

Supplement 2

Description of virtual learning collaboratives and the Urinary Tract Infection (UTI) Program based on the template for intervention description and replication (TIDieR)

Why:

- The readiness assessment was completed to ensure there was sufficient support for the UTI Program at each long-term care home (LTCH) and to identify if there would be potential barriers to securing the necessary program resources. There is empirical support for the importance of an organization's readiness for successful implementation.¹
- The learning collaborative was delivered to ensure leads from each LTCH had the motivation, capability and opportunity to effectively implement the UTI Program.² It was intended to foster opportunities to share experiences and solutions and to overcome barriers during implementation planning.³
- The UTI Program includes recommended implementation processes that have been found to improve implementation of interventions.^{4,5}
- The UTI Program was developed using the theoretical domains framework to inform the selection of implementation strategies that could help overcome persistent barriers to practice change.⁶

Materials:

- Materials included readiness questions from the UTI Program Implementation Guide (page 9).⁷
- The virtual learning collaboratives used a PowerPoint presentation on the UTI Program.⁸ Public Health Ontario (PHO) facilitators had access to a training guide, session agendas, and facilitation questions.
- The UTI Program package⁹ included:
 - Implementation guide
 - Assessment algorithm
 - Discontinuing the use of dipsticks (literature summary)
 - Coaching for beliefs and consequences
 - Fact sheets (asymptomatic bacteriuria; causes of delirium and mental status changes; when to collect a urine specimen; how to interpret a urine culture report)
 - Guidance for the development of a policy and procedure
 - Frequently asked questions for residents and families
 - Sample communication for family newsletter
 - Resident and family update form

- Process surveillance form
- Posters (symptoms to collect a urine sample, how to collect mid-stream urine specimen)

What:

- The readiness discussion was conducted with LTCH stakeholders who expressed interest in the UTI Program to assess need, timing, buy-in, and minimum program resources required.
- The virtual learning collaborative included three sessions:
 - Session 1 covered: an overview of the UTI Program, implementation guide, the five practice changes, considerations for readiness, and implementation teams.
 - Session 2 covered: the UTI Program checklist, barriers to practice change tool, linking barriers to strategies, and developing an action plan.
 - Session 3 covered: progress on developing action plans, sustainability planning, and monitoring impact.
- All sessions incorporated discussion and concluded with tasks for each LTCH's implementation team.
- The UTI Program includes recommendations to select an implementation lead, form an implementation team (3-4 people), and develop an implementation plan. There are additional implementation strategies designed to help overcome barriers to practice change:
 - Champion: Identifying a champion to ensure momentum and obstacles are overcome.
 - Consensus: Establishing consensus on the practice changes among clinical decision makers.
 - Organizational policies and procedures: Aligning organizational policies and procedures with the five practice changes.
 - Local opinion leaders: Identifying and involving local opinion leaders in the delivery of strategies.
 - Education: Delivering education and distributing information to front-line staff (e.g., registered practical nurses, registered nurses, nurse practitioners).
 - Coaching: Providing coaching support following education.
 - Delivering information to residents/families.
 - Resident symptom documentation and communication: Implementation teams are encouraged to look for improvements to how resident symptoms are communicated and documented.
 - Process surveillance: Implementation teams are encouraged to monitor whether urine's sent and antibiotics prescribed for a suspected UTI align with indicated signs and symptoms.

- Reminders: Redistributing and posting program resources to remind staff about practice changes.

Who:

- Readiness assessments were completed by five infection prevention and control specialists from PHO with representatives from LTCHs (staff with infection control responsibilities).
- In support for the learning collaboratives, infection prevention and control specialists from PHO received training on the intervention and followed a facilitator's guide. Internal training for facilitators included two days of orientation to the program and more in-depth training on readiness, assessing barriers and facilitators and implementation strategies.
- The UTI Program is delivered at the LTCH level. Recommended implementation processes are intended to be led by one person from each LTCH, typically a director or associate director of care with infection control responsibilities.
- A lead from each LTCH, typically a director or associate director of care with infection control responsibilities delivers the implementation strategies with support from colleagues (e.g., registered nurses).

How, when, how much, where:

- The readiness assessment involved 15-30 minute telephone interviews during the recruitment phase.
- The virtual learning collaborative were delivered online using Adobe Webinar technology. There were three sessions, 1-1.5 hours in duration, delivered over a four month period (May 2018 – August 2018). LTCHs from the same region were grouped together with five parallel sessions being hosted.
- For the UTI Program, recommended implementation process strategies were planned for a 3-4 month period with the recommendation to have at least three implementation team meetings to support these activities.
- Identification of a champion, establishing consensus, aligning organizational policies and procedures and involving local opinion leaders are recommended for the early implementation phase. Looking for opportunities to improve communication of resident symptoms is recommended for the early implementation phase.
- Education is delivered by the director of care/associate director of care/registered nurse to front-line staff once individually, in groups or during existing meetings followed by ongoing coaching support.
- Distributing information to residents and families is recommended as an ongoing activity.
- Ongoing review of practice changes (process surveillance) is recommended as an ongoing process during the implementation period with support from the implementation team.
- Delivering reminders is recommended as an ongoing strategy.

Variation / tailoring:

- Due to low participation at some learning collaborative sessions, some regions followed up with LTCHs individually to share content that was missed.
- Specific membership for an implementation team can be adapted for each LTCH.
- Some strategies recommended as part of the UTI Program may not be used based on current status or local barriers. This includes: the need to change organizational policies and procedures (they may already be in alignment) and improvements may not be needed to the communication of resident symptoms.
- How education is delivered to front-line staff (e.g., one-on-one / group based) is meant to be tailored to the needs of each LTCH. The program also describes different options for providing information to residents and families.

How well (planned):

- A standard readiness assessment checklist helped to ensure consistent questions were asked.
- Virtual learning collaborative sessions were monitored by a team at PHO and facilitators received training, a guide and standardized agendas.
- The learning collaborative sessions and implementation guide were intended to promote the use of the recommended strategies that are part of the UTI Program.

How well (actual):

- In the first survey administered to implementation leads that obtained feedback on the learning collaboratives, 20/27 (74%) agreed that the peer support component was valuable; whereas 26% disagreed or felt neutral about this peer support component.

Additional feedback on the delivery of learning collaboratives:

In the first survey administered to implementation leads from each LTCH, feedback was obtained on the quality and usefulness of the learning collaborative sessions. An open-ended question was included in the survey to capture overall experience in receiving support from the learning collaborative sessions including anything that stood out as particularly helpful or suggestions for future support options.

There were 17 comments shared by implementation leads who had attended the learning collaborative sessions and most comments were focused on what was helpful about the sessions. This included feedback on the quality of the program resources. For example, one participant commented: "Great resources were shared and the implementation process was explained really well." The quality of facilitation support was also highlighted. For example, one participant noted the following: "Our facilitator was fantastic. She explained the learning objectives in detail and that helped our home to focus on areas we needed more assistance with. She also gave room for questions during the meetings and that was helpful because we were able to learn from other homes on what they did better."

The quote above alluded to the value of the peer support component. There were a few additional comments that highlighted the value of peer support. For example one participant noted the following:

“Very supportive; I always called or emailed them if I had questions with the implementation of Urinary Tract Infection Program, and a lot of useful techniques from other homes.” However, another participant emphasized that creating a collaboration can take up more time which is limited in long-term care. Additional recommendations for improvement focused on timing of the sessions and to consider that LTCHs may be progressing at a difference pace. For example, one participant noted: “The issue was that our home rolled out the program fairly quickly then the collaborative was still discussing steps we had already completed”.

Two participants also noted that PHO interactions with others in the LTCH (e.g., staff, physicians, administration) may have been beneficial to increase engagement and buy-in. Another participant emphasized the value of any additional resources to gain buy-in to the practice changes would be beneficial.

- An online survey was administered to each implementation lead to document what implementation strategies from the UTI Program were selected:
 - Forty-seven percent reported (n = 15/32) forming an implementation team.
 - There was variable uptake of the recommended implementation strategies.
 - The majority of LTCHs (78-84%) that implemented the program (n = 32) reported using education and coaching support and providing information to residents and families.
 - Eighty-one percent reported making improvements in how resident symptoms were documented and communicated (n = 26/32).
 - Seventy-two percent reported using reminders (n = 23/32) and 69% reported using process surveillance (n = 22/32).
 - Only 34% of LTCHs reported using all recommended readiness strategies (n = 11/32).

References:

1. Scaccia JP, Cook BS, Lamont A, et al. A practical implementation science heuristic for organizational readiness. *J Community Psychol* 2015;43(4):484-501. doi:10.1002/jcop.21698
2. Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterizing and designing behaviour change interventions. *Implement Sci* 2011;6:42. doi:10.1186/1748-5908-6-42
3. Institute for Healthcare Improvement. The Breakthrough Series: IHI's collaborative model for achieving breakthrough improvement (IHI Innovation Series white paper). Boston: Institute for Healthcare Improvement; 2003. Available: <http://www.ihi.org/resources/Pages/IHIWhitePapers/TheBreakthroughSeriesIHIsCollaborativeModelforAchievingBreakthroughImprovement.aspx> (accessed 6 August 2020).
4. Leeman J, Calancie L, Hartman MA, et al. What strategies are used to build practitioners' capacity to implement community-based interventions and are they effective?: A systematic review. *Implement Sci* 2015;10(80). doi:10.1186/s13012-015-0272-7
5. Damschroder LJ, Aron DC, Keith RE, et al. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci* 2009;4:50. doi:[10.1186/1748-5908-4-50](https://doi.org/10.1186/1748-5908-4-50)
6. Chambers A, MacFarlane S, Zvonar R, et al. A recipe for antimicrobial stewardship success: Using intervention mapping to develop a program to reduce antibiotic overuse in long-term care. *Infect Control Hosp Epidemiol* 2019;40(1):24-31. doi:[10.1017/ice.2018.281](https://doi.org/10.1017/ice.2018.281)
7. Public Health Ontario. Urinary Tract Infection (UTI) Program: Implementation Guide [Internet]. Second Edition. Toronto: Public Health Ontario; 2019. Available: <https://www.publichealthontario.ca/-/media/documents/u/2019/uti-implementation-guide.pdf?la=en> (accessed 8 August 2020)
8. Public Health Ontario. Management of urinary tract infections (UTIs) in non-catheterized long-term care home residents [Internet]. Toronto: Public Health Ontario; 2019. Available: <https://www.publichealthontario.ca/-/media/documents/u/2016/uti-ltch-management.pdf?la=en> (accessed 8 August 2020).
9. Public Health Ontario. Urinary Tract Infection (UTI) Program [Internet]. Toronto: Public Health Ontario; 2019. Available: <https://www.publichealthontario.ca/en/health-topics/antimicrobial-stewardship/uti-program> (accessed 8 August 2020)