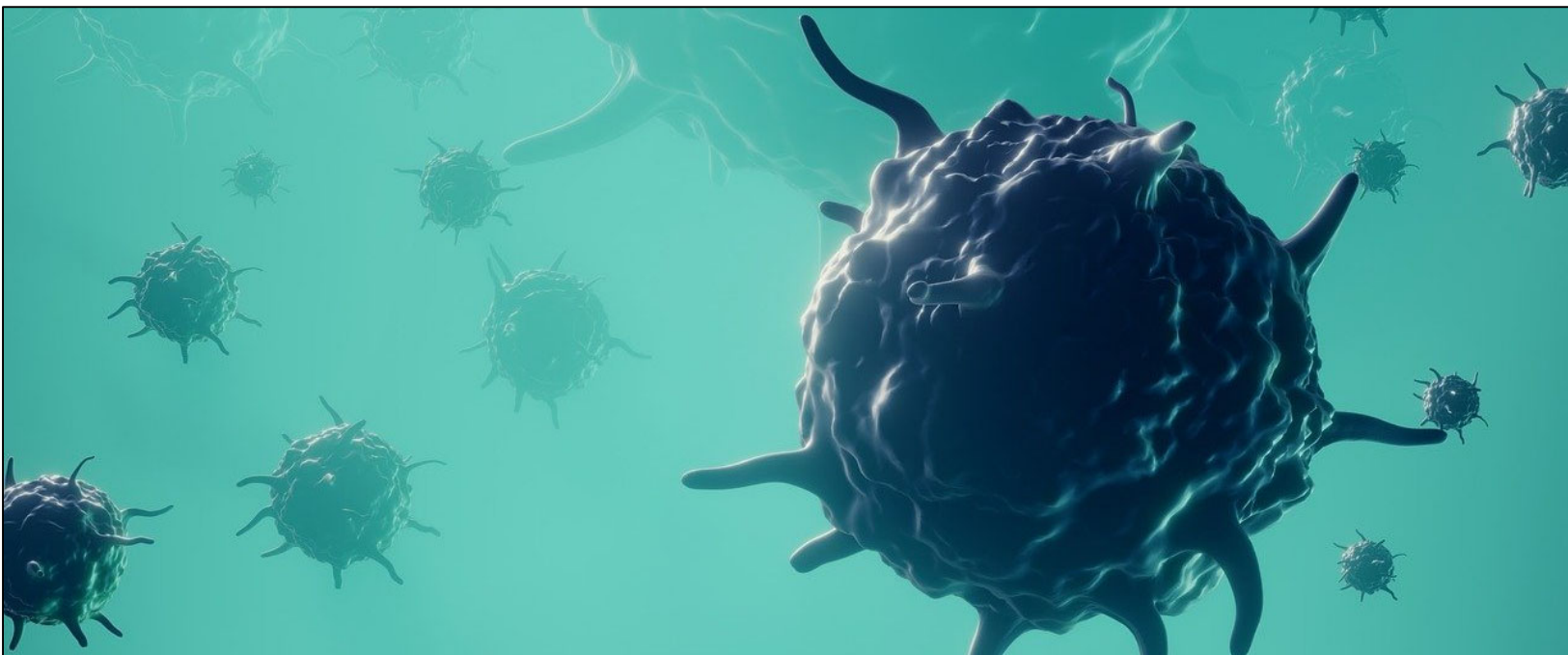




Long-Term Care Surveillance Toolkit



Created in collaboration with:

Bois Marufov (Public Health Ontario), Devon Metcalf (Public Health Ontario), Katherine Paphitis (Public Health Ontario), Wendy Miller (Schlegel Villages), Jessica Jasper (Schlegel Villages)

September 2020

Table of Contents

[Toolkit Guide](#)

[Surveillance Readiness Self-Assessment Form](#)

[Daily Infection Signs and Symptoms Tracking Form](#)

Infection Case Validation Forms

[Urinary Tract Infection without an Indwelling Catheter](#)

[Urinary Tract Infection with an Indwelling Catheter](#)

[Respiratory Tract Infection](#)

[Gastrointestinal Tract Infection](#)

[Skin Infections](#)

[Eye and Fungal Oral Infections](#)

[Systemic Infection](#)

Appendix A Surveillance Definitions of Infections in Canadian Long Term Care Facilities *

Appendix B Surveillance Database and Reporting Tool *

Appendix C Training Tool for Frontline Staff *

*separate documents

Toolkit Guide

Introduction

Health care-associated infections (HAIs) are defined as infections that are neither present nor incubating at the time of admission to a health care facility and are acquired during the provision of care.¹ HAIs have a significant impact on health care costs as a result of prolonged hospital stays, readmissions, and increasing consumption of costly resources.² In addition, the emergence of antimicrobial resistant organisms (AROs) has also resulted in an increased cost to the health care system.

Adhering to infection prevention and control (IPAC) best practices may be challenging in long-term care (LTC) facilities due to heavy workloads and a lack of resources for those responsible for IPAC programs. Standardized infectious disease surveillance systems that follow best practice have been shown to result in improved IPAC practices and to reduce HAIs.¹ Establishing a data collection, analysis and reporting system in LTC facility is an important initial step to support appropriate decision making intended to reduce HAIs and improve the quality of care.

Goal

This LTC Surveillance Toolkit Guide establishes guidelines for using the components of the Toolkit to conduct surveillance of infectious diseases as part of an IPAC program in the LTC setting. The LTC setting may include nursing homes, assisted living facilities and hospitals. This Protocol outlines the necessary collection, collation, and data analysis steps needed to support a LTC facility in determining baseline infection rates, identifying outbreaks and other IPAC issues, and evaluating the effectiveness of the IPAC program in place in the LTC facility.

Objectives

To improve the quality of resident care and evidence-based decision making in the prevention of infections by standardizing surveillance data collection.

Tools

There are 6 tools that comprise this Toolkit. This section outlines the purpose of each tool and how to use it.

1.) Surveillance Readiness Self-Assessment Form

The Surveillance Readiness Self-Assessment Form can be used to determine if a LTC facility is ready to implement the Toolkit. It is important to plan the implementation of the Toolkit so that it does not conflict with other significant changes (e.g., significant staffing changes, roll out of another program). It is important to consider who else should be consulted for support in moving forward with this program. The facility should ensure there is a designated lead for the initiative and to confirm that time can be committed to this project.

- 1.) Assemble a team of people who will be involved in approving, implementing and/or

using the Toolkit.

- 2.) Use the Readiness Self-Assessment Worksheet to assess for need and fit of the Toolkit within the organization.

2.) Surveillance Training Slides for Frontline Staff

Surveillance Training Slides have been provided to assist with training front-line clinical staff who are responsible for tracking the signs and symptoms of infections in LTC residents. The Surveillance Training Slides can be used as a formal training presentation, as handouts and/or as a guide to be used by staff responsible for surveillance training.

- 1.) Training should be provided to staff by an infection control professional (ICP) or a designated staff member who is knowledgeable about surveillance and familiar with the Toolkit.
- 2.) Initial training should be provided to all front-line staff on all shifts who are responsible for recording signs and symptoms of infection in residents. The Surveillance Training Slides can be customized to include scenarios or references personalized to the organization.
- 3.) Ongoing/refresher training should be provided on a regularly scheduled basis (e.g. annually) or as needed.

3.) Daily Infection Signs and Symptoms Tracking Form

The Daily Infection Signs and Symptoms Tracking Form is intended to be used by the front-line clinical staff to document signs and symptoms of infection in residents. This tracking form does not replace documentation in the progress notes/resident charts. This form serves as a communication tool to notify staff that a resident(s) is being monitored for signs and symptoms of infection and as a summary tool for the ICP or designate to collect surveillance data for analysis. This tool may also be used to track signs and symptoms of infection in staff who work in the facility, e.g. during an outbreak.

- 1.) Place a new printed copy of the Daily Infection Signs and Symptoms Tracking Form on each unit at the beginning of the month or when the previous form is full.
- 2.) Indicate the unit and month on each new Daily Infection Signs and Symptoms Tracking Form.
- 3.) During every shift on each day of the month, the Daily Infection Signs and Symptoms Tracking Form is to be initialed by a health care worker (e.g. charge nurse) in the appropriate square to indicate the form has been reviewed and is accurate.
- 4.) When a resident starts to show signs or symptoms of an infection, indicate the day of the month, the resident name and the room number in the appropriate column.

- 5.) If the resident has an elevated body temperature, indicate the numerical temperature in the 'body temperature' column.
- 6.) Place an 'X' in the columns corresponding to the signs and symptoms of infection the resident is showing. If the resident exhibits new signs and symptoms related the same infection over the next few days, indicate the signs and symptoms with an 'X' on the same line. If the resident begins to exhibit signs and symptoms of an unrelated or new infection (i.e. after the initial infection has completely resolved), start a new line with the date and resident's name and room number.
- 7.) If a specimen was sent to the laboratory, indicate with an 'X' in the corresponding column.
- 8.) Once the infection has resolved, indicate with an 'X' in the corresponding column. This will communicate that the infection has resolved in the resident and the resident is no longer under surveillance for an infection.
- 9.) The 'other' column can be used to communicate other signs and symptoms of an infection not listed on this form or additional tests that were performed (e.g. chest X-rays). It can also be used for any relevant information deemed necessary to include on this form.
- 10.) The ICP or designate should review the daily surveillance form weekly (recommended).

4.) Surveillance Case Definitions of Infections in Canadian Long Term Care Facilities

Whether or not a resident exhibiting signs and symptoms of an infection is counted as a true case will depend on the use of standardized case definitions. This Toolkit was created using the infection case definitions developed by IPAC Canada (2017).³ These case definitions are located in Appendix A and can be referred to when completing the Surveillance Database and Reporting Tool (described below). The case definitions are also embedded in the Infection Case Validation Forms (described below). Alternative case definitions may be used in place of the case definitions provided in this Toolkit.

5.) Infection Case Validation Forms

The Infection Case Validation Forms will assist the ICP or designate in determining whether or not a resident exhibiting signs or symptoms of an infection meets the case definitions detailed in Appendix A. The Infection Case Validation Forms can be completed electronically or be printed and filled out manually. These forms can be used until the ICP or designate is familiar and comfortable with applying the case definitions.

- 1.) The ICP or designate collects the Daily Infection Signs and Symptoms Tracking Form from all of the units at the end of the month and can refer to these forms to gather information to complete a Combined Case Definition/Validation Form.

- 2.) For each case, the ICP or designate can choose the Infection Case Validation Forms that is most appropriate for the suspected infection based on signs and symptoms of infection the resident has exhibited. The appropriate form can be printed and filled out manually or electronically.
- 3.) Enter the date the form is being filled out, unit, resident name, onset of the sign/symptoms of infection and the physician's name at the top of the form.
- 6.) Enter an 'X' beside each sign/symptom the resident exhibited. The ICP or designate may have to refer to the progress notes, laboratory specimens, or imaging results to complete the case validation forms and to accurately apply the case definitions.
- 7.) Under specimen results, indicate with an 'X' if culture results were obtained and were contaminated, if commensal flora was detected, or if no specimens were taken. If the culture was positive and an organism was identified, specify the organism.
- 8.) Refer to the standardized case definitions included on these forms to determine if the signs and symptoms of infection meet the case definition. The definition section of this form can be revised to reflect the alternative case definitions if used.
- 9.) Indicate if case meets the case definition with an 'X' and indicate subcategory of infection type if relevant (e.g. RESPIRATORY TRACT INFECTION: Common cold/pharyngitis)
- 10.) If the culture result indicated the organism causing the infection is an antimicrobial resistant organism indicate an 'X' beside ARO.
- 11.) Indicate with an 'X' if the ARO is methicillin-resistant *Staphylococcus aureus* (MRSA), Vancomycin-resistant Enterococci (VRE), Extended spectrum beta-lactamase producing member of the *Enterobacteriaceae* (ESBL) or carbanepenemase-producing member of the *Enterobacteriaceae* (CPE).
- 12.) Indicate with an 'X' if the case does not meet the case definition.
- 13.) For a case that meets the case definition, using the definition for health care-associated infection, determine if the case is attributable to the LTC facility. If the case is attributed to the long-term care LTC facility, indicate an 'X' beside Health care-associated infection. Only health care-associated infections that meet the case definition will be used to calculate infection rates.
- 14.) If the infectious agent is a cause of a disease of public health significance and/or a reportable disease, follow local public health and provincial requirements for reporting.
- 15.) Any comments with additional relevant information (e.g. if the resident required hospitalization as a result of the infection or if they had recently had a surgery) can be included in the 'Comments' section.

- 15.) For respiratory infections, if the resident meets the case definitions for common cold/pharyngitis and another respiratory infection category, only count the influenza-like illness, pneumonia or lower respiratory tract infection as a case.

6.) Surveillance Database and Reporting Tool

The Surveillance Database and Reporting Tool is a Microsoft Excel tool used to collate monthly data from residents who meet the case definitions, provided in Appendix A, for a particular type of infection, as well as cases of colonization or infection with an ARO. The ICP or designate enters cases into the Surveillance Reporting Form and infection-specific rates are auto-calculated and summary graphs are generated. The Surveillance Reporting Form consists of multiple tabs:

1.) Glossary tab

- a) Refer to the Glossary tab for a list of words and terms used in the Surveillance Database and Reporting Tool.

2.) Inf instructions tab

- a) The Inf instructions tab has the instructions for filling out the Infections and Total Inf tabs.

3.) Infections tab

- a) Use the Infections tab to input your resident data related to cases of infections. The name of the LTC facility can be indicated at the top of the form. The year is to be indicated in the 'year' cell at the top of the form. It is recommended to start a new file every year.
- b) On the Infections tab, enter the month during which the signs or symptoms of the infections started. In addition, enter the resident name, unit/wing/floor or any location identifying information, room number and date the symptoms started.
- c) From the dropdown box, indicate Yes or No in the column titled 'Was the infection determined to be an Health care associated infection (HAI) acquired within the current facility (Y/N)'. Refer to the case definitions in Appendix A for instructions on how to attribute cases to either the LTC facility or elsewhere (e.g., another health care facility, community). Only cases attributed to the LTC facility (and therefore classified as health care-associated) will used to calculate rates.
- d) If the resident had an elevated temperature at any point during the infection, enter the highest numerical temperature in the corresponding column. If the temperature entered exceeds 37.7°Celsius, a 'Yes' will appear in the column labelled 'Fever' (as this is arguably the most common definition for a fever). The definition for fever, however, also includes repeated oral temps >37.2°C or rectal temps

>37.5°C OR a single temperature >1.1°C over baseline from any site If the temperature is equal to or less than 37.7°C. If the resident meets this definition for fever, the 'No' in the fever column can be overwritten to 'Yes'.

- e) Using the case validation forms and/or the case definition document, determine if the resident's signs and symptoms of infection satisfy the case definition for the suspected infection. Refer to the daily surveillance form, resident progress notes, laboratory results, diagnostic imaging results and any other documentation or test performed related to the infection to make the decision. If the resident meets the case definition, enter an 'X' under the corresponding infection type. Additional lab, antibiotic, physician diagnosis and comments can be added in the Comments column on the right hand side. Start a new line for each resident. If the same resident develops more than one unrelated infection, start a new line for each infection.
- f) The columns titled 'Other' can be used to customize the form to the needs of the LTC facility. For example, if a LTC facility has a large population with Hepatitis B and is concerned about specifically tracking Hepatitis B infections, an 'Other' column can be renamed Hepatitis B and this specific infection can be tracked.

4.) Total Inf tab

- a) On the Total Inf tab, ensure the numbers of each infection type are counting accurately in the first table (Summary of infections occurring within the LTC facility) (e.g. if 3 residents with respiratory tract infections met the case definition for the month of January on the Infections tab, the number 3 should appear in the January / Respiratory cell).
- b) In the second table on the Total Inf tab (Monthly rates of LTC facility acquired infections, per 1000 resident days), the total number of resident-days must be entered in the row corresponding to the month in order for the rate to be calculated. Resident-days is defined as the total number of days all of the residents were at risk of an infection during the month (i.e. a resident who was present on January 1st and still present on January 31st has contributed 31 resident days to the total while a resident who was a new admission on January 20th but still present on the 31st has contributed 11 days to the total).

The incidence rate calculation (i.e. new cases per 1000 resident days) is performed using the following formula:

$$\text{Incidence rate} = \frac{\text{Number of new infection cases during the month}}{\text{Total number of resident-days for the same month}} \times 1000$$

The resident days for each month may be obtainable through the administrator or finance department, depending on the organization.

- c) Below each table, a graph is generated reflecting the total number of infections by infection type per month or reflecting the rates by infection type per month. These graphs can be copied and pasted into other documents or reports to share the data.
- 5.) ARO instructions tab
 - a) The ARO instructions tab has the instructions for filling out the ARO and Total AROs tabs.
 - 6.) ARO tab
 - a) Use the ARO tab to input your resident data about colonisations (cases with an ARO that do not meet the infection case definition criteria) and/or infections (cases that meet the infection case definition criteria) with antimicrobial resistant organisms. The name of the LTC facility can be indicated at the top of the form. The year can be indicated in the 'year' cell at the top of the form. It is recommended to start a new file every year.
 - b) On the ARO tab, enter the month during which the specimen was collected. In addition, enter the resident name, unit/wing/floor or any location identifying information, room number and date the specimen was collected.
 - c) From the dropdown box, indicate 'yes' or 'no' in the column titled 'Was the colonization/infection determined to be acquired within the current facility?'.
d) Indicate with an 'X' if the resident was either colonized or infected with the corresponding ARO based on the laboratory result. Any other information deemed relevant can be entered in the comments column (e.g., site of colonization or association with a medical device etc.). If the resident had multiple specimens collected on the same day (e.g., nares and perianal swabs were collected for MRSA) and they are all positive only enter resident as one case.
 - 7.) Total ARO tab
 - a) On the Total AROs tab, ensure the numbers of each colonisations (cases with an ARO that do not meet the infection case definition criteria) or infections (cases that meet the infection case definition criteria) area counting accurately in the first table (Total Number of AROs Acquired within the LTC facility by Month).
 - b) In the second table (Monthly Rates of AROs acquired within the LTC facility per 1000 Resident-Days), the 'resident-days' column will automatically populate from the resident-days entered into the table in the Total Inf tab and the monthly rate for each ARO colonization and infection will be calculated.
 - c) Below each table, graphs are generated depicting the total number of colonisations or infections by ARO per month and depicting the colonization or infection rate by ARO per month. These graphs can be copied and pasted into other documents or reports to

share the data.

8.) Staff Inf Instructions tab

- a) The Staff Inf instructions tab has the instructions for filling out the Staff Inf and Total Staff Inf tabs. This section may be helpful to track staff infections, e.g. during an outbreak.

9.) Staff Inf tab

- a) Use the Staff Inf tab to input your staff data related to cases of infections. The name of the LTC facility can be indicated at the top of the form. The year is to be indicated in the 'year' cell at the top of the form. It is recommended to start a new file every year.
- b) On the Staff Inf tab, enter the month during which the signs or symptoms of the infections started. In addition, enter the staff name, unit/wing/floor or any location identifying information, room number and date the symptoms started.
- c) If the staff had an elevated temperature at any point during the infection, enter the highest numerical temperature in the corresponding column. If the temperature entered exceeds 37.7°Celsius, a 'Yes' will appear in the column labelled 'Fever' (as this is arguably the most common definition for a fever). The definition for fever, however, also includes repeated oral temps >37.2°C or rectal temps >37.5°C OR a single temperature >1.1°C over baseline from any site. If the temperature is equal to or less than 37.7°C. If the staff meets this definition for fever, the 'No' in the fever column can be overwritten to 'Yes'.
- d) Using the Appendix A Case Definitions and/or Infection Case Validation form(s), determine if the staff's signs and symptoms of infection satisfy the case definition for the suspected infection. Refer to the daily surveillance form and other information available to validate the case. If the staff meets the case definition, enter an 'X' under the corresponding infection type. Additional lab, antibiotic, physician diagnosis and comments can be added in the Comments column on the right hand side. Start a new line for each staff. If the same staff develops more than one unrelated infection, start a new line for each infection.
- e) The columns titled 'Other' can be used to customize the form to the needs of the LTC facility.

10.) Total Staff Inf tab

- a) On the Total Staff Inf tab, ensure the numbers of each infection type are counting accurately in the first table (Summary of infections occurring within the LTC facility) (e.g. if 3 staff with respiratory tract infections met the case definition for the month of January on the Infections tab, the number 3 should appear in the January /

Respiratory cell).

- b) Below the table, a graph is generated reflecting the total number of infections by infection type per month. This graph can be copied and pasted into other documents or reports to share the data.

Summary

The LTC Surveillance Toolkit consists of a variety of tools that can be used by LTC facilities to perform surveillance of infections in their resident population. The components can be adapted and personalized to meet the needs of the individual LTC facility. The Toolkit can be used in its entirety or the individual components that meet the specific needs of the LTC facility can be used on their own.

For additional support with this Toolkit, contact the IPAC Canada Surveillance and Applied Epidemiology Interest Group at saeig@ipac-canada.org.

References

- 1.) Ontario Agency for Health Protection and Promotion (Public Health Ontario). Best practices for surveillance of health care-associated infections in patient and resident populations. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2014 [cited 2019 Aug 20].
- 2.) Graves N, Weinhold D, Tong E, Birrell F, Doidge S, Ramritu P. Effect of healthcare-acquired infection on length of hospital stay and cost. *Infect Control Hosp Epidemiol*. 2007;28(3):280-92.
- 3.) Infection Prevention and Control Canada (IPAC Canada). *Can J Infect Control*. Fall 2017 (Suppl):10-17.

Surveillance Readiness Self-Assessment Form

This self-assessment is used to determine readiness to implement the LTC Surveillance Toolkit. It is important to plan for implementation of the Toolkit so that it does not conflict with other significant changes in the facility (e.g., significant staffing changes or the roll-out of another program). Consider who should be consulted for support in moving forward with establishing a surveillance program. Ensure there is a designated lead for the initiative and confirm that time can be committed to a surveillance program.

Readiness Questions and Considerations	Participant Response	Comments
<p>Surveillance in LTC facilities should involve daily assessment and documentation of signs and symptoms of infection for all residents, as well as collation, analysis and sharing of the data.</p> <p>Do you perform surveillance for infections in your LTC facility?</p>	<p><input type="checkbox"/> Yes, we perform infection surveillance for infections</p> <p><input type="checkbox"/> No, we don't perform surveillance for infections</p>	
<p>If you do perform surveillance for infections, is your process following best practice? Is there a desire to improve the process?</p>	<p><input type="checkbox"/> We don't follow best practice and we want to improve our surveillance process</p> <p><input type="checkbox"/> We follow best practice and we are satisfied with our current process</p> <p><input type="checkbox"/> I don't know</p>	
<p>Does this project conflict with other projects, priorities or significant changes occurring at this time?</p>	<p><input type="checkbox"/> Yes, we have other conflicting priorities at this time</p> <p><input type="checkbox"/> No, we have no other conflicting priorities at this time</p>	

Readiness Questions and Considerations	Participant Response	Comments
Do you have the support of your organization (e.g., senior management, infection prevention and control lead)?	<input type="checkbox"/> Yes, the organization is supportive of this initiative <input type="checkbox"/> No, the organization is not supportive of this initiative	
Do you need to communicate with your local public health unit about implementing the LTC Surveillance Toolkit?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Do you have confirmation that sufficient time can be dedicated to implement the LTC Surveillance Toolkit?	<input type="checkbox"/> Yes, we are able to dedicate sufficient time <input type="checkbox"/> No, we are unable to dedicate sufficient time	
Has a designated lead responsible for implementation of the LTC Surveillance Toolkit been identified?	<input type="checkbox"/> Yes, there is a designated lead <input type="checkbox"/> No, there is no designated lead	
Does the designated lead have sufficient knowledge of and experience with surveillance to feel comfortable implementing the LTC Surveillance Toolkit?	<input type="checkbox"/> Yes, the designated lead does have sufficient knowledge and experience <input type="checkbox"/> No, the designated lead does not have sufficient knowledge and experience	

Readiness Questions and Considerations	Participant Response	Comments
<p>Does the designated lead have adequate time and resources to:</p> <ul style="list-style-type: none"> ▪ Coordinate the initial and ongoing training of staff ▪ Perform data analysis and reporting on a monthly basis 	<p><input type="checkbox"/> Yes, the designated lead will have adequate time and resources</p> <p><input type="checkbox"/> No, the designated lead will not have adequate time and resources</p>	
<p>Is there additional staff available to assist in the implementation of the LTC Surveillance Toolkit?</p>	<p><input type="checkbox"/> Yes, there is a support/back up person available</p> <p><input type="checkbox"/> No, there is no support/back up person available</p>	
<p>Do you have access to the required technology (e.g., computer, internet access and the programs Microsoft Word and Excel)?</p>	<p><input type="checkbox"/> Yes, we have access to the required technology</p> <p><input type="checkbox"/> No, we do have access to the required technology</p>	
<p>Do you feel your organization is ready to take on the implementation of the LTC Surveillance?</p>	<p><input type="checkbox"/> Yes, we are ready</p> <p><input type="checkbox"/> No, we are not ready</p>	



Urinary Tract Infection (UTI) without an Indwelling Catheter

Unit:		Resident Name:		Physician Name:	
Date:		Date of Birth:		Infection Onset Date:	

Microbiological Testing

At least 1 of the following criteria must be met:

- A urine culture with $\geq 10^8$ cfu/L of no more than 2 species of microorganisms from a midstream urine
- A urine culture with $\geq 10^5$ cfu/L of any number of organisms in a specimen collected by in-and-out catheter

Name of organism(s) culture:

Signs and Symptoms of Infection

At least 1 of the following criteria must be met:

- Acute pain, swelling, or tenderness of the testes, epididymis, or prostate in males
- Fever* OR leukocytosis* AND at least 1 of the following localizing urinary tract subcriteria
 - a. Acute dysuria
 - b. Acute costovertebral angle pain or tenderness
 - c. Suprapubic pain
 - d. Gross hematuria
 - e. New or marked increase in incontinence
 - f. New or marked increase in urgency
 - g. New or marked increase in frequency
- In the absence of fever* or leukocytosis*, then 2 or more of the following localizing urinary tract subcriteria
 - a. Acute dysuria
 - b. Suprapubic pain
 - c. Gross hematuria
 - d. New or marked increase in incontinence
 - e. New or marked increase in urgency
 - f. New or marked increase in frequency

*see Constitutional Criteria below

Alternatively, if none of the above criteria are met, the following criterion must be met:

- A blood culture grows the same organism, with the same resistance pattern, as the urine culture and there is no alternate site of infection

Constitutional Criteria	
Fever	Leukocytosis
<input type="checkbox"/> Single oral temperature >37.8°C OR <input type="checkbox"/> Repeated oral temperatures >37.2°C or rectal temperatures >37.5°C OR <input type="checkbox"/> Single temperature >1.1°C increase over baseline from any site (oral, tympanic, auxiliary)	<input type="checkbox"/> > 10 x 10 ⁹ leukocytes/L

Healthcare Associated Infection (HAI) Attribution to the LTC Facility

Both of the following criteria must be met:

- No evidence the infection was incubating on admission to the LTC facility
 Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?

- Yes No

2a. If yes, is this an HAI case?

- Yes No

2b. If yes, does the case involve an ARO?

- Yes: MRSA VRE ESBL CPE
 No



Urinary Tract Infection (UTI) with an Indwelling Catheter

Unit:		Resident Name:		Physician Name:	
Date:		Date of Birth:		Infection Onset Date:	

Catheter
<input type="checkbox"/> Patient has an indwelling catheter Date catheter inserted or last changed:

Microbiological Testing
The following criterion must be met using urine from a catheter specimen or a midstream voided urine from a resident whose catheter has been removed within the previous 48 hours:
<input type="checkbox"/> A urine culture with $\geq 10^8$ cfu/L of any organism(s) Name of organism(s) cultured:

Signs and Symptoms of Infection
At least 1 of the following criteria must be met:
<input type="checkbox"/> At least 1 of the following sign or symptom subcriteria
a. Fever*, rigors, or new-onset hypotension, with no alternate site of infection
b. Either acute change in mental status* or acute functional decline,*with no alternate diagnosis and leukocytosis
c. New-onset suprapubic pain or costovertebral angle pain or tenderness
d. Purulent discharge from around the catheter
e. Acute pain, swelling, or tenderness of the testes, epididymis, or prostate in males
<input type="checkbox"/> A blood culture grows the same organism, with the same resistance pattern, as the urine culture and there is no alternate site of infection
*see Constitutional Criteria below

Constitutional Criteria			
Fever	Leukocytosis	Change in mental status	Acute functional decline
<input type="checkbox"/> Single oral temperature >37.8°C OR <input type="checkbox"/> Repeated oral temperatures >37.2°C or rectal temperatures >37.5°C OR <input type="checkbox"/> Single temperature >1.1°C increase over baseline from any site (oral, tympanic, auxiliary)	<input type="checkbox"/> > 10 x 10 ⁹ leukocytes/L	All criteria must be met: <input type="checkbox"/> Acute onset <input type="checkbox"/> Fluctuating course <input type="checkbox"/> Inattention <input type="checkbox"/> Either disorganized thinking or altered level of consciousness	<input type="checkbox"/> A new 3-point increase in total activities of daily living (ADL) score (range, 0–28) from baseline, based on the following 7 ADL items, each scored from 0 (independent) to 4 (total dependence) <ol style="list-style-type: none"> 1. Bed mobility 2. Transfer 3. Locomotion within LTC facility 4. Dressing 5. Toilet use 6. Personal hygiene 7. Eating

Healthcare Associated Infection (HAI) Attribution to the LTC Facility
Both of the following criteria must be met: <input type="checkbox"/> No evidence the infection was incubating on admission to the LTC facility <input type="checkbox"/> Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?

- Yes No

2a. If yes, is this an HAI case?

- Yes No

2b. If yes, does the case involve an ARO?

- Yes: MRSA VRE ESBL CPE
 No

Respiratory Tract Infection (RTI)

Unit:		Resident Name:	
Date:		Date of Birth:	

Signs and Symptoms of Infection			
Common Cold/Pharyngitis	Influenza-like Illness	Pneumonia	Lower RTI
<p>At least 2 of the following criteria must be present that are new and cannot be attributed to allergies:</p> <p><input type="checkbox"/> Runny nose or sneezing</p> <p><input type="checkbox"/> Stuffy nose (i.e., congestion)</p> <p><input type="checkbox"/> Sore throat or hoarseness or difficulty in swallowing</p> <p><input type="checkbox"/> Dry cough</p> <p><input type="checkbox"/> Swollen or tender glands in the neck (cervical lymphadenopathy)</p> <p><input type="checkbox"/> N/P swab positive for a respiratory pathogen</p> <p>Name of pathogen: _____</p>	<p>At least 1 of the following criteria must be met:</p> <p><input type="checkbox"/> Fever</p> <p><input type="checkbox"/> New and or increased cough</p> <p>AND at least 1 of the following:</p> <p><input type="checkbox"/> At least 2 of the following</p> <p style="margin-left: 20px;">a. Chills</p> <p style="margin-left: 20px;">b. New headache or eye pain</p> <p style="margin-left: 20px;">c. Myalgia or body aches</p> <p style="margin-left: 20px;">d. Malaise or loss of appetite</p> <p style="margin-left: 20px;">e. Sore throat</p> <p style="margin-left: 20px;">f. Arthralgia (joint pain)</p> <p><input type="checkbox"/> N/P swab positive for Influenza virus</p>	<p>The following criteria must be met:</p> <p><input type="checkbox"/> Interpretation of a chest radiograph as demonstrating pneumonia or the presence of a new infiltrate</p> <p>AND at least 1 of the following:</p> <p><input type="checkbox"/> At least 1 of the constitutional criteria*</p> <p><input type="checkbox"/> At least 1 of the following</p> <p style="margin-left: 20px;">a. New or increased cough</p> <p style="margin-left: 20px;">b. New or increased sputum production</p> <p style="margin-left: 20px;">c. O₂ saturation <94% on room air or a reduction in O₂ saturation of >3% from baseline</p> <p style="margin-left: 20px;">d. New or changed lung examination abnormalities</p> <p style="margin-left: 20px;">e. Pleuritic chest pain</p> <p style="margin-left: 20px;">f. Respiratory rate of ≥25 breaths/min</p>	<p>All 3 criteria must be met:</p> <p><input type="checkbox"/> Chest radiograph not performed or negative results for pneumonia or new infiltrate</p> <p><input type="checkbox"/> At least 1 of the constitutional criteria*</p> <p><input type="checkbox"/> At least 2 of the following</p> <p style="margin-left: 20px;">a. New or increased cough</p> <p style="margin-left: 20px;">b. New or increased sputum production</p> <p style="margin-left: 20px;">c. O₂ saturation <94% on room air or a reduction in O₂ saturation of >3% from baseline</p> <p style="margin-left: 20px;">d. New or changed lung examination abnormalities</p> <p style="margin-left: 20px;">e. Pleuritic chest pain</p> <p style="margin-left: 20px;">f. Respiratory rate of ≥25 breaths/min</p>

*see Constitutional Criteria below

Constitutional Criteria			
Fever	Leukocytosis	Change in mental status	Acute functional decline
<input type="checkbox"/> Single oral temperature >37.8°C OR <input type="checkbox"/> Repeated oral temperatures >37.2°C or rectal temperatures >37.5°C OR <input type="checkbox"/> Single temperature >1.1°C increase over baseline from any site (oral, tympanic, auxiliary)	<input type="checkbox"/> > 10 x 10 ⁹ leukocytes/L	All criteria must be met: <input type="checkbox"/> Acute onset <input type="checkbox"/> Fluctuating course <input type="checkbox"/> Inattention <input type="checkbox"/> Either disorganized thinking or altered level of consciousness	<input type="checkbox"/> A new 3-point increase in total activities of daily living (ADL) score (range, 0–28) from baseline, based on the following 7 ADL items, each scored from 0 (independent) to 4 (total dependence) <ol style="list-style-type: none"> 1. Bed mobility 2. Transfer 3. Locomotion within LTC facility 4. Dressing 5. Toilet use 6. Personal hygiene 7. Eating

Healthcare Associated Infection (HAI) Attribution to the LTC Facility

Both of the following criteria must be met:

No evidence the infection was incubating on admission to the LTC facility

Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?
 - Yes: Cold/Pharyngitis Influenza-like Illness Pneumonia Lower RTI
 - No

- 2a. If yes, is this an HAI case?
 - Yes No

- 2b. If yes, does the case involve an ARO?
 - Yes: MRSA VRE ESBL CPE
 - No

Gastrointestinal (GI) Tract Infection

Unit:		Resident Name:	
Date:		Date of Birth:	
		Physician Name:	
		Infection Onset Date:	

Signs and Symptoms of Infection		
Gastroenteritis	Norovirus Gastroenteritis	<i>Clostridium difficile</i> Infection (CDI)
<p>At least 1 of the following criteria must be met:</p> <p><input type="checkbox"/> Diarrhea: 3 or more loose or watery stools above what is normal for the resident within a 24 hour period</p> <p><input type="checkbox"/> Vomiting: 2 or more episodes in a 24 hour period</p> <p><input type="checkbox"/> All of the following</p> <p style="margin-left: 20px;">a. A stool specimen testing positive for a pathogen (e.g. <i>Salmonella</i>, <i>Shigella</i>, <i>Escherichia coli</i> O157:H7, <i>Campylobacter</i> species, rotavirus)</p> <p style="margin-left: 20px;">b. At least 1 of the following</p> <p style="margin-left: 40px;">i. Nausea</p> <p style="margin-left: 40px;">ii. Vomiting</p> <p style="margin-left: 40px;">iii. Abdominal pain or tenderness</p> <p style="margin-left: 40px;">iv. Diarrhea</p> <p style="margin-left: 40px;">v. Mucous in stool</p> <p>Name of pathogen: _____</p>	<p>Both of the following criteria must be met:</p> <p><input type="checkbox"/> At least 1 of the following</p> <p style="margin-left: 20px;">a. Diarrhea: 3 or more loose or watery stools above what is normal for the resident within a 24 hour period</p> <p style="margin-left: 20px;">b. Vomiting: 2 or more episodes in a 24 hour period</p> <p><input type="checkbox"/> A stool specimen for which norovirus is positively detected by electron microscopy, enzyme immunoassay, or molecular diagnostic testing such as polymerase chain reaction (PCR)</p>	<p>Both of the following criteria must be met:</p> <p><input type="checkbox"/> One of the following GI subcriteria</p> <p style="margin-left: 20px;">a. Diarrhea: 3 or more loose or watery stools above what is normal for the resident within a 24 hour period</p> <p style="margin-left: 20px;">b. Presence of toxic megacolon (abnormal dilatation of the large bowel, documented radiologically)</p> <p><input type="checkbox"/> One of the following diagnostic subcriteria</p> <p style="margin-left: 20px;">a. A stool sample yields a positive laboratory test result for <i>C. difficile</i> toxin A or B, or a toxin-producing <i>C. difficile</i> organism is identified from a stool sample culture or by a molecular diagnostic test such as PCR</p> <p style="margin-left: 20px;">b. Pseudomembranous colitis identified during endoscopic examination or surgery or in histopathologic examination of a biopsy specimen</p>



Healthcare Associated Infection (HAI) Attribution to the LTC Facility

Both of the following criteria must be met:

- No evidence the infection was incubating on admission to the LTC facility
- Infection onset occurred >2 calendar days after admission to the LTC facility, or > 3 calendar days in the case of CDI

Summary

1. Does this case meet the infection case definition?

- Yes: Gastroenteritis Norovirus gastroenteritis CDI
- No

2a. If yes, is this an HAI case?

- Yes
- No

2b. If yes, does the case involve an ARO?

- Yes: MRSA VRE ESBL CPE
- No

Skin Infections

Unit:		Resident Name:	
Date:		Date of Birth:	Infection Onset Date:

Signs and Symptoms of Infection			
Cellulitis, Soft Tissue, Wound	Scabies	Herpesvirus	Fungal Infection
<p>At least 1 of the following criteria must be met:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pus present at a wound, skin, or soft tissue site <input type="checkbox"/> New or increasing presence of at least 4 of the following <ul style="list-style-type: none"> a. Heat at the affected site b. Redness at the affected site c. Swelling at the affected site d. Tenderness or pain at the affected site e. Serous drainage at the affected site f. One constitutional criterion* <input type="checkbox"/> Non-commensal organism* isolated with at least 1 of the following <ul style="list-style-type: none"> a. Heat at the affected site b. Redness at the affected site c. Swelling at the affected site d. Tenderness or pain at the affected site e. Serous drainage at the affected site f. One constitutional criterion* <p>Name of organism:</p>	<p>Both of the following criteria must be met:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A maculopapular and/or itching rash characteristic of scabies <input type="checkbox"/> At least 1 of the following <ul style="list-style-type: none"> a. Physician diagnosis b. Laboratory confirmation (scraping or biopsy) c. Epidemiologic linkage to a case of scabies with laboratory confirmation 	<p>For herpes simplex, both of the following criteria must be met:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A vesicular rash <input type="checkbox"/> Either physician diagnosis or laboratory confirmation <hr/> <p>For herpes zoster, both of the following criteria must be met;</p> <ul style="list-style-type: none"> <input type="checkbox"/> A vesicular rash <input type="checkbox"/> Either physician diagnosis or laboratory confirmation 	<p>Both of the following criteria must be met:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Characteristic rash or lesions <input type="checkbox"/> Either a diagnosis by a medical provider or a laboratory confirmed fungal pathogen from a scraping or a medical biopsy

*see Constitutional Criteria below

Constitutional Criteria			
Fever	Leukocytosis	Change in mental status	Acute functional decline
<input type="checkbox"/> Single oral temperature >37.8°C OR <input type="checkbox"/> Repeated oral temperatures >37.2°C or rectal temperatures >37.5°C OR <input type="checkbox"/> Single temperature >1.1°C increase over baseline from any site (oral, tympanic, auxiliary)	<input type="checkbox"/> > 10 x 10 ⁹ leukocytes/L	All criteria must be met: <input type="checkbox"/> Acute onset <input type="checkbox"/> Fluctuating course <input type="checkbox"/> Inattention <input type="checkbox"/> Either disorganized thinking or altered level of consciousness	<input type="checkbox"/> A new 3-point increase in total activities of daily living (ADL) score (range, 0–28) from baseline, based on the following 7 ADL items, each scored from 0 (independent) to 4 (total dependence) <ol style="list-style-type: none"> 1. Bed mobility 2. Transfer 3. Locomotion within LTC facility 4. Dressing 5. Toilet use 6. Personal hygiene 7. Eating

Healthcare Associated Infection (HAI) Attribution to the LTC Facility
Both of the following criteria must be met: <input type="checkbox"/> No evidence the infection was incubating on admission to the LTC facility <input type="checkbox"/> Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?

- Yes:
 Cellulitis, Soft Tissue, Wound
 Scabies
 Herpesvirus
 Fungal Infection
 No

2a. If yes, is this an HAI case?

- Yes
 No

2b. If yes, does the case involve an ARO?

- Yes
 MRSA
 VRE
 ESBL
 CPE
 No

Eye and Fungal Oral Infections

Unit:		Resident Name:		Physician Name:	
Date:		Date of Birth:		Infection Onset Date:	

Signs and Symptoms of Infection	
Conjunctivitis	Fungal Oral Infection
At least 1 of the following criteria must be met: <input type="checkbox"/> Pus appearing from 1 or both eyes, present for at least 24 hours <input type="checkbox"/> New or increased conjunctival erythema, with or without itching <input type="checkbox"/> New or increased conjunctival pain, present for at least 24 hours	Both of the following criteria must be met: <input type="checkbox"/> Presence of raised white patches on inflamed mucosa or plaques on oral mucosa <input type="checkbox"/> Diagnosis by a medical or dental provider

Healthcare Associated Infection (HAI) Attribution to the LTC Facility
Both of the following criteria must be met: <input type="checkbox"/> No evidence the infection was incubating on admission to the LTC facility <input type="checkbox"/> Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?
 Yes: Conjunctivitis Fungal Oral Infection
 No

- 2a. If yes, is this an HAI case?
 Yes No

- 2b. If yes, does the case involve an ARO?
 Yes: MRSA VRE ESBL CPE
 No



Systemic Infections

Unit:		Resident Name:		Physician Name:	
Date:		Date of Birth:		Infection Onset Date:	

Signs and Symptoms of Infection	
Primary Blood Stream Infection (BSI)	Unexplained Febrile Episode
<p>For infections with a pathogen, both of the following criteria must be met:</p> <p><input type="checkbox"/> 1 of the following</p> <ul style="list-style-type: none"> a. Pathogen identified from 1 or more blood specimens obtained by culture b. Pathogen identified to the genus level by non-culture based microbiologic testing methods (e.g., T2MR or Karius Test) <p><input type="checkbox"/> Organism identified in the blood is not related to an infection at another body site</p> <p>Name of organism:</p>	<p><input type="checkbox"/> Fever* on two or more occasions at least 12 hours apart in any 3-day period, with no known infectious or non-infectious cause.</p>
<p>For infections with a common commensal organism, all of the following criteria must be met:</p> <p><input type="checkbox"/> Fever*, chills or hypotension</p> <p><input type="checkbox"/> A common commensal organisms is identified by culture from two or more blood specimens collected on separate occasions</p> <p><input type="checkbox"/> Organism identified in the blood is not related to an infection at another body site</p> <p>Name of organism:</p>	

*see Fever Criteria below

Fever Criteria

- Single oral temperature >37.8°C
OR
 Repeated oral temperatures >37.2°C or rectal temperatures >37.5°C
OR
 Single temperature >1.1°C increase over baseline from any site (oral, tympanic, auxiliary)

Healthcare Associated Infection (HAI) Attribution to the LTC Facility

- Both of the following criteria must be met:
- No evidence the infection was incubating on admission to the LTC facility
 Infection onset occurred >2 calendar days after admission to the LTC facility

Summary

1. Does this case meet the infection case definition?
 Yes: BSI Unexplained Febrile Episode
 No
- 2a. If yes, is this an HAI case?
 Yes
 No
- 2b. If yes, does the case involve an ARO?
 Yes: MRSA VRE ESBL CPE
 No