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PHO Webinar: The Urinary Tract Infection Program for Long Term Care Homes

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Objectives

By the end of the session, participants will be able to:

- Understand the need for implementing the Urinary Tract Infection (UTI) program
- Understand the five practice changes
- Discuss potential challenges and successes
- Discuss readiness assessment and considerations for implementation

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.

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Nov 28]. Available from: www.publichealthontario.ca/en/Health-Topics/Infection-Prevention-Control

IPAC Partners

- The local Public Health Unit
- The local IPAC hub
- PHO IPAC team – ipac@oahpp.ca
- Ministry of Health
- Ministry of Long Term Care

UTI Program for Non-catheterized Residents

Poll #1

Are you aware of the UTI program for LTCHs?

- ❑ Yes
- ❑ I have heard of it but not fully aware
- ❑ No

Poll #2

Have you implemented all or part of the UTI program in your home?

- ❑ Yes
- ❑ No
- ❑ Partially
- ❑ Unsure

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% of results 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 and 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]

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.

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 to follow inappropriate practices?

- 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

The Five Key Practice Changes to Break Down the Barriers!

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

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

Poll #3

Which practice changes have you implemented in your home? (choose all that apply – multiple answers)

- ❑ 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
- ❑ Don’t Use dipsticks to diagnose a UTI
- ❑ Don’t 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 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

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
- Change in urine colour
- Positive dipstick
- Dehydration
- Falls

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

- Pyuria or cloudy urine
- Fever (if non-catheterized)
- Smelly urine

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[11]

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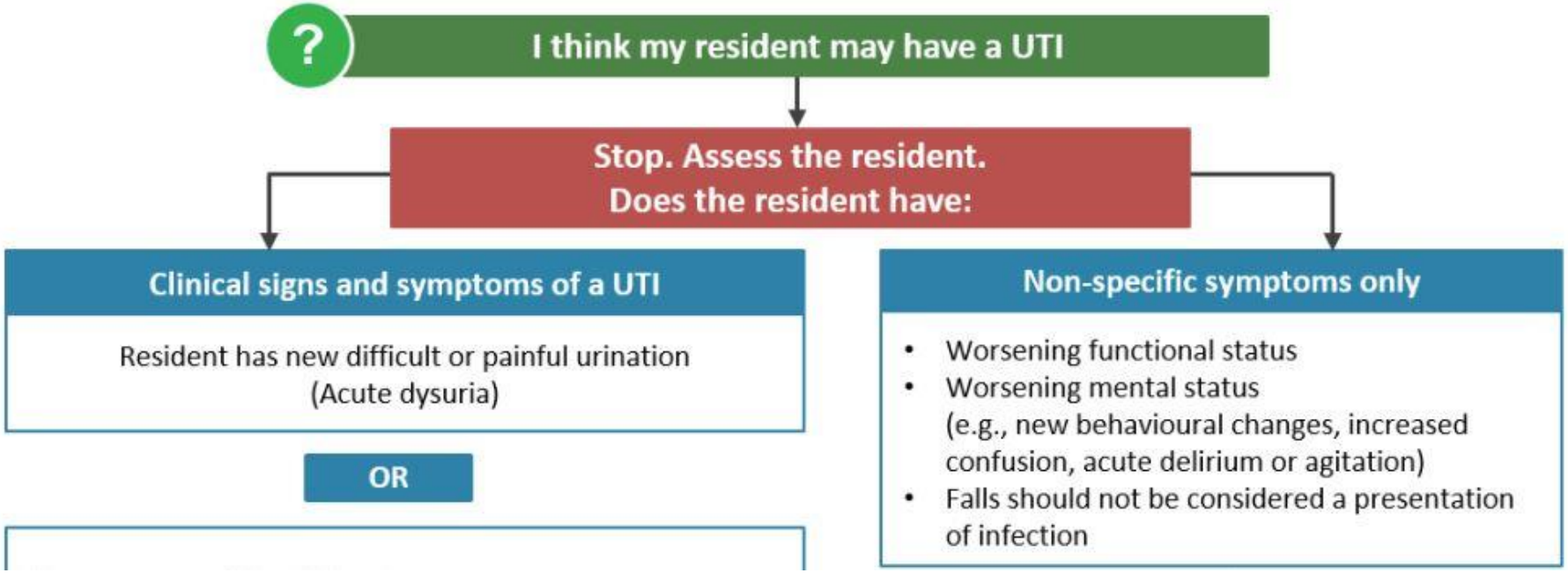
Urinary Tract Infection (UTI) Program:

When to obtain urine cultures in medically stable non-catheterized residents



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 two 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 residents[2]

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

Opportunities for LTCHs

- 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
- Increase knowledge and develop skills
  - Deliver education to staff
  - Provide information and education to residents and families
  - Use coaching to reinforce practices and support staff

Opportunities for LTCHs (cont'd)

- Monitor practice and give feedback to staff
  - Keep track of how your home is doing and give feedback to staff
  - Continue to remind staff of key practice changes
- Decrease urine specimens sent and decrease inappropriate treatment of residents without an accepted clinical UTI diagnosis
- Improve resident care

Reflection

- Identify any barriers you have encountered.

Reflection

- Provide an example of a key success in your home with implementing the program.

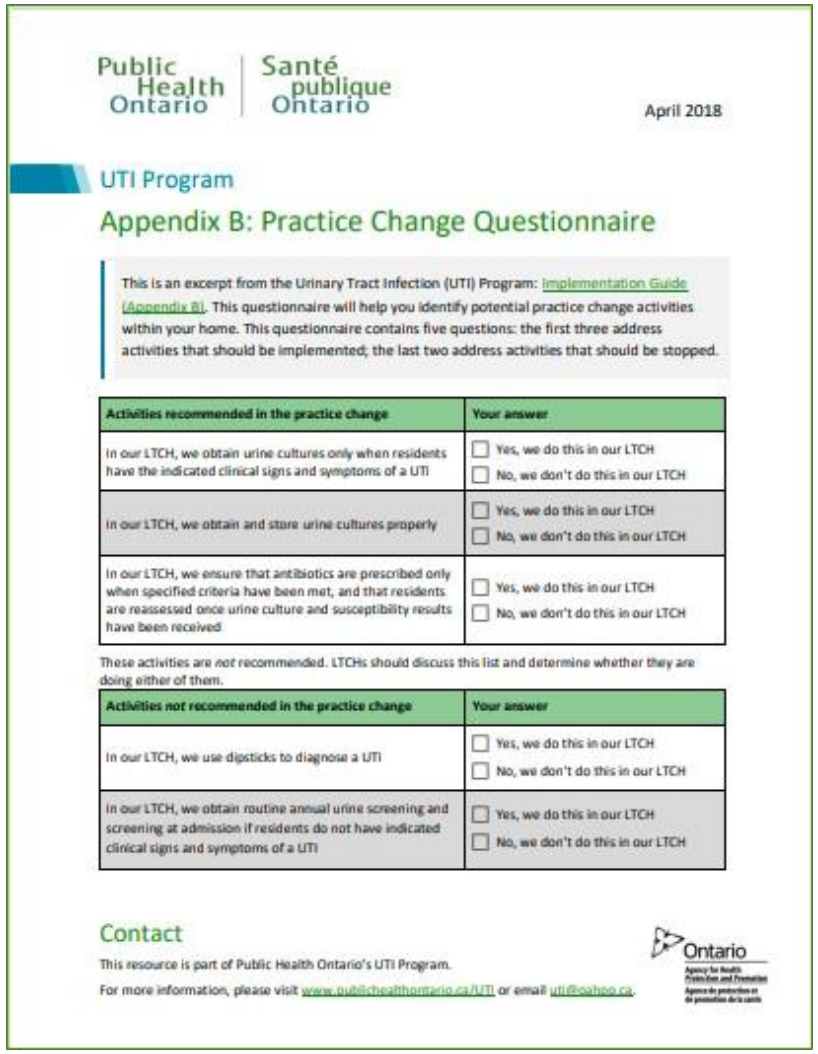
Key Messages

- 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

Before Getting Started

Before getting started

- 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

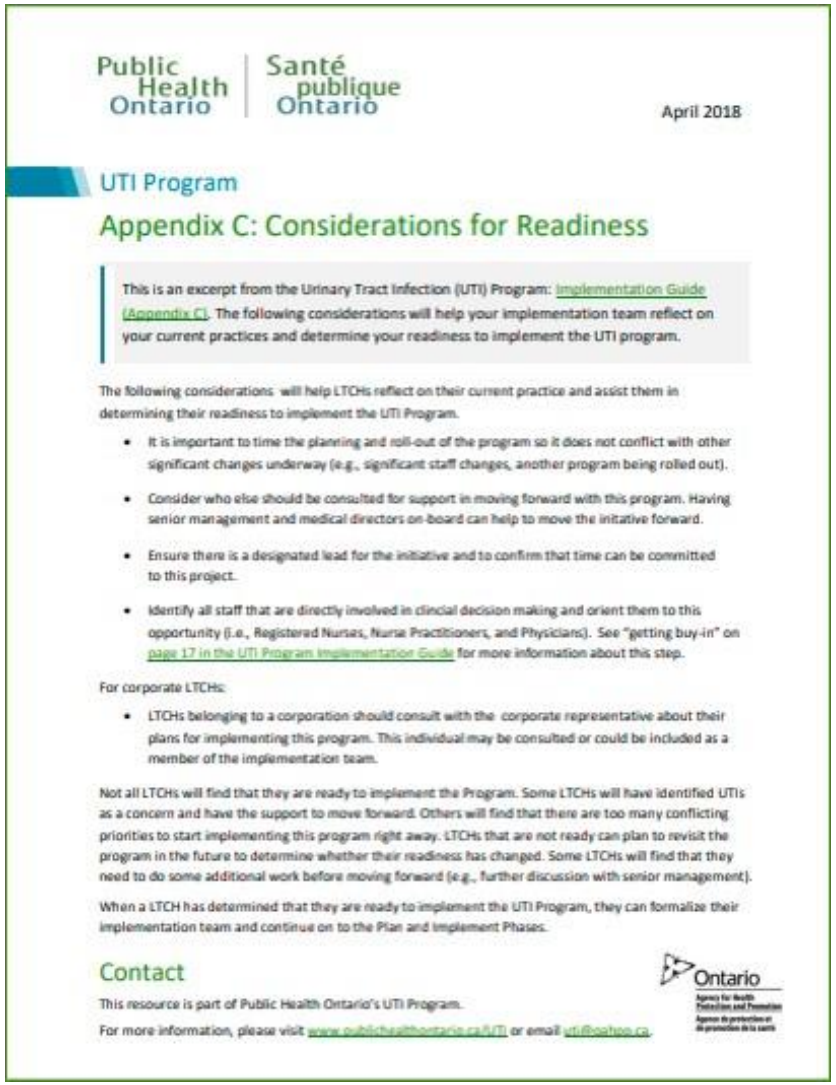
This resource is part of Public Health Ontario's UTI Program.

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

Ontario

Before getting started

- 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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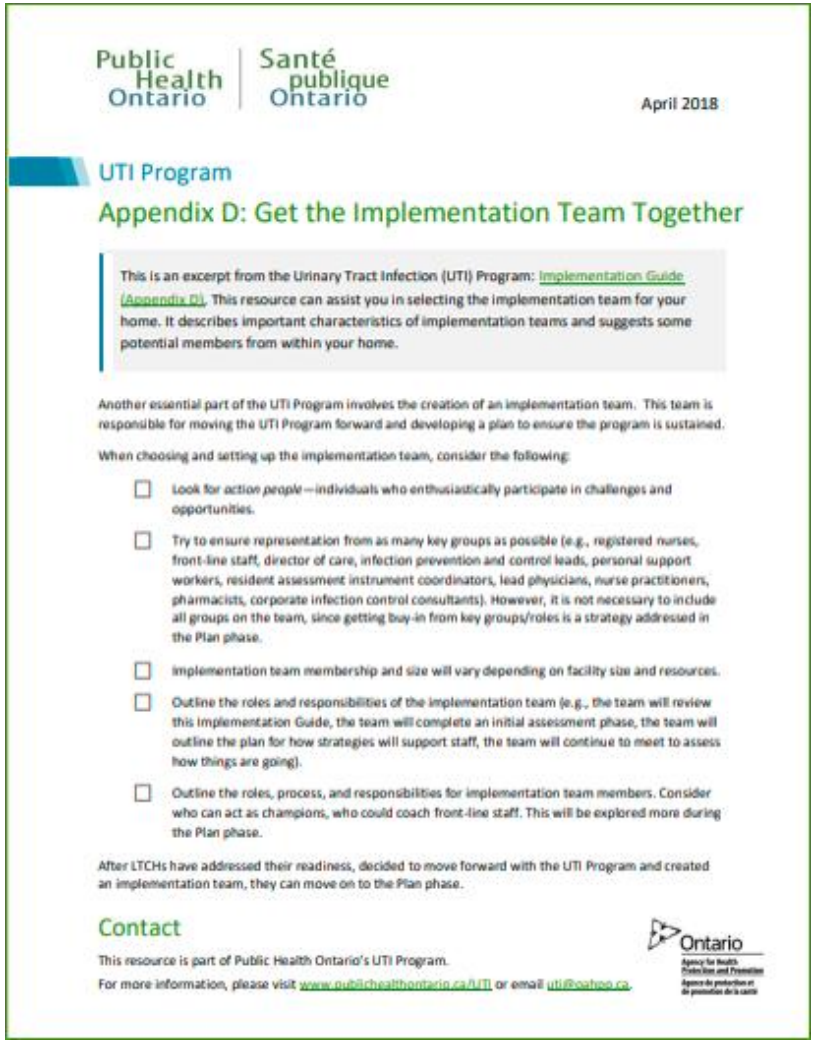
Ontario

When getting started

- Get the implementation team together
  - Use the Implementation Team Checklist to help you select the team members for your home



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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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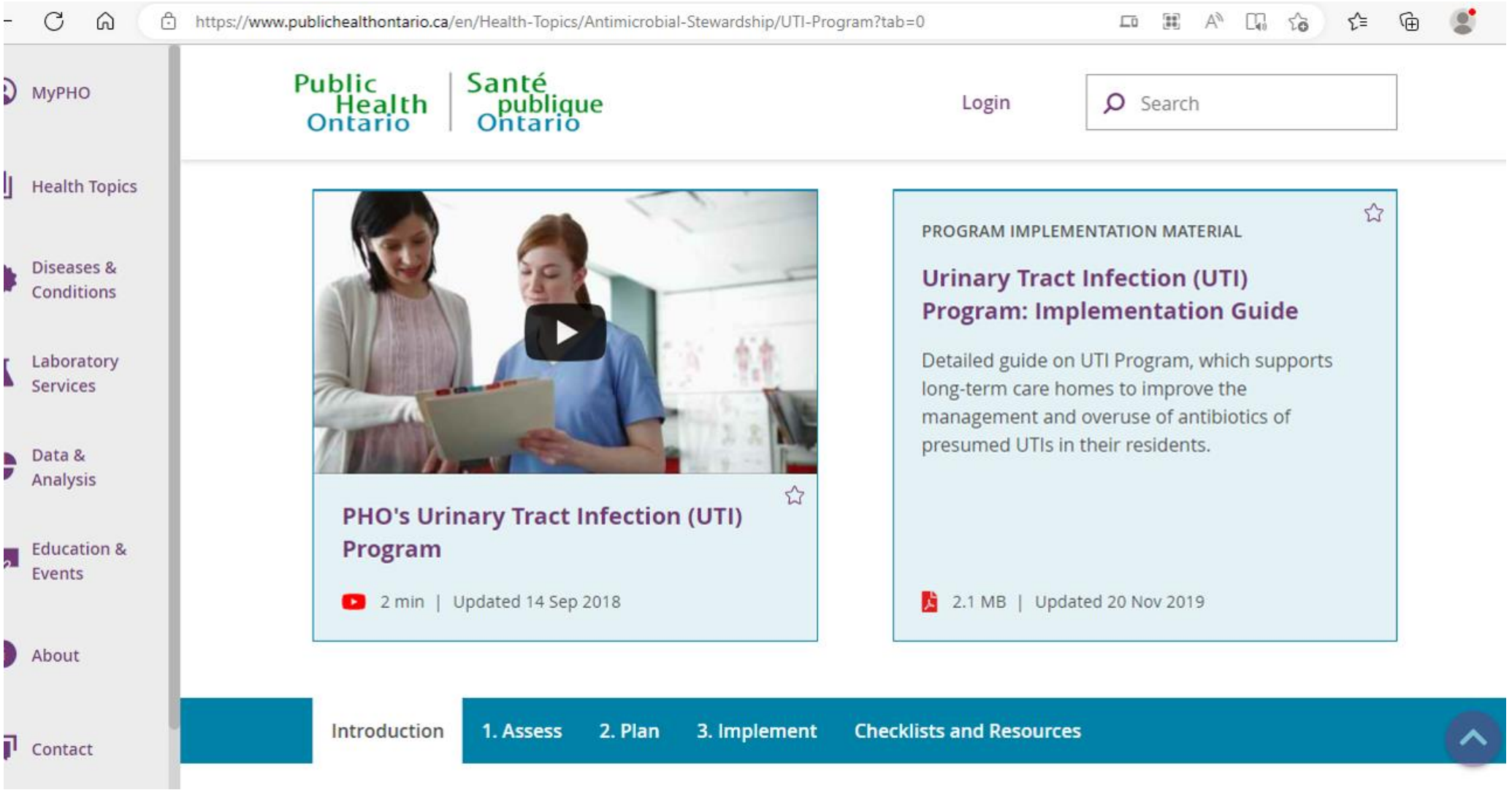
UTI Program Resources[13]



References

1. Loeb M, Brazil K, Lohfeld L, McGeer A, Simor A, Stevenson K, et al. Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomised controlled trial. BMJ. 2005;24;331(7518):669. Available from: http://www.bmj.com/content/331/7518/669.long

2. Nicolle LE, Bradley S, Colgan R, Rice JC, Schaeffer A, Hooton TM; Infectious Diseases Society of America; American Society of Nephrology; American Geriatric Society. Infectious Diseases Society of America Guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults. Clin Infect Dis. 2005;40(5):643-54. Available from: https://doi.org/10.1086/427507

3. Zalmanovici TA, Lador A, Sauerbrun-Cutler M-T, Leibovici L. Antibiotics for asymptomatic bacteriuria. Cochrane Database Syst Rev. 2015;4:CD009534. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009534.pub2/full

4. Daneman N, Bronskill SE, Gruneir A, Newman AM, Fischer HD, Rochon PA, et al. Variability in antibiotic use across nursing homes and the risk of antibiotic-related adverse outcomes for individual residents. JAMA Intern Med. 2015;175(8):1331-9. Available from: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2337257

5. Ventura MT, Laddaga R, Cavallera P, Pugliese P, Tummolo RA, Buquicchio R, et al. Adverse drug reactions as the cause of emergency department admission: focus on the elderly. Immunopharmacol Immunotoxicol. 2010;32(3):426-9. Available from: https://doi.org/10.3109/08923970903468847

6. Institute for Safe Medication Practices Canada (ISMP). Drug-drug interactions in the geriatric population—summary of selected pharmacoepidemiological studies in Ontario [Internet]. Toronto, ON: ISMP Canada; 2013 [updated 2013 Apr 24; cited 2016 Mar 24].-Available from: https://www.ismp-canada.org/beers_list/downloads/Drug-DrugInteractions.pdf

References

7. Jump RL. Clostridium difficile infection in older adults. Aging Health. 2013;9(4):403-14. Available from: https://doi.org/10.2217/ahe.13.37

8. Chopra T, Goldstein EJC. Clostridium difficile infection in long-term care facilities: a call to action for antimicrobial stewardship. Clin Infect Dis. 2015;60 Suppl 2:S72-6. Available from: https://doi.org/10.1093/cid/civ053

9. Van Buul LW, van der Steen JT, Veenhuizen RB, Achterberg WP, Schellevis FG, Essink RT, et al. Antibiotic use and resistance in long term care facilities. J Am Med Dir Assoc. 2012;13(6):568.e1-13. Available from: https://doi.org/10.1016/j.jamda.2012.04.004

10. D'Agata E, Loeb MB, Mitchell SL. Challenges assessing nursing home residents with advanced dementia for suspected urinary tract infections. J Am Geriatr Soc. 2013;61(1):62-6. Available from: https://doi.org/10.1111/jgs.12070

11. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Urinary tract infection (UTI) program: when to obtain urine cultures in medically stable non-catheterized residents [Internet]. Toronto, ON: Queen's Printer for Ontario; 2019 [updated 2019 Nov; cited 2023 Oct 17]. Available from: https://www.publichealthontario.ca/-/media/Documents/U/2016/uti-assessment-algorithm.pdf?rev=b9e3fed5da4946f780de03e35594e098&sc_lang=en&hash=AC359F2467AB38F73210CE72F6F2C855

12. Nicolle LE. Urinary tract infection in long-term-care facility residents. Clin Infect Dis. 2000;31(3):757-61. Available from: https://doi.org/10.1086/313996

13. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Urinary tract infection program [Internet]. Toronto, ON: Queen's Printer for Ontario; 2019 [updated 2019 Dec 17; cited 2023 Oct 17]. Available from: https://www.publichealthontario.ca/en/Health-Topics/Antimicrobial-Stewardship/UTI-Program?tab=0

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