TORONTO Seniors Services and Long-Term Care

# Reducing UTIs in Long-Term Care: A Quality Improvement Project


**Presented by:**

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Lakeshore Lodge Long-Term Care Home

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# Speaker Disclosures

- **Farah Chowdhury**
  - No relationships with financial sponsors
- **Dr Pinella Buongiorno**
  - No relationships with financial sponsors

# Background

- UTIs are one of the leading causes of bacteremia among long-term care residents, which can lead to significant morbidity and mortality[1]
- Contributing factors include age-related physiological factors, chronic comorbidities, dehydration, and inconsistent infection prevention and control practices
- Accurate diagnosis and treatment of UTIs in long-term care residents is difficult, and may lead to over-testing and inappropriate antibiotic prescribing
- Up to 50% of older adults in long-term care have bacteria in their urine but do not have a UTI[2]
- Inappropriate use of antibiotics for asymptomatic bacteriuria can cause significant harm and lead to complications

1. Canadian Institute for Health Information. Residents With a Urinary Tract Infection. Accessed November 7, 2025.
2. Choosing Wisely Canada: Using Antibiotics Wisely in Long-Term Care.

# Practice Change Recommendations
## for UTI Management in Long-Term Care

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1. **Don't perform** screening urinalysis/urine dipstick and/or urine culture and sensitivity for residents on admission
2. **Don't perform** urine dipstick/urinalysis to diagnose a UTI.
3. **Don't assume** a UTI is the cause of any change in health status, including behaviors, until alternate explanations are excluded
4. **Don't collect** a urine culture upon request without first seeking to understand and address resident/substitute decision-maker/family concerns
5. **Don't order** a urine culture unless **minimum criteria** for a UTI are present (modified Loeb criteria).
6. **Don't prescribe** antibiotics before first asking why a urine culture was submitted, and if the initial reason has improved already without antibiotic treatment, don't treat
7. **Don't treat** a UTI for excessive durations.
8. **Don't forget to reassess** the need for antibiotic therapy within 3 days of starting antibiotics to check antibiotic sensitivity results and that the resident is improving.

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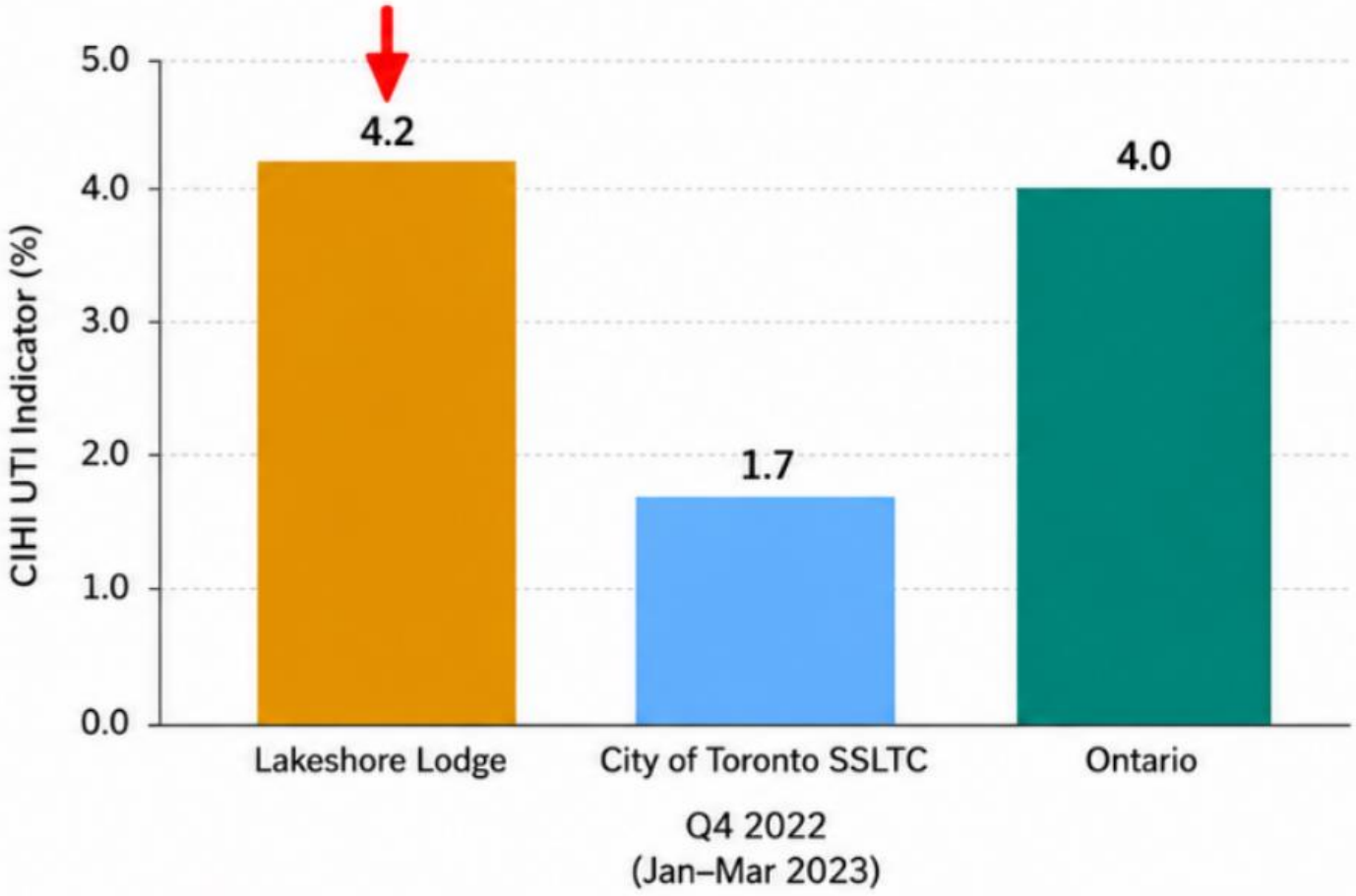
# Background

The CIHI UTI Indicator measures the percentage of long-term care residents with a urinary tract infection.

Lakeshore Lodge UTI rates exceeded both Ontario and City of Toronto SSLTC averages.




**This data prompted the development of a targeted UTI quality improvement initiative.**

# Quality Improvement Project Aim:

To **reduce** our **CIHI UTI indicator** from **4.2%** to **below** the Ontario average of **4.0%** and closer to the **SSLTC divisional average** by the **end of 2024**

### Our Goal

Achieve a UTI rate that is below the Ontario average and moving closer to the SSLTC average.

### Our Target

Below 4.0% (Ontario average) and moving toward the SSLTC average of 1.7%.

### Our Timeline

By the end of 2024.

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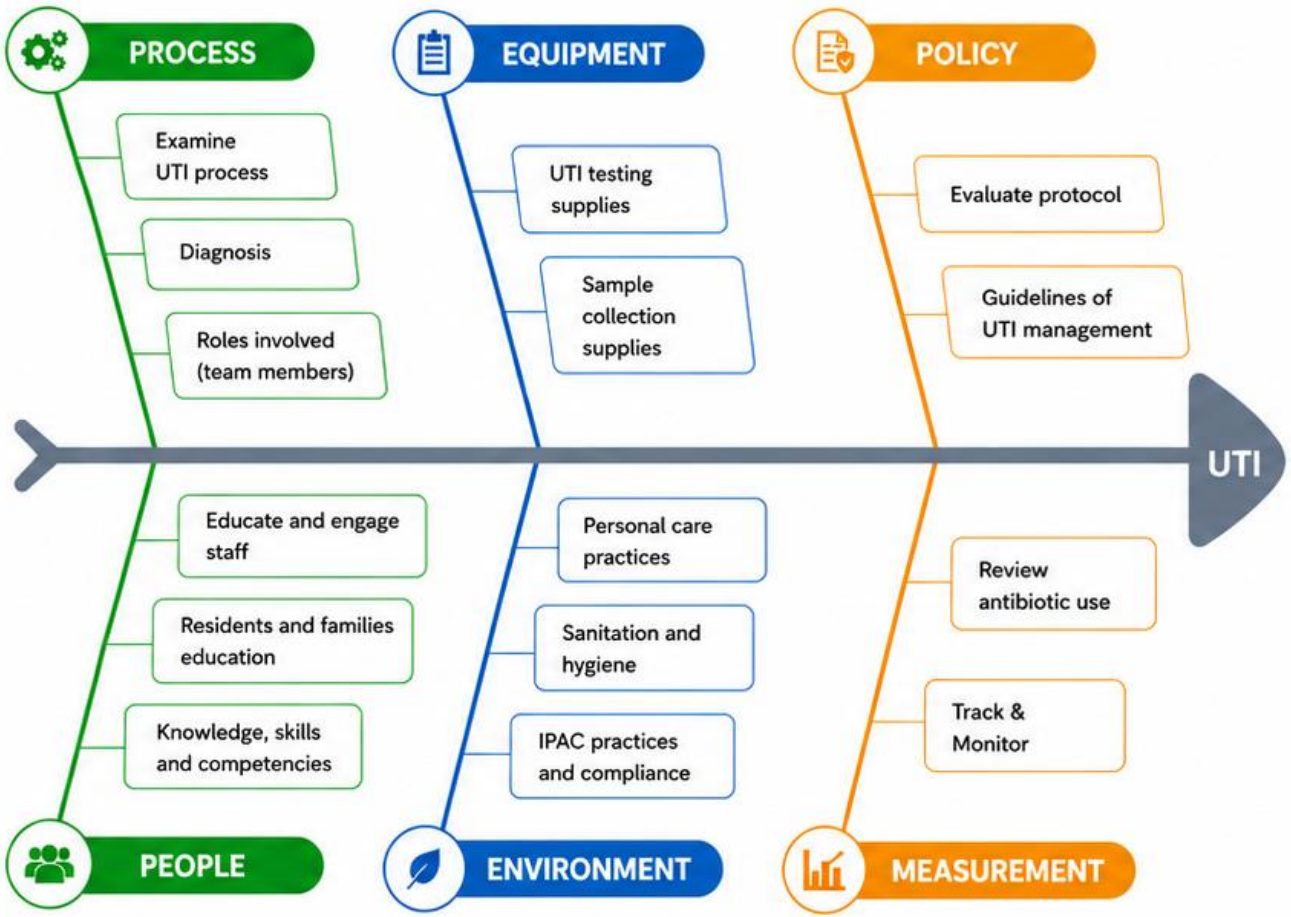
# Root Cause Analysis: Why are our UTI rates high?

## FISHBONE DIAGRAM




## FIVE WHYS ANALYSIS

**1. Why are antibiotics being used inappropriately for suspected UTIs?**

Because residents are being treated for bacteriuria without clear clinical evidence of a symptomatic UTI.

**2. Why are residents being treated without clear evidence of a symptomatic UTI?**

Because urine cultures are often ordered and acted upon in response to nonspecific symptoms or changes in condition.

**3. Why are urine cultures being ordered for nonspecific symptoms?**

Because healthcare providers may not consistently follow evidence-based guidelines for UTI assessment and diagnosis.

**4. Why are evidence-based UTI assessment guidelines not consistently followed?**

Because there are knowledge gaps, communication challenges, and inconsistent use of standardized assessment tools.

**5. Why do these knowledge gaps and process challenges exist?**

Because of ongoing educational needs and logistical barriers within the long-term care environment.

# Why are our UTI rates high?

Root cause analysis identified four major drivers:

- **Diagnostic inconsistency**: inconsistent use of standardized UTI assessment and treatment protocols
- **Communication gaps**: inadequate nurse-physician/NP communication, particularly after hours, contributing to inappropriate antibiotic prescribing
- **System-level barriers**: delayed after-hours lab result processing and reliance on on-call physicians
- **Knowledge gaps**: limited understanding of accepted UTI symptoms and risks of overtreatment among staff, physicians/NPs, residents, and families


# Changes Implemented

Sustain Gains

Goal

Act 1 Plan Do Study

Act ... Plan Do Study

Act n Plan Solved! Do Study

ACCUMULATING INFORMATION, DATA AND KNOWLEDGE

Small scale tests

Refine ideas

Test under new conditions

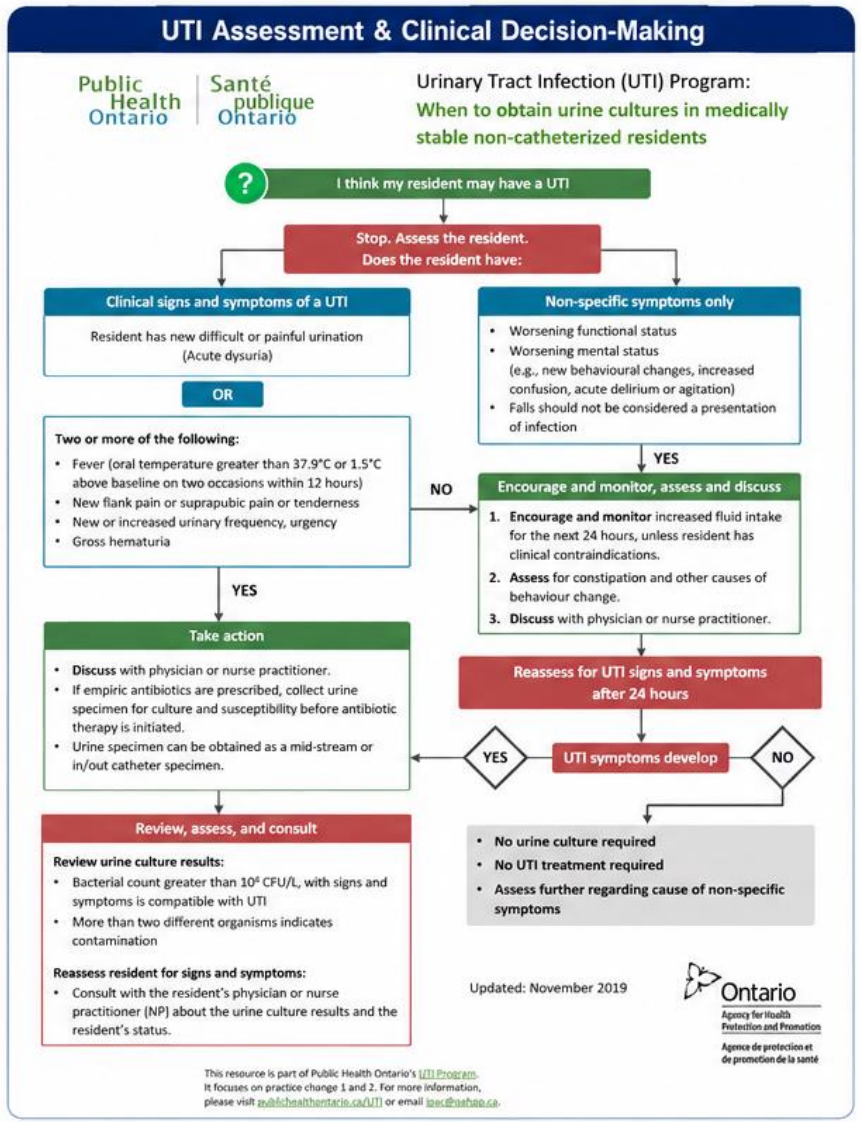
Wide scale tests

IMPROVEMENT

TIME

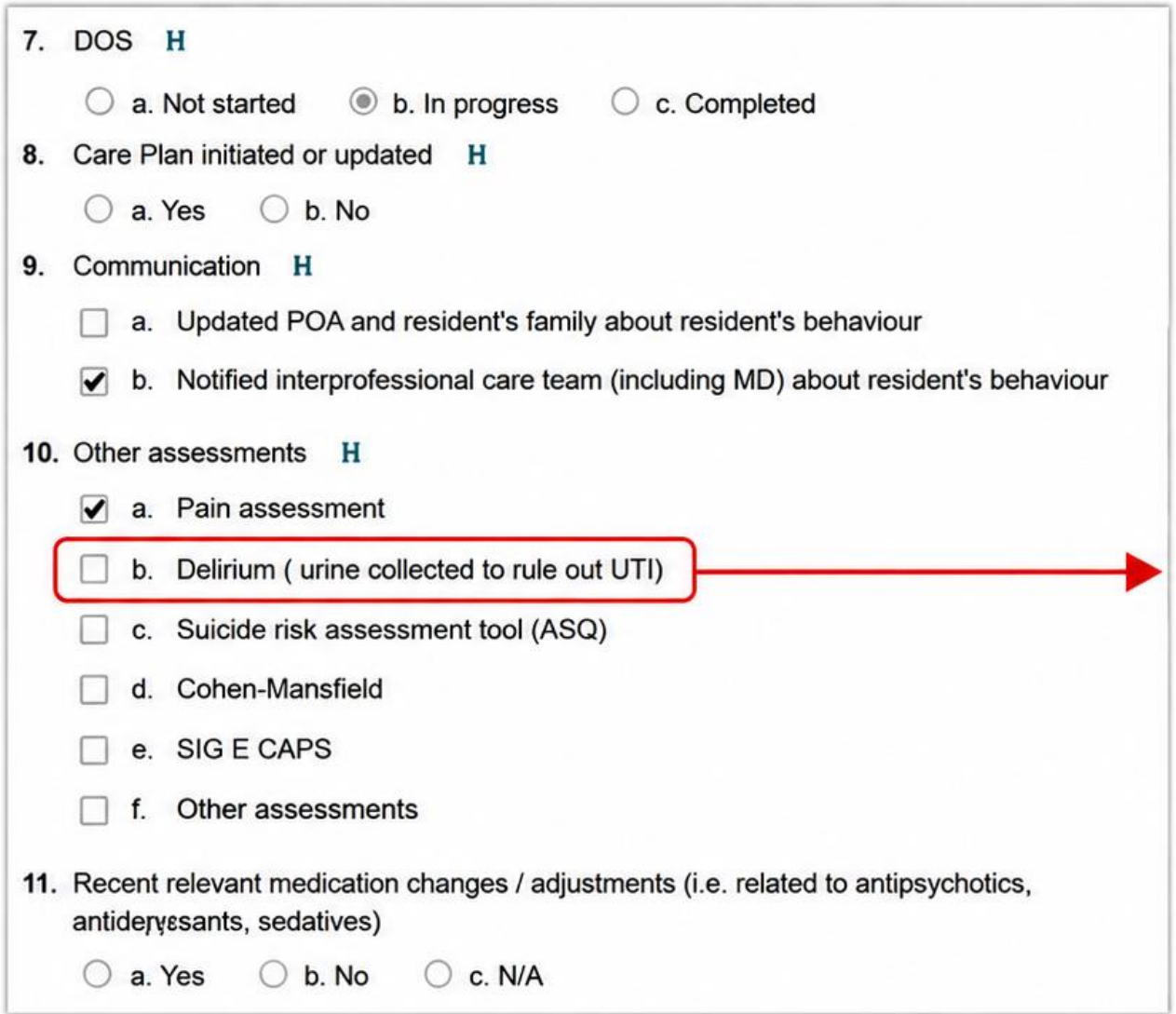
# Public Health Ontario UTI Algorithms Implemented

Standardized evidence-based tools were embedded into daily clinical workflows to guide urine testing and management decisions.





*Adapted from Public Health Ontario UTI Program resources*



7. DOS H

○ a. Not started ◉ b. In progress ○ c. Completed

8. Care Plan initiated or updated H

○ a. Yes ○ b. No

9. Communication H

☐ a. Updated POA and resident's family about resident's behaviour

☑ b. Notified interprofessional care team (including MD) about resident's behaviour

10. Other assessments H

☑ a. Pain assessment

☐ b. Delirium ( urine collected to rule out UTI)

☐ c. Suicide risk assessment tool (ASQ)

☐ d. Cohen-Mansfield

☐ e. SIG E CAPS

☐ f. Other assessments

11. Recent relevant medication changes / adjustments (i.e. related to antipsychotics, antidepressants, sedatives)

○ a. Yes ○ b. No ○ c. N/A

# BSO Referral Form Updated in PointClickCare

✕ **“Urine collected to rule out UTI”**

was **removed** from the BSO referral form to support **evidence-based** UTI assessment practices and reduce **unnecessary urine testing.**

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# Streamlining Lab Result Processing

## BEFORE

### Evening Workflow

1. LifeLabs pickup/results: **5:30 – 6:00 PM**
2. On-call physician contacted after hours
3. Delays in medication availability and treatment initiation

## CHANGE IMPLEMENTED

### New Daytime Processing Workflow

1. LifeLabs pickup/results moved to **11:30 AM – 12:00 PM**
2. Results reviewed with attending physician/NP **before 3 PM**
3. Earlier medication ordering and pharmacy processing

## OUTCOME

- Improved continuity of care
- More appropriate clinical decision-making
- Reduced reflexive antibiotic prescribing

LifeLabs

# Introduction of a new SBAR tool to improve nurse-physician/NP communication

## LAKESHORE LODGE -- SBAR

**Fill out this form before contacting the physician and utilize the information when communicating.**

Date/Time: _____

Resident Name: _____ Date of Birth: _____

Nurse: _____ Phone: _____

**SITUATION**

I am contacting you about a **suspected UTI/ urine culture and sensitivity lab result** for the above resident.

**Baseline** and **current** Vital Signs:

- BP: _/_ Pulse: _____ O2 rate: _____ Temp: _____
- BP: _/_ Pulse: _____ O2 rate: _____ Temp: _____

**BACKGROUND**

- Current active diagnoses:
- Current CrCl/eGFR:
- Date of previous **UTI** diagnosis and treatment:
- ☐ No ☐ Yes - The resident has an indwelling catheter
- ☐ No ☐ Yes - The resident is incontinent (If yes, new/worsening? ☐ No ☐ Yes)
- ☐ No ☐ Yes - Advance directives: _____
- ☐ No ☐ Yes - Medication allergies: _____

**ASSESSMENT**

**A) Why was the urinalysis/Culture and sensitivity test done?**

**B) Acute dysuria and/or Two or more of the following:**

- Fever (temperature greater than **38 C** or **1.5 C** above baseline on **2 occasions within 12** hours)
- New flank pain or suprapubic pain or tenderness
- New or increased urinary frequency/urgency.
- Gross hematuria
- Review urine culture result:
  Bacteria count greater than $10^8$ CFU/L, with signs and symptoms is compatible with UTI.

➢ **Nurse's recommendation:**

➢ **Physician's order:**

➢ **Nurses signature/date:**

# Choosing Wisely Canada Educational Resources

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Evidence-based educational tools used to support staff, residents, and family education regarding appropriate UTI assessment and antibiotic stewardship.

## RESIDENT & FAMILY EDUCATION RESOURCES

### We've Ditched the Dipstick


1. Urine dipsticks don't help diagnose blodder infections in older adults. This is because older adults often have bacteria in their urine, which makes the test results unreliable.
2. Before thinking a change in health or behaviour is a bladder infection, it's important to consider other possible reasons.
3. Canadian guidelines provide minimum signs and symptoms of a bladder infection and what steps to take.
4. Giving antibiotics when they are not needed can lead to unwanted and harmful side effects.

### Bladder Infection Testing in Older Adults – FAQ

**Bladder Infection Testing in Older Adults**

Frequently Asked Questions

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When an older person's behaviour or health changes, some signs and symptoms might seem like a bladder infection. But there could be other causes for this change. Here are some common questions about how health care providers check if it's a bladder infection or something else.

| What are signs of a bladder infection? | What are not signs of a bladder infection? |
|---|---|
| • Burns/hurts to pee<br>• Hard to urinate or need to urinate more often<br>• Fever<br>• Pain on side, lower stomach or back<br>• Blood in pee (less common) | • Smelly or cloudy pee alone<br>• Changes in behaviour or feeling confused alone |

**Can we use a urine test to screen for a bladder infection?**

There is no test that can screen for a bladder infection. Health care providers may order a test using a urine dipstick to check. But this test is not helpful for older adults over the age of 65. Older adults often have bacteria in their pee, which can show a positive result even if they have no infection. Instead of using a urine dipstick, health care providers should first check symptoms and see if there are minimum signs of a bladder infection before sending the pee to a lab.

## STAFF CLINICAL ASSESSMENT RESOURCES

### Bladder Infection or Something Else?

**Bladder Infection or Something Else?**

Four things we do in the first 24-48 hours in long-term care

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If a resident's behaviour or health changes and they don't show the minimum signs of a bladder infection, we need to check for other causes. To make sure we understand what's happening, here is our plan for the first 24-48 hours:

**1 Check what's changed:**

LOOK FOR:
- ☐ Changes in thinking/memory
- ☐ Tiredness/low energy
- ☐ Feeling weak
- ☐ Falls
- ☐ General discomfort/feeling unwell
- ☐ Mood change/increase in aggression
- ☐ Less ability to perform activities (functional status)

SEE IF THESE ARE SIGNS OF:
- ☐ Infections (respiratory, skin, or GI)
- ☐ Not enough fluids (dehydration)
- ☐ Medication interactions/side effects
- ☐ Not enough oxygen in the body (hypoxia)
- ☐ Low blood sugar (hypoglycemia)
- ☐ Unable to pee (urinary retention)
- ☐ Constipation

**2 Watch and care:**
- ☐ Look for changes in alertness or awareness
- ☐ Check vital signs more often (temperature, blood pressure, heart rate, and breathing)
- ☐ Encourage more fluids as often as resident can handle:
  - Drinking 1 litre (1L) of fluids over 24 hours (about 50-100 mL per hour when awake)

If any of these symptoms get worse, tell the health care provider (for example doctor, nurse) right away.

### Check for Bladder Infection: Clinical Guide

**3 Check for bladder infection:**

To rule out a bladder infection, we won't use a urine dipstick test because it's not helpful for older adults over 65. Instead, we'll check for the **minimum signs** of a bladder infection before sending the urine to a lab:

**No catheter**
Minimum signs include:
↓ ↓
Sudden pain/burning while urinating ↓

**Or at least two of these:**
- Fever over 37.9°C (100°F) or rises by 1.5°C (2.4°F) at least twice in 12 hours
- Having to urinate more often or right away
- Blood in urine (gross hematuria)
- Pain in the lower belly area (suprapubic pain)
- Pain in the side/back area (flank pain)
- Leaking urine you can't control (urinary incontinence)

**Don't meet minimum signs?** A health care provider will do an assessment to check for other causes.

**Catheter**
Minimum signs include:
- Fever over 37.9°C (100°F) or rises by 1.5°C (2.4°F) at least twice in 12 hours
- Pain in the side/back area (flank poin)
- Shaking chills
- Sudden confusion/trouble thinking clearly/can't focus (delirum)

**Don't meet minimum signs?** A health care provider will do an assessment to check for other causes.

**If patient meets minimum signs, urine** will be sent to the lab. A health care provider should be notified to decide if antbiotics are needed while waiting for the lab results.

**Not signs of a bladder infection:**
- Dark/cloudy or smelly urine alone
- Change in mental state alone

**4 Plan next steps:**

**Symptoms better?** If the symptoms get better or go away within 48 hours, it's unlikely it is an infection. The resident will be continuously checked on to make sure they feel better.

**Symptoms worse?** If the symptoms are staying the same or getting worse, and the patient does not meet the minimum signs for a bladder infection, a health care provider will perform an assessment.

# UTI Program Implementation Process

## PHASE 1 ASSESSMENT

### 1 Analyze current practices

- Conduct an initial review of UTI management practices within the home
- Assess staff knowledge, documentation procedures, and antibiotic prescribing trends
- Identify gaps in adherence to best practices in infection prevention and antimicrobial stewardship

### 2 Data collection and analysis

- Review past UTI cases to determine trends in diagnosis, treatment, and recurrence rates
- Analyze antibiotic use patterns and identify instances of unnecessary prescriptions
- Use data to guide education and process improvement initiatives

## PHASE 2 PLANNING

### 3 Develop an education strategy

- Utilize Public Health Ontario's resources to align training with the latest evidence
- Customize educational materials to suit the roles of PSWs, nurses, food and nutrition managers, nurse managers, nurse practitioners, and physicians/NPs
- Incorporate interactive training methods such as case studies and scenario-based discussions

### 4 Design and distribute educational tools

- Create and laminate UTI algorithm posters for easy reference in all nursing stations
- Develop the SBAR form to improve nurse-physician/NP communication
- Ensure all resources are accessible in designated locations, such as the Infectious Disease Binder in the medication and conference rooms

## PHASE 3 IMPLEMENTATION

### 5 Conduct mandatory UTI education sessions

- Hold structured 30-minute sessions led by the IPAC team
- Attendance is mandatory for all staff, ensuring a multidisciplinary approach to UTI management

### 6 Implement standardized communication tools

- Require staff to use the SBAR form when reporting UTI cases and consulting physicians/NPs
- Ensure completed forms are signed, documented, and placed in residents' medical charts
- Provide ongoing coaching to staff on proper documentation and UTI management protocols

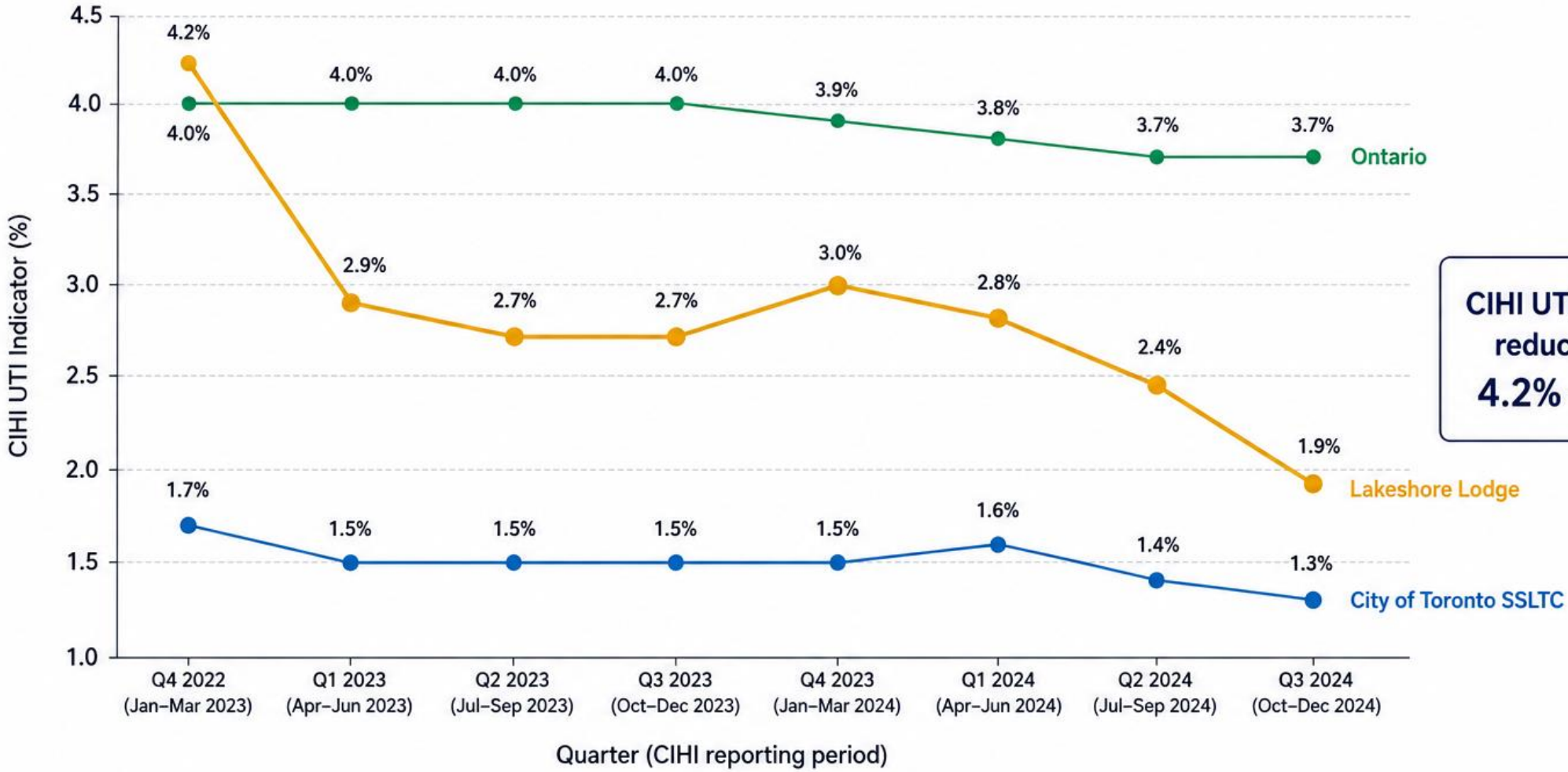
### 7 Monitor compliance & evaluate effectiveness

- Conduct daily rounds to review UTI cases with unit RNs/RPNs and physicians/NPs, reinforcing evidence-based practices
- Audit staff adherence to the SBAR communication process and UTI algorithm use
- Gather feedback from staff and residents to refine and improve the program

**GOAL:** Improve UTI management, optimize antibiotic use, and enhance RN/NP communication for better resident outcomes.

# Results

## Lakeshore Lodge CIHI UTI Indicator Trend

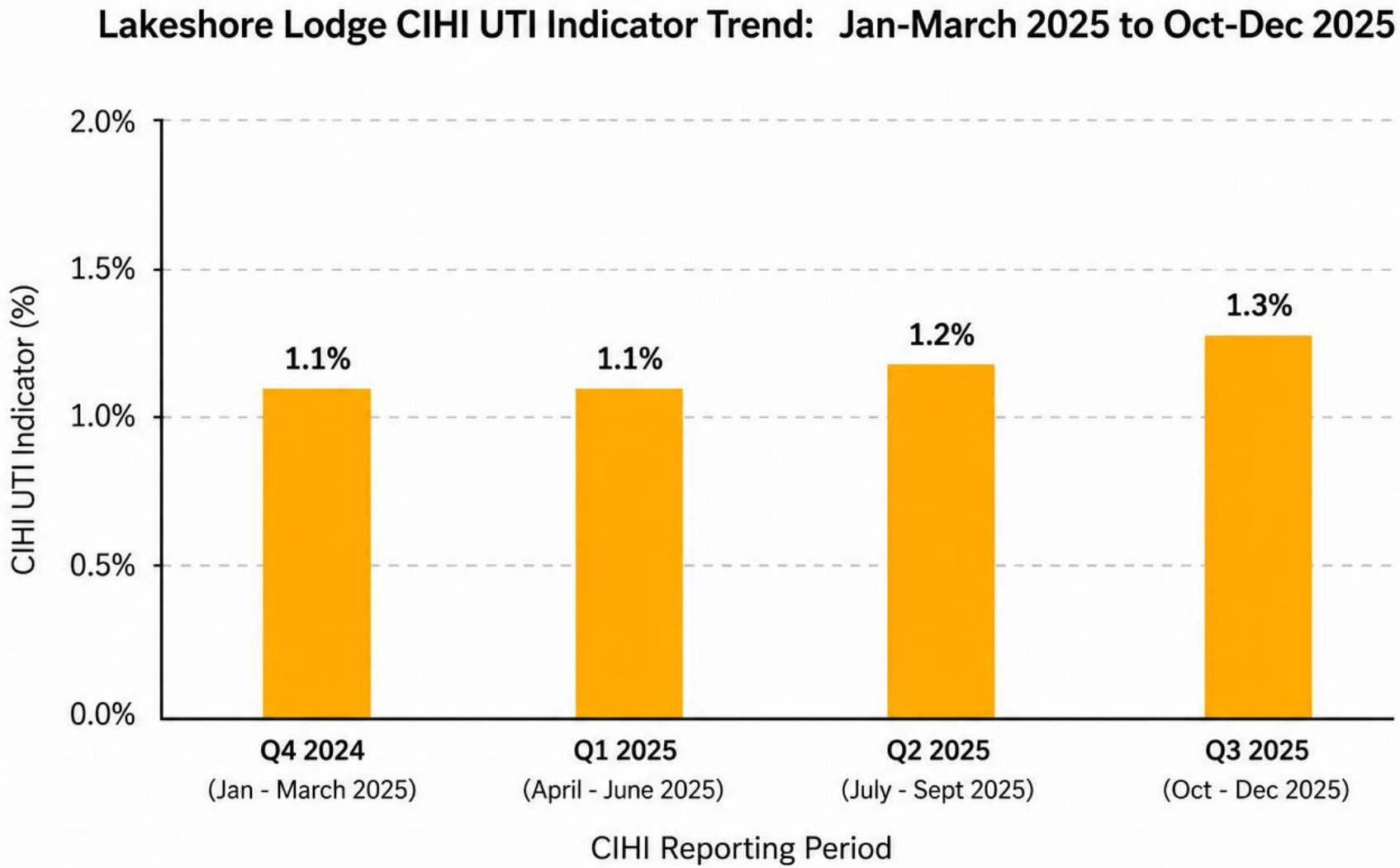



**CIHI UTI Indicator reduced from 4.2% → 1.9%**

# Sustainability

- **Embed Tools into Practice:** Integrate UTI assessment and SBAR tools into routine workflows and documentation
- **Ongoing Education:** Include UTI prevention, diagnosis, and management training in staff orientation and continuing education
- **Monitor & Share Data:** Review UTI rates regularly and provide feedback at IPAC and CQI meetings
- **Leadership Support:** Reinforce best practices and support ongoing staff education and quality improvement

# Sustainability



# Summary

- **UTIs** in long-term care can cause significant morbidity and mortality, while over-testing may lead to misdiagnosis and unnecessary antibiotic use
- Our quality improvement initiatives significantly reduced UTI rates through:
  - **Standardized Assessment:** Consistent use of an evidence-based UTI assessment tool
  - **Improved Communication:** SBAR tool to support nurse–physician/NP communication
  - **Streamlined Lab Processes:** Timely review of urine results to reduce overtreatment
  - **Education & Engagement:** Education for staff, residents, and families
  - **Leadership Support:** Ongoing support to sustain best practices

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# THANK YOU

## CONTACT INFORMATION


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