

# The Appropriateness and Stewardship in Asymptomatic Bacteriuria Initiative - Frequently Asked Questions

The AHS Antimicrobial Stewardship program has developed evidence-based tools to assist clinicians with optimizing urine testing and identifying urinary tract infections (UTIs).

This is an interdisciplinary, province-wide project with goals to reduce inappropriate urine testing and antibiotic treatment of asymptomatic bacteriuria.

For more information, contact: [urinedxstewardship@ahs.ca](mailto:urinedxstewardship@ahs.ca)

Visit the project's website: <https://www.albertahealthservices.ca/info/Page15718.aspx>

References for information presented in this document are available in the project's [Bibliography](#).

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## The Appropriateness and Stewardship in Asymptomatic Bacteriuria Initiative:

### What is the Appropriateness and Stewardship in Asymptomatic Bacteriuria (ASAB) Initiative?

The Appropriateness and Stewardship in Asymptomatic Bacteriuria Initiative (ASAB) is an interdisciplinary, province-wide project. ASAB's goals are to reduce inappropriate urine testing and antibiotic treatment of asymptomatic bacteriuria.

ASAB includes several tools that support practice change, including a clinical decision making algorithm, background document, informational poster, laboratory test interpretation, a printable pocket card, information for patients and families and a MyLearningLink course for healthcare professionals.

Materials are available to everyone, and are located at:  
<https://www.albertahealthservices.ca/info/Page15718.aspx>

This initiative is supported by Alberta Health Services Improving Health Outcomes Together (IHOT) and the Alberta Medical Association's Physician Learning Program (PLP).

In Connect Care, urine culture stewardship has been integrated into the ordering process for urine cultures. Staff will be prompted to provide clinical information or reasoning when ordering a urine culture.

### How can I get my site involved in the Appropriateness and Stewardship in Asymptomatic Bacteriuria work?

Please contact [urinedxstewardship@ahs.ca](mailto:urinedxstewardship@ahs.ca) and we will be happy to assist you in implementing these tools into practice or starting an asymptomatic bacteriuria or urine culture stewardship related project.

## Why is this important? Why should I change practice?

Antimicrobial stewardship relies on the collective effort of all members of the health care team and patients to ensure that antimicrobial medications remain effective. Treatment of asymptomatic bacteriuria with antibiotics is usually not required and contributes to antibiotic resistance, adverse reactions and *C. difficile* infection.

There are over 63,000 urine cultures performed in Alberta every month, at a cost of more than \$15 million per year. The majority of urine cultures are ordered routinely, very often in patients with a low probability of having a UTI. Implementing the principles promoted in the Appropriateness and Stewardship in Asymptomatic Bacteriuria Initiative not only improves patient care, it provides an opportunity to impact health system savings.

## Differences between Asymptomatic Bacteriuria and Urinary Tract Infections:

### What is asymptomatic bacteriuria?

Asymptomatic bacteriuria, also referred to as ASB, is bacterial colonization of the urinary tract or bladder with no signs or symptoms of a urinary tract infection (UTI). ASB is identified with a urinalysis positive for bacteria, or a urine culture exhibiting bacterial growth. UTI, on the other hand, is a clinical diagnosis, where patients exhibit signs or symptoms of an infection, including dysuria, fever, changes in urinary frequency/urgency/continence, suprapubic/flank pain, and/or hematuria.

### How prevalent is asymptomatic bacteriuria?

In adults, the incidence of asymptomatic bacteriuria increases with age. Upwards of 50% of long term care residents will test positive for bacteria in their urine without having the signs or symptoms required to diagnose a UTI.

Catheterized patients commonly have asymptomatic bacteriuria. All patients who are catheterized long-term (more than 30 days) will test positive for bacteria in their urine.

Up to 16% of patients with diabetes have asymptomatic bacteriuria.

Asymptomatic bacteriuria is also possible in children, with up to 2% of girls testing positive for having bacteria in their urine.

### Why should asymptomatic bacteriuria not be treated with antibiotics?

Treatment of asymptomatic bacteriuria with antibiotics has no demonstrated benefit unless the patient is pregnant or is undergoing an invasive urologic procedure. Treatment of asymptomatic bacteriuria does not prevent future UTIs or sepsis. For each unneeded course of antibiotic treatment for asymptomatic bacteriuria in older adults, between 3 and 10 patients will experience a negative outcome.

Exposing patients to antibiotics, whether they are required or not, increases the risk of bacteria developing resistance, as well as increasing other negative outcomes of antibiotic therapy such as *C. difficile* infection, adverse and allergic reactions.

Health care professionals are compelled to treat abnormal findings. By only ordering urine cultures when there is a strong clinical suspicion of a UTI, the risk that a patient with a positive, but clinically insignificant urine culture result, will receive unnecessary antibiotic treatment for is decreased.

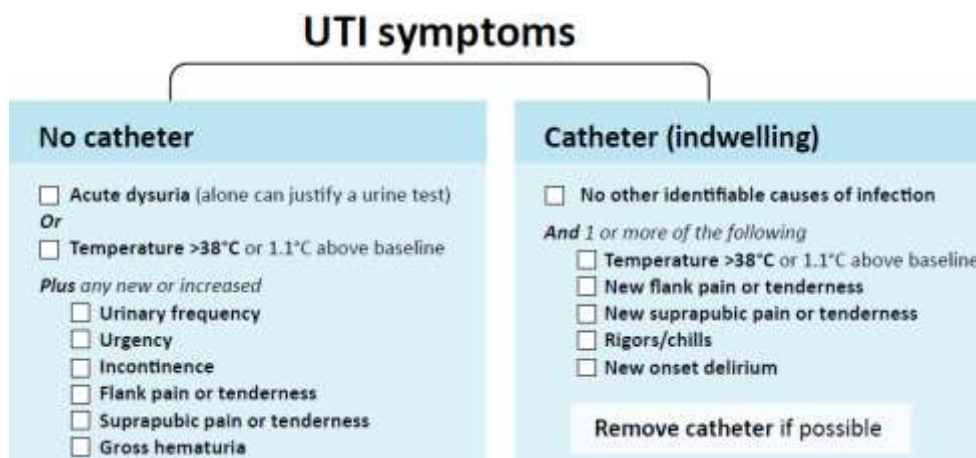
### Are there benefits or harms to treating asymptomatic bacteriuria with antibiotics?

Treating asymptomatic bacteriuria in pregnancy and for patients undergoing invasive urological procedures (i.e. those that are anticipated to cause mucosal bleeding/trauma) is supported by current evidence and guidelines.

In other patient populations treating asymptomatic bacteria with antibiotics has no benefit to the patient. It does not prevent future UTIs or sepsis, and may even result in an increased risk of symptomatic UTI, along with increasing the risk of the negative effects of antibiotic use.

## How is a UTI diagnosed?

UTI is a clinical diagnosis. Patients exhibit symptoms of an infection, and have a urine culture positive for bacteria at a significant colony count.



From the [Evidence-based Criteria for Urinary Infection Testing Algorithm](#)

Non-specific symptoms (e.g., confusion, agitation, lethargy, falls), in the absence of the symptoms in the boxes above, can usually be attributed to a number of other causes and are not diagnostic criteria for a UTI.

Cloudy or malodorous urine is not a sign of UTI. Often cloudy or malodorous are a result of dehydration, and can be resolved with fluid replacement.

## How commonly are UTIs diagnosed?

In Alberta Health Services acute care facilities, over 4500 patients are admitted every year with a UTI diagnosis. In 2019, there were more than 28,000 emergency room visits attributed to UTIs in Alberta (the 4th most common diagnosis for patients presenting to emergency rooms).

In long term care facilities and nursing homes, 30% of antibiotic orders are for known or suspected UTIs.

Ensuring that urinary testing is only performed when there is a high probability of UTI can have a significant beneficial impact on patients and the health care system as a whole.

## Urine Testing:

Should a urine culture be ordered if my patient's urine has a strong odour or is cloudy?

Cloudy or malodorous urine are not signs of a UTI, and therefore are NOT indications to order a urine culture. Cloudy or malodorous urine is most often a sign of dehydration and can be resolved with fluid replacement.

An older adult has a change in behaviour (e.g., confused, lethargic, aggressive). Should a urine culture be ordered to determine if this is due to a UTI?

In the absence of local urinary symptoms or other systemic signs of infection (e.g., unexplained fever or hemodynamic instability), alternative causes of behavioural changes should be explored with careful observation in older adults, prior to urine testing.

The DELIRIUMS and the [STRAINED Acronyms](#) are an excellent resources to systematically assess non-specific symptoms.

<b>D</b>	Drugs Dementia Discomfort	BEERS Criteria (anticholinergic, benzodiazepines, hypnotics) Dose change Behavioral problems in dementia Pain, insomnia, depression
<b>E</b>	Eye Ears Environment	Sensory deprivation; vulnerability to environment Glasses/Hearing Aids Noise Level/Lighting
<b>L</b>	Low Oxygen States	Myocardial Infarction, Stroke, Pulmonary Embolus
<b>I</b>	Infection	Pneumonia, Sepsis, Symptomatic UTI, Cellulitis
<b>R</b>	Retention	Urinary retention, constipation Check PVR, Rectal Exam
<b>I</b>	Ictal States	Seizure Disorder
<b>U</b>	Under-hydration Nutrition	Dehydration Check blood glucose, electrolytes, serum creatinine
<b>M</b>	Metabolic	Low or high blood sugar, sodium abnormalities Check blood glucose, electrolytes, serum creatinine
<b>S</b>	Subdural Hematoma	Head Trauma Check neuro-vital signs

### My patient cannot tell me what their symptoms are. How can I tell if they have a UTI?

Patients who are non-communicative still have physical signs of infection with UTIs. Assessing for fever (greater than 38°C or an increase of 1.1°C from baseline), pain upon palpation of the bladder and hematuria assist with determining the presence of a UTI versus asymptomatic bacteriuria.

### Should a repeat urine culture or test be ordered to determine if a UTI has been cured?

Urine cultures should not be repeated if an appropriately collected specimen has already been submitted within the last 48 hours. A negative urine culture result rules out UTI in most patients and a repeat is not required.

Patients with recurrent UTI symptoms and are urine culture negative require a consultation with the laboratory physician before ordering a repeat test, as additional laboratory work-up may be needed.

Repeat urine culture testing is indicated in:

1. Patients with UTI symptoms and who are not clinically responding to therapy
2. Pregnant women, 1 week after completion of antibiotic therapy, as a test of cure

### Do urine dips and/or urinalysis diagnose UTIs?

While urine “dipsticks” and urine macroscopy/microscopy can provide important information about the presence of bacteria in the urine sample, they should not be used as the sole diagnostic marker of infection. In older adults, up to 90% of patients with asymptomatic bacteriuria will have pyuria (with a positive urinalysis), so it is not a valid indicator for diagnosing a UTI. Clinical correlation with symptoms consistent with a UTI is essential for diagnosis.

A negative urine dip or urinalysis rules out UTI in most patients.



Are there times when urine cultures should be ordered if the patient isn't exhibiting UTI symptoms?

- As part of a sepsis investigation
- Pregnant patients, according to the Canadian Task Force on Preventative Health Care [Asymptomatic Bacteriuria in Pregnancy \(2018\) Guidelines](#)
- Patients undergoing an invasive urologic procedure where mucosal trauma or bleeding is expected (endoscopic urological surgery)

Does a UTI ever present without typical or localizing UTI symptoms?

- Patients with multiple sclerosis and a possible UTI may experience new or worsening neurological symptoms. More details can be found at [Towards Optimized Practice Multiple Sclerosis and Management of Urinary Tract Infection](#).
- Patients with neurogenic bladder, for example as a consequence of a spinal cord injury (SCI), may not exhibit typical signs of a UTI. Please see the [Alberta SCI UTI Diagnosis Algorithm](#) for details and guidance.

What are the current recommendation for the empiric treatment of UTI?

Nitrofurantoin, cefixime, fosfomycin and sulfamethoxazole-trimethoprim are considered first line agents for uncomplicated UTIs. The choice of antibiotic and dose depends on a number of factors, including the age, gender, kidney function, and the local antibiogram.

For detailed treatment recommendations, refer to [Bugs & Drugs](#).

Fluoroquinolones, specifically ciprofloxacin, continue to be frequently used empirically for suspected UTIs. Fluoroquinolones are no longer recommended first line for UTIs due to the high resistance in common urinary pathogens, and risk of *C. difficile* infection and other serious adverse effects (e.g., tendon rupture, liver injury, aortic aneurysm and dissection, aortic and mitral regurgitation) being greater than other antibiotics.

## What is the best way to collect a urine sample?

Quality urine samples are needed in order for Laboratory Services to provide accurate and clinically relevant results.

Mid-stream (clean catch) urine sampling is the “gold standard” method, followed by in/out (intermittent) catheterization. For patients with indwelling catheters of 14 days or less duration, the sample should be collected aseptically from the catheter line with a needle and syringe and not from the bag or secondary spigot. If the catheter has been in situ for more than 14 days, either it should be removed (if no longer needed) and a mid-stream specimen collected or it should be replaced before collecting the urine.

Both verbal and [written instructions for collection of a mid-stream urine](#) are important for patient compliance.

“Hat” collections are discouraged, as they are easily contaminated.

Prior to collecting a urine sample, the patient’s perineal area should be cleaned with soap (or wipes) and rinsed well with water to prevent contamination.

## Changing Practice:

Waiting for an order to collect a urine sample is not practical and slows down patient flow. Why should I change what we have been doing all along?

The practice of routinely “sending a urine” results in many patients (with a low probability of having a UTI) receiving unnecessary antibiotic treatment. By using the [Evidence Based Criteria for Urinary Infection Testing algorithm](#) to ensure that only patients with a high likelihood of having a UTI have urine testing ordered, the number of times that urine samples are ordered will decrease, freeing up time and resources to perform other aspects of patient care.

What if I'm too busy? It's easier to just order a urine test or give antibiotics.

It is important to determine if a patient exhibits symptoms that are consistent with a UTI prior to ordering a urine culture. It has been shown that a positive urine culture encourages antibiotic use regardless of whether or not there are associated UTI signs or symptoms.

Inappropriate antibiotic use amplifies the unintended consequences of antibiotic use (adverse and allergic reactions, *C. difficile* infections), which harms patients and creates additional workload.

My patient doesn't want to drink fluids, what can I do to hydrate them?

Patients presenting with non-specific symptoms or cloudy or malodorous urine should be encouraged to increase fluid intake for at least 24 hours, provided that they are not fluid restricted.

Regular fluid rounds, and the use of hypodermoclysis or IV fluids may be used during the "watchful waiting" period. A referral to a dietician can help patients work fluids into their diets.

What should I do if I'm getting pressure from patients/family/co-workers to order urine testing or treat a "UTI"?

Changing long held beliefs and medical practices is difficult, and often there are pressures to test for or treat non-specific symptoms or asymptomatic bacteriuria when it is not indicated. Advocating for evidence-based patient care empowers front line staff to have conversations with patients/families/co-workers and change perceptions about urine testing and the need for UTI treatment.

Multiple resources are available to assist with communicating to others about why urine testing and/or antibiotics may not be necessary:

- **For patients and family members:** Urine Testing and When to Treat a Urinary Tract Infection (UTI) (<https://myhealth.alberta.ca/Alberta/Pages/urine-testing-when-to-treat-UTI.aspx>)
- **For health care providers:** UTI and ASB: When to Test for UTI Backgrounder (<https://www.albertahealthservices.ca/assets/info/hp/as/if-hp-as-when-to-test-urine-and-when-to-treat-infections.pdf>)
- **Handy pocket reference for health care providers:** (<https://www.albertahealthservices.ca/assets/info/hp/as/if-hp-as-uti-urine-testing-pocketcard.pdf>)

Coming Soon - Pediatric Urine Testing Information