

Management of Urinary Tract Infections (UTIs) in Non-catheterized Long-Term Care Home Residents

Did You Know...

One-third of prescriptions for presumed UTIs are given for **asymptomatic bacteriuria**¹

- Up to 80% of long-term care home (LTCH) residents with asymptomatic bacteriuria are treated with antibiotics
- Results of a PHO survey of Ontario LTCHs in 2013 discovered that 50% interpreted bacteria in the urine without symptoms of a UTI

Studies of antibiotic therapy for **asymptomatic bacteriuria** in LTCH residents have shown NO clinical benefit^{2,3}

Asymptomatic bacteriuria is the presence of bacteria in the **urine** in the absence of symptoms of a urinary tract infection



Prevalence of Asymptomatic Bacteriuria



- Prevalence of **asymptomatic bacteriuria** in LTCH residents is high²
 - 15%–30% of men
 - 25%–50% of women
- LTCH residents have multiple reasons for bacteria in the urine
- Bacteria in the urine without symptoms is not a reliable indicator of a UTI²

The Problem

Antibiotics are **unnecessarily** prescribed for LTCH residents:

- with asymptomatic bacteriuria
- with “nonspecific” symptoms that are incorrectly attributed to UTIs (e.g., smelly, cloudy urine; confusion, lethargy, falls)

Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI



The Problem (cont'd)

- Antimicrobial resistance develops as a result of the inappropriate use of antibiotics and is a public health concern
- Other adverse effects can include drug interactions, *Clostridium difficile* infections and renal impairment

Antibiotics are not harmless; inappropriate use can lead to avoidable adverse effects



Risks Associated with Antibiotics

1. Adverse effects, including nausea/vomiting, diarrhea, allergy, rash, kidney impairment^{4,5}
2. Drug interactions⁶
3. Infections, such as yeast and *Clostridium difficile*^{4,7,8}
4. Antimicrobial resistance^{4,9}
 - Decreased ability to treat infections
 - More resident transfers to hospital, greater need for intravenous antibiotics

Antibiotics are not harmless; inappropriate use can lead to avoidable adverse effects



Current Recommendations

- Routine screening for UTIs and treatment for **asymptomatic bacteriuria** in LTCH residents is **not** recommended^{2,3}
- **Do not** screen annually or on admission
- Unless the resident has the specific urinary signs and symptoms of a UTI, urine should not be cultured and antibiotics should not be prescribed

Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI

Do not perform routine annual urine screening and screening at admission



Why do we continue the following inappropriate practices?



- Routinely collect urine for culture during annual physical or on admission
- Send specimens without proper clinical assessment of the resident
- Treat residents for asymptomatic bacteriuria

Why?

- Lack of understanding of accepted UTI symptoms
- Uncertainty about urine collection, testing and interpretation
- Pressure from families
- Difficulty ignoring a positive urine culture
- Concern about the consequences of not treating bacteria in the urine
- Lack of consensus among practitioners and families about the clinical signs and symptoms of a UTI

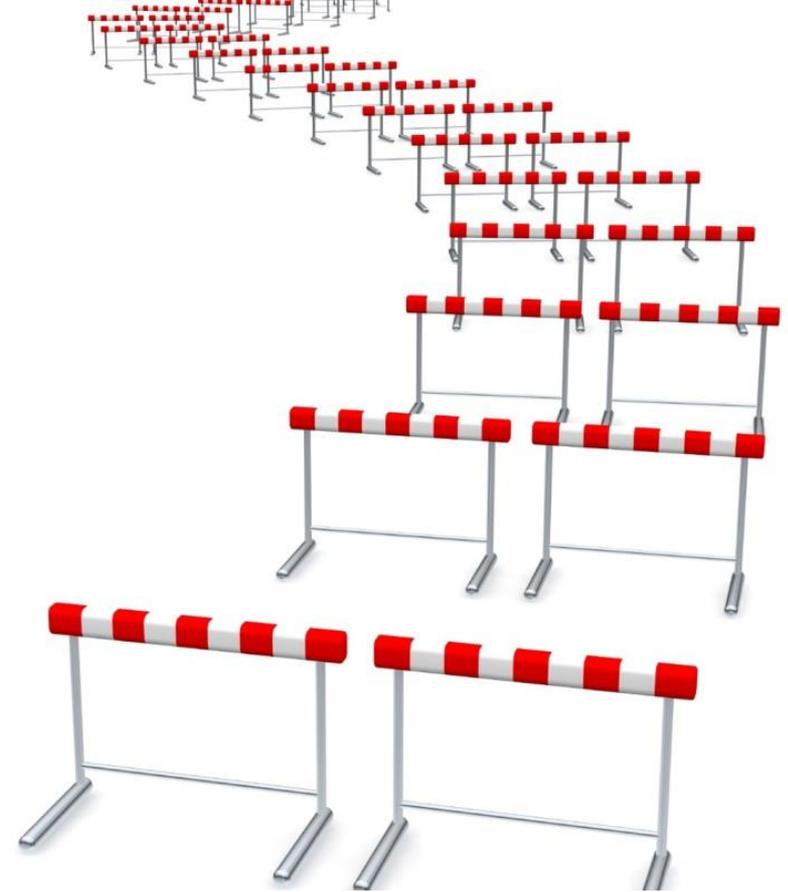
Barriers to Best Practice

Challenges in assessment:

- Falls
- Changes in mental function
- Smelly urine
- Cloudy urine

Lack of understanding or misconceptions about true UTI symptoms

- Inaccurate interpretation of urine culture results
- Fear of missing a true UTI
- History of recurrent UTI
- Family pressure
- Other infections



We need to break down the barriers



The Five Key Practice Changes!

Key Practice Changes



- Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI
- Obtain and store urine cultures properly
- Prescribe antibiotics only when specified criteria have been met, and reassess once urine culture and susceptibility results have been received



- Use dipsticks to diagnose a UTI
- Perform routine annual urine screening and screening at admission if residents do not have indicated clinical signs and symptoms of a UTI

How Do We Know When Someone Really Has a UTI?

Clinical definition of a UTI in *non-catheterized residents*^{1,10}

- Acute dysuria (painful urination) alone **OR**
- **Two or more** of the following:
 - Fever (oral temperature greater than 37.9 C or 1.5 C above baseline on 2 consecutive occasions within 12 hours)
 - New flank pain or suprapubic pain or tenderness
 - New or increased urinary frequency/urgency
 - Gross hematuria (blood in the urine)
 - Acute onset of delirium in residents with advanced dementia

Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI



Factors That Are NOT Clinical Symptoms of a UTI

The following behavioural changes on their own do not indicate a UTI unless clinical symptoms develop:

- Worsening functional status
- Worsening mental status, increased confusion, delirium or agitation

The following factors on their own do *not* indicate a UTI:

- Pyuria or cloudy urine
- Fever (if non-catheterized)
- Smelly urine
- Change in urine colour
- Positive dipstick
- Dehydration
- Falls

Importance of Assessment

Rule out other causes for symptoms

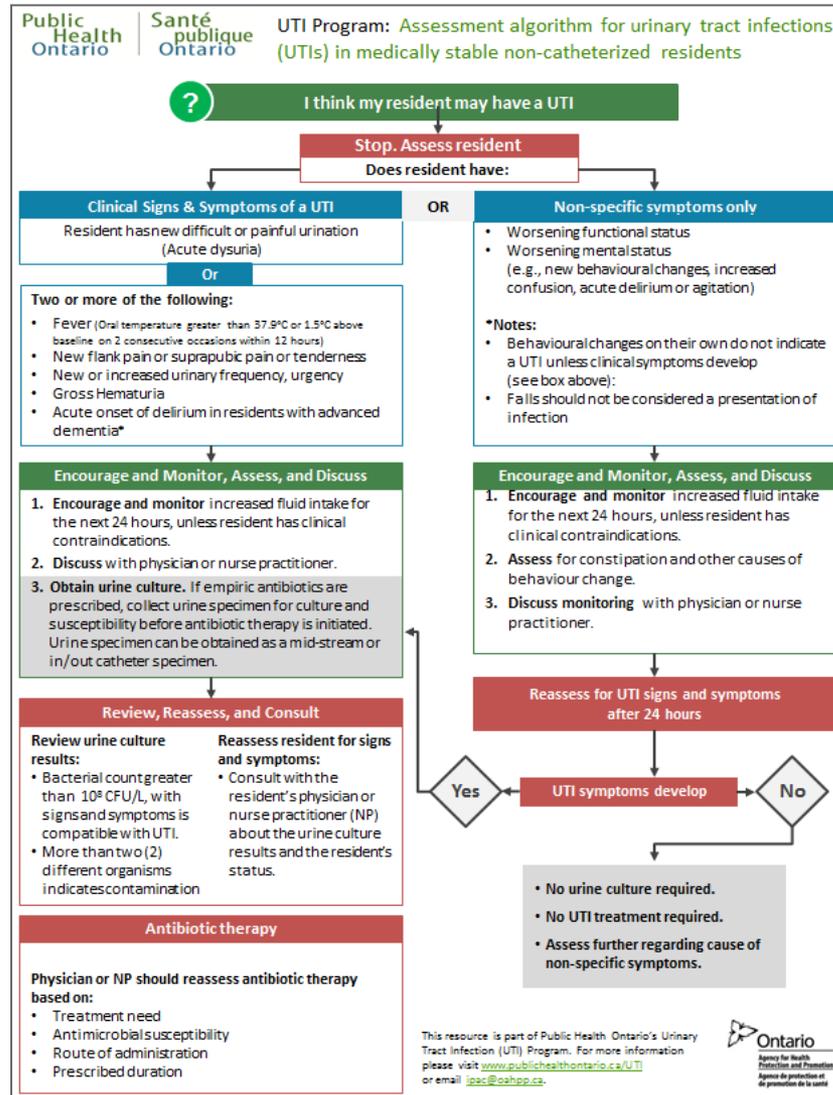
- Has the resident started a new medication?
- Has there been a change in diet?
- Is the resident drinking enough? Might they be dehydrated?
- Are there signs of other infections?

Take vital signs

- Fever?
- Change in blood pressure, pulse, respiratory rate?

Do a physical assessment for UTI symptoms

Assessment Algorithm



What Should I Do If I Suspect a UTI?



- **Assess resident**
- If the resident has acute dysuria alone **OR** meets the clinical definition of a UTI
- **Encourage and monitor increased fluid intake for the next 24 hours**, unless the resident has clinical contraindications; discuss with physician or nurse practitioner

AND

- **Obtain urine culture:** if empiric antibiotics are prescribed, collect urine specimen for culture and susceptibility before antibiotic therapy is initiated; urine specimen can be obtained as a mid-stream or in/out catheter specimen

What Should I Do If I Suspect a UTI? (cont'd)

If the resident has nonspecific symptoms only:

- Encourage and monitor increased fluid intake for the next 24 hours, unless the resident has clinical contraindications
- Assess the resident for causes of behaviour change (e.g., constipation)
- Discuss monitoring with a physician or nurse practitioner
- **Reassess** for UTI signs and symptoms after 24 hours
- If no symptoms develop:
 - No urine culture required
 - No UTI treatment required
 - Assess further regarding the cause of nonspecific symptoms

Testing Methods for UTI Diagnosis

Urine specimen for **culture and susceptibility** is the recommended testing method when a UTI is suspected

Dipsticks are not reliable for diagnosing UTIs, and their use is not recommended

- Most residents *with* bacteria in their urine (even without symptoms) will have pyuria or be positive for white blood cells/leucocyte esterase
- Many residents *without* bacteria in their urine will have pyuria or be positive for white blood cells/leucocyte esterase
- Nitrites are *not* useful to rule a UTI in or out in LTCH residents

Do not use dipsticks to screen for or diagnose a UTI



When to Collect a Urine Culture

Collect a urine culture **only** when a resident has clinical signs and symptoms as previously described

DO NOT perform routine urine cultures or screen for bacteriuria in LTCH residents (e.g., on admission, yearly)²

- Routine and random screening is contributing to the overuse of antibiotics

Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI

Do not perform routine annual urine screening and screening at admission



How to Get a Proper Specimen

- Obtain clean catch or mid-stream urine OR
- Use in/out catheterization

“The use of bedpans, hats or pedibags for collection of urine specimens is associated with substantial contamination and cannot currently be recommended”¹¹

- Label appropriately and thoroughly; include date and time
- Refrigerate immediately: urine specimens left at room temperature can lead to false positives

Obtain and store urine cultures properly



How to Interpret Microbiology Results

- What is a significant result?
 - Bacterial count greater than or equal to 10^8 CFU/L
- Multiple organisms (more than 2 different types bacteria) indicate the specimen is contaminated
- Are the organisms susceptible to the antibiotic ordered?

Prescribe antibiotics only when specified criteria have been met, and reassess once urine culture and susceptibility results have been received



When to Treat

- Decisions to treat should be based on resident signs and symptoms, severity of illness and urine culture results
- If specimens are collected based on accepted signs and symptoms for UTI, the decision to treat becomes clearer
- Clearly document and communicate resident's signs and symptoms

REMEMBER

A positive culture alone is not reliable for diagnosing a UTI due to the prevalence of asymptomatic bacteriuria in LTCH residents²

Treatment for asymptomatic bacteriuria in LTCH residents is *not* recommended^{2,3}

Opportunities for LTCHs

- ✓ Identify gaps in practice

- ✓ Select recommended strategies to:
 - Get buy-in and support for the practice changes
 - Review and revise organizational policies and procedures
 - Select and empower champions
 - Involve local opinion leaders
 - Carry out local consensus processes for creating buy-in
 - Educate and develop skills
 - Deliver classroom education to staff
 - Provide information and education to residents and families
 - Identify and support coaches to reinforce key practices and support staff

Opportunities for LTCHs (cont'd)

- ✓ Monitor practice and continue to support staff
 - Integrate process surveillance
 - Distribute and post educational resources to remind staff of key practices

- ✓ Decrease urine specimens sent and decrease inappropriate treatment of residents without an accepted clinical UTI diagnosis

- ✓ Improve resident care

Key Messages

- Antibiotics are not harmless; inappropriate use can lead to avoidable adverse effects
- Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI
- Obtain and store urine cultures properly
- Prescribe antibiotics only when specified criteria have been met, and reassess once urine culture and susceptibility results have been received
- Do not use dipsticks to screen for or diagnose a UTI
- Do not perform routine annual urine screening and screening at admission

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