

**Aim: All group A streptococcal (GAS) pharyngitis in high rheumatic fever risk patients are treated**

**Aim: Reduce unnecessary antibiotic use**

## High Risk for Rheumatic Fever

High risk if personal, family or household history of rheumatic fever or have 2 or more criteria:

- Māori or Pacific
  - Aged 3–35 years
  - Living in crowded circumstances or lower socioeconomic area
- If only 1 criterion see green box.

### Primary Care or Emergency Departments

Throat swab if follow up possible  
Start 10 days of empiric penicillin or amoxicillin or single dose of IM benzathine penicillin

### School Sore Throat Clinics

Throat swab  
Wait for result before starting antibiotics<sup>4</sup>  
**If GAS positive:**  
Start 10 days of antibiotics

## Low Risk for Rheumatic Fever

**Assess severity of symptoms and occupational risk of spreading GAS.**

1. Unwell patients have potential to develop local suppurative complications.
2. Throat swabbing and/or antibiotic treatment\* may **not** be routinely required for **mild** symptoms **unless** the patient is at increased risk of spreading GAS e.g. healthcare and residential care workers, food handlers, school and early childhood teachers and students. Instead consider analgesia.

\*10 days of empiric penicillin or amoxicillin or single dose of IM benzathine penicillin.

## If group A streptococci (GAS) positive:

- Consider swabbing all symptomatic household members.<sup>1</sup>
- Consider isolating at home for 24 hours after starting 10 days of antibiotics.<sup>2</sup>
- Swab all household members (symptomatic or not), if:
  - $\geq 3$  cases of GAS pharyngitis in household in the last 3 months, or
  - Personal, family or household history of rheumatic fever and promptly treat all GAS positive cases

See Algorithm in Guideline for Household Sore Throat Management.

## If GAS negative:

- Stop antibiotics.<sup>3</sup>

### Reasons to Throat Swab in Those at High Risk of Rheumatic Fever

- To identify GAS pharyngitis in index case
- To discontinue antibiotics in GAS negative cases<sup>3</sup>
- To initiate antibiotic therapy (check and reinforce 10 day adherence) in following up GAS positive results
- To allow household contact tracing and initiate appropriate treatment
- To reduce unnecessary antibiotic prescribing
- To allow for surveillance of GAS pharyngitis resistant to antibiotics
- To provide education when following up throat swab results.

**Consider not throat swabbing and instead start empiric antibiotics if follow-up may be problematic.**

### Footnotes

1. In family households, more than half of secondary cases of serologically proven GAS pharyngitis were in 5–12 year old children. Risk of secondary GAS infection was 1.8 times greater than that of primary infection in the community.<sup>9</sup> Adults are at lesser risk of developing rheumatic fever but given their household contact status, they may spread GAS.
2. The Writing Group recommends that for workers who are at increased risk of spreading GAS (healthcare workers, food handlers, teachers and childcare workers) isolation should be considered for 24 hours after starting antibiotics. Legislation allows Medical Officers of Health to enforce 7 days isolation for pupils, teachers and food handlers.<sup>b</sup>
3. >70% of sore throats will be viral and do not need antibiotic treatment.<sup>c</sup>
4. Start empiric antibiotics if results of throat swab are likely to be delayed.

### References

- a. Danchin M et al. Burden of acute sore throat and group A streptococcal pharyngitis in school-aged children and their families in Australia. *Pediatrics*. 2007; 120: 950-957.
- b. Health (Infectious and Notifiable Diseases) Regulations 1966. Amended and reprinted 2013: <http://www.legislation.govt.nz/regulation/public/1966/0087/latest/whole.html#DLM24238>
- c. Shaikh N et al. Prevalence of streptococcal pharyngitis and streptococcal carriage in children: A meta-analysis. *Pediatrics*. 2010; 126: 557–564.

# Antibiotics for Routine Group A Streptococcal (GAS) Pharyngitis

Standard treatment for a patient's first or second case of confirmed group A streptococcal (GAS) pharyngitis.



Antibiotic	Route	Dose	Duration	IDSA GRADE 2012*, <sup>a</sup>
<b>Penicillin V<sup>†</sup></b>	PO	Children <20kg: 250mg two or three times daily Adolescents & Adults ≥20kg: 500mg two or three times daily	10 days	Strong, high
<b>Amoxicillin<sup>†</sup></b>	PO	Once daily: OR: Twice daily: 50mg/kg dose once daily ( <i>Max daily dose 1000mg</i> ) Weight <30kg: 750mg once daily Weight ≥30kg: 1000mg once daily 25mg/kg dose twice daily ( <i>Max daily dose 1000mg</i> )	10 days	Strong, high
<b>Benzathine penicillin<sup>‡</sup></b>	IM	Children <30kg: 450mg (600,000 U) Adults & Children ≥30kg: 900mg (1,200,000 U)	Single dose	Strong, high
<b>If concern about allergic (IgE mediated<sup>§</sup> or anaphylactic) response to beta lactams, use:</b>				
<b>Roxithromycin<sup>  </sup></b> <i>Pending Pharmac decision</i>	PO	Children: 2.5mg/kg dose twice daily Adults: 300mg once daily OR: 150mg twice daily	10 days	Unavailable in the USA
<b>Erythromycin ethyl succinate<sup>  , ¶</sup></b>	PO	Children & Adults: 40mg/kg/day in 2–3 divided doses ( <i>Max adult daily dose 1000mg</i> )	10 days	**
<b>For people on benzathine penicillin IM prophylaxis who are GAS positive:</b>				
Treat with a 10 day course of oral penicillin or amoxicillin. Check adherence to prophylaxis programme. Serum penicillin levels will be falling by week three and four post IM long acting benzathine penicillin injection. <sup>h</sup>				

Source: Modified from Table Two in the IDSA Guideline 2012<sup>a</sup>. © by permission of Oxford University Press, 2014.

## Footnotes

- \* The Infectious Diseases Society of America (IDSA) used the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system (see [Guideline Update 2014](#) for description)<sup>g</sup>
- <sup>†</sup> Amoxicillin can be taken with food whereas oral penicillin V is best absorbed on an empty stomach. Both are equally effective in eradicating GAS.<sup>b,c</sup> Lower frequency of antibiotic dosing has been shown to improve adherence.<sup>d,e</sup> Amoxicillin is relatively palatable.<sup>f</sup>
- <sup>‡</sup> Benzathine penicillin can be given with lignocaine to reduce injection site pain (see [Guideline Update 2014](#)). It may be marginally more effective than oral penicillin or amoxicillin in eradicating GAS pharyngitis.<sup>g</sup>
- <sup>§</sup> IgE-mediated reactions include ANY bronchospasm, angioedema, hypotension, urticarial or pruritic rash.
- <sup>||</sup> Always check for drug interactions before prescribing. In particular, care should be taken when prescribing macrolides to patients taking warfarin and carbamazepine.
- <sup>¶</sup> The erythromycin currently funded by Pharmac is erythromycin ethyl succinate. There are other erythromycins available with different pharmacokinetic profiles.
- \*\* Erythromycin is not recommended in 2012 The Infectious Diseases Society of America (IDSA) Guideline.<sup>a</sup> In 2002 the IDSA recommended erythromycin based on a different grading system for clinical guideline recommendations (see [Guideline Update 2014](#))

## References

- a. Shulman S et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2012; 55:1279–1282.
- b. Lennon DR et al. Once-daily amoxicillin versus twice-daily penicillin V in group A beta-haemolytic streptococcal pharyngitis. *Arch Dis Child*. 2008; 93: 474-478.
- c. Clegg HW et al. Treatment of streptococcal pharyngitis with once-daily compared with twice-daily amoxicillin: a noninferiority trial. *Pediatr Infect Dis J*. 2006; 25: 761-767.
- d. Llor C et al. The higher the number of daily doses of antibiotic treatment in lower respiratory tract infection the worse the compliance. *J Antimicrob Chemother*. 2009; 63: 396-399.
- e. Kardas P. Comparison of patient compliance with once-daily and twice-daily antibiotic regimens in respiratory tract infections: results of a randomized trial. *J Antimicrob Chemother*. 2007; 59: 531-536.
- f. Steele RW et al. Compliance issues related to the selection of antibiotic suspensions for children. *Pediatr Infect Dis J*. 2001; 20: 1-5.
- g. Shulman ST et al. Streptococcal pharyngitis. In: Stevens DL, Kaplan EL (Eds). *Streptococcal infections: Clinical Aspects, microbiology and molecular pathogenesis*. 2000. New York, Oxford University Press.
- h. Kaplan EL et al. Pharmacokinetics of benzathine penicillin G: Serum levels during the 28 days after intramuscular injection of 1,200,000 units. *J Pediatr*. 1989; 115: 146-150.