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Clinical Practice Pathway: Group A Streptococcal (GAS) Infection

Background/Rationale and Purpose

Broad-spectrum antibiotics have not demonstrated improved clinical or patient-centered outcomes compared to narrow-spectrum antibiotics in treating children with acute respiratory tract infections. Broad-spectrum antibiotics are associated with a higher incidence of adverse events. This guideline provides best practice recommendations for managing children with Group A Streptococcal (GAS) pharyngitis, supporting the use of narrow-spectrum antibiotics for most children with acute respiratory tract infections.

Guideline Eligibility

Inclusion Criteria:

- **Children aged 6 months to 12 years with GAS pharyngitis in the ambulatory setting.**

Exclusion Criteria:

- **Peritonsillar abscess**
 - **Deep space neck infection** such as **parapharyngeal** or **retropharyngeal abscess**
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Recommendations (Appendix B)

Diagnosis Criteria for GAS Infection

- Children with **acute onset sore throat** and clinical features such as:
 - **Fever**
 - **Headache**
 - **Emesis**
 - **Abdominal pain**
 - **Rash**
 - **Pharyngeal exudate**
 - **Enlarged tonsils**
 - **Tender cervical adenopathy**

Testing for GAS infection should routinely be considered in these children.

- Children with **pharyngitis** and **obvious viral features** such as:
 - **Rhinorrhea**

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- **Cough**
- **Hoarseness**
- **Oral ulcers**
- **Conjunctivitis**

These children should **not** be routinely tested for or treated for GAS infection.

Testing and Laboratory Confirmation

- **Laboratory confirmation** is needed to diagnose GAS infection before initiating treatment, as clinical features alone do not reliably distinguish between GAS and viral pharyngitis.
- **Testing in Young Children:** Do not routinely test children **under 3 years** unless there is a **household member with GAS infection** or another risk factor, as Streptococcal pharyngitis is uncommon in this age group.
- **Backup Culture:** A **throat culture** should be sent in children with a **negative rapid Streptococcal test**. Positive rapid tests **do not require a backup culture**.

Antibiotic Therapy

- **First-Line Therapy:**
 - **Amoxicillin** or **Penicillin** remain the preferred first-line therapies
- **Penicillin Allergies:**
 - **Non-severe/ Non-Type I Hypersensitivity:**
 - **Cephalexin**
 - **Severe/ Type I Hypersensitivity:**
 - **Clindamycin**, or **Azithromycin**
 - Severe penicillin allergy includes anaphylaxis, angioedema, cardiac arrest, respiratory distress, severe cutaneous reaction (e.g., Stevens-Johnson syndrome, erythema multiforme, DRESS and TEN).
- **Antimicrobial Resistance Considerations:**
 - **GAS resistance to Azithromycin** and **Clindamycin** is increasingly common, consider sending throat for resistance testing if prescribing azithromycin.

Recommended Treatment Duration

- **Oral Beta-Lactams (Amoxicillin/Penicillin): 10 days**
- **Clindamycin: 10 days**
- **Azithromycin: 5 days**

Goals and Metrics

- Rates of broad-spectrum antibiotics as a proportion of all antibiotics prescribed for Group A streptococcal pharyngitis $\leq 10\%$

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	Narrow Spectrum	Broad Spectrum
Group A Streptococcal pharyngitis	Penicillin Amoxicillin	Amoxicillin-Clavulanate Azithromycin Cefadroxil Cefdinir Cefprozil Cefuroxime Axetil Cephalexin

Patient and family education:

- PCORI Choosing an Antibiotic for Your Child’s Ear, Nose, or Throat Infection: <https://www.pcori.org/sites/default/files/PCORI-Evidence-Update-for-Parents-Narrow-Broad-Antibiotics.pdf>
- EPIC exit care patient education links:
 - Pharyngitis, child
 - Sore throat
 - Fever, pediatric
 - Upper Respiratory Infection, Infant
 - Upper Respiratory Infection, Pediatric

Abbreviations

GAS, Group A Streptococcus

Related resources

- URI PEDS SMARTSET
- Related ICD-10 codes: J02.0-J02.9, J03.00-J03.91

Basis for Recommendations

1. Stanford T, Shulman, Alan L, Bisno, Herbert W, Clegg, Michael A, Gerber, Edward L, Kaplan, Grace Lee, Judith M, Martin, Chris Van Beneden, Executive Summary: Clinical Practice Guideline for the Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America, *Clinical Infectious Diseases*, Volume 55, Issue 10, 15 November 2012, Pages 1279–1282, <https://doi.org/10.1093/cid/cis847>
2. Gerber JS, Ross RK, Bryan M, Localio AR, Szymczak JE, Wasserman R, Barkman D, Odeniyi F, Conaboy K, Bell L, Zaoutis TE, Fiks AG. Association of Broad- vs Narrow-Spectrum Antibiotics With Treatment Failure, Adverse Events, and Quality of Life in Children With Acute Respiratory Tract Infections. *JAMA*. 2017 Dec 19;318(23):2325-2336. doi: 10.1001/jama.2017.18715. PMID: 29260224; PMCID: PMC5820700. <https://pmc.ncbi.nlm.nih.gov/articles/PMC5820700/kellmn>
3. CDC Antibiotic Prescribing and Use for Pediatric Outpatients: <https://www.cdc.gov/antibiotic-use/hcp/clinical-care/pediatric-outpatient.html>

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Version	Date	Author(s)	Reviewer(s)	Revisions
1.0		Debbie-Ann Shirley, MD	Maria Kelly, MD Rachel Reise, pharmD Matthew Garber, MD Kalen Manasco, pharmD	-

Please note this information reflects the best information as of the revised date above and is provided as a general guide for our patient care. Clinical judgment and critical thinking regarding a particular patient remain with the clinician.

APPENDIX B: TREATMENT OF GROUP A STREPTOCOCCAL INFECTION

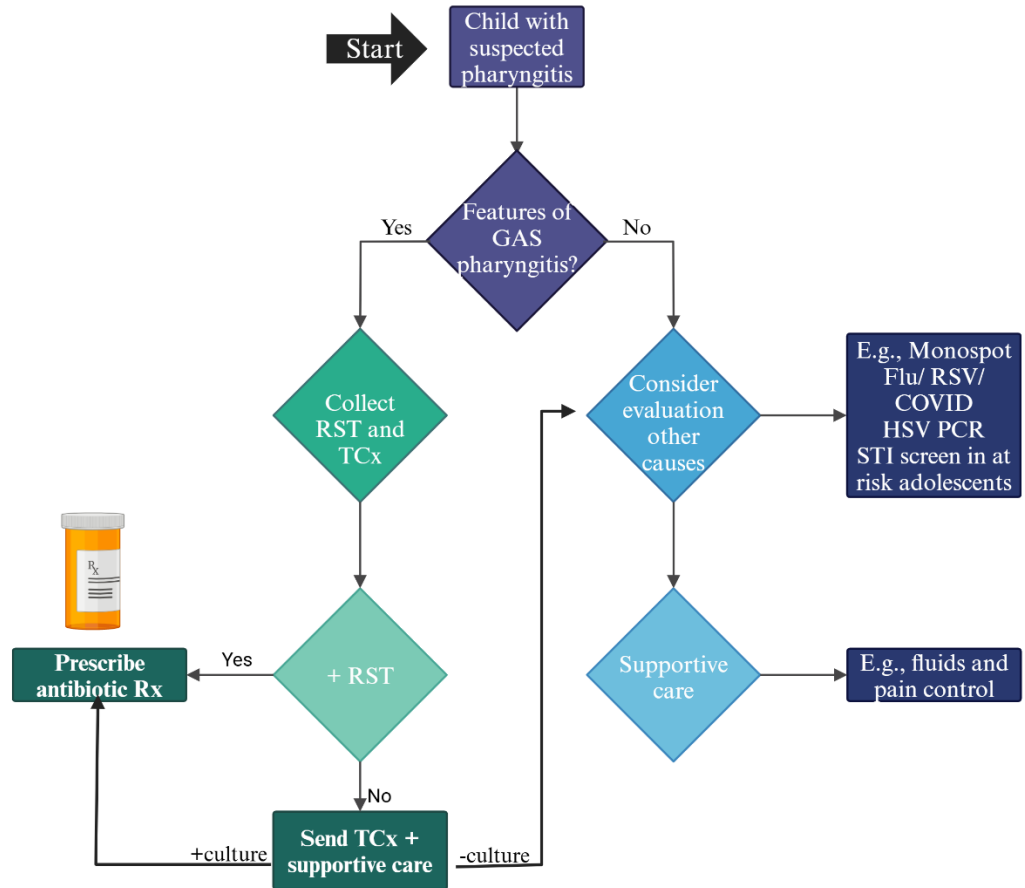
Features of GAS pharyngitis:

History:

- Sore throat
 - Fever
 - Headaches
 - Vomiting
- Abdominal pain
 - Rash
- Absence of viral symptoms (cough, rhinorrhea, conjunctivitis, oral ulcerations, diarrhea)

Exam:

- Tonsillar hypertrophy with exudates
- Pharyngeal erythema
- Palatal petechiae
- Anterior cervical lymphadenopathy
 - Fever > 38°C
- Scarletiform rash
- Absence of viral findings (cough, rhinorrhea, conjunctivitis, oral ulcerations, viral exanthem)



<p>First-line treatment of GAS infection:</p> <p>Amoxicillin, PO 50 mg/kg/day divided once or twice daily (max 1,000 mg/day) x 10 days</p> <p>Penicillin VK, PO Children ≤ 27 kg: 250 mg two times daily x 10 days Children > 27 kg, adolescents, and adults: 500 mg two times daily</p> <p><u>Children who cannot tolerate enteral therapy:</u></p> <p>Benzathine Penicillin G, IM Children < 27 kg: 0.6 million units as a single dose Children ≥ 27 kg, adolescents, and adults: 1.2 million units as a single dose</p>	<p>Alternative therapy for Beta-lactam allergy:</p> <p><u>Non-type I hypersensitivity to penicillin:</u></p> <p>Cephalexin, PO 20 mg/kg/dose twice daily (max =500 mg/dose) x 10 days</p> <p><u>Type I hypersensitivity to penicillin:</u></p> <p>Clindamycin, PO 21 mg/kg/day divided 3 times daily (max = 300 mg/dose) x 10 days</p> <p>Azithromycin, PO 12 mg/kg once daily (max = 500 mg) x 5 days</p>
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