New UTI Guidelines: Making Men Less Complicated Since 2025

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Disclosures

- I have no relevant financial relationships to disclose

Learning Objectives

1. Identify patient populations who are no longer considered "complicated" when treating UTI's
2. Be able to recognize a patient with a UTI as complicated vs uncomplicated
3. Assess first line, empiric options in the treatment of cUTI's

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Abbreviations

- cUTI: Complicated urinary tract infection
- CAUTI: Catheter associated urinary tract infection
- IEAT: Inappropriate empiric antimicrobial therapy
- AEAT: Appropriate empiric antimicrobial therapy
- S/S: Signs and symptoms
- FQ: Fluoroquinolone
- SMP-TMX: Sulfamethoxazole-trimethoprim
- IDSA: Infectious Disease Society of America

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New Classifications

New classifications of uUTI and cUTI

Old Classifications

Uncomplicated UTI: Acute cystitis in afebrile nonpregnant premenopausal women with no diabetes and no urologic abnormalities

Acute Pyelonephritis: Acute kidney infection in women otherwise meeting the definition of uncomplicated UTI above

Complicated UTI: All other UTIs

New Classifications

Uncomplicated UTI: Infection confined to the bladder in afebrile women or men

Complicated UTI: infection beyond the bladder in women or men

- Pyelonephritis
- Febrile or bacteremic UTI
- Catheter-associated (CAUTI)
- Prostatitis* (*not covered by these guidelines)

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Complicated vs. Uncomplicated

Uncomplicated UTI classifications

- Clinical presentation:
  - Local bladder signs and symptoms such as dysuria, urgency, frequency, and suprapubic pain
  - Presumed to be confined to the bladder and **absence** of:
    - Fever, chills, rigors, or unstable vital signs (unless explained by a non-UTI cause)
    - Flank pain
    - Costovertebral angle tenderness
- Populations: (important update)
  - Females or **males**
  - **Underlying urologic abnormalities**
  - **Immunocompromised**
  - **Diabetes**
  - **Recurrent UTI**

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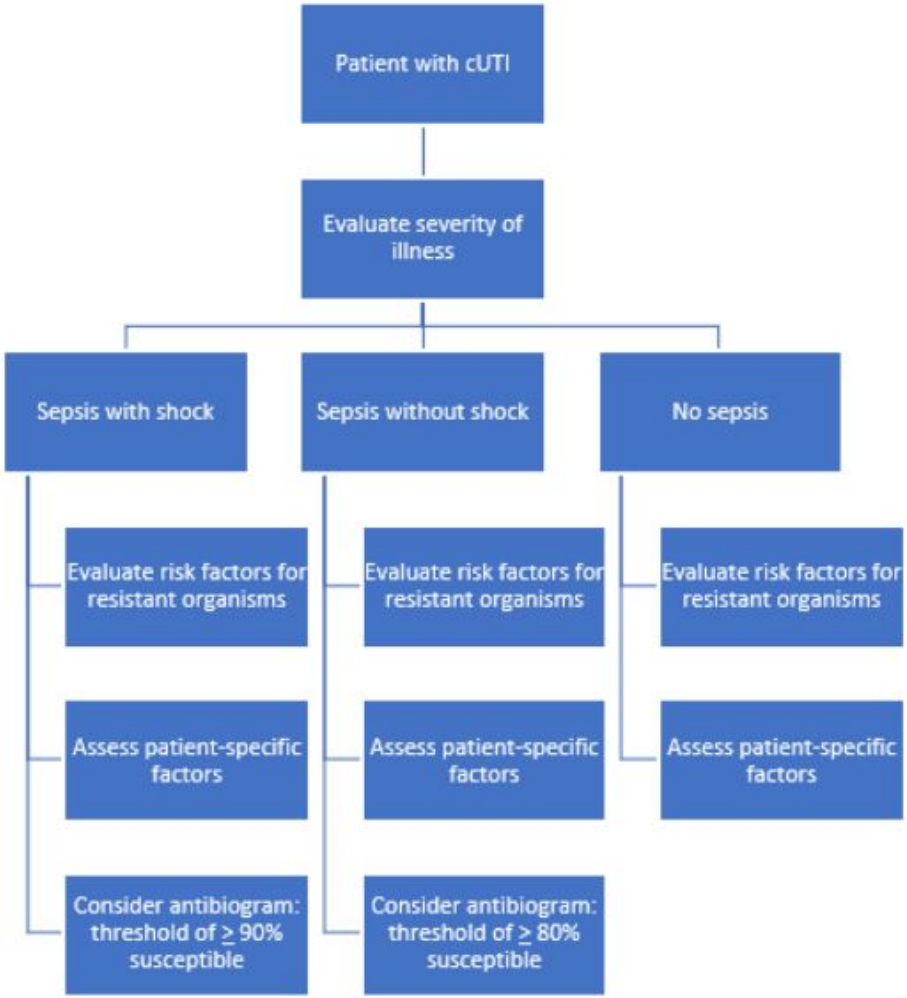
Four-step Approach for Therapy



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Clinical practice guideline by Infectious Diseases Society of America (IDSA): 2025 guideline on management and treatment of complicated urinary tract infections: selection of antibiotic therapy for complicated UTI

Assess Severity of Illness

Step 1: Severity of illness

- Sepsis with shock vs. Sepsis without shock vs. No sepsis
- What factors helped determine severity levels?
- Impact of inappropriate empiric antibiotic therapy (IEAT)
  - 10.8% mortality rate (ranged from **10-50**%)
  - 9.0% mortality rate in AEAT group

Optimization of Coverage

Step 2: Assess patient-specific risk factors for resistant bacteria

- Recommendation: avoid empiric coverage for resistant pathogens from previous urine cultures greater than 90 days
- Suggest avoiding fluoroquinolone use if patient has received in the past 12 months

Good Practice Statement

Step 3: Remember the patient

- Allergies
- Contraindications
- Drug-drug interactions
- Cost

Antibiogram

Step 4: Utilizing antibiogram for antibiotic selection

- Panel suggests using antibiogram for patients WITH sepsis
- Needs to be local and relevant
- Thresholds:
  - ≥ 90% susceptibility in septic shock
  - ≥ 80% in sepsis without shock
- Avoid routine use of broad-spectrum agents in suspected cUTI without sepsis

Empiric Recommendations

Condition of the Patient	Preferred	Alternative
Sepsis with **or** without shock	3rd or 4th generation cephalosporins, carbapenems, piperacillin-tazobactam, fluoroquinolones	Newer beta lactam/lactamase inhibitors, cefiderocol, or older aminoglycosides
Without sepsis- **IV**	3rd or 4th generation cephalosporins, piperacillin-tazobactam, fluoroquinolones	Carbapenems, newer beta lactam/lactamase inhibitors, cefiderocol, or older aminoglycosides
Without sepsis- **PO**	Fluoroquinolones or sulfamethoxazole-trimethoprim	Amoxicillin-clavulanate or cephalosporins

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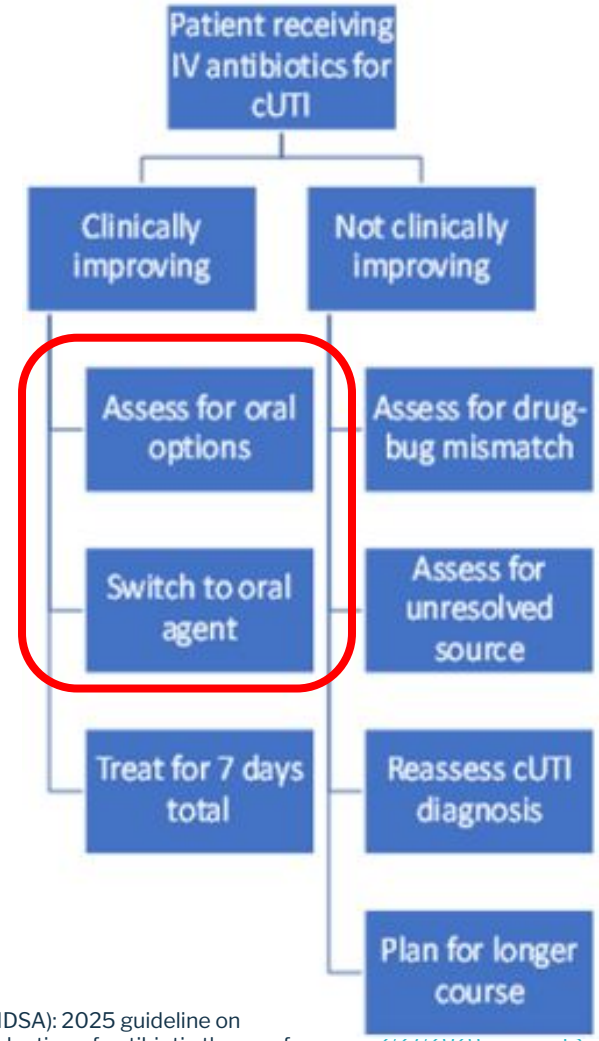
Transition Timing

Recommend switching from IV to PO in patients

- Who are clinically improving on IV therapy

- Can tolerate PO medications

- And have an appropriate PO option



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Optimal Oral Dosing

Drugs	Oral absorption (%)	Urinary excretion (%)	Dose with normal renal function
Amoxicillin-clavulanate	80/ variable	50-70/ 25-40	875mg-125mg every 8 to 12 hours Other regimens may be more effective*
Cefixime	50	50	400mg QD
Cefpodoxime	50	80	200-400mg Q12H
Ceftibuten*	75-90	73	400mg QD or 200mg Q12H (adult) 8mg/kg/day (children)
Cefuroxime	52	90	500mg Q12H
Cephalexin	90	90	500-1000mg Q6H Other regimens may be more effective*
Ciprofloxacin	70	40-50	500-750mg Q12H
Levofloxacin	99	64-100	500-750mg QD
Sulfamethoxazole-trimethoprim	70-90	84/66	800/160mg (DS) Q12H

-Other oral beta-lactams (amoxicillin, cefadroxil, cefaclor, cefdinir) found to be less efficacious.

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Duration

Overall recommendation: patients who are clinically improving should be treated with a shorter 5-7 day course, rather than a longer course of 10-14 days

- 5-7 days of a fluoroquinolone
- 7 days of a non-fluoroquinolone

Duration of Treatment Reasoning

- Inclusion criteria
  - Patient population
  - Intervention vs comparator group
- 10 RCT's totaling
  - 909 males (33.9%)
  - 1772 females (66.1%)
- Majority of studies excluded chronic conditions

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Shorter duration of Abx (5 to 7 days)	Prolonged duration of Abx (10 to 14 days)	Relative (95% CI)	Absolute (95% CI)		
Clinical cure (at Test-of-Cure (TOC))												
10[1-10]	randomised trials	serious[a]	not serious[b]	not serious	not serious[c]	none	903/1014 (89.1%)	962/1096 (87.8%)	**RR 1.00** (0.97 to 1.04)	**0 fewer per 1,000** (from 26 fewer to 35 more)	⊕⊕⊕◯ Moderate	CRITICAL
Microbiological cure (at Test-of-Cure (TOC))												
10[1-10]	randomised trials	serious[d]	not serious[b]	serious[e]	not serious[c]	none	778/915 (85.0%)	824/975 (84.5%)	**RR 0.99** (0.94 to 1.05)	**8 fewer per 1,000** (from 51 fewer to 42 more)	⊕⊕◯◯ Low	IMPORTANT
Recurrence of Infection (up to 180 days)												
6[1,3,5,7,9,10]	randomised trials	serious[a]	not serious[f]	not serious	not serious[c]	none	41/535 (7.7%)	38/548 (6.9%)	**RR 1.07** (0.69 to 1.65)	**5 more per 1,000** (from 21 fewer to 45 more)	⊕⊕⊕◯ Moderate	CRITICAL

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Fluoroquinolone Duration

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Shorter duration of FQ (5 to 7 days)	Prolonged duration of FQ (10 to 14 days)	Relative (95% CI)	Absolute (95% CI)		
Clinical cure (at Test-of-Cure (TOC))												
7[1-7]	randomised trials	serious[a]	not serious	not serious	not serious[b]	none	744/851 (87.4%)	820/935 (87.7%)	**RR 0.98** (0.96 to 1.01)	**18 fewer per 1,000** (from 35 fewer to 9 more)	⊕⊕⊕◯ Moderate	CRITICAL
Microbiological cure (at TOC)												
7[1-7]	randomised trials	serious[c]	not serious	serious[d]	not serious[b]	none	625/752 (83.1%)	689/824 (83.6%)	**RR 0.98** (0.93 to 1.03)	**17 fewer per 1,000** (from 59 fewer to 25 more)	⊕⊕◯◯ Low	IMPORTANT
Recurrence of Infection (up to 90 days)												
4[1,3,5,7]	randomised trials	serious[a]	not serious	not serious	not serious[b]	none	32/480 (6.7%)	34/494 (6.9%)	**RR 0.94** (0.59 to 1.51)	**4 fewer per 1,000** (from 28 fewer to 35 more)	⊕⊕⊕◯ Moderate	CRITICAL

- Shorter fluoroquinolone course likely does not
  - Reduce clinical cure
  - Reduce microbiological cure
  - Increase recurrence of infection

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Pyelonephritis

Follow overall recommendation:

- 5-7 days of a fluoroquinolone
- 7 days of a non-fluoroquinolone

Recommendation derived from GRADE evidence profile

Because all studies incorporated pyelonephritis as a primary characteristic, stratification was not required.

Febrile or Bacteremic UTI

Febrile UTI

- 5-7 days of fluoroquinolone
- 7 days of non-fluoroquinolone

Bacteremic UTI

- 7 days of an effective antibiotic
  - Needs to achieve therapeutic levels in the blood, urine, and relevant tissue

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Shorter duration of Abx (≤7 days)	Prolonged duration of Abx (> 7 days)	Relative (95% CI)	Absolute (95% CI)		
Relapse of bacteremia (at 30 days)												
3 [1-3]	RCTs	serious[a]	not serious	not serious	serious[b]	none	13/391 (3.3%)	9/367 (2.5%)	**RR 1.31** (0.57 to 3.02)	**8 more per 1,000** (from 11 fewer to 50 more)	⊕⊕◯◯ Low	CRITICAL
Mortality (at 30 days)												
3 [1-3]	RCTs	serious[a]	not serious	not serious	serious[c]	none	14/390 (3.6%)	14/367 (3.8%)	**RR 0.93** (0.30 to 2.91)	**3 fewer per 1,000** (from 27 fewer to 73 more)	⊕⊕◯◯ Low	IMPORTANT
Mortality (at 90 days)												
3 [1-3]	RCTs	serious[a]	serious[d]	not serious	serious[e]	none	36/390 (9.2%)	36/367 (9.8%)	**RR 0.94** (0.37 to 2.37)	**6 fewer per 1,000** (from 62 fewer to 134 more)	⊕◯◯◯ Very Low	IMPORTANT

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Now, What About Catheters……

- Following the new classifications, a catheter-associated UTI (CAUTI) is considered complicated
- Guidelines also acknowledge that a subset of patients with CAUTI **without** systemic symptoms may be treated as simple cystitis.
- Treatment duration
  - Uncomplicated (local S/S): 3-5 days
  - Complicated (systemic S/S): 5-7 days

New Classifications

Uncomplicated UTI: Infection confined to the bladder in afebrile women or men

Complicated UTI: infection beyond the bladder in women or men

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- Febrile or bacteremic UTI
- Catheter-associated (CAUTI)
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Prostatitis

- Men with febrile UTI in whom acute bacterial prostatitis is suspected may benefit from a longer treatment duration (i.e., 10-14 days), although evidence to guide the optimal duration in this subgroup is lacking.

Management of prostatitis not included in updated guidelines

Expert opinion still recommends to treat for 4-6 weeks

Study *(Lead author, Year of publication, Name of trial, Countries)*	**Males included** *(No, %)*	**Exclusion / Inclusion criteria-based on presence/ absence of involvement of prostate/ epididymis**	**Stratified analysis for male with/without prostatitis**	**Relative estimate of clinical cure in the whole population**	**Relative estimate of clinical cure in men**	**Relative estimate of clinical cure in men with suspected acute bacterial prostatitis**
Peterson 2008 USA (multicentric)	**427 (39%)**	Excluded if presence of acute bacterial prostatitis or epididymitis	NR	RR 1.05 (0.97-1.14)	NA	NA
Rudrabhatla 2018 India	24 (41%)	Excluded if evidence of prostatitis or prostatic abscess	NR	RR 1.00 (0.92 to 1.09)	NA	NA
Darouiche 2014 USA	52 (95%)	NR	NR	RR 1.00 (0.93 to 1.07)	Likely very similar to the whole population	NA
Ren 2017 China (multicentric)	40 (15%)	NR	NR	RR 1.01 (0.93 to 1.08)	NA	NA
Wagenlehner 2018 Germany and Poland	40 (18%)	NR	NR	RR 1.09 (0.96 to 1.23)	NA	NA
Lafaurie 2023 PROSTA-SHORT France (multicentric)	240 (100%)	Males with acute prostatitis included. Acute prostatitis was diagnosed based on pain on rectal examination, which was not systematically performed	Post-hoc analysis presence / absence of pain on rectal examination	RR 0.96 (0.92 to 1.00)	RR 0.96 (0.92 to 1.00)	In a subset of 27 men with pain on rectal examination, RR 0.77 (0.49 to 1.20) *
van Nieuwkoop 2017 FUTIRST Netherlands (multicentric)	86 (43%)	Males with acute prostatitis included	Randomized stratification for gender	RR 0.95 (0.88 to 1.03)	RR 0.88 (0.78 to 1.00)	NR

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Bactrim's Role

- Majority of trials addressed FQ use
- Updated guidelines recommend 7 days of Bactrim (1 DS tab BID) for cUTI
  - Recommendation comes from lack of high-quality RCT's that specifically looked at a shorter durations for treatment
- Several RCT's exist for uncomplicated UTI's comparing Bactrim, FQ's, and oral beta-lactams

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Final Remarks

- Men are not complicated
- Future outlook
  - PO options
  - Prostatitis
  - Epididymitis/orchitis

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Thank You

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