Infection Prevention & Control *Clostridioides difficile* Infection (CDI) Surveillance Information Sheet

Purpose

The aim of this document is to inform Interior Health (IH) healthcare staff on key concepts related to *Clostridioides difficile* infection (CDI) surveillance.

Context

- *C. difficile* are bacteria that are the leading cause of hospital onset diarrhea, and typically present in older patients, patients with severe underlying disease, and patients undergoing chemotherapy.
- Clinical manifestations range from asymptomatic colonization to severe diarrhea, colitis, toxic megacolon, andoccasionally death.
- Some individuals carry *C. difficile* in their large bowel while others may acquire it while in hospital.
- Almost all cases of CDI occur after patients have taken specific antimicrobials.
- Modifiable factors that decrease the transmission of CDI in hospital are isolation and treatment of infected patients, good hand hygiene and environmental cleaning, antimicrobial stewardship, and staff and physician training on CDI patient management.

Key Messages

- Infections may range from being uncomfortable for patients to being life-threatening. Furthermore, it can often complicate and prolong hospital stays and impact resources and costs in the healthcare system. Monitoring infection trends provides important information about the effectiveness of infection prevention and control (IPAC) strategies including effective cleaning, and appropriate use of antimicrobials.
- There are many initiatives underway to reduce rates of infection and improve patient safety. These include a CDI ordering education initiative, the development of patient care orders to improve the management and treatment of patients with CDI, strategies to improve antimicrobial use in hospitals, and having designated equipment cleaning personnel.
- Rates of healthcare-associated (HA) CDI are reported in the IH Quality and Performance Report, and on the IPAC Webpage.This is one of the IH performance measures which aligns with provincial and national healthcare standards and benchmarks.

Methodology

- All patients older than 1 year (since infants <1 year of age are not susceptible to CDI) who are admitted to an Interior Health acute care facility are included in surveillance, except for patients admitted to mental health and psychiatric units (in alignment with provincial surveillance).
- Infection Preventionists (IP's) review healthcare records of all admitted patients with a positive *C. difficile* lab test to decide if the patient should be included as a surveillance case.
- Cases are included in surveillance if patients experience a new CDI event; or have a repeat infection event at least eight weeks from a previous episode following resolution of the first event. Criteria for these events are defined in the surveillance protocol.
- Once new cases are identified, they are case classified as healthcare-associated (HA) or community associated (CA) – refer to the CDI Surveillance protocol for more information on case classifications.
- IPAC physicians review the healthcare records of patients who die within 30 days of being included as a CDI surveillance case to determine if the patient's death was related to their infection.

Interior Health would like to recognize and acknowledge the traditional, ancestral, and unceded territories of the Dãkelh Dené, Ktunaxa, Nlaka'pamux, Secwépemc, St'át'imc, syilx, and Tŝilhqot'in Nations where we live, learn, collaborate and work together.

Calculation

CDI rate calculations are shown below. The rate allows for comparability both within a single facility over time, or between different facilities across Canada or internationally.

$$\text{Rate of HA CDI} = \frac{\text{Number of HA CDI incident cases}}{\text{Number of patient-days for patients >1 year old}} \times 10{,}000$$

$$\text{Rate of CA CDI} = \frac{\text{Number of CA CDI incident cases}}{\text{Number of admissions for patients > 1 year old}} \times 1{,}000$$

Limitations and Explanations

- Symptoms associated with CDI may be difficult to identify in patient charts due to incomplete documentation by frontline healthcare workers and alternate clinical causes of diarrhea.
- Patients who test positive for CDI prior to their admission to an IH acute care and acute mental health/rehabilitation facility are not included in formal surveillance unless they test positive again while admitted.

Background Information about IPAC Surveillance Measures

Surveillance for healthcare-associated infections and for antimicrobial resistant organisms is a mandate for IPAC programs to establish baseline frequency of disease, identify risk factors, measure the impact of prevention initiatives, and provide information to inform and educate healthcare workers. Surveillance is most successful when it is comprehensive and linked to program objectives so that surveillance reports are timely and subsequent actions are meaningful and addressed. IH IPAC surveillance indicators are chosen to monitor quality issues that may need further review and investigation. The data are used by healthcare providers to monitor trends and improve care, and by governments to monitor system performance and for public reporting.

The IPAC program in Interior Health conducts surveillance in every acute care facility in the region. Trained Infection Preventionists perform chart reviews and use the protocols to determine surveillance cases, and the IPAC Epidemiologist reviews all cases for data quality purposes. Surveillance is performed in a web-based app so that no duplicate cases are included, and to ensure complete case capture. The IPAC Data Quality Working Group provides oversight for the surveillance system, surveillance protocols and definitions, and ensuring minimal variability in practices across the health authority so that results are reliable.

Incidence indicators represent the proportion of patients with a new presentation of the condition/event of interest. The IPAC surveillance indicators are presented as a rate for a fiscal year, fiscal quarter, or fiscal period, and allow facilities to compare to their own performance over time.