



## Complete Summary

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### GUIDELINE TITLE

Practice guidelines for the diagnosis and management of group A streptococcal pharyngitis.

### BIBLIOGRAPHIC SOURCE(S)

Bisno AL, Gerber MA, Gwaltney JM, Kaplan EL, Schwartz RH. Practice guidelines for the diagnosis and management of group A streptococcal pharyngitis. Clin Infect Dis 2002 Jul 15; 35(2):113-25. [96 references]

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT  
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## SCOPE

### DISEASE/CONDITION(S)

Group A streptococcal pharyngitis (pharyngotonsillitis)

### GUIDELINE CATEGORY

Diagnosis  
Management  
Treatment

### CLINICAL SPECIALTY

Family Practice  
Infectious Diseases  
Internal Medicine  
Pediatrics

### INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

- To provide recommendations for the accurate diagnosis and optimal treatment of group A streptococcal pharyngitis in children and adults
- To update the 1997 practice guideline issued by the Infectious Diseases Society of America (IDSA) on diagnosis and management of group A streptococcal pharyngitis [Clin Infect Dis. 1997 Sep;27(3):574-83]

## TARGET POPULATION

Pediatric, adolescent, and adult outpatients with a complaint of sore throat

## INTERVENTIONS AND PRACTICES CONSIDERED

### Diagnosis

History and physical examination, laboratory studies including throat swab, culture, and rapid antigen detection test (RADT)

### Treatment

Penicillin and other antibiotics (oral); intramuscular benzathine penicillin G; Erythromycin for penicillin-allergic patients; first generation cephalosporins for patients who do not exhibit immediate-type hypersensitivity to beta-lactam antibiotics

## MAJOR OUTCOMES CONSIDERED

- Prevention of acute rheumatic fever
- Prevention of suppurative complications (e.g. peritonsillar abscess, cervical lymphadenitis, or mastoiditis)
- Improvement in clinical symptoms and signs
- Rapid decrease in infectivity, to reduce transmission of group A beta-hemolytic streptococci to family members, classmates, and other close contacts of patients
- Allow rapid resumption of usual activities
- Minimization of potential adverse effects of inappropriate antimicrobial therapy

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

### NUMBER OF SOURCE DOCUMENTS

Not stated

## METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

## RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence

- I. Evidence from at least one properly randomized, controlled trial
- II. Evidence from at least one well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from more than one center); from multiple time-series studies; or dramatic results from uncontrolled experiments
- III. Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

## METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of recommendation:

- A. Good evidence to support a recommendation for use
- B. Moderate evidence to support a recommendation for use
- C. Poor evidence to support a recommendation
- D. Moderate evidence to support a recommendation against use
- E. Good evidence to support a recommendation against use

## COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

External Peer Review  
Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The document has been subjected to external review by peer reviewers as well as by the Practice Guidelines Committee and was approved by the Infectious Diseases Society of America (IDSA) Council.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Excerpted by the National Guideline Clearinghouse (NGC):

#### Diagnosis

The diagnosis of acute group A streptococcal pharyngitis should be suspected on clinical and epidemiological grounds and then supported by performance of a laboratory test. A positive result of either throat culture or rapid antigen detection test (RADT) provides adequate confirmation of the presence of group A beta-hemolytic streptococci in the pharynx. However, for children and adolescents, a negative RADT result should be confirmed with a throat culture result, unless the physician has ascertained in his or her own practice that the RADT used is comparable to a throat culture. Because of the epidemiological features of acute pharyngitis in adults (e.g., low incidence of streptococcal infection and extremely low risk of rheumatic fever), diagnosis of this infection in adults on the basis of the results of an RADT, without confirmation of negative RADT results by negative results of culture, is an acceptable alternative to diagnosis on the basis of throat culture results. The generally high specificity of RADTs should minimize overprescription of antimicrobials for treatment of adults (A-II).

With regard to repetition of diagnostic tests, the majority of asymptomatic patients who have group A beta-hemolytic streptococci remaining in their upper respiratory tracts after completing a course of antimicrobial therapy are *Streptococcus* carriers. Therefore, follow-up culture of throat swabs is not routinely indicated for asymptomatic patients who have received a complete course of therapy for group A streptococcal pharyngitis (A-II).

There are, however, special situations in which asymptomatic persons should have follow-up cultures of throat swabs performed. They should be performed routinely for patients with a history of rheumatic fever and should also be considered for patients who develop acute pharyngitis during outbreaks of either acute rheumatic fever or post-streptococcal acute glomerulonephritis, as well as during outbreaks of group A streptococcal pharyngitis in closed or partially closed communities. Follow-up throat cultures may also be indicated when "ping-pong" spread of group A streptococci has been occurring within a family (B-III). With rare exceptions, follow-up cultures are not indicated for asymptomatic patients who have received a complete course of therapy for group A streptococcal pharyngitis.

#### Management

Antimicrobial therapy. Patients with acute streptococcal pharyngitis should receive therapy with an antimicrobial agent at a dosage and for a duration that is likely to eradicate the infecting organism from the pharynx. On the basis of its narrow spectrum of antimicrobial activity, the infrequency with which it produces adverse reactions, and its modest cost, penicillin is the drug of choice for treatment of patients who are not allergic to it.

Table. Antimicrobial therapy for group A streptococcal pharyngitis.

| Route of administration, antimicrobial agent   | Dosage  | Duration <sup>a</sup>                           | Rating                                    |
|--|---|---|---|
| <u>Oral</u><br>Penicillin V <sup>b</sup>   | Children: 250 mg b.i.d. or t.i.d.<br><br>Adolescents and adults: 250 mg t.i.d. or q.i.d.<br><br>Adolescents and adults: 500 mg b.i.d. | 10 days<br><br>10 days<br><br>10 days           | A-II<br><br>A-II<br><br>C-III             |
| <u>Intramuscular</u><br><br>Benzathine penicillin G<br><br>Mixtures of benzathine and procaine penicillin G              | 1.2 x 10 <sup>6</sup> units<br><br>6.0 x 10 <sup>5</sup> units<br><br>Varies with formulation <sup>e</sup>                            | 1 dose<br><br>1 dose <sup>d</sup><br><br>1 dose | A-II <sup>c</sup><br><br>A-II<br><br>B-II |
| <u>Oral, for patients allergic to penicillin</u><br><br>Erythromycin<br><br>First-generation cephalosporins <sup>g</sup> | Varies with formulation <sup>f</sup><br><br>Varies with agent   | 10 days<br><br>10 days                          | A-II<br><br>A-II                          |

<sup>a</sup> Although shorter courses of azithromycin and some cephalosporins have been reported to be effective for treating group A streptococcal upper respiratory tract infections, evidence is not sufficient to recommend these shorter courses for routine therapy at this time.

<sup>b</sup> Amoxicillin is often used in place of oral penicillin V in young children; the efficacy of amoxicillin appears to be equal to that of penicillin V. The choice is primarily related to acceptance of the taste of the suspension.

<sup>c</sup> See the discussion in "Management of Group A Streptococcal Pharyngitis" section of the original guideline document.

<sup>d</sup> For patients who weigh <27 kg.

<sup>e</sup> Dose should be determined on basis of the benzathine component. For example, mixtures of  $9 \times 10^5$  units of benzathine penicillin G and  $3 \times 10^5$  units of procaine penicillin G contain less benzathine penicillin G than is recommended for treatment of adolescents or adults.

<sup>f</sup> Available as stearate, ethyl succinate, estolate, or base. Cholestatic hepatitis may rarely occur in patients, primarily adults, receiving erythromycin estolate; the incidence is greater among pregnant women, who should not receive this formulation.

<sup>g</sup> These agents should not be used to treat patients with immediate-type hypersensitivity to beta-lactam antibiotics.

Management of close contacts and pharyngeal carriers. Except in specific situations in which there is increased risk of frequent infections or of nonsuppurative streptococcal sequelae, routine culture of throat swab specimens obtained from or treatment of asymptomatic household contacts of patients with group A streptococcal pharyngitis is not recommended (B-III).

Management of patients with recurrent episodes of acute pharyngitis and positive results of culture or RADT for group A beta-hemolytic streptococci. A small percentage of patients will have a second episode of acute pharyngitis with results of throat culture (or RADT) positive for group A streptococci within a short time after completion of a course of antimicrobial therapy. A single such episode may be retreated with the regimens recommended in the table above. When multiple episodes occur over the course of months or years, it may be difficult to differentiate viral infections from true group A streptococcal infections. Certain antimicrobial agents have been shown to yield high rates of pharyngeal eradication of streptococci under these particular circumstances (A-II). Suggested regimens that use these agents are listed in the table below.

Intramuscular benzathine penicillin G is preferred for those patients unlikely to complete a full 10-day course of oral therapy. Erythromycin is a suitable alternative for patients who are allergic to penicillin. First-generation cephalosporins are also acceptable for patients allergic to penicillin who do not manifest immediate-type hypersensitivity to beta-lactam antibiotics. For the rare patient infected with an erythromycin-resistant strain of group A Streptococcus who is unable to tolerate beta-lactam antibiotics, clindamycin is an appropriate alternative.

Table. Treatment of symptomatic persons with multiple, recurrent episodes of pharyngitis proven by culture or rapid antigen detection testing.

| Route of administration, antimicrobial agent  | Dosage   | Duration | Rating |
|---|--|----------|--------|
| <u>Oral</u><br>Clindamycin  | Children: 20-30 mg/kg /day in three equally divided doses        | 10 days  | B-II   |
|   | Adults: 600 mg/day in 2-4 equally divided doses <sup>a</sup>     | 10 days  | B-III  |
| Amoxicillin-clavulanic acid   | Children: 40 mg/kg/day in 3 equally divided doses <sup>b,c</sup> | 10 days  | B-II   |
|   | Adults: 500 mg b.i.d. <sup>a,c</sup>                             | 10 days  | B-III  |
| Parenteral with or without oral<br><br>Benzathine penicillin G<br><br>Benzathine penicillin G with rifampin | For intramuscular dosages, see table above <sup>d</sup>          | 1 dose   | B-II   |
|   | Rifampin: 20 mg/kg/day orally in 2 equally divided doses         | 4 days   |        |

Note: Macrolides (e.g., erythromycin) and cephalosporins are not included in this table, because there are insufficient data to support their efficacy in this specific circumstance.

<sup>a</sup> Adult doses are extrapolated from data for children. Use of this drug for this indication has not been studied in adults.

<sup>b</sup> Maximum dose, 750 mg of amoxicillin per day.

<sup>c</sup> Refers to amoxicillin component. Note that two 250-mg tablets of amoxicillin-clavulanic acid are not equivalent to one 500-mg tablet, because both the 250-mg and the 500-mg tablet contain 125 mg of clavulanic acid.

<sup>d</sup> Treatment with benzathine penicillin G is useful for patients in whom compliance with previous courses of oral antimicrobials is in question. Addition of rifampin to benzathine penicillin G may be

beneficial for eradication of streptococci from the pharynx. It has also been reported that addition of rifampin (20 mg/kg/day, once daily) during the final 4 days of a 10-day course of oral penicillin V may achieve high rates of eradication. The maximum daily dose of rifampin is 600 mg; rifampin is relatively contraindicated for pregnant women.

#### Definitions of Strength of Recommendation and Quality of Evidence Ratings:

##### Strength of Recommendation

- A. Good evidence to support a recommendation for use
- B. Moderate evidence to support a recommendation for use
- C. Poor evidence to support a recommendation
- D. Moderate evidence to support a recommendation against use
- E. Good evidence to support a recommendation against use

##### Quality of Evidence

- I. Evidence from at least one properly randomized, controlled trial
- II. Evidence from at least one well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from more than one center); from multiple time-series studies; or dramatic results from uncontrolled experiments
- III. Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

#### CLINICAL ALGORITHM(S)

An algorithm which can be applied to uncomplicated cases of acute pharyngitis is provided in the original guideline document.

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified with each recommendation (see "Major Recommendations").

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

Accurate diagnosis, followed by appropriate antimicrobial therapy is important for achieving desired outcomes (prevention of acute rheumatic fever; prevention of suppurative complications [e.g., peritonsillar abscess, cervical lymphadenitis, and mastoiditis]; improvement in clinical symptoms and signs; rapid decrease in infectivity, to reduce transmission of group A beta-hemolytic streptococci to family

members, classmates, and other close contacts of the patient, and minimization of potential adverse effects of inappropriate antimicrobial therapy).

#### POTENTIAL HARMS

Not stated

### IMPLEMENTATION OF THE GUIDELINE

#### DESCRIPTION OF IMPLEMENTATION STRATEGY

Indicators of quality of care of patients with acute pharyngitis include the following:

1. for patients suspected of having group A streptococcal pharyngitis, performance of throat culture or rapid antigen detection testing (RADT)
2. for patients with acute pharyngitis and positive tests for group A streptococci, prescription of one of the antimicrobial regimens recommended in the guideline document
3. for patients with negative microbiological test results for group A streptococci, withholding or discontinuation of antimicrobial therapy
4. for asymptomatic patients who have received an adequate course of antimicrobial therapy, omission of routine performance of follow-up cultures or rapid antigen detection testing
5. for asymptomatic family contacts of patients with group A streptococcal pharyngitis, avoidance of routine throat cultures or rapid antigen detection testing
6. avoidance of prescription of continuous long-term antimicrobial prophylaxis to prevent recurrent episodes of acute pharyngitis (except for patients with a history of rheumatic fever)

### INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

#### IOM CARE NEED

Getting Better

#### IOM DOMAIN

Effectiveness

### IDENTIFYING INFORMATION AND AVAILABILITY

#### BIBLIOGRAPHIC SOURCE(S)

Bisno AL, Gerber MA, Gwaltney JM, Kaplan EL, Schwartz RH. Practice guidelines for the diagnosis and management of group A streptococcal pharyngitis. Clin Infect Dis 2002 Jul 15; 35(2): 113-25. [96 references]

## ADAPTATION

Not applicable: The guideline was not adapted from another source.

## DATE RELEASED

1997 (revised 2002 Jul)

## GUIDELINE DEVELOPER(S)

Infectious Diseases Society of America - Medical Specialty Society

## SOURCE(S) OF FUNDING

Infectious Diseases Society of America

## GUIDELINE COMMITTEE

Acute Pharyngitis Guideline Panel

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: Alan L. Bisno; Michael A. Gerber; Jack M. Gwaltney, Jr.; Edward L. Kaplan; Richard H. Schwartz

## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the most current release of the guideline.

This guideline updates a previously released version [Clin Infect Dis 1997 Sep;27(3):574-83].

An update is not in progress at this time.

## GUIDELINE AVAILABILITY

Electronic copies: Available from the Infectious Disease Society of America (IDSA) Web site:

- [HTML format](#)
- [Portable Document Format \(PDF\)](#)
- [Postscript](#)

Print copies: Available from Infectious Diseases Society of America, 66 Canal Center Plaza, Suite 600, Alexandria, VA 22314.

## AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Kish MA. Guide to development of practice guidelines. Clin Infect Dis 2001 Mar 15; 32(6):851-4.

Electronic copies: Available from the [Infectious Diseases Society of America \(IDSA\) Web site](#).

- Gross PA. Practice guidelines for infectious diseases: Rationale for a work in progress. Clin Infect Dis. 1998 May; 26(5):1037-41.

Electronic copies: Available in Portable Document Format (PDF) from the [IDSA Web site](#).

Print copies: Available from IDSA, 66 Canal Center Plaza, Suite 600, Alexandria, VA 22314.

## PATIENT RESOURCES

None available

## NGC STATUS

This summary was completed by ECRI on January 15, 1999. The information was verified by the guideline developer as of March 22, 1999. This summary was updated on September 9, 2002. The updated information was verified by the guideline developer on September 12, 2002.

## COPYRIGHT STATEMENT

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