



- The bladder is not sterile! (1)
  - Many of us were taught that the bladder is a sterile environment but this is not the case. There is a urobiome with commonly found organisms that live in the bladder.
- About 50% of those in LTC will have asymptomatic bacteriuria. (2)

**Table 1. Prevalence of Asymptomatic Bacteriuria Reported for Different Populations**

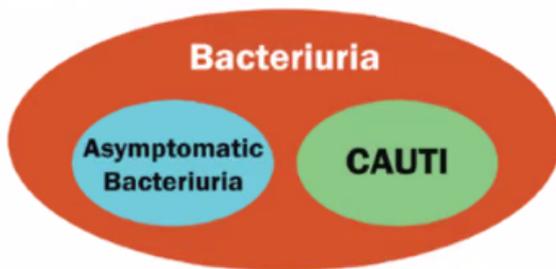
Population	Prevalence, %	Reference
<b>Children</b>		
Boys	<1	[7]
Girls	1–2	[8–10]
<b>Healthy women</b>		
Premenopausal	1.0–5.0	[11]
Pregnant	1.9–9.5	[11]
Postmenopausal (age 50–70 y)	2.8–8.6	[11]
<b>Persons with diabetes</b>		
Women	10.8–16	[12]
Men	0.7–11	[12]
<b>Elderly persons in the community (age ≥70 y)</b>		
Women	10.8–16	[13]
Men	3.6–19	[13]
<b>Elderly persons in a long-term care facility</b>		
Women	25–50	[13]
Men	15–50	[13]
<b>Persons with spinal cord injury</b>		
Intermittent catheter use	23–69	[14]
Sphincterotomy/condom catheter	57	[15]
<b>Persons with kidney transplant</b>		
First month posttransplant	23–24	[16, 17]
1 mo–1 y post-transplant	10–17	[16]
>1 y post-transplant	2–9	[16]
<b>Persons with indwelling catheter use</b>		
Short-term	3%–5%/day catheter	[18]
Long-term	100	[19]



# 4 Things You Should Know About Urine Cultures

## 1. Bacteria in the urine does **not** necessarily mean a catheter-associated urinary tract infection (CAUTI) is present.

Bacteriuria is the term used to describe a positive urine culture, the presence of bacteria in the urine. This could point to either asymptomatic bacteriuria or to CAUTI. People can have bacteria in the urine that do not cause symptoms or harm; asymptomatic bacteriuria is not a urinary tract infection.



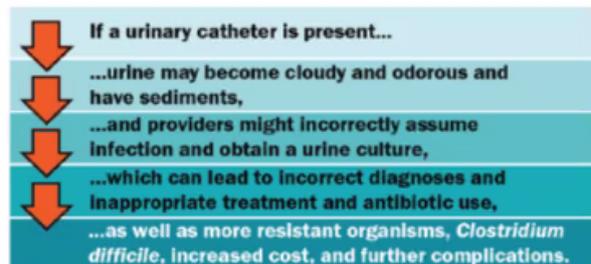
## 2. Chronically catheterized residents have bacteriuria **99% of the time**.

Inappropriate triggers for urine cultures include—

- Urine color
- Urine smell
- Urine sediment
- Cloudy urine
- White blood cells in the urine
- Positive dipstick

\* See CDC's January 2016 "Urinary Tract Infection (UTI) Event for Long-term Care Facilities," listed below.

## 3. Urine culturing can actually **harm** residents who have no CAUTI symptoms.



## 4. Urine cultures should only be ordered if one or more **CAUTI symptoms** are present.

The presence of cloudy, odorous urine with sediments does not alone indicate a CAUTI. CAUTI signs and symptoms are the following:

- Fever (even if the resident has another possible cause for the fever such as pneumonia)\*
- Rigors
- New confusion or functional decline (with NO alternative diagnosis AND leukocytosis)
- New suprapubic pain or costovertebral angle pain or tenderness
- New, very low blood pressure (with no alternate noninfectious cause)
- Acute pain, swelling or tenderness of testes, epididymis, or prostate
- Pus around the catheter

[Asymptomatic bacteriuria in older adults: the most fragile women are prone to long-term colonization | BMC Geriatrics | Full Text \(biomedcentral.com\)](#)

**Conclusion:** Institutionalized women with incontinence have ABU prevalence rates of about 80% and are often persistent carriers. Such prevalence rates should be considered in clinical decision making as they devalue the meaning of a positive urine culture as a criterion to diagnose UTIs. Diagnostic strategies are urgently needed to avoid antibiotic overuse and to identify patients at risk to develop upper UTI.



# Urine PCR

[Molecular Diagnostic Methods Versus Conventional Urine Culture for Diagnosis and Treatment of Urinary Tract Infection: A Systematic Review and Meta-analysis – PMC \(nih.gov\)](#)

- **Conclusion:** Moderately strong evidence exists that molecular diagnostics demonstrate increased sensitivity in detecting urinary bacteria at the expense of poor specificity in controls. Additional data comparing patient symptoms and cure rates following antibiotic selection directed by molecular methods compared with culture are needed to elucidate their place in UTI care.
- Of asymptomatic healthy controls, 95% had positive molecular tests vs 23% who had positive urine cultures

[Concordance Between Antibiotic Resistance Genes and Susceptibility in Symptomatic Urinary Tract Infections – PubMed \(nih.gov\)](#)

- **Conclusion:** Given the 40% discordance rate, the detection of ABR genes alone may not provide reliable data to make informed clinical decisions in UTI management. However, when used in conjunction with susceptibility testing, ABR gene data can offer valuable clinical information for antibiotic stewardship.

[Diagnosing UTIs with Urine PCR | Clinical Lab Products \(clpmag.com\)](#)

- The Centers for Medicare and Medicaid Services (CMS) indicates there are currently [no FDA cleared/approved](#)<sup>7</sup> uses for a urine PCR multiplexed panel as there is no peer-reviewed published literature that demonstrates improved patient outcomes. CMS requires urine PCR testing to include parallel testing using conventional culture-based detection for correlation of results.
- [LCD – MolDX: Molecular Syndromic Panels for Infectious Disease Pathogen Identification Testing \(L39038\) \(cms.gov\)](#)

# UTI Prophylaxis

[An oldie but a goodie: Methenamine as a nonantibiotic solution to the prevention of recurrent urinary tract infections – PMC \(nih.gov\)](#)



- The growing crisis of antibiotic resistance has led to a reintroduction of methenamine as a viable and efficacious nonantibiotic management strategy for UTI prevention. Methenamine is as effective in UTI prevention as prophylactic antibiotics with a low side effect burden in randomized, controlled trials. Despite over a century of use, no bacterial resistance mechanisms or increased carcinogenesis have been observed. Although methenamine is gaining ground for UTI prevention, future studies will need to evaluate its longitudinal effect on host microbiota, both in and outside the urinary tract, and long-term impacts of such changes on subsequent health and disease. Given a new appreciation of the collateral damage of repeated antibiotic use on human health, effective nonantibiotic therapies, such as methenamine, must be revisited as part of the armamentarium in UTI prevention.

#### References

1. [The Bladder is Not Sterile: an Update on the Urinary Microbiome – PMC \(nih.gov\)](#)
2. [Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update by IDSA \(idsociety.org\)](#)
3. [HAI Surveillance Protocol for UTI Events for LTCF \(cdc.gov\)](#)

#### Resources:

- [Suspected-UTI-action-tool\\_FNL.pdf \(telligenqconnect.com\)](#)
- [Antimicrobial Stewardship in Long-Term Care Facilities | Department of Public Health & Environment \(colorado.gov\)](#)
- [Infectious Diseases Society of America Guidelines for the Diagnosis and Treatment of Asymptomatic Bacteriuria in Adults | Clinical Infectious Diseases | Oxford Academic \(oup.com\)](#)