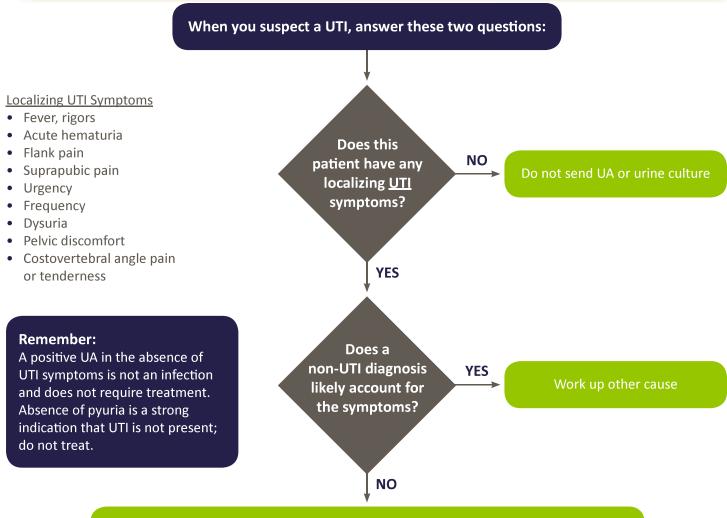
# Appendix 2 – UTI Guidelines

Guideline for the Diagnosis and Management of Adults Hospitalized with UTI (Part 1)

# 4 key concepts to optimize diagnosis of UTI in hospitalized patients:

- 1) Most UTIs present with fever and/or symptoms localizing to the urinary tract.
- 2) Antibiotics are not recommended to treat colonization of the urinary tract (asymptomatic bacteriuria), except in pregnancy and invasive genitourinary procedures.
- 3) Urinalysis and urine culture have poor test characteristics in older patients and patients with indwelling urinary catheters they should not be sent unless symptoms are present.
- 4) Alteration in mental status (delirium) is neither sensitive nor specific for UTI. Thus, delirium without other localizing symptoms is unlikely to be a UTI.



- 1. Send urine culture
- 2. Consider empiric antibiotics for UTI (part 2)
- 3. Review urine culture results at 48 hours and narrow or stop antibiotics as appropriate

This is intended as a guide for evidence-based decision making and should not replace clinical judgment.

REFERENCES: Trautner BW, Grigoryan L, Petersen NJ, et al. *JAMA Intern Med.* Published online May 26, 2015; IDSA Guideline for ABU 2005; IDSA Guideline for CAUTI 2009

# Guideline for the Diagnosis and Management of Adults Hospitalized with UTI (Part 2)

# Key concepts to optimize antibiotic use when managing UTI in hospitalized patients:

- 1) Obtain urine culture prior to initiating antimicrobial therapy.
- 2) Fluoroquinolones and trimethoprim-sulfamethoxazole are not routinely recommended as empiric therapy due to increasing bacterial resistance to these agents.
- 3) For patients with an appropriate clinical response, the recommended treatment duration for complicated cystitis, pyelonephritis or CAUTI is 5 7 days.

Guideline applicable to patients with: Uncomplicated cystitis, complicated cystitis, pyelonephritis, catheter-associated UTI (CAUTI). NOT applicable to: Prostatitis, pregnancy, bacteremia, renal transplant, persistent urinary tract obstruction, renal/perinephric abscess, percutaneous nephrostomy tubes and other clinical scenarios requiring specialized management.

### **Uncomplicated Cystitis**

# Uncomplicated cystitis, defined as a bladder infection in a healthy, nonpregnant woman <65 years old without evidence of upper urinary tract involvement, obstruction, anatomic abnormalities or recent instrumentation



**Common pathogens:** *E. coli*, Klebsiella, Proteus, *S. saphrophyticus* 



#### Initial antibiotic selection

- Nitrofurantoin 100mg PO BID x 5 days (contraindicated if creatinine clearance <60mL/min) OR</li>
- Fosfomycin 3gm PO x 1 dose OR
- Trimethoprim-sulfamethoxazole DS 1 tab PO BID x 3 days (if local resistance in *E. coli* is <15%)</li>

Target antibiotic selection to microbiologic data when available



**Treatment duration:** as noted in initial antibiotic selection section above

\* If Foley catheter in place, remove or change catheter.

# **Complicated Cystitis**

Complicated cystitis, defined as any bladder infection not meeting all criteria for uncomplicated cystitis (including any male) OR Pyelonephritis OR Catheter-associated UTI\* AND Low Risk for Antibiotic-Resistant Organism (absence of risk factors to right)



**Common pathogens:** *E. coli,* Enterococcus, Klebsiella, other gram-negative bacilli



Empiric therapy depends on local antimicrobial susceptibilities and formulary. Options may include:

- Ceftriaxone
- If severe PCN allergy: Ciprofloxacin OR Levofloxacin

Empiric therapy should be narrowed or stopped at 48 hours depending on culture results.



Transition to oral therapy: Target antibiotic selection to microbiologic data when available. For empiric therapy, consider:

- If ceftriaxone used as inpatient: oral 2nd- or 3rd-generation cephalosporin OR
- Fosfomycin (only if no pyelonephritis)
   OR
- Ciprofloxacin OR levofloxacin



Treatment duration for patients with an appropriate clinical response: 5-7 days

# Complicated Cystitis – High Risk for Antibiotic-Resistant Organism

Complicated cystitis OR Pyelonephritis OR Catheter-associated UTI\* AND High Risk for Antibiotic-Resistant Organism, defined as hospitalization for >3 days or prior colonization/infection with an antibiotic-resistant organism OR Severe sepsis, hemodynamic instability or shock



**Common pathogens:** *E. coli, Pseudomonas aeruginosa,* Enterobacter, Enterococcus, other gram-negative bacilli



Empiric therapy depends on local antimicrobial susceptibilities and formulary. Options may include:

- Cefepime or Ceftazidime
- Piperacillin-Tazobactam
- Carbapenem (if suspicion for extended-spectrum beta-lactamase (ESBL)-producing organism)
- If severe PCN allergy: Ciprofloxacin OR levofloxacin

Empiric therapy should be narrowed or stopped at 48 hours depending on culture results.



Transition to oral therapy: Target antibiotic selection to microbiologic data when available. For empiric therapy, consider: Ciprofloxacin OR levofloxacin OR Fosfomycin (3 doses) (only if no pyelonephritis)



**Treatment duration for patients with an appropriate clinical response:** 5-7 days

This is intended as a guide for evidence-based decision-making and should not replace clinical judgment. Patient and clinical characteristics, local antimicrobial susceptibility patterns, allergies, and formulary must be considered in treatment decisions.

REFERENCES: Trautner BW et al. *JAMA Intern Med.* 2015;175:1120; IDSA Guideline for Acute Uncomplicated Cystitis/Pyelonephritis .CID 2011;52:e103; IDSA Guideline for Catheter-Associated Urinary Tract Infection. CID 2010; 50:625; IDSA Guideline for Asymptomactic Bacteriuria. CID 2005;40:643

# Appendix 2 – UTI Guidelines continued

# **Dosing Table for Adults Hospitalized with UTI (Part 3)**

Antimicrobial	Recommended Dose
Cefdinir	300 mg PO BID
Cefepime	2 g IV Q12H
Cefixime	400 mg PO once daily
Cefpodoxime	200 mg PO BID
Ceftazidime	1 g IV Q8H
Ceftriaxone	1 g IV Q24H
Cefuroxime	500 mg PO BID
Ciprofloxacin	400 mg IV Q12H or 500 mg PO BID (reserve for severe PCN allergy)
Ertapenem	1 g IV Q24H
Fosfomycin	Uncomplicated UTI: 3 g PO x 1 dose Complicated UTI: 3 g PO Q48H x 3 doses (avoid for pyelonephritis)
Imipenem-cilastatin	500 mg IV Q6H
Levofloxacin	750 mg IV/PO Q24H (reserve for severe PCN allergy)
Meropenem	500 mg IV Q8H
Nitrofurantoin	100 mg PO BID x 5 days (uncomplicated UTI only)
Piperacillin-tazobactam	3.375 g IV Q6H
Trimethoprim-sulfamethoxazole	1 DS tab PO BID

Doses are based on normal renal function, adjust dose as appropriate; always assess for antibiotic allergies and drug interactions