Canadian Nosocomial Infection Surveillance Program

Surveillance for COVID-19 and other viral respiratory infections among inpatients in CNISP hospitals

Version: April 28, 2020

Contact Information
Please direct all questions to:

Public Health Agency of Canada
Canadian Nosocomial Infection Surveillance Program (CNISP)
E-mail: phac.cnisp-pcsin.aspc@canada.ca

Working Group
Geoffrey Taylor (co-chair), Nisha Thampi (co-chair), Charles Frenette, Kevin Katz, Linda Pelude, Robyn Mitchell, Wallis Rudnick, Kelly Choi, Vivienne Steele, Anada Silva, Titus Wong, John Conly, Stephanie Smith, Bonita Lee, John Embil, Allison McGeer, Gerald Evans, Yves Longtin, Chelsey Ellis, Lynn Johnston, Jeannette Comeau, Marie-Astrid Lefebvre, Alice Wong, Zain Chagla, Dominik Mertz, Sarah Khan, Kathy Suh, Pamela Kibsey, Jocelyn Srigley, Charles Frenette, Ewa Rajda, Matthew Muller, Greg German, Jessica Minion, Kathy Malejczyk, Caroline Quach-Thanh, Paula Stagg, Linda Kamhuka, Gaëlle DeLisle and James Brooks
Background
Viral respiratory infections (VRI) cause increased morbidity and mortality in both adult and pediatric healthcare settings. Age is a key risk factor with regards to the severity, transmission and impact of VRI. The consequences of VRI are especially concerning for children and older adults with existing co-morbidities or underlying conditions such as cardiac and pulmonary disease, or immunosuppression. The emergence of SARS, avian influenza, novel H1N1 influenza, MERS-CoV and, recently, COVID-19 have underlined the need for data to inform infection prevention and control practices for respiratory pathogens in healthcare settings.

Rationale
A hospital’s ability to appropriately manage COVID-19 and other VRI patients will be dependent on their understanding of the burden of both community and healthcare associated severe respiratory infections. This surveillance will assist in understanding the burden of COVID-19 and other VRI in adults and pediatric patients in Canadian hospitals.

A real-time hospital based surveillance system will assist in identifying high-risk groups, as well as describing risk factors and patient outcomes in order to inform public health decisions and evaluate interventions.

Short term objectives
1. Describe the inpatient population infected with COVID-19
2. Provide timely data (e.g. demographic, clinical and outcome data) to hospitals and PHAC regarding patients hospitalized with COVID-19

Long term objectives
1. Identify new and emerging respiratory viruses in Canadian acute care hospitals
2. Describe selected characteristics of the organisms involved and of the pediatric and adult populations who develop VRI in order to assist hospitals in the development of precautionary measures for patients at high risk
3. Facilitate intra- and inter-hospital comparison of adult and pediatric VRI rates over time
4. Compare the epidemiology of COVID-19 to other currently circulating respiratory viruses among pediatric and adult inpatients, and to compare the epidemiology of COVID-19 with pathogens that have emerged previously in Canada such as H1N1 and COVID-19

Methods
Study Design
Sentinel surveillance of adult and pediatric COVID-19 and other VRI at participating CNISP hospitals.

Site Eligibility
All CNISP hospitals are eligible to participate.

Surveillance period
Year round surveillance
Weekly reporting to begin the week of Sunday March 29 to Saturday April 4th. If possible, please submit two weeks of retrospective weekly data (i.e. March 15 – March 21 and March 22- March 28). Even if there are zero cases, these data will be included.


Case Eligibility
i. Any patient admitted to a CNISP participating hospital. All hospital inpatient wards are eligible (e.g. including long-term care, psychiatric wards, maternity wards etc.)

Case definitions

a) **COVID-19 case definition:**
   - A person with laboratory confirmation of infection with the virus that causes COVID-19

   **Inclusion criteria:**
   - Any patient identified with a laboratory positive COVID-19 result while admitted to a CNISP participating hospital
   - Any patient identified with a laboratory positive COVID-19 result in the 14 days prior to being admitted to a CNISP participating hospital *(please use your best clinical judgement when applying the 14 day time frame (i.e. date of admission could be greater than 14 days since positive COVID-19 result))*
   - Any patient identified with a subsequent laboratory positive COVID-19 result following determination of being cleared of COVID-19 (reinfection)

   **Exclusion criteria:**
   - Patients with laboratory confirmed COVID-19 who are not admitted to a CNISP participating hospital

b) **VRI case definition (excluding COVID-19):**
   - Positive viral culture or DFA (direct fluorescent antigen) or EIA (enzyme immunoassay) or PCR (polymerase chain reaction) for a viral respiratory tract pathogen

   **AND**

   - At least one of the following signs or symptoms:
     - fever (> 38 °Celsius) or single temperature >1.1°Celsius over baseline from any site (oral, tympanic, auxiliary), rhinitis, nasal congestion, pharyngitis, sneezing, cough, wheeze, stridor, apnea, dyspnea, laboured breathing, increased respiratory secretions, change in characteristics of chronic secretions, decreased air entry on auscultation, rales, rhonchi, decreased oxygen saturation, need for increased FiO2, increased ventilator support, increased suctioning or new abnormality on chest radiograph.

   **AND**

   - No other evident cause for the abnormality
Exposure classification for COVID-19

Once the patient has been identified with a COVID-19, the case will be classified as healthcare-associated acquired in your acute-care facility, healthcare-associated any other healthcare exposure or community-associated based on the following criteria and in accordance with the best clinical judgement of the healthcare and/or infection prevention and control practitioner (ICP).

Healthcare-associated acquired in your acute care facility (HA-YAF)

- Symptom onset $\geq 7^1$ calendar days after admission to the reporting hospital and using best clinical judgement (e.g. symptom onset < 7 days but known epi link to a positive case).
  OR
- If patient is readmitted with a positive test < 7 days after discharge from hospital and using best clinical judgement.

Healthcare-associated any other healthcare exposure (HA-Other)

- Any patient who is identified with COVID-19 not acquired at your facility that is thought to be associated with any other healthcare exposure (e.g. another acute-care facility, long-term care or rehabilitation facility etc.).

Community-associated

- No exposure to healthcare that would have resulted in this infection (using best clinical judgement) and does not meet the criteria for a healthcare-associated infection.

Exposure classification for VRI (excluding COVID-19)

Once the patient has been identified with a VRI, they case will be classified as healthcare-associated acquired in your acute-care facility, healthcare-associated any other healthcare exposure or community-associated based on the following criteria and in accordance with the best clinical judgement of the healthcare and/or infection prevention and control practitioner (ICP).

Healthcare-associated acquired in your acute care facility (HA-YAF)

- Symptom onset $\geq 72$ hours ($\geq 3$ calendar days) after admission to the reporting hospital and using best clinical judgement.
  OR
- If patient is readmitted with a positive test < 72 hours (3 calendar days) after discharge from hospital and using best clinical judgement.

---

$^1$ 7 days was chosen as the cut-off to attribute acquisition to the hospital based on a current estimate of a median incubation of 4 days (IQR 2-7 days) for hospitalized patients with COVID-19. This is a conservative estimate and can be later re-coded based on date of admission, symptom onset and test date if required.


April 28, 2020
Healthcare-associated any other healthcare exposure (HA-Other)

- Any patient who has a VRI not acquired at your facility that is thought to be associated with any other healthcare exposure (e.g. another acute-care facility, long-term care, rehabilitation facility or clinic etc.).

Community-associated

- No exposure to healthcare that would have resulted in this infection (using best clinical judgement) and does not meet the criteria for a healthcare-associated infection.

Data collection and submission

1. A weekly reporting form with aggregate numbers of hospitalizations, ICU admissions and deaths among patients with lab-confirmed COVID-19 as well as a brief line list of new COVID-19 cases will be submitted to CNISP electronically every Tuesday at the close of business day which will include all cases identified in the previous week, i.e. Sunday to Saturday (Appendix A).

   There are three ways that sites can choose to submit the weekly data:
   - Fill out the form on CNPHI Web Data (this is the preferred method)
   - Fill out the fillable Word document and email it to CNISP (phac.cnisp-pcsin.aspc@canada.ca)

2. For weekly COVID-19 surveillance, weekly admissions will be estimated using 2019 patient admissions.

3. For each case that meets the case definition for COVID-19 or other VRI, a detailed patient questionnaire (Appendix B) should be completed by reviewing the patients’ chart and reported to PHAC. Please submit the detailed patient questionnaires for COVID-19 cases as time permits (we recognize that hospitals are extremely busy but these data are very useful). The patient questionnaires for other VRI cases may be submitted retrospectively. Please submit data electronically on CNPHI Web Data or via email to phac.cnisp-pcsin.aspc@canada.ca.

4. Denominator data (Appendix C) will be collected on the quarterly denominator form and submitted in CNPHI. If possible, please stratify your denominator data by age (adult ≥ 18 years and pediatric < 18 years).

   The data collected will include:
   1. Total number of patient admissions
   2. Total number of inpatient-days
In CNPHI, denominator data are entered via the “Profiles and Denominators” page. VRI rates will be calculated using the same denominator data as VRE, MRSA/MSSA, CPO and *C. auris* so please enter your denominator data under VRE or MRSA/MSSA.

In addition, the number of ICU admissions and ICU patient-days will be collected when available on Web Data in CNPHI via the VRI denominator and zero report form. If possible, please stratify your denominator data by age (adult > 18 years and pediatric < 18 years).

**Data reporting**

All CNISP hospitals will receive a weekly aggregate report with age group and provincial level data (weekly and cumulative totals) by Thursday of the reporting week. Please see sample report below using fake data.

**Zero report**

For any quarter with no cases at your site, a zero report must be submitted under Web Data in CNPHI via the VRI denominator and zero report form so that quarters with zero counts can be differentiated from missing data. If no cases are submitted and you are missing zero reports for a surveillance year, your hospital data will not be included in rates.

April 28, 2020
APPENDIX A. WEEKLY COVID-19 REPORT FORM

<table>
<thead>
<tr>
<th>CHEC Site #</th>
<th>Submission date: yyyy-mm-dd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select CHEC Site.</td>
<td></td>
</tr>
</tbody>
</table>

**Surveillance week (i.e. Sunday to Saturday)**

Sunday: yyyy-mm-dd to Saturday: yyyy-mm-dd

Please provide data for newly identified lab confirmed COVID-19 patients for the surveillance period specified above.

<table>
<thead>
<tr>
<th></th>
<th>Pediatric (&lt; 18 yrs)</th>
<th>Adult (18-59 yrs)</th>
<th>Older Adult (60+ yrs)</th>
<th>Weekly total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new COVID-19 hospitalizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the surveillance period specified above, please indicate the number of lab confirmed COVID-19 patients with the following outcomes:

<table>
<thead>
<tr>
<th></th>
<th>Pediatric (&lt; 18 yrs)</th>
<th>Adult (18-59 yrs)</th>
<th>Older Adult (60+ yrs)</th>
<th>Weekly total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new COVID-19 ICU admissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of new ventilated patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of patients where ECMO support was initiated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of new COVID-19 deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** A patient may be counted in multiple categories (for instance, if patient was both admitted to the ICU and ventilated within the specified 7 days they would be included in both categories). If there is a delay in obtaining any of this information for a week please include in a subsequent report (for instance, if a patient was admitted to the ICU on a Friday and your system does not capture in time for that weekly report, please include in the following report.) Cumulative totals will be calculated by CNISP PHAC.

*If possible, for the COVID-19 hospitalizations above, please indicate the number of COVID-19 hospitalizations by acquisition*

<table>
<thead>
<tr>
<th></th>
<th>Number HA-YAFb</th>
<th>Number HA-Otherc</th>
<th>Number CAd</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new COVID-19 hospitalizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

April 28, 2020
Data to reflect new cases every week.

Healthcare-associated acquired in your acute care facility (HA-YAF)

Symptom onset ≥ 7 days after admission to the reporting hospital and using best clinical judgement (e.g. symptom onset < 7 days but known epi link to a positive case) OR if patient is readmitted with a positive test < 7 days after discharge from hospital and using best clinical judgement.

Healthcare-associated any other healthcare exposure (HA-Other)

Any patient who is identified with COVID-19 not acquired at your facility that is thought to be associated with any other healthcare exposure (e.g. another acute-care facility, long-term care or rehabilitation facility etc.).

Community-associated

No exposure to healthcare that would have resulted in this infection (using best clinical judgement) and does not meet the criteria for a healthcare-associated infection.
APPENDIX B. COVID-19 VRI PATIENT QUESTIONNAIRE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CHEC Site #: Select CHEC Site.</td>
</tr>
<tr>
<td>2.</td>
<td>Unique Patient ID: Enter unique patient ID. (CHEC Site #) (Year) (Case Number)</td>
</tr>
<tr>
<td>3.</td>
<td>Date of Birth: yyyy-mm-dd OR Age: Enter age. Specify: Years, months or days</td>
</tr>
<tr>
<td>4.</td>
<td>Sex: ☐ Male ☐ Female ☐ Unknown</td>
</tr>
<tr>
<td>5.</td>
<td>Date of Admission yyyy-mm-dd</td>
</tr>
<tr>
<td>6.</td>
<td>Date of re-admission(^2) yyyy-mm-dd</td>
</tr>
</tbody>
</table>
| 7. | Where was this VRI acquired?  
☐ Healthcare-associated (acquired at your acute care facility) \(^3\)   
☐ Healthcare-associated (other healthcare exposure) \(^4\)   
☐ Community-associated \(^5\)  
☐ Unknown |
| 8a. | Is this patient a healthcare worker? \(^6\)?  
☐ Yes  
☐ No  
☐ Unknown  
☐ N/A – Pediatric patient |
| 8b. | If this patient is a HCW, did they provide direct care to a COVID-19 positive patient(s) in hospital?  
☐ Yes |

\(^2\) If the patient had more than one hospitalization for their VRI, please include all data for both hospitalizations on one form and indicate the admission and discharge dates for all hospitalizations.

\(^3\) COVID-19: Symptom onset ≥ 7 days after admission to the reporting hospital and using best clinical judgement (e.g. symptom onset < 7 days but known epi link to a positive case) OR if patient is readmitted with a positive test < 7 days after discharge from hospital and using best clinical judgement.

Other VRI: Symptom onset ≥ 72 hours (≥ 3 calendar days) after admission to the reporting hospital and using best clinical judgement OR if patient is readmitted with a positive test < 72 hours after discharge from hospital and using best clinical judgement.

\(^4\) Any patient who has a VRI not acquired at your facility that is thought to be associated with any other healthcare exposure (e.g. another acute-care facility, long-term care or rehabilitation facility etc.).

\(^5\) No exposure to healthcare that would have resulted in this infection (using best clinical judgement) and does not meet the criteria for a healthcare-associated infection.

\(^6\) A healthcare worker is defined as any individual who provides direct patient care.

April 28, 2020
9. **Was this patient admitted from a long-term care facility?**
- ☐ Yes
- ☐ No
- ☐ Unknown
- ☐ N/A – Pediatric patient

10. **Is there any evidence of travel outside of Canada in the 14 days prior to the patient’s symptom onset?**
   - ☐ Yes, if known please specify country: Enter country travelled to.
   - ☐ No
   - ☐ Unknown

11. **Primary admitting diagnosis:**
    Please specify the reason the patient was admitted to hospital (e.g. respiratory distress, knee replacement, motor vehicle accident, chest pain etc.): [Click here to specify](#).

12. **Is there evidence the patient has underlying medical condition(s)? Please check all that apply.**
    - ☐ No
    - ☐ Yes *(please check all that apply)*
      - ☐ Liver disease
      - ☐ Cancer (active)
      - ☐ Lung disease (e.g. asthma, COPD)
      - ☐ Kidney disease (include all patients on dialysis)
      - ☐ Pregnancy, if yes weeks of gestation: Enter weeks of gestation.
      - ☐ Organ transplant recipient
      - ☐ Other immunosuppression, please specify: [Click here to specify](#).
      - ☐ Chronic heart disease
      - ☐ Severe neurological disease
      - ☐ Diabetes
      - ☐ Other, please specify: [Click here to specify](#).
    - ☐ Unknown

---

7. Includes congenital or acquired immunodeficiency, chemotherapy, immunosuppressive drugs, chronic high-dose systemic steroids (≥ 2 mg/kg or ≥ 20 mg/day prednisone or equivalent for > 2 weeks).

8. Includes:
   - a. moderate to profound intellectual disability or developmental delay
   - b. epilepsy or cerebral palsy if accompanied by (a)
   - c. neuromuscular disorders (e.g. muscular dystrophy), when associated with impaired respiratory function
   - d. other neurological disorders associated with impaired pulmonary function and/or difficulty handling lung secretions
13. **Symptoms (please check all that apply and if possible, indicate each symptom’s start date):**

- [ ] Asymptomatic
- [ ] Cough yyyy-mm-dd
- [ ] Fever yyyy-mm-dd
- [ ] Sore throat yyyy-mm-dd
- [ ] Runny nose yyyy-mm-dd
- [ ] Shortness of breath/difficulty breathing yyyy-mm-dd
- [ ] Nausea/vomiting yyyy-mm-dd
- [ ] Headache yyyy-mm-dd
- [ ] General weakness yyyy-mm-dd
- [ ] Pain (muscular, joint, chest, abdominal) yyyy-mm-dd
- [ ] Irritability/confusion yyyy-mm-dd
- [ ] Diarrhea yyyy-mm-dd
- [ ] Anosmia and ageusia yyyy-mm-dd
- [ ] Other, please specify Click here to specify. yyyy-mm-dd
- [ ] Data not available

14. **Type of VRI, please check all that apply:**

- [ ] Upper respiratory tract infection only
- [ ] Pneumonia with or without URTI
- [ ] Other lower respiratory tract infection with or without URTI
- [ ] Respiratory tract infection, unspecified site
- [ ] Other, please specify: Click here to specify.

15. **Specimen collection date:** yyyy-mm-dd  
   - [ ] Date not available

16. **Specimen type:**

- [ ] Bronchial specimen (BAL)
- [ ] Endotracheal aspirate (ET)
- [ ] Nasopharyngeal swab/aspirate (NP)
- [ ] Sputum (SP)
- [ ] Throat swab or wash (TS)
- [ ] Data not available

17. **Test:**

- [ ] DFA: direct fluorescent antibody
- [ ] EIA: enzyme immunoassay
- [ ] M-PCR: Multiplex PCR
- [ ] PCR: polymerase chain reaction
- [ ] Other, please specify: Click here to specify.
- [ ] Data not available

---

9. *e.g. rhinitis, pharyngitis, laryngitis, cold, epiglottitis*
10. *Must be supported by radiographic evidence*
11. *e.g. bronchiolitis, tracheitis*
12. *unable to rule out pneumonia clinically and chest radiographic not done or not interpretable*

April 28, 2020
18. **Viruses isolated (please check all that apply):**
- ☐ Adenovirus
- ☐ Parainfluenza
- ☐ Enterovirus
- ☐ Enterovirus/Rhinovirus
- ☐ Rhinovirus
- ☐ RSV
- ☐ Influenza A
- ☐ Influenza B
- ☐ Metapneumovirus
- ☐ Bocavirus
- ☐ COVID-19
- ☐ Other coronavirus

Click here to specify.

19. **Was the patient treated with an antiviral for the VRI for which they tested positive?**
- ☐ No
- ☐ Yes (please check all that apply and indicate each treatment’s start date)
  - ☐ Oseltamivir (Tamiflu) yyyy-mm-dd
  - ☐ Zanamivir (Relenza) yyyy-mm-dd
  - ☐ Amantadine (Symmetrel) yyyy-mm-dd
  - ☐ Peramavir yyyy-mm-dd
  - ☐ Remedesivir yyyy-mm-dd
  - ☐ Kaletra yyyy-mm-dd
  - ☐ Ribavirin yyyy-mm-dd
  - ☐ Chloroquine yyyy-mm-dd
  - ☐ Other, please specify: Click here to specify. yyyy-mm-dd
  - ☐ Unknown
  - ☐ Antiviral treatment not available

20. **Was the patient receiving any of the following specific treatments for the VRI for which they tested positive?**
- ☐ No
- ☐ Yes (please check all that apply and indicate each treatment’s start date)
  - ☐ Ibuprophen yyyy-mm-dd
  - ☐ Angiotensin receptor blockers (e.g. losartan, valsartan, etc.) yyyy-mm-dd
  - ☐ ACE inhibitors (e.g. captopril, enalapril, etc.) yyyy-mm-dd
  - ☐ Hydroxychloroquine yyyy-mm-dd
  - ☐ Azithromycin yyyy-mm-dd
  - ☐ Hydroxychloroquine + Azithromycin yyyy-mm-dd
  - ☐ Other, please specify: Click here to specify. yyyy-mm-dd
  - ☐ Unknown

21. **Did this patient have a secondary bacterial infection?**
- ☐ Yes, please specify the pathogen: Click here to specify.
  (e.g. *Streptococcus pneumonia*, *S. aureus*, MRSA pneumonia or bacteremia, *Haemophilus influenza* etc.)
- ☐ No

---

13 *Secondary bacterial infection is defined as a positive culture with a new pathogen*
### 30 DAY OUTCOME

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Mechanical ventilation:</td>
<td>☐ Yes ☐ No ☐ Already ventilated at time of test ☐ Unable to determine</td>
</tr>
<tr>
<td>23. ECMO:</td>
<td>☐ Yes ☐ No ☐ Already on ECMO at time of test ☐ Unable to determine</td>
</tr>
<tr>
<td>24a. ICU admission:</td>
<td>☐ Yes, related to VRI ☐ Yes, unrelated to VRI ☐ No ☐ Unable to determine</td>
</tr>
<tr>
<td>24b. Date of ICU admission yyyy-mm-dd</td>
<td>☐ Not applicable</td>
</tr>
<tr>
<td>24c. Date of discharge from ICU yyyy-mm-dd</td>
<td>☐ Not applicable ☐ Patient still admitted</td>
</tr>
<tr>
<td>25. Impact within 30 days of positive test (please check all that apply):</td>
<td>☐ Patient isolated ☐ Contact/droplet only ☐ Contact/droplet + Airborne</td>
</tr>
<tr>
<td></td>
<td>☐ Patient isolated in negative pressure room</td>
</tr>
<tr>
<td></td>
<td>☐ Increase in ventilator setting</td>
</tr>
<tr>
<td></td>
<td>☐ New oxygen requirements</td>
</tr>
<tr>
<td></td>
<td>☐ Non-invasive ventilation</td>
</tr>
<tr>
<td></td>
<td>☐ Dialysis required (hemo or peritoneal dialysis)</td>
</tr>
<tr>
<td></td>
<td>☐ Other, please specify: Click here to specify.</td>
</tr>
<tr>
<td></td>
<td>☐ Unknown</td>
</tr>
<tr>
<td>26. What was the patient outcome 30 days after positive test?</td>
<td>☐ Patient alive, still in hospital</td>
</tr>
<tr>
<td></td>
<td>☐ Patient survived and discharged Date of discharge yyyy-mm-dd</td>
</tr>
<tr>
<td></td>
<td>☐ Patient survived and transferred Date of transfer: yyyy-mm-dd</td>
</tr>
<tr>
<td></td>
<td>☐ Patient died Date of death: yyyy-mm-dd</td>
</tr>
<tr>
<td></td>
<td>☐ Unknown</td>
</tr>
<tr>
<td>27. If the patient died within 30 days after positive test, please indicate the relationship of VRI to the death</td>
<td>☐ VRI was the cause of death(^\text{14})</td>
</tr>
<tr>
<td></td>
<td>☐ VRI contributed to death(^\text{15})</td>
</tr>
<tr>
<td></td>
<td>☐ Death is unrelated to VRI(^\text{16})</td>
</tr>
<tr>
<td></td>
<td>☐ Causality between VRI and death cannot be determined(^\text{17})</td>
</tr>
</tbody>
</table>

\(^{14}\) VRI was the cause of death (i.e. the patient had no other condition that would have cause death during this hospitalization)  
\(^{15}\) VRI contributed to death (i.e. VRI exacerbated an existing condition that led to the patient’s death)  
\(^{16}\) VRI was unrelated to death  
\(^{17}\) Unable to determine the causality between VRI and death.
APPENDIX C. VRI DENOMINATOR DATA

Adult and pediatric patient days and admissions are currently collected on a quarterly basis in the CNPHI denominator module (for MRSA, VRE, CPO and C. auris). Pediatric and adult ICU denominator data will be collected on Web Data in CNPHI when available.

For weekly COVID-19 reporting, weekly admissions will be estimated using 2019 patient admissions.

<table>
<thead>
<tr>
<th>CHEC Site # :</th>
<th>Choose an item.</th>
<th>Surveillance period :</th>
<th>e.g. January 1 – March 31</th>
</tr>
</thead>
</table>

### Pediatric (< 18 yrs) denominator data

<table>
<thead>
<tr>
<th>Total pediatric (&lt; 18 yrs) patient days</th>
<th>Total pediatric (&lt; 18 yrs) admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total pediatric (&lt; 18 yrs) ICU patient days</td>
<td>Total pediatric (&lt; 18 yrs) ICU admissions</td>
</tr>
</tbody>
</table>

### Adult (18+ yrs) denominator data

<table>
<thead>
<tr>
<th>Total adult (18+ yrs) patient days</th>
<th>Total adult (18+ yrs) admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total adult ICU (18+ yrs) patient days</td>
<td>Total adult ICU (18+ yrs) admissions</td>
</tr>
</tbody>
</table>

For the surveillance year specified above, were there zero (0) VRI cases reported for your site?

☐ Yes  ☐ No
Please find below all forms in word fillable format. Please email to CNISP at phac.cnisp-pcsin.aspc@canada.ca

Appendix A: Weekly COVID-19 Report Form

COVID-19 Weekly form_27March.docx

Appendix B: Patient questionnaire

COVID-19_VRI Patient Questionnaire_20April.docx

Appendix C: Denominator form

VRI Denominator data_24March2020.docx
## Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Revisions Made</th>
</tr>
</thead>
</table>
| March 27, 2020| • Updated weekly aggregate report form (removed line list and added older age group)  
               • Added symptoms to patient questionnaire (Q13)                           |
| April 9, 2020 | • Added question regarding if HCW provided direct patient care to COVID-19 positive patient(s) (Q7b) |
| April 20, 2020| • Updated patient questionnaire  
               o Added date of readmission  
               o Primary admitting diagnosis changed to a text field  
               o Added date of onset for each symptom  
               o Added secondary bacterial infection  
               o Added dialysis required under impact within 30 days  
               o Added date of ICU admission and discharge from ICU  
               o Added date of discharge from readmission  
               o Added comments section |
| April 28, 2020| • Added asymptomatic as a response option under symptoms  
               • Modified the COVID-19 case definition to reflect that best clinical judgement should be used for patients who are COVID-19 positive greater than 14 days prior to being admitted |