Uncomplicated Urinary Tract Infection (UTI) in Adult Women 18-65 Guideline

These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients. They are not intended 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.

### GUIDELINE HISTORY and APPROVAL

<table>
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<tr>
<th>ACTION</th>
<th>SEED GUIDELINE and/or MAIN INFORMATION &amp; GROUP SOURCE(S)</th>
<th>DATE</th>
<th>ORGANIZATION</th>
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<tr>
<td>Guideline Reviewed and Approved</td>
<td>Same as above</td>
<td>January 2, 2003</td>
<td>Geisinger Health Plan/ Clinical Guideline Committee</td>
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<td>January 22, 2003</td>
<td>Geisinger Health Plan/ Quality Improvement Committee</td>
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<td>March 07, 2005</td>
<td>Geisinger Health Plan Pharmacy</td>
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<td>March 19 - 22, 2005</td>
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<td>March 29 - April 02, 2005</td>
<td>Geisinger Health Plan Medical Directors and GHP QIC physicians</td>
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<td>April 27, 2005</td>
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<td>Dec. 15-18, 2006</td>
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<td>Guideline Reviewed</td>
<td>Same as above</td>
<td>Jan. 15-22, 2007</td>
<td>Geisinger Health Plan Medical Directors</td>
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OVERVIEW

Acute uncomplicated urinary tract infection, or cystitis, is common among women, accounting for > 7 million office visits annually in the United States and affecting at least half of women at least once in their lifetime. In aggregate, the direct costs have been estimated at $1 billion yearly in the United States.

One might anticipate that management of acute, uncomplicated cystitis would be relatively uniform, because the causative agents and in vitro susceptibilities are known, and therapeutic responses to antimicrobials have been carefully studied. However, the evaluation and treatment of uncomplicated cystitis in woman varies substantially among physicians.

This guideline does not attempt to mandate any particular evaluation or treatment. The clinician is expected to use his/her clinical judgment in applying the algorithm to a particular patient. Several decision points in the algorithm in fact rely on the clinician’s assessment of the patient. It is expected that individual patients may require deviation from the algorithm path.
An abbreviated form of the algorithm is listed first. The vast majority of patients are expected to ‘flow’ through the abbreviated version from BOX 1 through BOX 12. Antibiotic choices are then listed for short and long course therapies followed by antibiotics recommended for pregnancy. After the abbreviated form, the full guideline is presented. Annotations are given following the guidelines. These annotations provide additional information for many of the algorithm boxes. They are listed according to the algorithm box number. Finally, references for the algorithm are given.

The committee only considered empiric treatment therapies with a 90% or greater success rate. No single dose regimen met this threshold and so therefore was not included. In selected situations, the patient and physician may choose single dose therapy despite the lower efficacy in more diverse patient groups.

Phone management is included in this algorithm. Telephone management may be appropriate for a subset of patients with classic symptoms and without risk factors for complication, depending on physician comfort with this practice. Therefore, empiric treatment of uncomplicated urinary tract infection is at the discretion of the physician based on guideline criteria. The manual includes the UTI phone triage sheet used by telephone management nurses.

**SEED GUIDELINE**


**GOALS**

1. To guide the clinician in the evaluation and treatment of outpatients presenting with the signs and symptoms of urinary tract infection.

2. To appropriately identify patients for phone management.

3. To increase provider understanding of appropriate antibiotic usage for uncomplicated urinary tract infection by ensuring that first line medications are prescribed for patients when indicated.

4. To educate providers about appropriate use of urine cultures and urine analysis.

5. To provide educational tools and triage guidelines for health care providers that covers the use of diagnostic tests, the selection of initial therapy, the management of and prevention of recurrences, and the criteria for subspecialty referral.

6. To change patient expectations regarding the need for an office visit and diagnostics for uncomplicated urinary tract infection.
FAST FACTS

♦ Many women with dysuria or urgency have an uncomplicated urinary tract infection.

♦ Whether a urinary tract infection is uncomplicated or not can be determined over the telephone.

♦ Empiric treatment of uncomplicated urinary tract infection is safe and effective and is at the discretion of the physician based on guideline criteria.

♦ Women with an uncomplicated urinary tract infection do not require urinalysis or urine culture to confirm the diagnosis.

♦ A three-day course of an antibiotic is as effective as treatment with an antibiotic for a longer duration.

BIBLIOGRAPHY


**UNCOMPLICATED URINARY TRACT INFECTION IN ADULT WOMEN (Ages 18-65)**

**SYMPTOMS OF DYSURIA OR FREQUENCY OR URGENCY**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 7 days duration</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Rigors (shaking chills)</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Flank pain: mid-back, severe, new occurring with onset of these symptoms</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Nausea, vomiting, or abdominal pain</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Temperature &gt; 100° F</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Recent onset of or change in vaginal discharge, odor, itching or dyspareunia</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>History</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>&gt; 4 UTI's within last 12 months</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Never seen in our office before</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Age &lt;18 years or &gt; 65 years</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
<td>✔</td>
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</table>

If any questions of the above questions are 'YES', PROVIDER VISIT INDICATED

If all questions of the above questions are 'NO', the patient may be treated with a short course antibiotic therapy.

If the patient wishes to be seen, schedule appointment.

Yes (schedule appointment) ____  No (accepts telephone treatment) ____

**ALLERGIES:**

PATIENT ON COUMADIN: YES ____  NO ____

**PHARMACY:**

PLEASE CHECK (U) FOR PREFERRED SHORT COURSE THERAPY:

- Trimethoprim Sulfamethoxazole DS 1 BID x 3 days (CAUTION: CAN INCREASE THE AFFECT OF WARFARIN. NOTIFY MD THAT MEDICATION STARTED)

**IF ALLERGIC TO SULFA:**

- Nitrofurantoin (Macrodantin) 100 mg QID x 7 days or Macrobid 100 mg BID x 7 days

**IF ALLERGIC TO SULFA AND MACRODANTIN**

- Ciprofloxacin 250 mg BID x 3 days (This therapy is significantly more expensive and more efficacious) (CAUTION: CAN INCREASE THE EFFECT OF WARFARIN IF USED MORE THAN THREE DAYS. NOTIFY MD THAT MEDICATION STARTED)

**ADDITIONAL THERAPIES:**

- Pyridium 200 mg PO tid x 3 days

**NURSE SIGNATURE:** ____________________________

**PHYSICIAN SIGNATURE:** ____________________________

**DATE:** ________________
Adult Urinary Tract Infection (UTI) in Adult Women Ages 18-65 (ABBREVIATED VERSION)

1. Patient Presents with Dysuria Frequency Urgency

2. Patient Meets Exclusion Criteria?
   - NO: DO H & P
   - YES: Algorithm Does Not Apply

2a. Physician has the discretion to treat empirically over the phone for UTI without an office visit

3. Step #2 Exclusion Criteria
   - Age <18 OR >65
   - Male
   - Presumed Pelvic Inflammatory Disease
   - Foley Catheter or Recent Urologic Instrumentation
   - Renal Transplantation/ESRD
   - Hospital Inpatient
   - Nursing Home Resident

4. Signs & Sx of Vaginitis?
   - NO: Do Urinalysis
     - See Appendix
   - YES: DO Wet Prep and KOH

5. Does UA Contain WBC’s?
   - NO: Reconsider Dx
   - YES: Choose First Line Empiric Rx
     - See Table

6. Does UA Contain RBC’s?
   - NO: No Follow-up Needed
   - YES: Follow-up Urinalysis at 2 weeks

7. Treat as Indicated

8. Step #9 Risk Factors
   - Pregnancy
   - Sx>7 days
   - Fever >100
   - Recent Antibiotics (<2 Weeks)
   - Known GU ABM/Stones
   - Hx Childhood UTI
   - Immunosuppressed
   - Previous Relapse
   - >3 UTI’s in 1 year
   - Acute Pyelo in Last Year
   - Significant Physical Exam (T-100, Dehydration, Flank/Back/ABD Pain)

9. Pt. Has Risk for Complications or upper tract DX?
   - NO: See Complete Algorithm
   - YES: See Complete Algorithm

10. Does Does UA Contain WBC’s?
    - NO: Reconsider Dx
    - YES: Choose First Line Empiric Rx
      - See Table

11. Step #11 Short Course Therapy
    - Drug
    - Dose
    - Duration
    - Trimethoprim/sulfamethoxazole
      - 1 DS BID
      - 3 Days
    - Macrobid
      - 100 mg BID
      - 7 Days
    - Ciprofloxacin
      - 250 mg BID
      - 3 Days
Uncomplicated Urinary Tract Infection Guideline (UTI) Full Version

1. Patient Presents with Dysuria Frequency Urgency

2. Patient Meets Exclusion
   - Yes
     - Algorithm Does Not Apply
   - No
     - DO H & P

3. Physician has the discretion to treat empirically over the phone for UTI without an office visit

4. DO H & P

5. Signs & Sx of Vaginitis?
   - Yes
     - DO Wet Prep and KOH
     - Treat as Indicated
   - No
     - Do Urinalysis

6. See Appendix

7. Patient at Risk for Complications or Upper Tract DX?
   - Yes
     - NO
     - YES

8. Does UA Contain WBC's?
   - NO
     - Does Pt. Have Persistent Sx despite 1st line Rx?
     - NO
     - Reconsider Dx
     - YES
     - Choose First Line Empiric Rx
     - See Table

9. Do Urinalysis

10. See Appendix

11. Patient at Risk for Complications or Upper Tract DX?
    - NO
      - Does UA Contain WBC's?
      - NO
        - No Follow-up Needed
      - YES
        - Choose First Line Empiric Rx
        - See Table

12. Does UA Contain RBC's?
    - NO
      - Reconsider Dx
    - YES
      - Choose First Line Empiric Rx
      - See Table

13. Follow-up Urinalysis at 2 weeks

14. Is UTI Recurrent?
    - NO
      - NO
      - YES

15. Has Pt. Received antibiotics in last two weeks?
    - NO
      - YES
      - Follow-up Urinalysis at 2 weeks

16. Is Patient Pregnant?
    - NO
      - YES
      - Does Pt. Have Persistent Sx despite 1st line Rx?

17. Signif. PE or is Patient Ill?

18. Is Patient Pregnant?

19. Does Pt. Have Persistent Sx despite 1st line Rx?

20. Is UTI Recurrent?

21. Has Pt. Received antibiotics in last two weeks?
Uncomplicated Urinary Tract Infection Guideline (UTI)
Full Version (Continued)

A

22
Do Pelvic Exam

23
Abnormal Pelvic Exam?

24
YES
Treat as Appropriate

25
NO
Urine Cx Consider Symptomatic Rx

B

26
Does Patient Merit Admission?

27
YES
Admit

28
NO

29
Does UA+ For RBC’s or WBC’s?

30
NO
Reconsider Diagnosis

31
YES
Urine CX Consider Blood CX

32
Expected Clinical Course?

33
NO
Admit

34
YES
Follow-up UA, CX at 3 Weeks

C

35
Urine Cx

36
Choose Appropriate ABX for Pregnancy
SEE TABLE

37
Follow-up Cx 1 Week p Therapy

38
Monthly Urine Cx While Pregnant Notify OB/GYN
Uncomplicated Urinary Tract Infection Guideline (UTI)
Full Version (Continued)

D

39
Repeat UA Urine C+S

40
Is UA + ?

41
Choose Alternate Long Course ABX See Table

42
Follow-up 7-10 Days p Therapy

43
NO

Reconsider DX

A

B

44
Successfully Treated UTI in Last 2 Weeks

45
Is UA + ?

46
YES

DO Urine CX

47
Long Course Therapy See Table

48
Follow-up UA, C+S 5-7 days After Rx

49
YES

50
Culture Urine

51
Short Course Rx

52
Consider Prophylaxis See Table

53
NO

Reconsider DX

A
ANNOTATIONS

ANNOTATION 1
An adult woman who meets our exclusions criteria and presents with dysuria has a high probability (>70%) of urinary tract infection (UTI). Frequency and/or urgency support the diagnosis of UTI, however in their own right, can be the only presenting symptoms in this population. Other, less specific symptoms (e.g. suprapubic pain) and signs (e.g. gross hematuria) offer too broad a differential diagnosis to be included in this narrowly focused guideline. Please note the focus of this guideline and that it does not include the evaluation of asymptomatic hematuria, bacteriuria or pyuria.

ANNOTATION 2
Exclusion Criteria:
Age < 18 or > 65, Foley catheter or recent instrumentation, renal transplant / ESRD, chemotherapy, hospital inpatients, nursing home residents, resumed pelvic inflammatory disease, men.

ANNOTATION 2a
Physicians have the discretion to treat empirically over the phone for UTI without an office visit.

ANNOTATION 4
The comprehensiveness of the history and physical exam depends on the clinical presentation. Sufficient history should be obtained to determine whether the patient is at risk for complications or upper tract disease, as outlined in box 9 and its footnote. The physical exam should be complete enough to exclude other likely etiologies that warrant more aggressive therapy. In straightforward cases, the exam may be brief.

ANNOTATION 5
Urinary tract infections do not generally produce vaginal discharge or labial irritation. When these symptoms are present, a pelvic exam and evaluation of vaginal secretions should be performed.

ANNOTATION 9
Risk Factors for Complications/Upper Tract Ds:
Pregnancy, diabetes, Sx > 7 Days, fever >100, recent antibiotics (< 2 weeks), known Gu ABN/Stones, Hx childhood UTI, immunosuppressed. Previous relapse, >3 UTIs in 1 year, acute pyelo in last year, significant PE (T > 100, dehydrated, significant flank, back, abd pain.)

ANNOTATION 10
The criteria for a positive microscopic urinalysis is 2-5 WBCs/HPF. A positive leukocyte esterase test alone is also sufficient for diagnosis of pyuria. Large studies demonstrate a 95% specificity and 70% sensitivity of the leukocyte esterase test for pyuria. In the narrow population defined by this guideline these parameters show the predictive value of a positive test to be about 98%. (See References 7,11)

ANNOTATIONS 11, 12, and 14
In the absence of complicating factors, the microbiology and general susceptibility patterns for the causative bacteria are predictable. Therefore, empirical therapy (i.e., without urine culture and sensitivity) is appropriate. Numerous studies have been done to attempt to define optimal antimicrobial choices and duration of treatments. Three-day regimens appear best in terms of efficacy, side effects, and recurrences. Trimethoprim/sulfamethoxazole, trimethoprim, and the flouroquinolones are effective as three-day regimens in uncomplicated cystitis. Because of its low cost, comparable efficacy and side effect profile.
TMP/ Sulfa is the drug of choice. Macrobid is also recommended as a first-line choice, but for 7 days. Fluoroquinolones such as ciprofloxacin should be reserved for individuals with allergy, treatment failure or known resistant strains. Betalactams are less effective in three-day courses and up to one-third of strains of E.coli may be amoxicillin resistant. Therefore, Amoxicillin is not a recommended choice. Recommendations are summarized in the table. No follow-up visit or urine studies are necessary unless symptoms persist or recur. (See Reference 5)

**Note:** Pharmaceutical coverage is dependent upon individual pharmacy benefit design and certain drugs may require prior authorization. Providers are encouraged to review the GHP formulary at [http://www.thehealthplan.com](http://www.thehealthplan.com), or contact the GHP Pharmacy Department at 1-800-988-4861.

**ANNOTATION 15**
A more expanded differential for persistent isolated hematuria on follow-up urinalysis should be considered and guided by the patient’s age. Causes would be identified with a work up of cystoscopy and IVP. Most common causes include: UTI’s, congenital anatomic abnormalities, renal calculus, sickle cell disease, and tumors.

**ANNOTATION 19**
Persistent symptoms imply that the patient’s symptoms remain present throughout and beyond the therapeutic course.

**ANNOTATION 20**
Recurrent urinary tract infection implies that the patient had a recent urinary tract infection that resolved symptomatically but has now recurred. A urinary tract infection diagnosed in the last two weeks or less implies a relapse because of a partially treated infection. This could be due to a resistant organism or noncompliance. A patient with three or more urinary tract infections per year may be a candidate for prophylactic therapy.

**ANNOTATION 25**
In a patient with symptoms suggestive of a urinary tract infection but having a normal urinalysis, one should also consider urethritis. Some of the most common organisms include Chlamydia, gonorrhea, herpes simplex virus, and Trichomonas. One could consider empiric therapy.

**ANNOTATION 31**
This algorithm does not deal specifically with the treatment of pyelonephritis yet pyelonephritis can present as a cystitis-like illness with mild flank discomfort. In the absence of nausea and vomiting and if overall illness is mild, oral outpatient therapy can be safely used. Trimethoprim/sulfamethoxazole and ciprofloxacin are agents of first choice. 20-30% of organisms causing pyelonephritis are resistant to amoxicillin and first generation cephalosporins making these agents poor choices for monotherapy. (See References 5, 40a)
Note: Pharmaceutical coverage is dependent upon individual pharmacy benefit design and certain drugs may require prior authorization. Providers are encouraged to review the GHP formulary at http://www.thehealthplan.com, or contact the GHP Pharmacy Department at 1-800-988-4861.

ANTIBIOTIC CHOICES

LONG COURSE

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<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>DURATION</th>
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<tr>
<td>TRIMETHOPRIM/SULFAMETHOXAZOLE</td>
<td>1 DS BID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>AMOXICILLIN</td>
<td>250mg TID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>CEPHALEXIN</td>
<td>250mg QID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>TETRACYCLINE</td>
<td>250mg QID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>DOXYCYCLINE</td>
<td>100mg BID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>CIRPOFLOXACIN</td>
<td>250mg BID</td>
<td>7-14 DAYS</td>
</tr>
<tr>
<td>NITROFURANTOIN</td>
<td>100mg QID</td>
<td>10-14 DAYS</td>
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• NOTE: ISSUES OF COMPLIANCE, COST, SIDE EFFECTS MAY INFLUENCE CHOICE OF ANTIBIOTIC. This is not meant to be an all-inclusive list.

ANNOTATION 36
Antibiotic choices during pregnancy See table.

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<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>DURATION</th>
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</thead>
<tbody>
<tr>
<td>AMOXICILLIN</td>
<td>250-500 mg TID</td>
<td>7-10 DAYS</td>
</tr>
<tr>
<td>CEPHALEXIN</td>
<td>250mg QID</td>
<td>7-10 DAYS</td>
</tr>
<tr>
<td>NITROFURANTOIN</td>
<td>100mg QID</td>
<td>7-10 DAYS</td>
</tr>
<tr>
<td>MACROBID</td>
<td>100mg BID</td>
<td>7-10 DAYS</td>
</tr>
<tr>
<td>TRIMETHOPRIM/SULFAMETHOXAZOLE</td>
<td>1 DS BID</td>
<td>7-10 DAYS</td>
</tr>
</tbody>
</table>

*NOTE: Sulfamethoxazole should not be given to pregnant women who are near term or to lactating women because of the risk of producing kernicterus in the newborn. Sulfamethoxazole is listed as a pregnancy category C drug. This means that there have been no human studies and that the potential benefits must outweigh the potential risks.

ANNOTATION 44
Recurrent documented UTI within 2 weeks of successful treatment MAY indicate relapse (i.e., persistence of the organisms in the GU tract) or inadequate initial therapy. Such potential relapses should have pre-therapy urine cultures with a 7-10 day course of an appropriate antimicrobial based on urine culture and sensitivity. Persistence of the organism or abnormal U/A on follow-up (obtained 5-7 days after therapy) may indicate a potential urologic abnormality (e.g., renal calculi). Additional evaluation (e.g., renal ultrasound) and/or urologic referral of such patients should be considered.
ANNOTATION 52a
Recurrent uncomplicated UTI arbitrarily defined as > 3 episodes per year occur in about 3% of adult women. Almost all of these recurrences represent re-infection rather than persistence of the organism in the GU tract (relapse). Accordingly, the majority or women with recurrent uncomplicated UTI’s do not have anatomic or functional abnormalities and do not need an evaluation of their urinary tract. Studies of the value of excretory urography and cystoscopy in women with recurrent UTI have demonstrated that abnormalities may be identified in < 5% of patients and that few lesions are correctable. Urethral dilation has not been proven effective in the management of recurrent uncomplicated UTI in women.

ANNOTATION 52b
Women with frequent uncomplicated recurrences should be evaluated for possible risk factors such as intercourse-related UTI, diaphragm/spermicide use, or atrophic vaginitis. Potential strategies include continuous low dose antimicrobial prophylaxis, post-coital prophylaxis or intermittent self-therapy (see Table). Recently, intravaginal estrogen therapy has been shown to be efficacious in reducing recurrent UTI in some post-menopausal women. The appropriate management will depend on the frequency of recurrences, the individual pattern of recurrences and associated risk factors.

Antimicrobial Prophylaxis Regimens for Women with Recurrent Urinary Tract Infections

CONTINUOUS PROPHYLAXIS

- Nitrofurantoin 50 mg daily
- Nitrofurantoin macrocrystals 100 mg daily
- Trimethoprim-sulfamethoxazole 40mg/200mg daily
- Trimethoprim 100 mg daily
- Cephalexin 125 mg daily
- Cephalexin 250 mg daily
- Sulfamethoxazole 500 mg daily
- Ciprofloxacin 100-250mg daily

POSTCOITAL PROPHYLAXIS

- Trimethoprim-sulfamethoxazole 40mg/200mg
- Nitrofurantoin 50 mg or 100 mg
- Cephalexin 250 mg
- Fluoroquinolones

ANNOTATION 61
A follow-up urine culture to document cure is recommended for these patients. It is not clear that obtaining a urinalysis in addition is necessary.
MEASURES

- Denominator-GHP female members 18 years of age to 65 years of age. Use Primary ICD9 Codes 595.0 (Acute cystitis), 599.0 (Urinary tract infection, site not specified) to identify UTI as the primary diagnosis. No claims for the last 3 months with one of these diagnoses.

- Numerator - Percent of patients given first line antibiotic (Trimethoprim-Sulfa, trimethoprim alone, macrodantin). Percent of patients receiving Urine Cultures. CPT codes 87086-87088. Percent of patients receiving Urine Analysis CPT codes 81000, 81001, 81002, 81003.