Complete Summary

GUIDELINE TITLE

Uncomplicated urinary tract infection in women.

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Uncomplicated urinary tract infection in women. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Jul. 21 p. [38 references]

COMPLETE SUMMARY CONTENT

SCOPE
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SCOPE

DISEASE/CONDITION(S)

Uncomplicated urinary tract infection

GUIDELINE CATEGORY

Diagnosis
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses

Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To decrease the use of urine culture as a guide in the therapy of uncomplicated urinary tract infection (UTI)
- To increase the use of short course therapy in women with uncomplicated urinary tract infection
- To increase patient satisfaction with management of uncomplicated urinary tract infection

TARGET POPULATION

Women age 18 to 65 with uncomplicated urinary tract infection (UTI)

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Patient history
2. Urinary analysis (UA)/urinary culture (UC)
3. Provider visit with pelvic examination

Treatment (over the phone or during a provider visit)

1. Trimethoprim sulfamethoxazole
2. Trimethoprim
3. Nitrofurantoin (Macrobid)
4. Ciprofloxacin
5. Patient education that includes information on prescribed therapy, prevention techniques, and follow-up if symptoms do not subside

MAJOR OUTCOMES CONSIDERED

- Patient factors, such as history, other medical conditions, and symptoms
- Performance and results of laboratory tests, such as urinalysis and urine culture, including sensitivity, specificity, and predictive value
- Effectiveness of treatment according to drug and treatment duration
- Antibiotic resistance

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

No additional description of literature search strategies is available.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

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

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Institute Partners: System-Wide Review

The guideline annotation, discussion, and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member groups during an eight-week review period.

Each of the Institute's participating member groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature

coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating member groups following implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

Guideline Work Group

Following the completion of the review period, the guideline work group meets 1 to 2 times to review the input received. The original guideline is revised as necessary and a written response is prepared to address each of the responses received from member groups. Two members of the Committee on Evidence-Based Practice carefully review the input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of four questions: (1) Is there consensus among all ICSI member groups and hospitals on the content of the guideline document? (2) Has the drafting work group answered all criticisms reasonably from the member groups? (3) Within the knowledge of the appointed reviewer, is the evidence cited in the document current and not out-of-date? (4) Is the document sufficiently similar to the prior edition that a more thorough review (critical review) is not needed by the member group? The committee then either approves the guideline for release as submitted or negotiates changes with the work group representative present at the meeting.

Pilot Test

Member groups may introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer, and other practice systems. Evaluation and assessment occur throughout the pilot test phase, which usually lasts for three-six months. At the end of the pilot test phase, ICSI staff and the leader of the work group conduct an interview with the member groups participating in the pilot test phase to review their experience and gather comments, suggestions, and implementation tools.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline, and the Committee on Evidence-Based Practice reviews the revised guideline and approves it for release.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The recommendations for uncomplicated urinary tract infection in women are presented in the form of an algorithm with 13 components, accompanied by detailed annotations. An algorithm is provided for Uncomplicated Urinary Tract Infection in Women; clinical highlights and selected annotations (numbered to correspond with the algorithms) follow.

Class of evidence (A-D, M, R, X) ratings are defined at the end of the "Major Recommendations" field.

Clinical Highlights for Individual Clinicians

1. Assess all women ages 18 to 65 with symptoms of urinary tract infection (UTI) for the presence of complicating factors. The presence of complicating factors warrants provider evaluation and may require additional diagnostic work-up. (Annotations #2, 4)
2. Patients who have classic symptoms of UTI and no complicating factors can be offered the option of phone treatment, if preferred by both provider and patient. (Annotation #4)
3. If laboratory evaluation is preferred by the provider, symptomatic women without complicating factors can be appropriately evaluated by a urinalysis rather than a urine culture. (Annotation #3)
4. Symptomatic women without complicating factors can be effectively treated with the following recommended therapy: (Annotation #9)
    - Trimethoprim Sulfamethoxazole D.S. 1 twice a day (BID) x 3 days
    - Trimethoprim 100 mg 1 BID x 3 days

    If allergic to Sulfa or Trimethoprim:

    - Nitrofurantoin (Macrobid) 100 mg BID x 7 days
    - Ciprofloxacin 250 mg BID x 3 days

    Sulfa and ciprofloxacin may cause an increase in international normalized ratio (INR) values for patients taking warfarin.

    If an individual's institution has over 20% resistance in Escherichia coli to trimethoprim-sulfamethoxazole, consider choosing an alternate first-line treatment such as nitrofurantoin or ciprofloxacin.

5. All patients should be provided patient education about the prescribed therapy and the need to return to clinic if the symptoms do not subside. (Annotation #1, 9)

Uncomplicated Urinary Tract Infection in Women Algorithm Annotations

1. Adult Female Presents or Calls with One or More of the Following Symptoms: Dysuria, Frequency, Urgency

    The classic symptoms of urinary tract infection (UTI) in women are dysuria, frequency, and urgency. One or more of these symptoms can trigger the initiation of the UTI guideline. Hematuria alone is not a classic uncomplicated UTI symptom. There is concern the presence of hematuria may be a sign of more significant disease. Patients whose symptoms do not subside should return to the clinic for a full examination.

2. Complicating Factors Present?

    History taking is essential in differentiating uncomplicated from complicated urinary infection. Women should be screened for the presence of complicating factors when presenting or calling with symptoms of UTI. Depending upon

which complicating factor is present, short course therapy may or may not be appropriate.

Symptoms for which short course therapy with trimethoprim/sulfamethoxazole (TMP/SMX) is not appropriate:

- Symptoms suggest pyelonephritis or other more severe infection: long duration, rigors, flank pain, or temperature greater than 101 degrees F.
- Patient's medical history suggests likelihood of complicated urinary tract infection or need for different investigation or therapy: diabetes, pregnancy, immunosuppression, underlying urinary tract disease or renal calculi, recent medical intervention (hospitalization or catheterization), or recurrent UTIs or failure of therapy.
- Resident of an extended care facility

Factors for which short course therapy may be appropriate at physician discretion:

- Potential sexually transmitted disease (STD): an infected partner, other genitourinary symptoms. The patient should be seen and STDs ruled out.
- Younger or older patients (less than 18 or greater than 65). There is little literature documentation of efficacy of short course therapy in these age groups.
- Recent pyelonephritis or failure of antibiotic treatment. These patients may be at higher risk of complicated infection.

Evidence supporting this recommendation is of classes: B, R

3. Urinalysis (UA)/Hold for Urine Culture (UC)/Patient Education

Instructions on collecting a clean-catch, midstream urine specimen should be given to the patient. Education should also be given to the patient regarding urinary tract infection.

The laboratory should be instructed to perform a urinalysis with microscopy and hold for possible urine culture. Urine specimens that are marked "Hold for UC" should be refrigerated.

The final decision about culturing should be left to the provider.

4. Provider Evaluation

Women with a complicated history should be evaluated by a health care provider. The provider (physician or paraprofessional) will determine if a UC is necessary.

Complicating factors are listed in detail on the algorithm page (floating box 2 of the original guideline document), and include the following categories:

- Those that would preclude use of short course therapy
- Those that would allow for discretionary use of short course therapy
- Those that would necessitate a pelvic exam to rule out genitourinary (GU) disease

Evidence supporting this recommendation is of class: R

5. Symptoms of or Risk for Other Genitourinary Diseases?

Genitourinary Symptoms

- Vaginal discharge
- Vaginal odor
- Vaginal itching
- Dyspareunia

Women with the following characteristics are at greater risk of a sexually transmitted disease:

Chlamydia Risk Factors

- Contact with a partner who is infected with an STD

or

- Less than or equal to age 25 and single marital status and no barrier contraception and new sexual partner within the last 3 months.

Evidence supporting this recommendation is of classes: C, M, R

7. Provider Visit

Women with the symptoms and risk factors listed in Annotation #5, "Symptoms of or Risk for Other Genitourinary Disease," are at high risk for STDs and should receive closer evaluation. These patients should be scheduled for a provider (physician or paraprofessional) visit and should receive a pelvic exam.

Finding an STD does not rule out concomitant UTI, which could be treated with short course therapy.

8. Patient/Provider Preference for Phone Treatment Without UA

Treatment of uncomplicated UTI over the phone (using a well developed protocol) for women between the ages of 18 and 65 is a reasonable practice. Patient education should be provided over the phone, handed out at the pharmacy, or mailed to the patient, and should include the following information:

- prescribed therapy

- prevention techniques
- the need to return to the clinic if symptoms do not subside

Of note, there is currently no data to suggest that risk of pregnancy increases with concomitant use of oral contraceptives and antibiotics recommended in this guideline.

Evidence supporting this recommendation is of classes: D, R

9. Short Course Therapy/Patient Education

Short Course Therapy

Once the presence of pyuria is established, adult female patients with uncomplicated UTIs can be prescribed treatment over the phone if preferred by both the provider and the patient, or can receive treatment at a clinic visit with a medical provider.

The drugs recommended for short course therapy are as follows:

- Trimethoprim-Sulfamethoxazole D.S. 1 BID x 3 days
- Trimethoprim 100 mg 1 BID x 3 days (Trimethoprim may have lower side effect profile than Trimethoprim Sulfamethoxazole)

If allergic to Sulfa or Trimethoprim:

- Nitrofurantoin (Macrobid) 100 mg BID x 7 days
- Ciprofloxacin 250 mg BID x 3 days

Sulfa and Ciprofloxacin may cause an increase in international normalized ratio (INR) values for patients taking warfarin.

If an individual's institution has over 20% resistance in E. Coli to Trimethoprim-Sulfamethoxazole, consider choosing an alternate first-line treatment such as nitrofurantoin or ciprofloxacin.

Evidence supporting this recommendation is of classes: A, C, D, R

10. UA/Patient Education

Obtain a urine sample and give the patient education about urinary tract infections and prevention.

11. Pyuria or Dipstick Positive?

One method for measuring pyuria, determining cells per microscopic high-power field in a centrifuged urine specimen, does not correlate well with either the leukocyte excretion rate or the hemocytometer chamber technique. However, most practices do not use a hemocytometer for measurement of white blood cells in urine; therefore, defining a level of white blood cells per

high-power field (wbc/hpf) that is abnormal is a matter of sensitivity and specificity. There is agreement that greater than or equal to 6 wbc/hpf demonstrates a reasonable predictive value for UTI, but it is also known that UTIs can occur in symptomatic women with less than or equal to 6 wbc/hpf.

The presence of pyuria on urinalysis has high sensitivity (95%) but a relatively low specificity (71%) for infection. The presence of visible bacteria on microscopical examination is less sensitive but more specific (40 to 70% and 85 to 95%, respectively, depending on number of bacteria observed). Urinary dipstick testing has largely supplanted microscopy and urine-culture analysis, because the dipstick method is cheaper, faster, and more convenient. Dipsticks are most accurate when the presence of either nitrite or leukocyte esterase is positive, yielding a sensitivity of 75% and a specificity of 82%.

Evidence supporting this recommendation is of classes: C, R

12. Provider Evaluation

Symptomatic women with a negative urinalysis should receive further evaluation as clinically indicated.

Within the population there may be some patients who do not appear to have a UTI by laboratory tests who will nonetheless respond to a trial of antibiotics. In addition, there may be patients who are well known to providers and who are known to be accurate historians who may not be able to come in for laboratory testing. In both cases, it may be reasonable to treat based on history without laboratory support.

Evidence supporting this recommendation is of classes: A, C

Definitions:

Classes of Research Reports:

A. Primary Reports of New Data Collection:

Class A:

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Nonrandomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case reports

B. Reports that Synthesize or Reflect upon Collections of Primary Reports

Class M:

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

CLINICAL ALGORITHM(S)

A detailed and annotated clinical algorithm is provided for the management of Uncomplicated Urinary Tract Infection in Women.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The guideline contains an annotated bibliography and discussion of the evidence supporting each recommendation. The type of supporting evidence is classified for selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Symptom relief
- Accurate diagnosis of urinary tract infection (UTI)
- Appropriate antibiotic use

POTENTIAL HARMS

- Sulfa and ciprofloxacin may cause an increase in international normalized ratio (INR) values for patients taking warfarin.

- Increasing Escherichia coli resistance to trimethoprim-sulfamethoxazole
- Alarming increases in quinolone resistance are emerging internationally, which underscores the need to reserve ciprofloxacin for serious infection.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and are not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.
- This medical guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients are urged to consult a health care professional regarding their own situation and any specific medical questions they may have.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Once a guideline is approved for release, a member group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Summaries of the measures are provided in the National Quality Measures Clearinghouse (NQMC).

RELATED NQMC MEASURES

- Uncomplicated urinary tract infection in women: the percentage of women with uncomplicated urinary tract infection (UTI) with a urine culture performed at the initial encounter.
- Uncomplicated urinary tract infection in women: the percentage of women with uncomplicated urinary tract infection (UTI) treated with recommended short course therapy.

- Uncomplicated urinary tract infection in women: percentage of women reporting satisfaction with their management of uncomplicated urinary tract infection (UTI) (patient survey).

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)

Institute for Clinical Systems Improvement (ICSI). Uncomplicated urinary tract infection in women. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Jul. 21 p. [38 references]

ADAPTATION

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

DATE RELEASED

1994 Jan (revised 2004 Jul)

GUIDELINE DEVELOPER(S)

Institute for Clinical Systems Improvement - Private Nonprofit Organization

GUIDELINE DEVELOPER COMMENT

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers, Allina Medical Clinic, Altru Health System, Aspen Medical Group, Avera Health, CentraCare, Columbia Park Medical Group, Community-University Health Care Center, Dakota Clinic, ENT Specialty Care, Fairview Health Services, Family HealthServices Minnesota, Family Practice Medical Center, Gateway Family Health Clinic, Gillette Children's Specialty Healthcare, Grand Itasca Clinic and Hospital, HealthEast Care System, HealthPartners Central Minnesota Clinics, HealthPartners Medical Group and Clinics, Hutchinson Area Health Care, Hutchinson Medical Center, Lakeview Clinic, Mayo Clinic, Mercy Hospital and Health Care Center, MeritCare, Mille Lacs Health System, Minnesota Gastroenterology, Montevideo Clinic, North Clinic, North Memorial Care System, North Suburban Family Physicians, Northwest Family

Physicians, Olmsted Medical Center, Park Nicollet Health Services, Pilot City Health Center, Quello Clinic, Ridgeview Medical Center, River Falls Medical Clinic, Saint Mary's/Duluth Clinic Health System, St. Paul Heart Clinic, Sioux Valley Hospitals and Health System, Southside Community Health Services, Stillwater Medical Group, SuperiorHealth Medical Group, University of Minnesota Physicians, Winona Clinic, Ltd., Winona Health

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GUIDELINE COMMITTEE

Committee on Evidence-Based Practice

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group Members: Mary Jo Kasten, MD (Work Group Leader) (Mayo Clinic) (Internal Medicine); David Olson, MD (Allina Medical Clinic) (Family Practice); Rosa Marroquin, MD (Park Nicollet Health Services) (Family Practice); Nancy Grubbs, MD (Mayo Clinic) (Internal Medicine); David Strike, MD (HealthPartners Medical Group) (Infectious Disease); Sylvia Robinson, BSN, MBA (Institute for Clinical Systems Improvement) (Measurement and Implementation Advisor); Nancy Greer, PhD (Institute for Clinical Systems Improvement) (Evidence Analyst); Jenelle Meyer, RN (Institute for Clinical Systems Improvement) (Facilitator)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

In the interest of full disclosure, Institute for Clinical Systems Improvement (ICSI) has adopted the policy of revealing relationships work group members have with companies that sell products or services that are relevant to this guideline topic. The reader should not assume that these financial interests will have an adverse impact on the content of the guideline, but they are noted here to fully inform readers. Readers of the guideline may assume that only work group members listed below have potential conflicts of interest to disclose.

No work group members have potential conflicts of interest to disclose.

ICSI's conflict of interest policy and procedures are available for review on ICSI's website at www.icsi.org.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Uncomplicated urinary tract infection in women. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2002 Nov. 24 p.

GUIDELINE AVAILABILITY

Electronic copies of the revised guideline: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on January 27, 2004. This summary was updated by ECRI on October 8, 2004.

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