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Overcoming Urinary Tract Infection Pitfalls
A Program for Long-Term Care Homes

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IPAC CSO Education Day

Kudos

- Eva Skiba, IPAC Specialist
- Sarah Traynor, IPAC Specialist
- Lori Schatzler, IPAC Specialist

Objectives

By the end of the session, you will:

- Know about the PHO UTI program and resources available to support it
- Understand why the Urinary Tract Infection (UTI) program is important
- Be able to describe the five practice changes that are part of the program
- Know how to get ready to implement the program

Public Health Ontario

- Provincial government agency with a mandate to provide scientific and technical advice and support to stakeholders working in government, public health, health care and related sectors.
- IPAC at PHO
  - Provides health care professionals with expertise, support and resources for infection prevention and control.

www.publichealthontario.ca/en/Health-Topics/Infection-Prevention-Control

Urinary Tract Infections in 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 high[2]
  - 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 UTI[2]

Urinary Tract Infection (UTI) Program: Asymptomatic Bacteriuria (publichealthontario.ca)

The Problem

The Problem

- Antibiotics are **unnecessarily** prescribed for LTCH residents with:
  - With asymptomatic bacteriuria
  - With “non-specific” symptoms that are incorrectly attributed to UTIs (e.g., smelly, cloudy urine; confusion, lethargy, falls)

Risks Associated with Antibiotics

1. Adverse effects, including nausea/vomiting, diarrhea, allergy, rash, kidney impairment[4,5]
2. Infections, such as yeast and *Clostridioides difficile*[4,7,8]
3. Drug interactions[6]
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

Management of Urinary Tract Infections (UTIs) in Non-catheterized, Long-Term Care Home Residents: The UTI Program

Program Implementation Phases

- Assess, Plan and Implement
  1. Assess – whether there is a need for the program, readiness to get started, assemble an implementation team
  2. Plan – examine potential barriers to implementing the practice changes at your LTCH, map these to implementation strategies, complete an action plan
  3. Implement – plan for each strategy, obtain front-line staff feedback on the strategies and tools, dealing with issues as they arise, review the process and provide feedback to staff, engage in continuous quality improvement

Urinary Tract Infection (UTI) Program: Implementation Guide, Second Edition (publichealthontario.ca):

The 5 Key UTI Best Practices

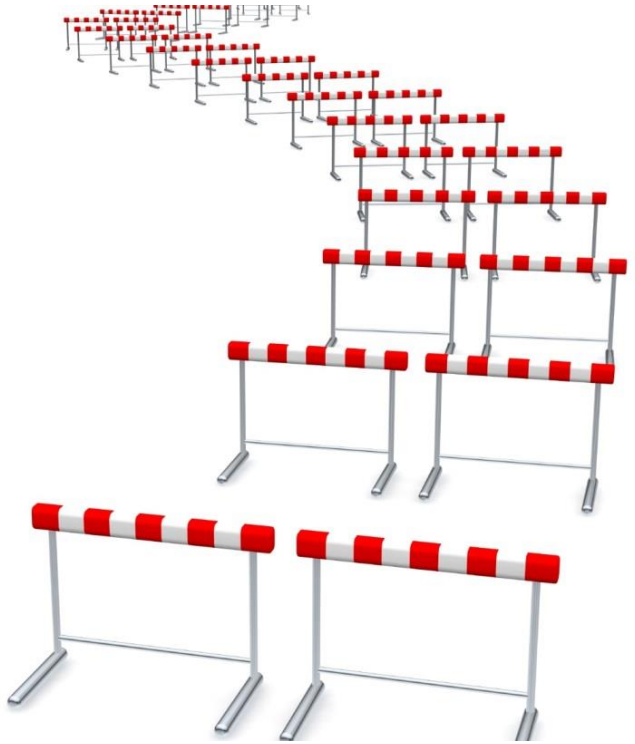
- Obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI
- Obtain and store urine cultures properly
- Prescribe antibiotics only when specified criteria have been met, and reassess once urine culture and susceptibility results have been received

- 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

Barriers to Practice Change

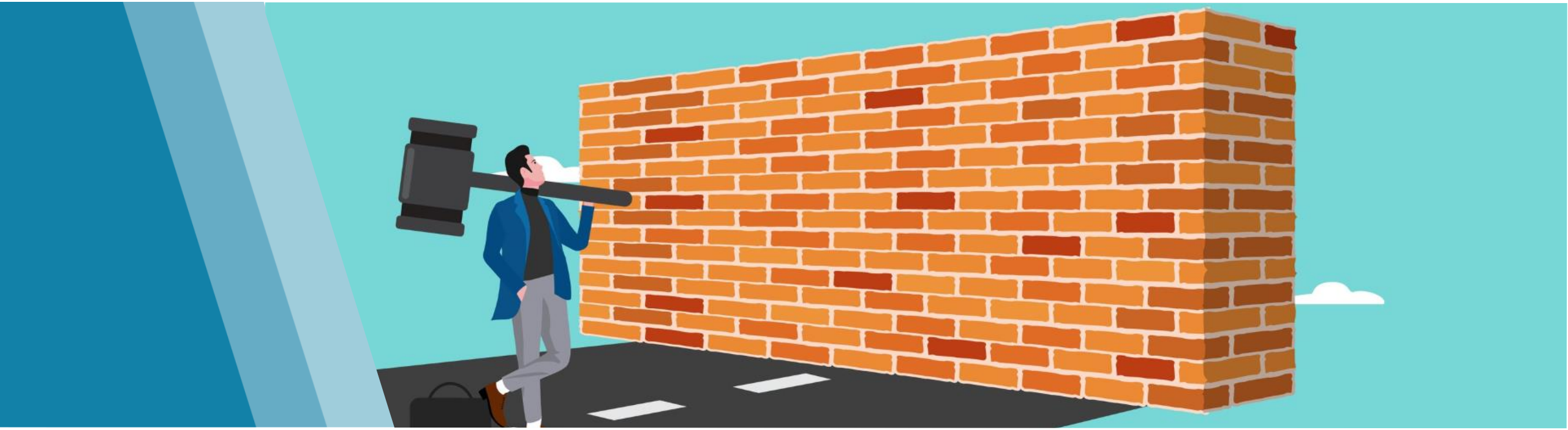
Barriers to UTI Management

- 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



Urinary Tract Infection (UTI) Program: Implementation Guide, Second Edition (publichealthontario.ca): Examining Barrier to Practice Change

The 5 Key Practice Changes



Practice Change 1: Obtain urine cultures only when residents have the indicated clinical signs and symptoms of 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 two 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
- Beware of non-specific symptoms

Process Surveillance Form (publichealthontario.ca)
UTI Program - Fact Sheet When to collect (publichealthontario.ca)

When a UTI is Suspected

- **Assess for signs and symptoms**
  - Using the standard definition
  - Beware of non-specific symptoms
- **Consider if signs and symptoms could be due to another cause**
  - 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?

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1st Revision: November 2019

Urinary Tract Infection (UTI) Program

Causes of Delirium and Mental Status Changes

Change is not possible without first getting buy-in and addressing questions that arise about clinical signs and symptoms of a UTI. This resource can be used to support health care providers identify and consider the many potential causes of delirium.

This resource is part of Public Health Ontario's UTI Program. For more information, please visit publichealthontario.ca/UTI or email UTI@oahpp.ca.

A core practice of the Urinary Tract Infection Program is reinforcing the accepted clinical signs and symptoms of a urinary tract infection. Delirium* is no longer an accepted clinical sign.

*Delirium: A new (acute) and fluctuating syndrome of impaired attention and awareness.[1]

Causes of Delirium in the Elderly (DELIRIUMS Acronym)

D

- Dehydration
- Depression
- Drugs
- New drug, increased dose or drug interaction. Including, but not limited to:
  - Narcotics/opioids (especially meperidine [Demerol])
  - Benzodiazepines
  - Corticosteroids
  - Drugs with "anticholinergic" properties (effects may be additive), such as antihistamines (e.g., diphenhydramine [Benadryl]); hydroxyzine (Atarax); dimenhydrinate (Gravol); diphenoxylate/atropine (Lomotil); some antidepressants (e.g., amitriptyline, nortriptyline, desipramine, imipramine, doxepin, paroxetine); ranitidine (Zantac); muscle relaxants (e.g., cyclobenzaprine [Flexeril], methocarbamol); antipsychotics (e.g., clozapine, olanzapine, quetiapine); bladder agents (e.g., oxybutynin, tolterodine, darifenacin, solifenacin); benztropine; amantadine; carbamazepine, etc.
  - Anti-seizure medications
  - Digoxin if drug levels are too high
  - Multiple medications; multiple psychoactive drugs
  - Drug withdrawal (e.g., sedatives/benzodiazepines, alcohol, nicotine, some antidepressants)

E

- Electrolyte abnormalities (hypo-/hypernatremia (low or high serum sodium), hypo-/hypercalcemia (low or high serum calcium))
- Endocrine disorders (e.g., thyroid or adrenal dysfunction)
- ETOH (alcohol) and other drug withdrawal

L

- Liver failure

I

- Infections (especially respiratory, skin, urinary tract)
- Impaired oxygenation (e.g., from exacerbations of chronic obstructive pulmonary disease, congestive heart failure, myocardial infarction)

R

- Renal failure
- Retention of urine or stool (constipation)
- Recent change in surroundings or emotional stress

I

- Immobilization (catheters or restraints)
- Injuries
- Increased pressure in the brain (intracranial)

U

- Untreated/undertreated pain

M

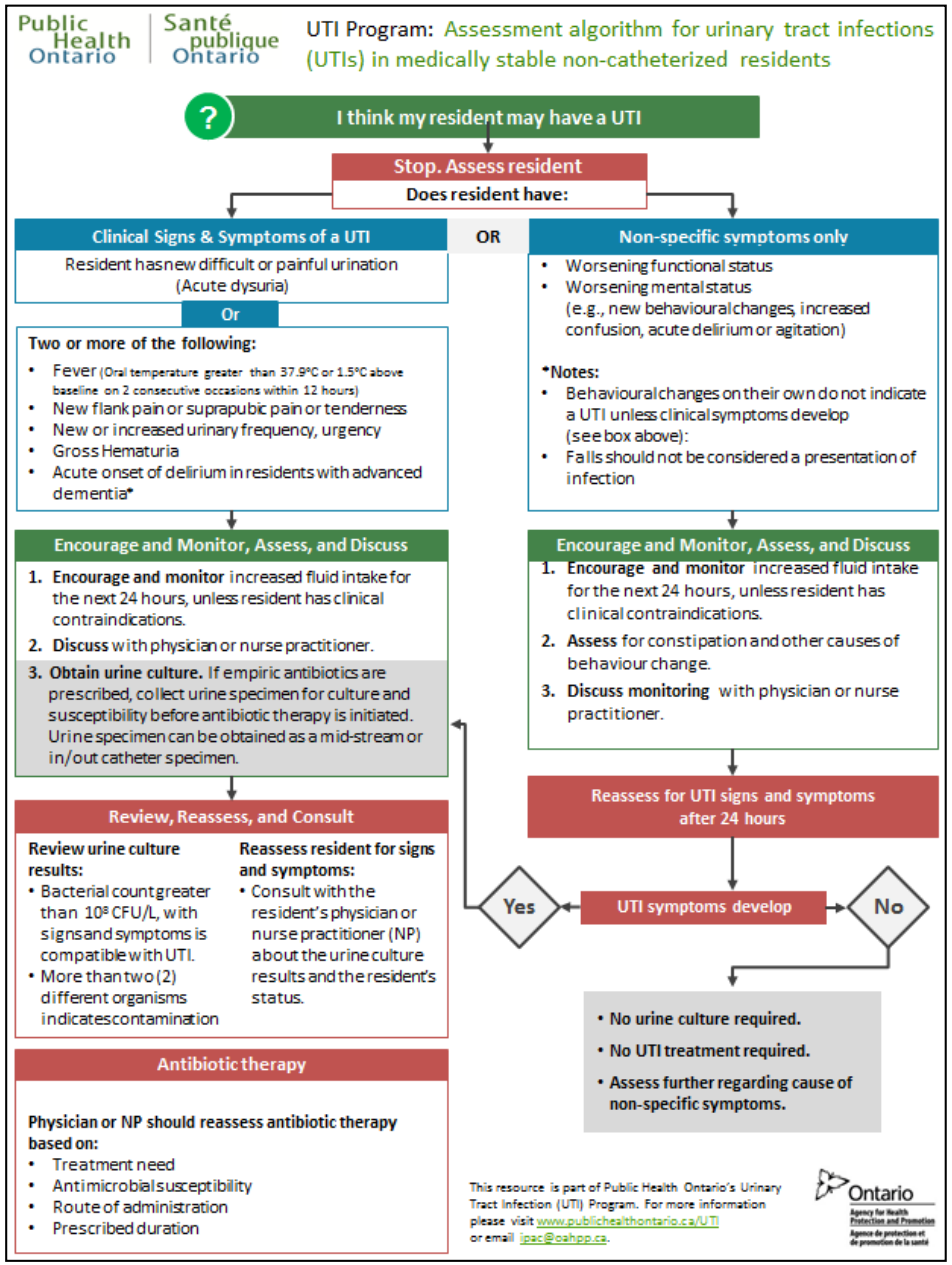
- Metabolic disorders (e.g., hypo-/hyperglycemia [low or high blood sugar levels], hypo-/hyperthermia [low or high body temperature])
- Malnutrition (including thiamine, folate or B12 deficiency)

S

- Sleep deprivation
- Sensory impairment (hearing or vision—e.g., lack of/ill-fitting hearing aids or glasses)
- Stroke

https://www.publichealthontario.ca/-/media/Documents/U/2016/uti-delirium-mental-status.pdf?rev=6005dfa680624f798b1c017508be4c22&sc_lang=en&hash=12427AD2C0142890560BA4C2D90B426C

Assessment Algorithm



Urinary Tract Infection (UTI) Program: When to obtain urine cultures in medically stable non-catheterized residents (publichealthontario.ca)

If the Resident has Non-specific Symptoms Only

- **If the resident has nonspecific symptoms only:**
  - Encourage and monitor increased fluid intake for the next 24 hours
    - Assess and treat other causes of nonspecific symptoms
    - 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

If a UTI is Still Suspected After Assessment

- **If the resident meets the clinical definition of a UTI:**
  - Encourage and monitor increased fluid intake for the next 24 hours, unless the resident has clinical contraindications, AND
  - Obtain a urine culture

Practice Change 2: **Obtain and store urine cultures properly**

- **Only collect** a urine specimen when a resident has clinical signs and symptoms
  - Send for **culture and susceptibility**
  - mid-stream or in/out catheter specimen
- **DO NOT** test urine on a routine basis (e.g., on admission, yearly)[2]
- Dipsticks are not reliable for diagnosing UTIs

Practice Change 4: Do not use dipsticks to screen for or diagnose a UTI

Practice Change 5: Do not perform routine annual urine screening and screening at admission if residents do not have indicated clinical signs and symptoms of a UTI

Practice Change 3: **Prescribe antibiotics only when criteria have been met, and reassess based on culture and susceptibility results**

- Decisions to treat should be based on resident signs and symptoms, severity of illness and urine culture results
- Clearly document and communicate resident's signs and symptoms
- Reassess once susceptibility results have been received

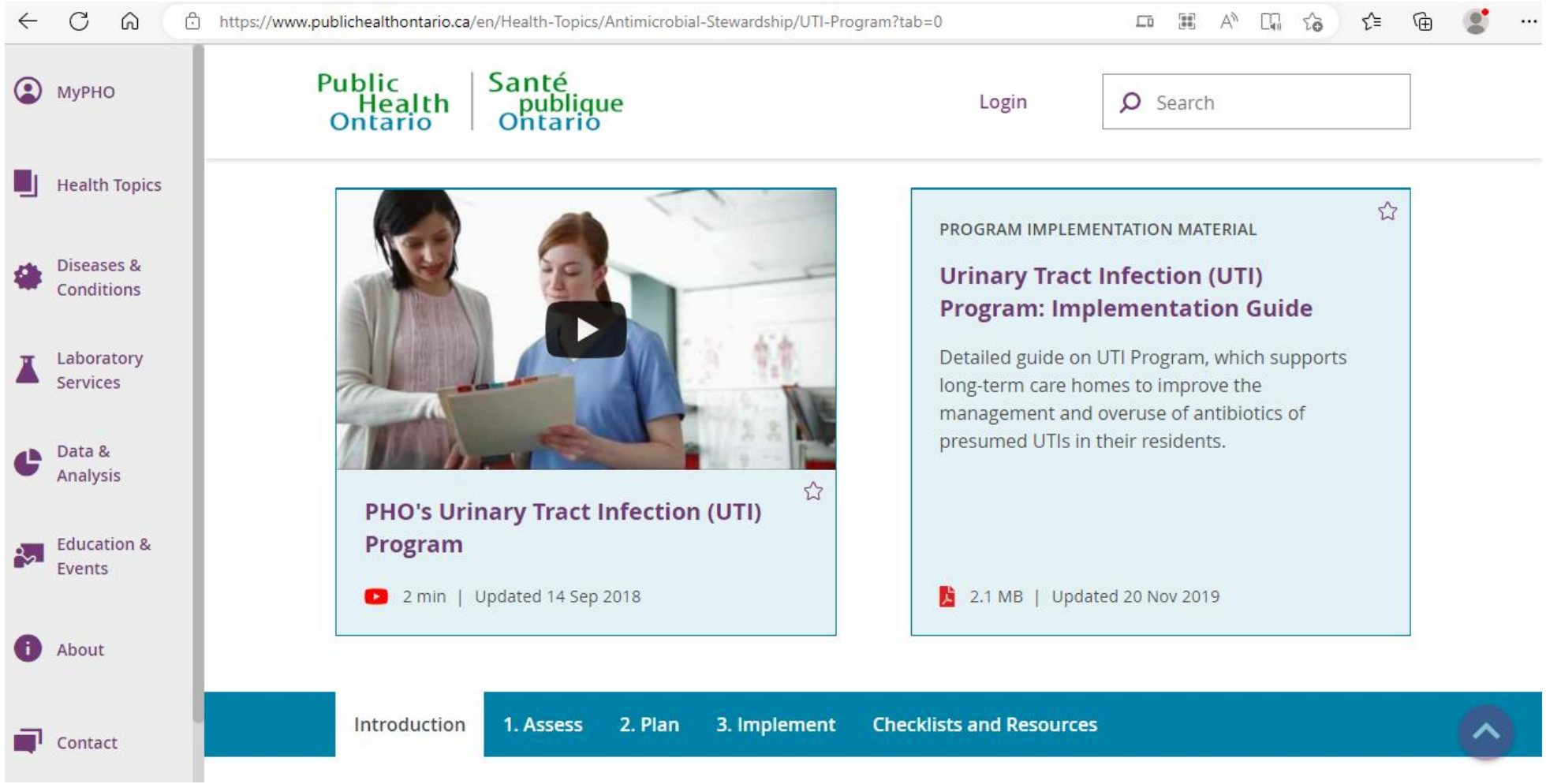
REMEMBER

A positive culture alone is not reliable for diagnosing a UTI due to the prevalence of asymptomatic bacteriuria in LTCH residents[2]

Treatment for asymptomatic bacteriuria in LTCH residents is *not* recommended[2,3]

Getting Started With the Program

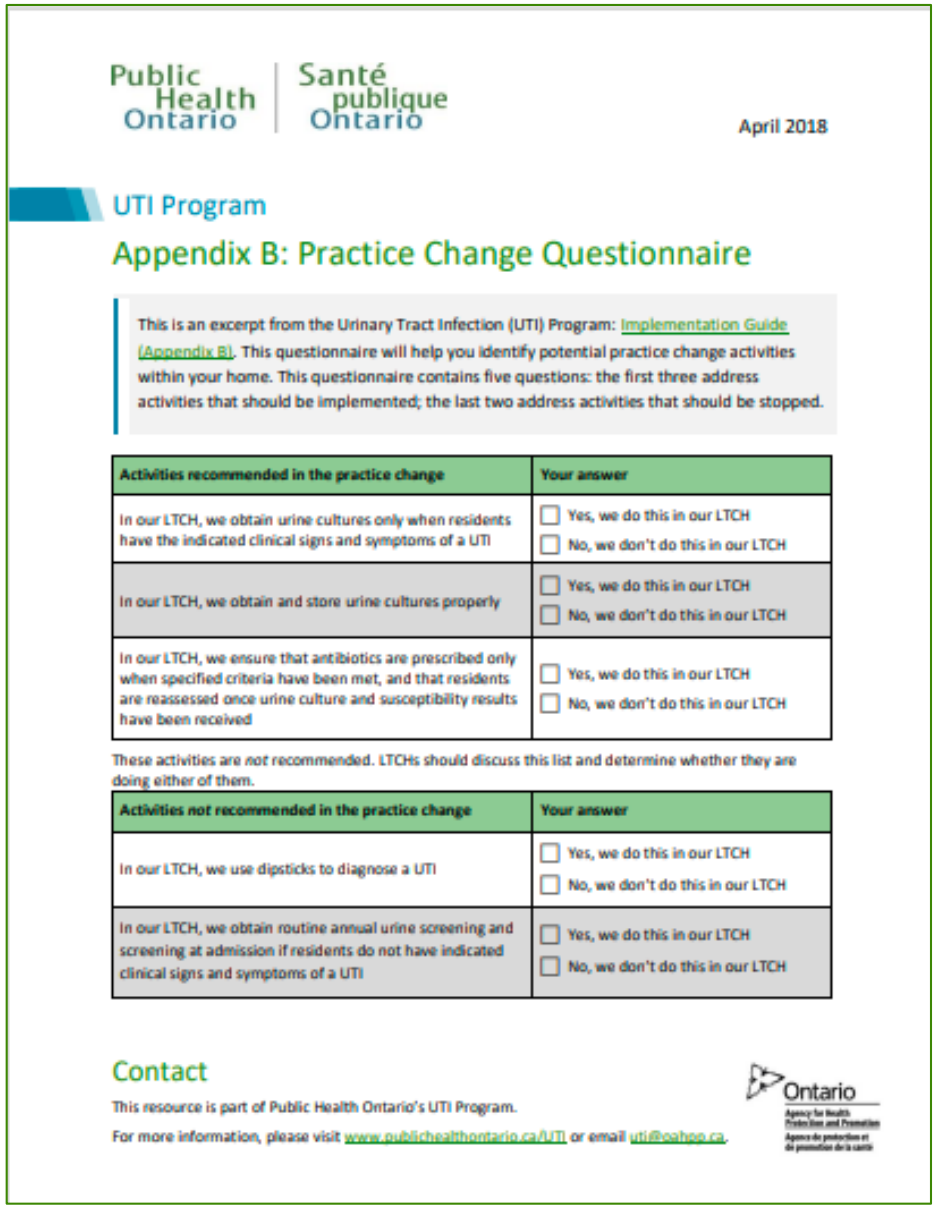
UTI Program Resources



Urinary Tract Infection Program | Public Health Ontario

Step One

- Complete Practice Change Questionnaire
  - To help you understand needs for practice change activities in your home



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Appendix B: Practice Change Questionnaire

This is an excerpt from the Urinary Tract Infection (UTI) Program: Implementation Guide (Appendix B). This questionnaire will help you identify potential practice change activities within your home. This questionnaire contains five questions: the first three address activities that should be implemented; the last two address activities that should be stopped.

Activities recommended in the practice change	Your answer
In our LTCH, we obtain urine cultures only when residents have the indicated clinical signs and symptoms of a UTI	☐ Yes, we do this in our LTCH ☐ No, we don't do this in our LTCH
In our LTCH, we obtain and store urine cultures properly	☐ Yes, we do this in our LTCH ☐ No, we don't do this in our LTCH
In our LTCH, we ensure that antibiotics are prescribed only when specified criteria have been met, and that residents are reassessed once urine culture and susceptibility results have been received	☐ Yes, we do this in our LTCH ☐ No, we don't do this in our LTCH

These activities are *not* recommended. LTCHs should discuss this list and determine whether they are doing either of them.

Activities not recommended in the practice change	Your answer
In our LTCH, we use dipsticks to diagnose a UTI	☐ Yes, we do this in our LTCH ☐ No, we don't do this in our LTCH
In our LTCH, we obtain routine annual urine screening and screening at admission if residents do not have indicated clinical signs and symptoms of a UTI	☐ Yes, we do this in our LTCH ☐ No, we don't do this in our LTCH

Contact

This resource is part of Public Health Ontario's UTI Program.

For more information, please visit www.publichealthontario.ca/UTI or email uti@oahpp.ca.

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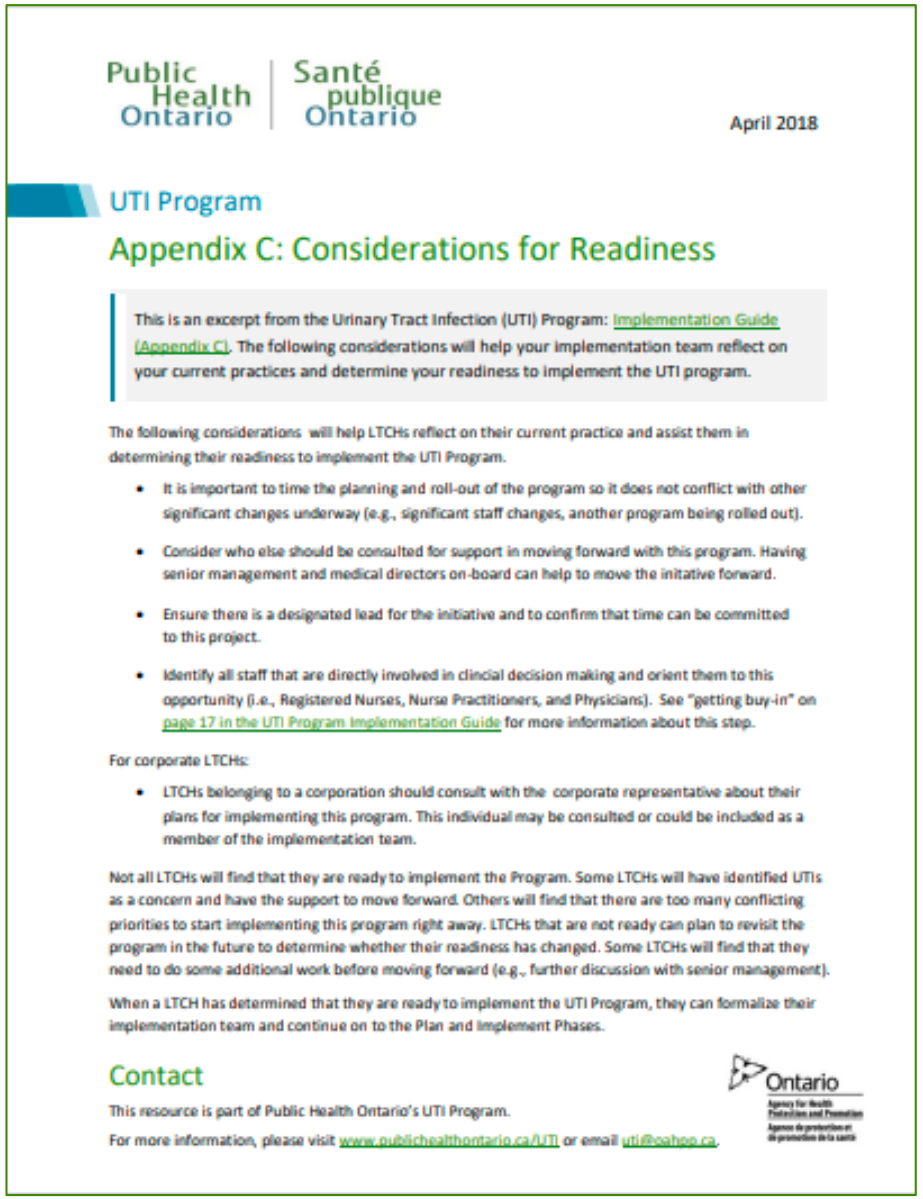
Step Two

- Review the Considerations for Readiness
  - Tips to help you reflect and assess if now is the right time to start



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Appendix C: Considerations for Readiness

This is an excerpt from the Urinary Tract Infection (UTI) Program: Implementation Guide (Appendix C). The following considerations will help your implementation team reflect on your current practices and determine your readiness to implement the UTI program.

The following considerations will help LTCHs reflect on their current practice and assist them in determining their readiness to implement the UTI Program.

- It is important to time the planning and roll-out of the program so it does not conflict with other significant changes underway (e.g., significant staff changes, another program being rolled out).
- Consider who else should be consulted for support in moving forward with this program. Having senior management and medical directors on-board can help to move the initative forward.
- Ensure there is a designated lead for the initiative and to confirm that time can be committed to this project.
- Identify all staff that are directly involved in clincial decision making and orient them to this opportunity (i.e., Registered Nurses, Nurse Practitioners, and Physicians). See "getting buy-in" on page 17 in the UTI Program Implementation Guide for more information about this step.

For corporate LTCHs:

- LTCHs belonging to a corporation should consult with the corporate representative about their plans for implementing this program. This individual may be consulted or could be included as a member of the implementation team.

Not all LTCHs will find that they are ready to implement the Program. Some LTCHs will have identified UTIs as a concern and have the support to move forward. Others will find that there are too many conflicting priorities to start implementing this program right away. LTCHs that are not ready can plan to revisit the program in the future to determine whether their readiness has changed. Some LTCHs will find that they need to do some additional work before moving forward (e.g., further discussion with senior management).

When a LTCH has determined that they are ready to implement the UTI Program, they can formalize their implementation team and continue on to the Plan and Implement Phases.

Contact

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For more information, please visit www.publichealthontario.ca/UTI or email uti@oahpp.ca.

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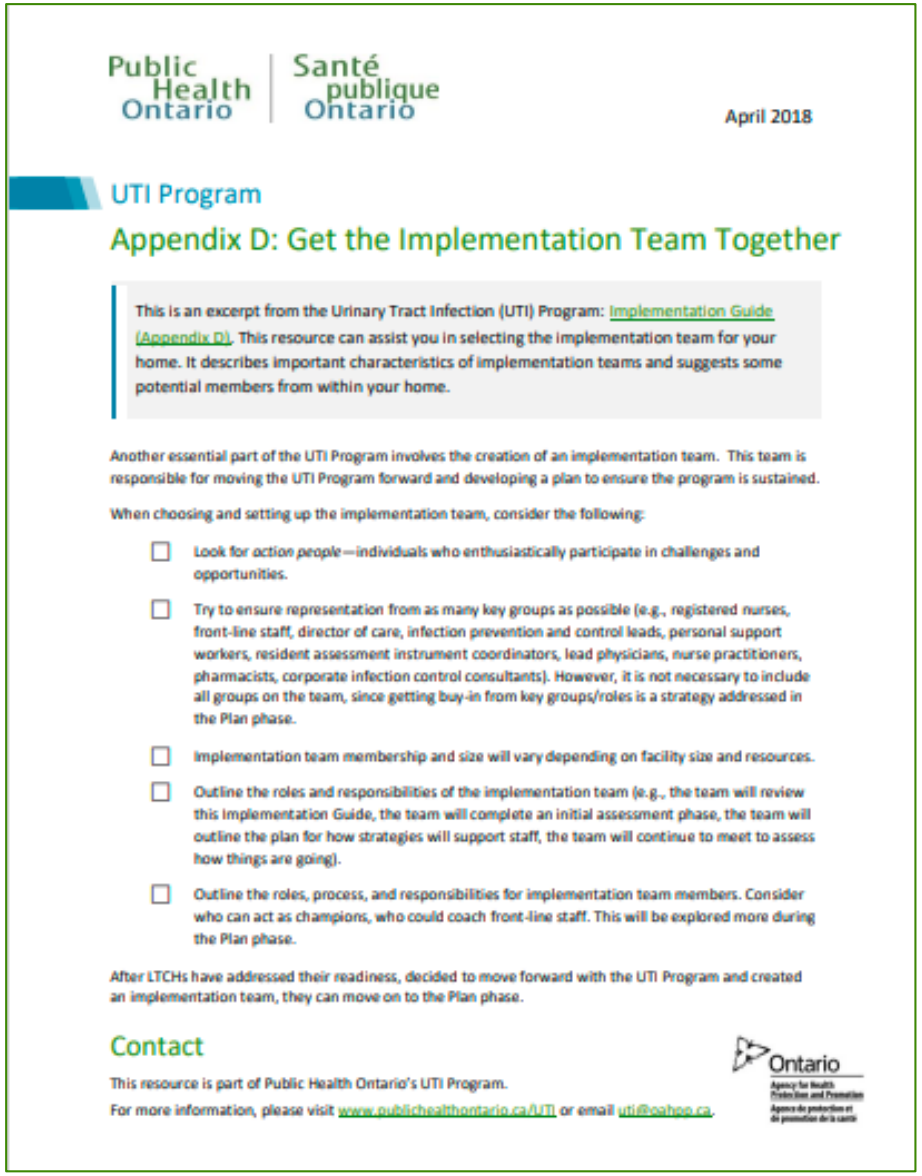
Step Three

- Get the implementation team together
  - Use the Implementation Team Checklist to help you select the team members for your home
- Examine barriers to practice changes
- Look at the implementation strategies:
  - Increase buy-in and support
    - Involve local influencers
    - Generate buy-in and support
    - Align policy and procedures to reflect practice changes



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Appendix D: Get the Implementation Team Together

This is an excerpt from the Urinary Tract Infection (UTI) Program: Implementation Guide (Appendix D). This resource can assist you in selecting the implementation team for your home. It describes important characteristics of implementation teams and suggests some potential members from within your home.

Another essential part of the UTI Program involves the creation of an implementation team. This team is responsible for moving the UTI Program forward and developing a plan to ensure the program is sustained.

When choosing and setting up the implementation team, consider the following:

- ☐ Look for *action people*—individuals who enthusiastically participate in challenges and opportunities.
- ☐ Try to ensure representation from as many key groups as possible (e.g., registered nurses, front-line staff, director of care, infection prevention and control leads, personal support workers, resident assessment instrument coordinators, lead physicians, nurse practitioners, pharmacists, corporate infection control consultants). However, it is not necessary to include all groups on the team, since getting buy-in from key groups/roles is a strategy addressed in the Plan phase.
- ☐ Implementation team membership and size will vary depending on facility size and resources.
- ☐ Outline the roles and responsibilities of the implementation team (e.g., the team will review this Implementation Guide, the team will complete an initial assessment phase, the team will outline the plan for how strategies will support staff, the team will continue to meet to assess how things are going).
- ☐ Outline the roles, process, and responsibilities for implementation team members. Consider who can act as champions, who could coach front-line staff. This will be explored more during the Plan phase.

After LTCHs have addressed their readiness, decided to move forward with the UTI Program and created an implementation team, they can move on to the Plan phase.

Contact

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Key Messages

- Antibiotics are not harmless; inappropriate use can lead to avoidable adverse effects
- The PHO UTI Program can support LTCHs to implement **5 Key Practice Changes** reduce inappropriate use of antibiotics
- The PHO UTI Program can support the implementation of best practices through
  - Assessment of readiness,
  - Formation of a working group
  - Determination of needed practice changes
  - Examination of barriers to change
  - Identification, implementation and sustaining of practice changes strategies

For more information about this presentation, contact:

other IPAC inquiries - ipac@oahpp.ca

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