



[Assessment and Management of the Resident With a Suspected Urinary Tract Infection | Agency for Healthcare Research and Quality \(ahrq.gov\)](#)

[Assessment of the Resident iwth Suspected UTI in LTC](#)

[Treatment if UTI in LTC](#)

[Asymptomatic Bacteriuria One Pager \(ahrq.gov\)](#)

[Antibiotic Side Effects \(ahrq.gov\)](#)

[Talking With Residents and Family Members About Urinary Tract Infections \(UTIs\) \(ahrq.gov\)](#)

[Four Moments of Antibiotic Decision Making Form \(ahrq.gov\)](#)

[one-pager-UTI.docx \(live.com\)](#)

[Develop and Improve Your Stewardship Program | Agency for Healthcare Research and Quality \(ahrq.gov\)](#)

[Toolkit To Improve Antibiotic Use in Long-Term Care | Agency for Healthcare Research and Quality \(ahrq.gov\)](#)

CDPHE — [Antimicrobial Stewardship in Colorado | Department of Public Health & Environment](#)

Case 3: Shirley

- Shirley fell while getting up to go to the bathroom
- Sent to the emergency department (ED) for evaluation and x rays
 - X rays were normal
- The ED sent a urinalysis (UA)
 - UA returned positive with >100 WBCs/hpf, positive nitrites, and positive leukocyte esterase
- ED sent her back to the facility with a prescription for a 7-day course of ciprofloxacin





- Had not complained of any urinary symptoms the day before her fall
- Still reports no urinary symptoms
- Says that she got up to go to the bathroom and tripped over her call button
- Does not report fatigue, fever, chills, or any other issues

Together, Shirley and her health care team agree to stop the antibiotic.

Important To Understand

- Changing the plan does not reflect poorly on the prescribing clinician.
- All antibiotic prescriptions that come from the hospital should be re-evaluated when the resident transfers to long-term care.

important

- If you are worried about a urinalysis or urine culture result, visit the resident and determine if he/she has symptoms.
- If the resident is asymptomatic, a positive urine culture indicates asymptomatic bacteriuria rather than infection.
- Treating a resident for asymptomatic bacteriuria can lead to harmful side effects.
- Urinalysis and urine culture should only be sent if the resident is symptomatic, NOT if urine appears cloudy, dark, or smelly.
- We treat people, not laboratory results!



Suspected Urinary Tract Infection (UTI) in Long-Term Care Residents

Signs & Symptoms of a UTI

<p style="text-align: center;">For Residents Without a Urinary Catheter</p> <ul style="list-style-type: none"> <input type="checkbox"/> Dysuria OR <input type="checkbox"/> Fever (>100°F or >2°F above baseline) AND at least one of the following symptoms that is new or worsening: <input type="checkbox"/> Urgency <input type="checkbox"/> Frequency <input type="checkbox"/> Suprapubic pain <input type="checkbox"/> Gross hematuria <input type="checkbox"/> Costovertebral angle tenderness 	<p style="text-align: center;">For Residents With a Urinary Catheter or if Nonverbal</p> <p>One or more of the following without another recognized cause:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fever (>100°F or a 2°F increase from baseline) <input type="checkbox"/> New costovertebral angle tenderness <input type="checkbox"/> Rigors <input type="checkbox"/> New-onset delirium* <p><small>*If adequate workup for other causes of delirium has been performed and no other cause for delirium is identified</small></p>
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- Send a urinalysis (UA) & urine culture (UCx)
- Increase hydration
- Start antibiotics before UA and UCx results, if resident appears ill
- If UA & UCx are positive and the resident has ongoing UTI symptoms, modify antibiotics or start antibiotics (if not receiving active antibiotics)

Do NOT Send a Urinalysis and Urine Culture:

- If the urine is foul smelling or cloudy, without other urinary symptoms
- Routinely after urethral catheter change
- Routinely upon admission
- After treatment to "document care" or "test of cure"
- For mental status changes (without vital sign changes or urinary symptoms for noncatheterized residents)

Common Antibiotics Used To Treat UTIs^{2,3}

Antibiotic	Route	Information About Antibiotic	Most Common Adverse Events/Notes
TMP-SMX (Bactrim)	Oral	Concentrates in urinary tract	Hyperkalemia, rash, warfarin interaction
Nitrofurantoin (Macrobid)	Oral	Urinary tract only; few short-term systemic effects	Only use for 5 days to avoid side effects
Cefazolin/Cephalexin	IV/oral	Less data for use in UTIs; excreted by kidneys into the urinary tract system	Rash
Ampicillin/Amoxicillin	IV/oral	Less data for use in UTIs; excreted by kidneys into the urinary tract system	Rash
Fosfomycin	Oral	Concentrates in bladder, associated with diarrhea	Most Gram-negative organisms besides <i>E. coli</i> are resistant to fosfomycin; expensive
Ciprofloxacin	Oral	Broad-spectrum; fairly high level of resistance	Tendonitis, confusion, QTc prolongation; strong association with <i>C. difficile</i> infection; warfarin interaction



- **Uncomplicated cystitis**
 - Female, no catheter, no stones
 - A 3- to 5-day course is sufficient
- **Complicated UTI**
 - Male, catheter, possible stones, urological abnormalities
 - Prescribe a 7- to 14-day course

Follow up initial urine culture results and adjust therapy based on antibiotic sensitivities

- Urine culture results: organism is resistant to every antibiotic tested except meropenem
- Melba still has dysuria and some incontinence
 - No fevers
 - Vital signs otherwise normal
 - Eating well
- Consider fosfomycin





- For resistant and uncomplicated infections, consider fosfomycin
 - One 3-gram dose is sufficient to treat uncomplicated cystitis
 - Fosfomycin can be considered for *E. coli*, but since most Gram-negative organisms are resistant to fosfomycin, it may not be effective for other Gram-negative organisms including *Klebsiella* species and *Pseudomonas aeruginosa*
 - Can cause diarrhea

Key Points

- Choose the most narrow-spectrum antibiotic based on cultures to treat UTIs
- Fluoroquinolones should be avoided as an empiric choice due to resistance and side effects
- Antibiotics should be continued for 3–5 days for uncomplicated cystitis and 7–14 days for complicated UTI depending on response
- Follow up culture results (even from the hospital) and narrow or stop treatment accordingly



Asymptomatic Bacteriuria



Diagnosis

- Asymptomatic bacteriuria (ASB) is a positive urine culture from a person with NO symptoms of a urinary tract infection (UTI) such as dysuria, frequency, urgency, fever, or flank pain.
- ASB is common and often associated with pyuria (urine containing ≥ 10 white blood cells per high-powered field).

Population	Prevalence of ASB	Prevalence of Pyuria in Persons With ASB
Female long-term care residents	25–50%	90%
Male long-term care residents	15–35%	90%
Women > 90 years old	22–43%	
Women 65–90 years old	6–16%	
Healthy premenopausal women	< 5%	32%
Women with diabetes	9–27%	70%
Men with diabetes	1–11%	
People receiving hemodialysis	28%	90%
Presence of indwelling urinary catheter	>90%	50–100%

Treatment

- The majority of people with ASB and/or asymptomatic pyuria SHOULD NOT be treated with antibiotics.
- Treatment of ASB does not prevent future UTIs.
- Treatment of ASB is associated with adverse events related to antibiotic use and can increase the likelihood of developing future UTIs that are antibiotic resistant.
- Exception relevant to long-term care
 - Individuals with ASB about to undergo urologic procedures in which mucosal bleeding is expected (not including urinary catheter placement)
 - A short treatment course (<3 days) may prevent urosepsis.

Frequently Asked Questions

- How can I prevent unnecessary treatment of asymptomatic bacteriuria?
 - Do not order urine cultures unless a resident has signs and symptoms of a UTI.
 - This includes residents undergoing preoperative evaluations or residents with urinary catheters.
- What should I do for residents with dark or foul-smelling urine?
 - Dark, foul-smelling, or cloudy urine most likely indicates dehydration; therefore, encourage hydration.
- What should I do for residents with a change in mental status?
 - There are many reasons for a change in mental status that are not related to UTIs. Assess for dehydration, pain, change in medications, poor sleep, constipation, and mood disorders.