



## Complete Summary

---

### GUIDELINE TITLE

Pharyngitis.

### BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Pharyngitis. Ann Arbor (MI): University of Michigan Health System; 2006 Oct. 10 p. [9 references]

### GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Pharyngitis. Guidelines for clinical care. Ann Arbor (MI): University of Michigan Health System; 2000 Dec. 8 p.

## COMPLETE SUMMARY CONTENT

SCOPE  
METHODOLOGY - including Rating Scheme and Cost Analysis  
RECOMMENDATIONS  
EVIDENCE SUPPORTING THE RECOMMENDATIONS  
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS  
CONTRAINDICATIONS  
QUALIFYING STATEMENTS  
IMPLEMENTATION OF THE GUIDELINE  
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES  
IDENTIFYING INFORMATION AND AVAILABILITY  
DISCLAIMER

## SCOPE

### DISEASE/CONDITION(S)

Pharyngitis

### GUIDELINE CATEGORY

Diagnosis  
Evaluation  
Management  
Treatment

### CLINICAL SPECIALTY

Family Practice  
Internal Medicine  
Pediatrics

## **INTENDED USERS**

Advanced Practice Nurses  
Nurses  
Physician Assistants  
Physicians

## **GUIDELINE OBJECTIVE(S)**

- To utilize signs and symptoms to determine pretest probability of Group A beta hemolytic streptococcal (GABHS) pharyngitis
- To confirm all negative results with culture in patients <16 years old where GABHS pharyngitis is suspected and a rapid strep screen is performed
- To reduce indiscriminate use of antibiotics to minimize potential adverse effects
- To assure appropriate course of antibiotic treatment to prevent rheumatic fever and suppurative complications (e.g., otitis media, sinusitis, peritonsillar/retropharyngeal abscesses or mastoiditis)
- To hasten illness resolution and reduction in transmission of GABHS pharyngitis to others

## **TARGET POPULATION**

Patients 3 years old through adulthood with a sore throat

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Diagnosis**

1. Evaluation of signs/symptoms of Group A beta hemolytic streptococcal disease (GABHS)
2. Use of algorithms to improve diagnostic accuracy
3. Laboratory confirmation of GABHS
4. Throat culture
5. Rapid streptococcal antigen tests
6. Phone triage for GABHS symptoms when clinic access is a problem

### **Treatment**

1. Antibiotic treatment (penicillin, amoxicillin, erythromycin, azithromycin, narrow spectrum oral cephalosporin [e.g., cephalexin])

## **MAJOR OUTCOMES CONSIDERED**

- Diagnostic accuracy
- Rate of prescription of antibiotics
- Symptomatic improvement (i.e., symptom scores)

- Overall duration of symptoms (days)
- Eradication of Group A beta hemolytic streptococcal disease (GABHS)
- Incidence of acute rheumatic fever
- Cost effectiveness
- Adverse effects of antibiotic use, including allergic reaction, emergence of resistant strains of GABHS

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
 Searches of Electronic Databases

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

The literature search for this update began with the results of the literature search performed for the 2000 version of this guideline. A search for literature published since that time was performed. The search on Medline was conducted prospectively for literature published from 7/1/00 to 5/30/05 using the major keywords of: GABHS pharyngitis (streptococcal infections, *Streptococcus pyogenes*, pharyngitis, pharynx), strep throat; human; English; guidelines; controlled trials. Searches were performed separately for children, for adults, and for age not specified for the following specific topics: history, physical exam, signs, symptoms, throat culture (strep culture), rapid strep screen, observation, antibiotics, other treatment/management, and other references. Specific search terms and strategy are available upon request.

The search was conducted in components each keyed to a specific causal link in a formal problem structure (available upon request). The search was supplemented with recent clinical trials known to expert members of the panel. Negative trials were specifically sought. The search was a single cycle.

### 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

Levels of evidence for the most significant recommendations:

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational trials
- D. Opinion of expert panel

## **METHODS USED TO ANALYZE THE EVIDENCE**

Systematic Review

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Conclusions were based on prospective randomized clinical trials (RCTs) if available, to the exclusion of other data. If RCTs were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Not stated

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Not applicable

## **COST ANALYSIS**

Published cost-analyses were reviewed.

## **METHOD OF GUIDELINE VALIDATION**

Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

University of Michigan Health System (UMHS) guidelines are reviewed by clinical conferences of physicians in departments to which the content is most relevant and by leadership in those departments/divisions. This guideline concerning pharyngitis was reviewed by members of the following departments: General Pediatrics; General Medicine; Family Medicine, Pediatric Infectious Diseases.

Guidelines are approved by the Executive Committee of Clinical Affairs (ECCA).

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

*Note from the National Guideline Clearinghouse (NGC):* The following key points summarize the content of the guideline. Refer to the full text for additional information including specific information on drug dosing and costs.

The levels of evidence [A-D] are defined at the end of the "Major Recommendations."

### General Principals

- Viral agents cause most cases of pharyngitis: around 90% in adults and 70% in children [C].
- The prime reason to identify and treat Group A beta hemolytic streptococcal (GABHS) pharyngitis is to decrease the risk of acute rheumatic fever (ARF) [A]. The endemic incidence of ARF is around 0.23 to 1.88/100,000.
- Early treatment of GABHS can decrease the time a patient is symptomatic by 1 to 2 days from a typical 3 to 7 days [A] and may decrease the period of contagiousness [C]

### Diagnosis

- Signs/symptoms of recent fever, tender anterior cervical lymphadenopathy, red pharynx +/- tonsillar swelling or exudate, and no cough indicate a higher probability of GABHS for both adults and children. Algorithms incorporating epidemiologic and clinical factors improve diagnostic accuracy primarily by identifying patients with an exceedingly low risk of streptococcal infection [C].
- Laboratory confirmation: Test when diagnosis is not ruled out by viral symptoms (see table below).
  - For adults: confirmation is most useful when GABHS is suspected; however, only test those with at least 2 or more signs/ symptoms mentioned above. [C].
  - For patients between 3 to 15 years of age: confirmation is most useful when GABHS cannot be excluded. Nevertheless, only test those with at least 1 or more signs/symptoms mentioned above [C]. The threshold for testing is lower for children because their risk of developing acute rheumatic fever is higher.

### Signs and Symptoms

**Suggestive for Group A Beta Hemolytic Streptococcal Disease (GABHS)** (need 2 or more for adults and 1 or more for pediatric patients)

- Fever >38 degrees C (100.4 degrees F) in past 24 hours
- Tender anterior cervical nodes
- Enlarged, red tonsils or purulent exudate or red pharynx
- No cough

### Suggestive for Viral Etiology

- Cough and coryza
- Scleral conjunctival inflammation
- Hoarseness
- Pharyngeal ulcerations
- Diarrhea

- Throat culture is the presumed "gold standard" for diagnosis [C]. Rapid streptococcal antigen tests identify GABHS more rapidly, but have variable sensitivity [C].
  - Reserve rapid strep tests for patients with a reasonable probability of having GABHS. In patients screened with a rapid strep test, a negative result should be confirmed by culture in patients <16 years old (and considered in parents or siblings of school age children) due to their higher incidence of developing acute rheumatic fever [C].
  - If screening for GABHS in very low risk patients is desired, culture alone is cost effective.

## Treatment

- Penicillin is the drug of choice in patients who can swallow pills. If suspension must be prescribed, amoxicillin is better tolerated due to the extremely bitter taste of penicillin.
  - Erythromycin is preferred for patients allergic to penicillin.
  - For patients expected to be intolerant or non-compliant with an erythromycin product (e.g., younger patients), consider azithromycin or a narrow spectrum oral cephalosporin like cephalexin.
- Antibiotic treatment must be started within 9 days after onset of the acute illness and continued for 10 days (or 5 days for azithromycin) to eradicate GABHS from the upper respiratory tract and prevent acute rheumatic fever [D].

## Controversial Areas

Based on a description over the phone, a clinician may decide to screen or treat for GABHS [D]:

- When clinic access is a problem (e.g., during flu season), one may elect to have a staff member triage symptoms for GABHS screening.
- When a symptomatic patient is  $\geq 3$  years old and has a family member recently documented by lab testing to have GABHS pharyngitis, one may elect to treat without screening.

## Definitions:

### Levels of evidence for the most significant recommendations:

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational trials
- D. Opinion of expert panel

## CLINICAL ALGORITHM(S)

Algorithms are provided in the original guideline document for:

- Adult pharyngitis (Patients  $\geq 16$  years old)
- Pediatric pharyngitis (Patients 3 to 15 years old)

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Conclusions were based on prospective randomized clinical trials (RCTs) if available, to the exclusion of other data; if RCTs were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size. The type of evidence is identified and graded for the most significant recommendations (see "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- The prime reason to identify and treat group A beta-hemolytic streptococcal (GABHS) pharyngitis is to decrease the risk of acute rheumatic fever.
- Early treatment of GABHS shortens the clinical course, may reduce the risk of transmission, and may decrease the risk of other suppurative sequela (e.g., otitis media, sinusitis, peritonsillar/retropharyngeal abscesses or mastoiditis).
- Rational use of antibiotics contains cost and prevents harms associated with indiscriminate antibiotic use, including increased incidence of allergic reactions to antibiotics, increased incidence of mislabeling patients as allergic to antibiotics, and the emergence of resistant strains of GABHS pharyngitis or other pathogenic bacteria.

### POTENTIAL HARMS

- The value of early diagnosis in the minority of cases when strep is present and identified must be weighed against the higher total laboratory charges for the majority of cases screened. Most screens are negative and additional charges will be incurred for a subsequent culture.
- Antibiotic side effects may include rash, nausea, abdominal pain, and/or diarrhea. A single intramuscular injection of benzathine penicillin produces a significant amount of pain at the injection site that may last a number of days, as well as increased risk of anaphylaxis.

## CONTRAINDICATIONS

### CONTRAINDICATIONS

The antibiotic rifampin is relatively contraindicated for pregnant women.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining

the same results. The ultimate judgment regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### IMPLEMENTATION TOOLS

Clinical Algorithm  
Patient Resources  
Staff Training/Competency Material

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

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

### IOM CARE NEED

Getting Better

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Pharyngitis. Ann Arbor (MI): University of Michigan Health System; 2006 Oct. 10 p. [9 references]

### ADAPTATION

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

### DATE RELEASED

1996 Nov (revised 2006 Oct)

### GUIDELINE DEVELOPER(S)

University of Michigan Health System - Academic Institution

## **SOURCE(S) OF FUNDING**

University of Michigan Health System

## **GUIDELINE COMMITTEE**

Pharyngitis Guideline Team

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Team Leader:* Terrance P Murphy, MD, Pediatrics

*Team Members:* R Van Harrison, PhD, Medical Education; Annissa J Hammoud, MD, Internal Medicine-Pediatrics; Gary Yen, MD, Family Medicine

*Consultants:* R Alexander Blackwood, MD, PhD, Pediatric Infectious Diseases; John R Crump, MD, General Internal Medicine

*Guidelines Oversight Team:* Connie Standiford, MD; William E Chavey, MD; R Van Harrison, PhD

## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

None of the members of the Pharyngitis guideline team have a relationship with commercial companies whose products are discussed in this guideline. The team members are listed on the front page of the guideline document.

## **GUIDELINE STATUS**

This is the current release of the guideline.

This guideline updates a previous version: Pharyngitis. Guidelines for clinical care. Ann Arbor (MI): University of Michigan Health System; 2000 Dec. 8 p.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available for download in Portable Document Format (PDF) from the [University of Michigan Health System Web site](#).

## **AVAILABILITY OF COMPANION DOCUMENTS**

Continuing Medical Education (CME) information is available from the [University of Michigan Health System Web site](#).

## **PATIENT RESOURCES**

The following is available:

- Sore throat (pharyngitis). University of Michigan Health System; 2006 Jul. Various p. Available from the [University of Michigan Health System Web site](#).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

## **NGC STATUS**

This summary was completed by ECRI on May 20, 1999. The information was verified by the guideline developer on June 17, 1999. This summary was updated by ECRI on December 14, 2001. The updated information was verified by the guideline developer as of February 8, 2002. This summary was updated by ECRI Institute on April 23, 2007. The updated information was verified by the guideline developer on April 25, 2007.

## **COPYRIGHT STATEMENT**

This NGC summary is based on the original guideline, which is copyrighted by the University of Michigan Health System (UMHS).

## **DISCLAIMER**

### **NGC DISCLAIMER**

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

© 1998-2008 National Guideline Clearinghouse

Date Modified: 9/22/2008

