provide same total dose over the course of therapy (i.e. 60mg/kg/d; 1.5g).
<b>Clarithromycin BIAXIN, g</b>	Peds: 15mg/kg/day ÷ BID x10d (max= 500mg/d) Adults: 250mg BID x 10 days	
<b>Erythromycin ☺</b>	Peds: 40mg/kg/day ÷ BID or TID x10 days (maximum 2000mg/day) Adults: 250mg QID x 10 days	
<b>Azithromycin ZITHROMAX, g ☺</b>	Peds: 12mg/kg/day daily x5 days, or 20mg/kg/day daily x3 days (max 500mg/d) Adults: 500mg Day 1, 250mg x Days 2-5, or 500mg daily x3 days	

**Management of Recurrent Pharyngitis**: avoid continuous long-term antibiotic tx (i.e. repeated courses or prophylaxis). Controversial as to whether or not asymptomatic carriers with recurrent pharyngitis need to be identified. **100**

## Pharyngitis: Management Considerations

**Abbreviations:** ☺=tastes good **CPS**=Canadian Pediatric Society **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 **R**=relative risk

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

### 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 (symptoms usually self-limiting resolving in 4-5 days), but 10 days of therapy is recommended for preventing acute rheumatic fever. However, some uncertainty exists regarding optimal duration in populations with a low burden of acute rheumatic fever.
  - 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).<sup>Casey<sup>05</sup></sup>
  - RCT (n=433) found 5d of penicillin non-inferior to 10d in achieving clinical cure.<sup>BMJ<sup>19</sup></sup>

### Treatment Evidence Summary Cochrane<sup>21</sup>

**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 Indigenous 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:
  - 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).

Acetaminophen	100
Acute Rheumatic Fever	100
ADVIL	100
Amoxicillin	100
AMOXIL	100
Antibiotic	100
Azithromycin	100
Benzocaine	100
Benzydamine	100
Beta-Lactam	100
BIAXIN	100
Centor Score	100
CEPACOL	100
Cephalexin	100
Cephalosporin	100
CHLORASEPTIC	100
Clarithromycin	100
Clindamycin	100
DALACIN	100
Erythromycin	100
Ibuprofen	100
KEFLEX	100
Macrolide	100
Penicillin	100
PEN-VK	100
PHARIXIA	100
Pharyngitis	<b>100</b>
Phenol	100
TANTUM	100
TYLENOL	100
ZITHROMAX	100

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### **Symptom Management**

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