

# Annual Report

2019 - 2020

# Infection Prevention and Control



**northern health**  
*the northern way of caring*

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# Executive Summary

The Northern Health Infection Prevention and Control (IPC) program's annual report highlights achievements and challenges facing Infection Prevention and Medical Device Reprocessing throughout the region. The report summarizes the progress of programs and initiatives, education, hand hygiene compliance, outbreaks, and annual infection rates with Northern Health (NH) during the fiscal year 2019 – 2020 (April 1, 2019 – March 31, 2020).

The final weeks of the fiscal year brought significant challenges as it became evident the COVID-19 outbreak in China had spread beyond its borders, and the world was experiencing the start of a pandemic. The Infection Prevention and Control program quickly responded by providing support to front line staff; and reaffirming established infection prevention foundations (i.e. hand hygiene, and correct sequence of donning/doffing personal protective equipment). Up to date information was disseminated from the PICNet COVID-19 working group to NH leadership.

Program highlights during 2019-2020 include:

## Regional:

- Outbreak Management manual updated.
- UTI Surveillance Program initiated at Long Term Care (LTC) sites.
- Patient and Family Hand Hygiene project initiated.
- Preparedness working group for the 2020 World Women's Curling Championship in Prince George.
- *Clostridium difficile* canine detection program brought to UHNBC.
- NHA Perinatal Committee
- Basic Infection Prevention Workbook orientation mandatory for new hires.
- Coordination with Emergency preparedness in Wildfires
- Accreditation
- Antimicrobial Stewardship Working group
- Community Hand Hygiene Educators' Training

## Provincial:

- PICNet Education Steering Committee
- PHSA Critical Shortage Working group
- PICNet COVID-19 pandemic working group

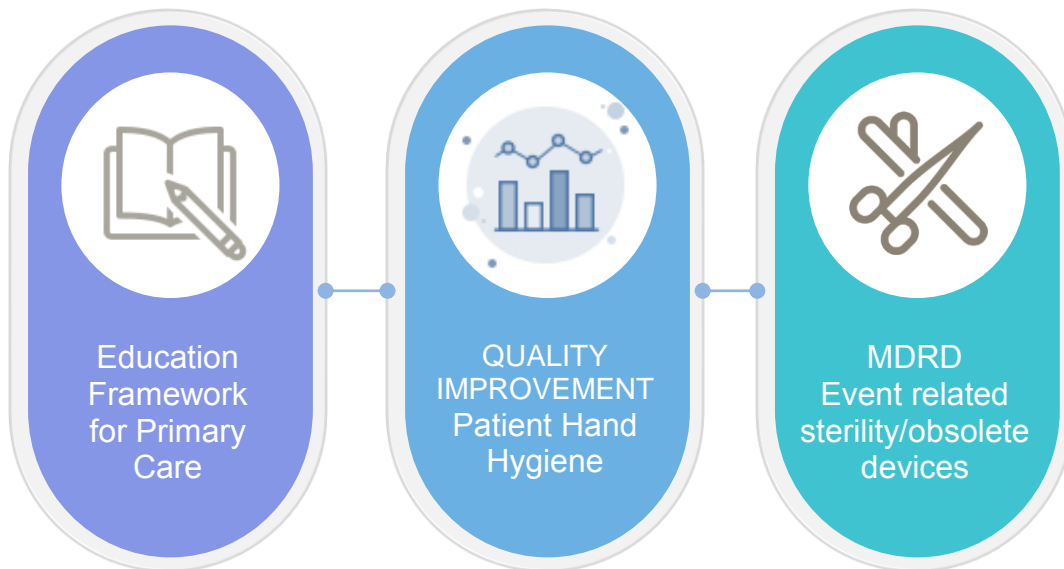
## National:

- Participated in the following Infection Prevention and Control Canada (IPAC) Interest Groups: Long Term Care (LTC), Medical Device Reprocessing (MDR), IPAC Environmental Hygiene Interest Group (EHIG), Surveillance and Applied Epidemiology (SAIEG), SSI Surveillance Canada, Health Care Facility Design and Home and Community Care

## Medical Device Reprocessing Department (MDRD) highlights:

- Updated and streamlined equipment lending process for UHNBC midwives
- Surgical count form and Operative record revised
- Fraser Lake sterile supply organization and removal of sterile reprocessing from site
- Fort St. James clinic – assisted with processes for instruments used at facility and transportation for reprocessing

## Based on this year's report, the key priorities for 2020 - 2021 will be:



# Introduction

The Northern Health Infection Prevention and Control (IPC) program is under the administrative direction of Fraser Bell, Vice President Planning, Quality, and Information Management. The program is dedicated to the prevention and reduction of healthcare associated illness in Northern British Columbia residents, and staff through a variety of strategies summarized in this annual report.

The Infection Prevention team is comprised of a Regional Manager, an Epi-technologist, eight Infection Prevention Practitioners, a Medical Device Reprocessing Department Coordinator and an Admin Assistant. The group provides on-site and consultative infection prevention and control and sterile reprocessing expertise to thirty-five acute care facilities, long term care facilities, home and community care, assisted living facilities, Diagnostic and Treatment (D&T) centres and health centres.

Northern Health is geographically divided into three Health Service Delivery Areas (HSDAs) and each of these areas is represented by a multidisciplinary Infection Prevention Committee. Committee membership includes representatives from the following groups: physicians, public health, environmental health, workplace health and safety, facilities management, nursing, long term care, lab, support services and Health Services Administrators. The committees report to the NH Infection Prevention Council, the NH Medical Advisory Committee, and the Executive team.

The program functions in accordance with international, national, and provincial guidelines and best practices across the continuum of care. The program influences practice through the following:

- Provides infection surveillance (includes Antibiotic Resistant Organisms [ARO], and Surgical Site Infection [SSI]) and disseminates data to appropriate stakeholders.
- Develops and recommends best practices, policies, and procedures.
- Involved in infection prevention and control issues relating to all construction and renovation projects within NH to ensure that infection prevention strategies are followed during construction and renovation projects according to the Canadian Standards Association protocols.
- Provides education and training to healthcare providers, patients, non-medical caregivers, and visitors.
- Provides outbreak management support to all acute care facilities, long term care facilities, assisted living facilities, diagnostic and treatment centres, health centres, and community programs within Northern Health.

## Infection Prevention and Control Team

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Deanna Hembroff  
IPC Manager

Infection  
Prevention and  
Control  
Practitioners

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Bonnie Schurack  
Debora Giese  
Dinu Kuttamparambil  
Holly-Lynn Nelson  
Juanita Kerbrat  
Judy Klein  
Katherine Humble  
Monica Sephton  
Patti Doering  
Priscilla de Medeiros  
Roxanne Fitzsimmons  
Sylvia Eaton

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Medical Device  
Reprocessing

Bonnie Mackenzie, Regional  
Coordinator MDRD

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Medical Lead, Infection  
Prevention and Control

Dr. Abuobeida Hamour

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Administrative Assistant

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## Acute Care Facilities



Bulkley Valley District Hospital – Smithers



Chetwynd Hospital & Health Centre



Dawson Creek and District Hospital



Fort Nelson Hospital



Fort St. John Hospital



GR Baker Memorial Hospital – Quesnel



Haida Gwaii Hospital and Health Centre



Kitimat General Hospital



Lakes District Hospital – Burns Lake



Mackenzie and District Hospital



McBride Hospital



Mills Memorial Hospital – Terrace



Prince Rupert Regional Hospital



Queen Charlotte Islands Hospital



St. John Hospital – Vanderhoof



Stuart Lake Hospital-Fort St. James



University Hospital of Northern BC – Prince George



Wrinch Memorial Hospital – Hazelton

## Assisted Living Facilities

- Alward Place Seniors Assisted Living – Prince George
- Gateway Lodge Assisted Living Residence – Prince George
- Heritage Manor II – Fort St John
- Laurier Manor – Prince George
- McConnell Estates – Terrace
- Nick Grosse Assisted Living Residences – Masset
- Summit Assisted Living Residences – Prince Rupert

## **Diagnostic and Treatment Centres, Health Centres**

Atlin Hospital  
Fraser Lake D&T Centre  
Granisle Community Health Centre  
Houston Health Centre  
Hudson Hope Health Centre  
Stewart Health Centre  
Stikine D&T Centre – Dease Lake  
Tumbler Ridge D&T Centre  
Valemount D&T Centre

## **Home and Community Care**

### **Long Term Care Facilities**

Acropolis Manor – Prince Rupert  
Bulkley Lodge – Smithers  
Dunrovin Park Lodge – Quesnel  
Gateway Lodge – Prince George  
Jubilee Lodge – Prince George  
Kitimat Mountain View Lodge  
Parkside Care – Prince George  
Peace Villa – Fort St. John  
Rainbow Lodge – Prince George  
Rotary Manor – Dawson Creek  
Simon Fraser Lodge – Prince George  
Stuart Nechako Manor - Vanderhoof  
Terrace View Lodge - Terrace  
The Pines – Burns Lake



# Education

The Infection Prevention and Control team continuously strives to provide NH staff, patients, visitors, and residents with relevant education, based on current evidence-based recommendations. Relevant and current information with regards to Infection Prevention and MDR services is available on the [OurNH](#) website.

In keeping with Northern Health's vision, messages are communicated using various strategies with the goal of promoting a culture in which infection prevention is integrated into all aspects of care, namely:

- Assessment of audience learning needs, experiences and knowledge base.
- Provide a variety of learning approaches, PowerPoints, scenarios, hands on demonstration, online learning, mini-teaching/information sessions, quizzes and contests.
- Evaluation and surveys of learning sessions.
- Basic Infection Prevention workbook mandatory for new hire orientation.
- Outbreak management.

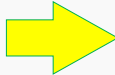



Education and/or consultation provided by NH IPC team this year included but not limited to:

- Covid-19 Preparedness
- Measles Preparedness tabletops
- Health care workers, and health care students
- New employee orientation
- UTI Surveillance program for LTC
- Hand hygiene and auditor training
- Reprocessing of medical devices
- Construction and renovation
- Routine practices and additional precautions for acute, community and long term care
- Surgical site infection prevention
- World hand hygiene day/Infection Prevention Control Week/
- Canadian Patient Safety Week
- Blood and body fluid exposure counselling
- Influenza and employee immunization clinics
- Clostridium difficile, Antibiotic resistant organisms prevention
- Canine Clostridium difficile detection visit – identification and cleaning of contaminated sources
- Outbreak Management
- Community outreach

# Surveillance

The Infection Prevention and Control program carries out surveillance on a number of quality and patient safety indicators. This section of the report presents information on a number of these indicators. Surveillance case definitions can be found in [Appendix 1](#).

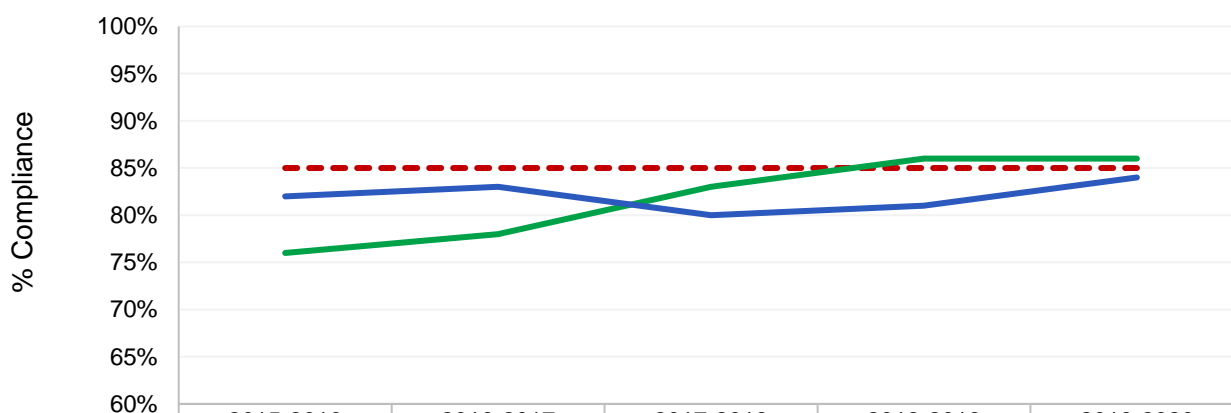
## Hand Hygiene

| Indicator  | 2019 – 2020 Rate   | Trend*  | Target |
|--|--|---|--------|
| Hand Hygiene Compliance  | Acute Care Facilities (ACF): 86%<br>Long Term Care Facilities (LTCF): 84%<br>Nursing Staff: 88%<br>Physicians: 71%<br>Clinical Support Services: 89%<br>Other: 84% |  | 85%    |
| *  = improving; at least 4 consecutive data points moving towards target<br> = deteriorating; at least 4 consecutive data points moving away from target<br> = steady; fewer than 4 consecutive data points moving in either direction PICNet BC Hand Cleaning Compliance 2018 – 2019 |  |   |        |

Hand hygiene (HH) with either soap and water or alcohol based hand rub is recognized as a key component in the prevention of Healthcare-Associated Infections (HAIs). HH is required both before and after contact with patients and their environment. The minimum provincial requirement is 200 observations per quarter for each facility with 25 or more beds. For facilities with fewer than 25 beds, the audit data is aggregated into NH data.

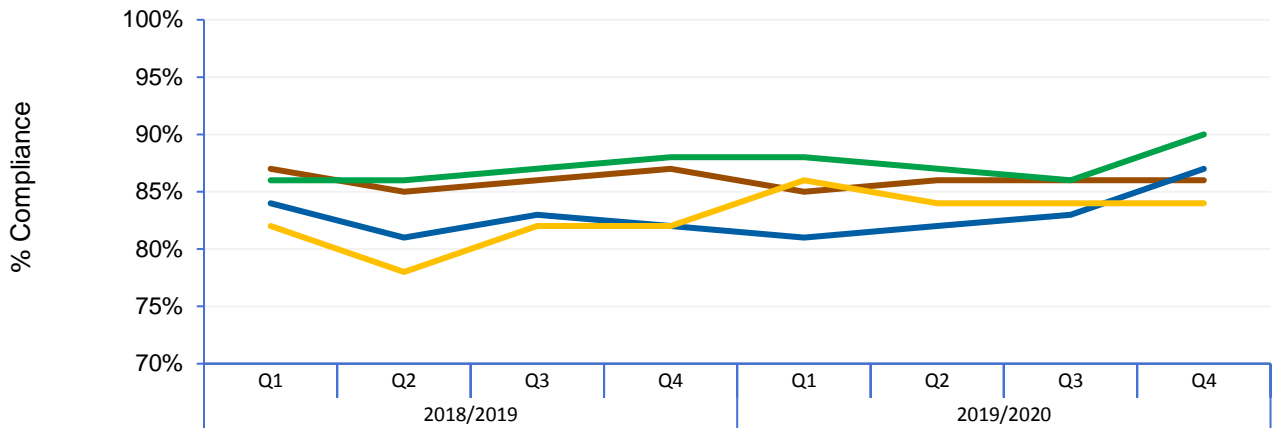
Ongoing challenges within NH are recruitment of HH auditors, and maintaining sustainability with auditing at both acute and long term care facilities.

## Hand Hygiene Compliance - Northern Health 2015-2020



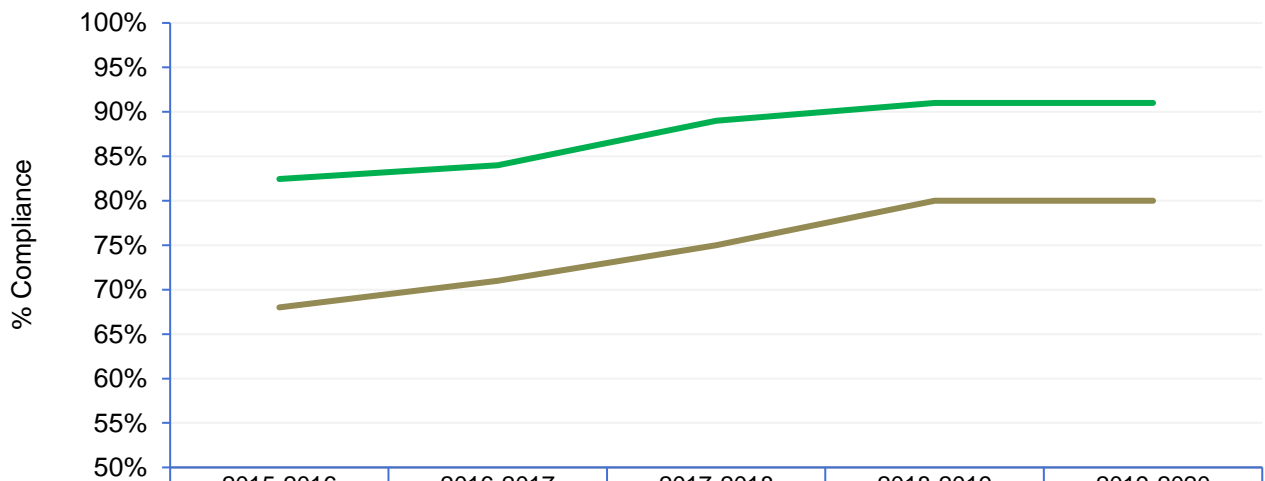
|                          | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| --- Target Performance   | 85%       | 85%       | 85%       | 85%       | 85%       |
| — Percent Compliance ACF | 76%       | 78%       | 83%       | 86%       | 86%       |
| — Percent Compliance LTC | 82%       | 83%       | 80%       | 81%       | 84%       |
| Total Opportunities ACF  | 14722     | 15758     | 19812     | 21293     | 18398     |
| Total Opportunities LTC  | 7222      | 6112      | 5423      | 5596      | 4287      |

## Hand Hygiene Compliance - NHA & Province of BC



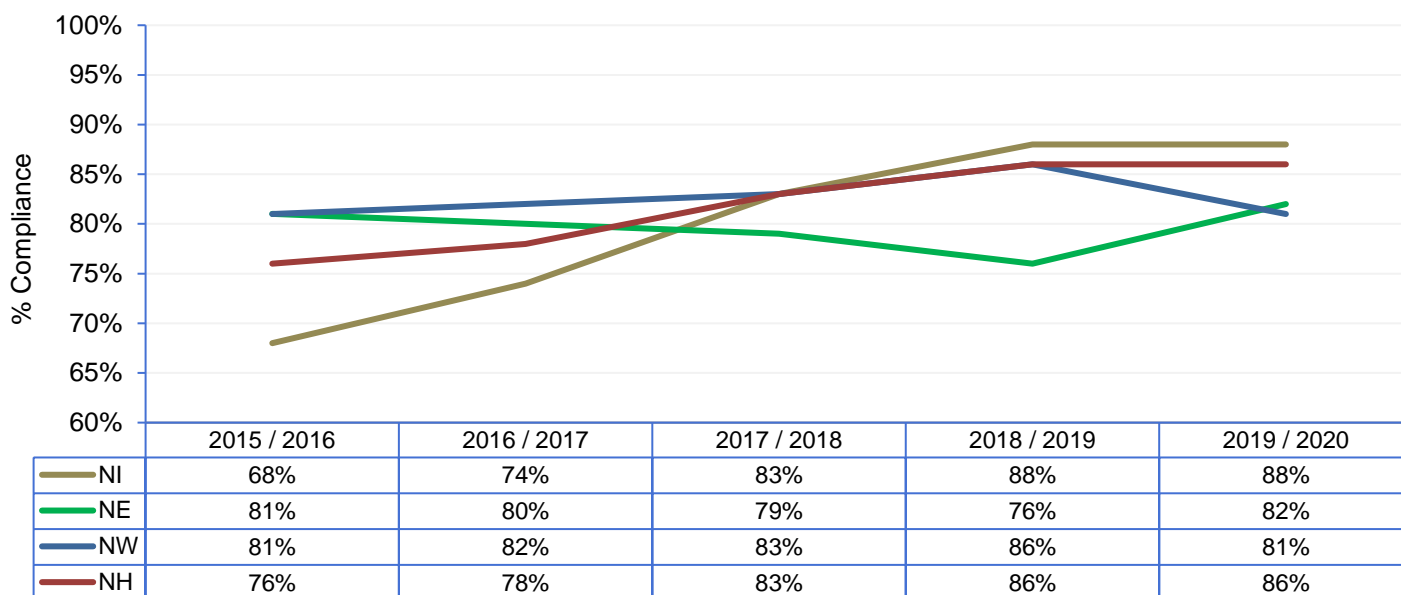
|                                       | 2018/2019 |       |       |       | 2019/2020 |       |       |       |
|---------------------------------------|-----------|-------|-------|-------|-----------|-------|-------|-------|
|                                       | Q1        | Q2    | Q3    | Q4    | Q1        | Q2    | Q3    | Q4    |
| NH Percent Compliance ACF             | 87%       | 85%   | 86%   | 87%   | 85%       | 86%   | 86%   | 86%   |
| Province of BC Percent Compliance ACF | 84%       | 81%   | 83%   | 82%   | 81%       | 82%   | 83%   | 87%   |
| Province of BC Percent Compliant LTCF | 86%       | 86%   | 87%   | 88%   | 88%       | 87%   | 86%   | 90%   |
| NH Percent Compliant LTCF             | 82%       | 78%   | 82%   | 82%   | 86%       | 84%   | 84%   | 84%   |
| NH Opportunities ACF                  | 5644      | 4505  | 5229  | 5995  | 4471      | 4306  | 4306  | 4306  |
| Province of BC Opportunities ACF      | 45724     | 25669 | 32232 | 39939 | 32876     | 33019 | 32975 | 23157 |
| Province of BC Opportunities LTCF     | 9770      | 4611  | 5698  | 5966  | 5940      | 5317  | 6645  | 5942  |
| NH Opportunities LTCF                 | 1587      | 1434  | 1195  | 1400  | 1077      | 908   | 908   | 908   |

## Hand Hygiene Compliance in Northern Health Before and After Patient Contact Averages (2015-2020)

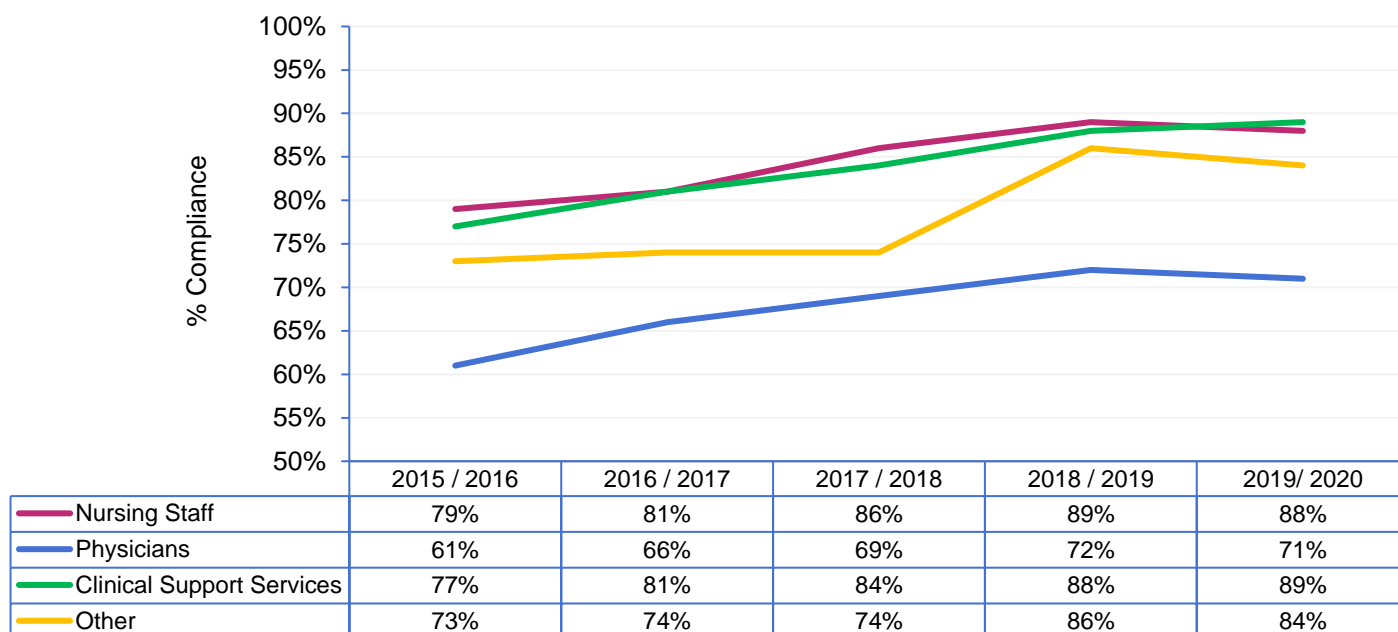


|                        | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Before Patient Contact | 68%       | 71%       | 75%       | 80%       | 80%       |
| After Patient Contact  | 82%       | 84%       | 89%       | 91%       | 91%       |

## Hand Hygiene Compliance in Northern Health Health Services Delivery Areas HSDA Averages (2015-2020)



## Hand Hygiene Compliance in Northern Health Health Care Provider Averages (2015-2020)







Overall in 2019-20 all healthcare provider groups remained consistent for their HH compliance rates.

Actions taken in 2019-20 include:

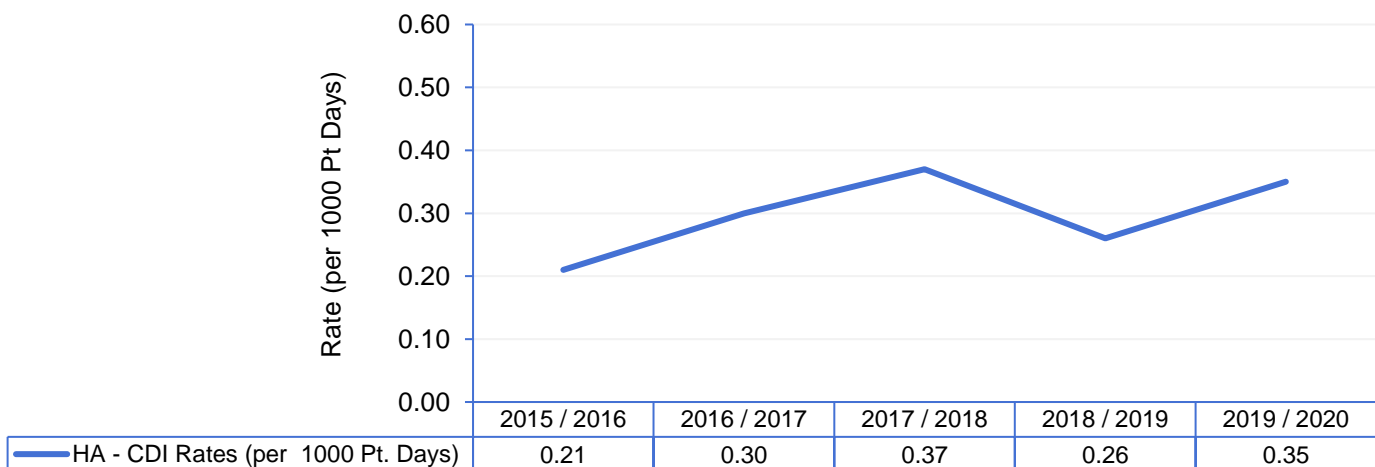
- Continual hand hygiene auditor training.
- Participation in “Stop clean your hands day” and Canadian Patient Safety week.
- Ongoing education for healthcare workers on how and when to perform hand hygiene; with feedback provided on opportunities completed or missed.
- Westech Hand Hygiene mobile app project. The web based app was designed to provide patients, families, visitors, and staff members feedback ability on observed hand hygiene practices of NH staff providing care.

## Clostridium difficile Infections (CDI)

| Indicator   | 2019 – 2020 Rate       | Trend*   | Target                   |
|---|------------------------|--|--------------------------|
| Healthcare-associated (nosocomial) CDI rates  | 0.35 per 1000 pt. days |  | < 0.30 per 1000 pt. days |
| *  = improving; at least 4 consecutive data points moving towards target<br> = deteriorating; at least 4 consecutive data points moving away from target<br> = steady; fewer than 4 consecutive data points moving in either direction |                        |  |                          |

*Clostridium difficile* is a spore forming bacterium that can cause infections of the gastrointestinal system. *Clostridium difficile* infection (CDI) is one of the most common infections acquired in health care settings as the physical environment plays a significant role in transmission of CDI, more so than any other Healthcare-associated Infection (HAI).

### HA - CDI Rates (per 1000 Pt. Days)



The annual rate of Healthcare-associated *Clostridium difficile* infection (HA-CDI) is the number of new cases of CDI in NH facilities, divided by the total number of in-patient days, multiplied by 1000.





The projected 2020-21 target is a HA-CDI rate of < 0.30 cases per 1000 pt. days.

In comparison to the Antimicrobial Resistance Surveillance, Provincial Infection Control Network BC 2018-2019 rate of 0.34 HA-CDI cases per 1000 patient days, NH rates were lower at 0.26 per 1000 pt. days in 2018 - 2019.

Actions taken in 2019-2020 include:

- The Vancouver General Hospital *C. difficile* Canine Scent Detection Team was invited to NH by Infection Prevention and Control, in partnership with Environmental Services. The team visited UHNBC in May and again in November 2019 to ascertain if areas of contamination were lowered. Assessed areas included: acute care and outpatient wards, diagnostic areas (exception laboratory department), staff support areas (staff lounges, locker areas and the Northern Medical Program physician sleep rooms), to identify unknown sources of *C. difficile* contamination. Examples of contamination alerts included: cracked chair covers, portable x-ray machine cord, furniture in staff lounges, and cloth covered chairs. Items identified were immediately cleaned by the environmental services staff with a sporicidal chemical disinfectant. Items that couldn't be properly cleaned due to damage were removed from service and sent for repair or disposal. In-the-moment education was provided to staff, clients and visitors.
- Education provided on cleaning with sporicidal for all suspected and confirmed cases
- Facilitated increased communication between front line nursing staff and environmental services.
- Increased education sessions for Health Care Workers (HCWs) regarding importance of proper protocol, signage and precautions.
- Discussed with patients, families and visitors *Clostridium difficile* transmission.

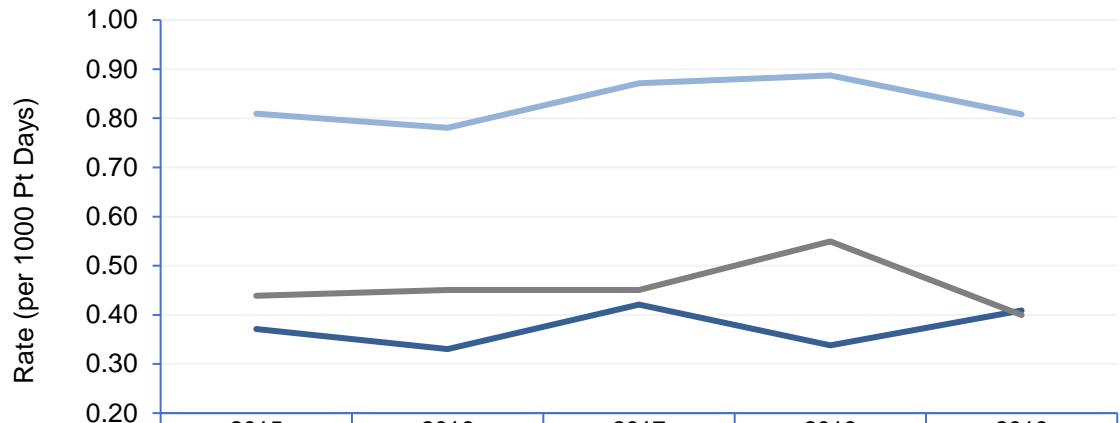
## Methicillin-resistant *Staphylococcus aureus* (MRSA)

| Indicator  | 2019 – 2020 Rate       | Trend*  | Target                   | Actual  |
|--|------------------------|---|--------------------------|---|
| Healthcare-associated (nosocomial) MRSA Infection & Colonization Rates   | 0.81 per 1000 pt. days |  | < 0.70 per 1000 pt. days | Infections 0.41/1000 pt. days<br>Colonizations 0.40/1000 pt. days |
| <small>*  = improving; at least 4 consecutive data points moving towards target<br/>  = deteriorating; at least 4 consecutive data points moving away from target<br/>  = steady; fewer than 4 consecutive data points moving in either direction</small> |                        |   |                          |   |

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a strain of *Staphylococcus aureus* resistant to a number of antibiotics such as methicillin, penicillin, and amoxicillin. MRSA

is primarily spread by skin to skin contact or contact with items and surfaces contaminated by the bacteria. The principle mode of transmission in healthcare facilities is considered to be from one (colonized or infected) patient to another via the contaminated hands of healthcare providers. Patients at greatest risk of acquiring MRSA are the elderly, those who have chronic diseases and/or undergoing invasive procedures.

### MRSA Infection and Colonization Rates



|                                   | 2015 /2016 | 2016 /2017 | 2017 /2018 | 2018 /2019 | 2019 /2020 |
|-----------------------------------|------------|------------|------------|------------|------------|
| Total MRSA (per 1000 Pt. Days)    | 0.81       | 0.78       | 0.87       | 0.89       | 0.81       |
| Infections (per 1000 Pt. days)    | 0.37       | 0.33       | 0.42       | 0.34       | 0.41       |
| Colonizations (per 1000 Pt. days) | 0.44       | 0.45       | 0.45       | 0.55       | 0.40       |

The incidence rate of MRSA is the number of newly identified cases of MRSA (colonized and infected) acquired by patients as a result of their stay in a Northern Health acute care facility, divided by the total number of in-patient days, and multiplied by 1000.

Northern Health MRSA rates have remained steady at 0.81.





Limitations include:

- Difficulty with accommodating patients with an ARO (s) or risk factors for AROs in appropriate single rooms due to overcapacity and due to many shared wards with older hospitals design structure.

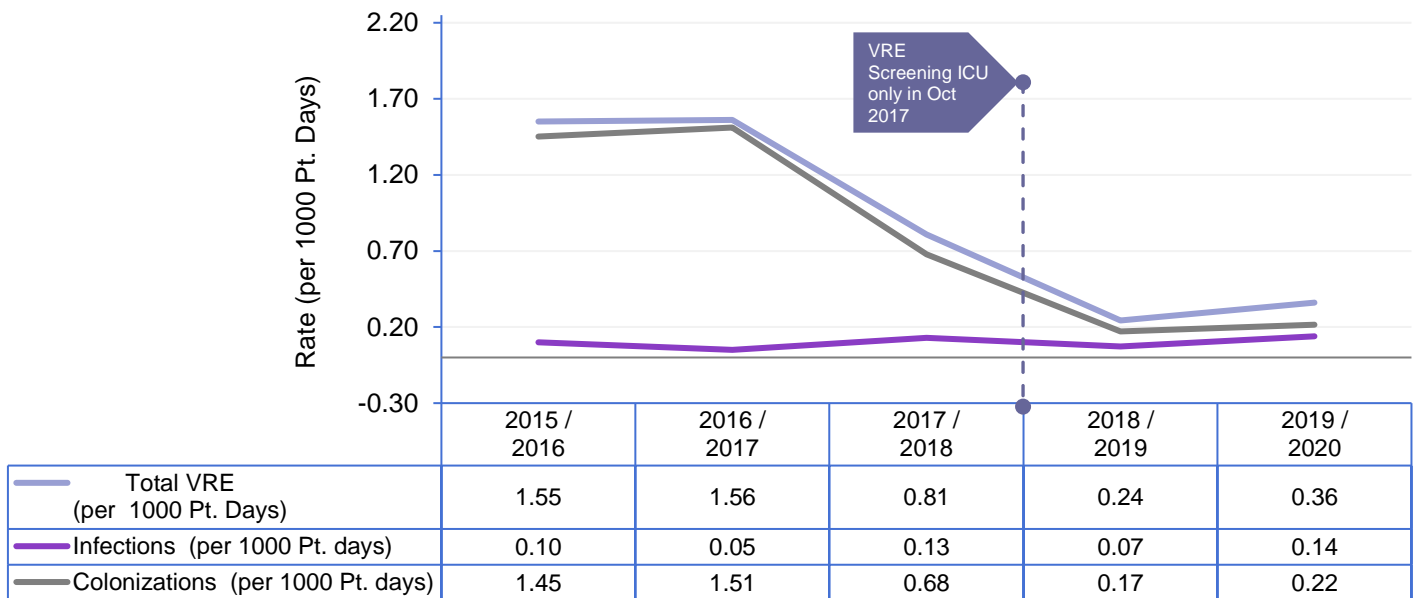
Ongoing Actions:

- All NH patients who test positive for an ARO have their health record flagged with that ARO alert.
- Continued 30-day prevalence screening of all previously tested negative in-patients.
- Infection prevention education for HCWs regarding importance of HH, environmental cleaning and appropriate cleaning of shared equipment.
- Infection prevention education for patients, families and visitors.
- Discussion with senior management around Healthcare-associated Infections (HAIs) of MRSA and VRE at operational team meetings.

## Vancomycin Resistant *Enterococci* (VRE)

| Indicator   | 2019 – 2020 Rate       | Trend *   | Target                   | Actual  |
|---|------------------------|---|--------------------------|---|
| Healthcare-associated (nosocomial) VRE Infection & Colonization Rates   | 0.36 per 1000 pt. days |  | < 0.30 per 1000 pt. days | Infections 0.14 /1000 pt. days<br>Colonizations 0.22 /1000 pt. days |
| *  = improving; at least 4 consecutive data points moving towards target<br> = deteriorating; at least 4 consecutive data points moving away from target<br> = steady; fewer than 4 consecutive data points moving in either direction |                        |   |                          |   |

### VRE Infection and Colonization Rates



In October 2017 surveillance protocol was updated to reflect the current evidence based practice: Routine screening was discontinued on all inpatient units except Adult ICU. The impact of this is focused on positive patient outcomes, this includes improved patient care, improved bed flow, ability to return to nursing care, and improved direction of precaution efforts to those that are at highest risk.

Most patients are colonized with VRE rather than infected. VRE is most often spread via contact with contaminated hands or surfaces and equipment.

The incidence rate of Vancomycin-Resistant *Enterococci* (VRE) is the number of newly identified cases of VRE (colonized and infected) acquired by patients as a result of their stay in a Northern Health acute care facility, divided by the total number of in-patient days, and multiplied by 1000.



### Ongoing Actions:

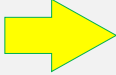



- All NH patients who test positive for VRE have their health record flagged with that ARO alert.
- Infection prevention education for HCWs regarding importance of hand hygiene, environmental cleaning and appropriate cleaning of shared equipment.
- Infection prevention education for patients, families and visitors.

## Management of Carbapenemase Producing Organisms (CPO)

Carbapenemase Producing Organisms are gram negative bacteria that harbour Carbapenemase producing genes. These genes allow the organism to be resistant to the Carbapenem family of antibiotics. Similar to VRE and MRSA, the most common mechanism of transmission is contact, both direct and indirect.

In 2019 - 2020, no cases of CPO were identified in NH.

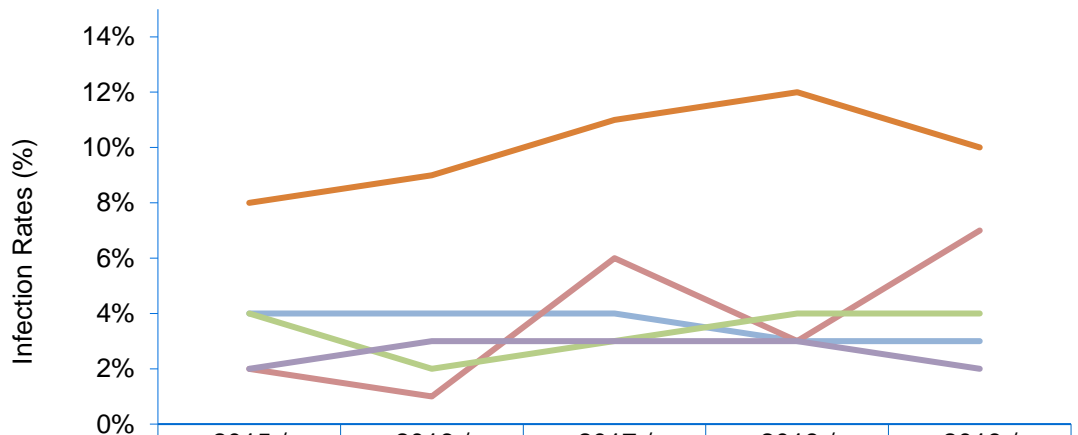
## Surgical Site Infections (SSI)






| Indicator   | 2019 – 2020 Rate     | Trend *   | Target                 |
|---|----------------------|---|------------------------|
| Surgical Site Infection Rates   | 3 per 100 procedures |  | < 3 per 100 procedures |
| *  = improving; at least 4 consecutive data points moving towards target<br> = deteriorating; at least 4 consecutive data points moving away from target<br> = steady; fewer than 4 consecutive data points moving in either direction |                      |   |                        |

Surgical Site Infections (SSI) are the most common Healthcare-associated Infections (HAIs) as found in a prevalence study done by the CDC. SSI's remain a substantial cause of morbidity, prolonged hospitalization, and death.

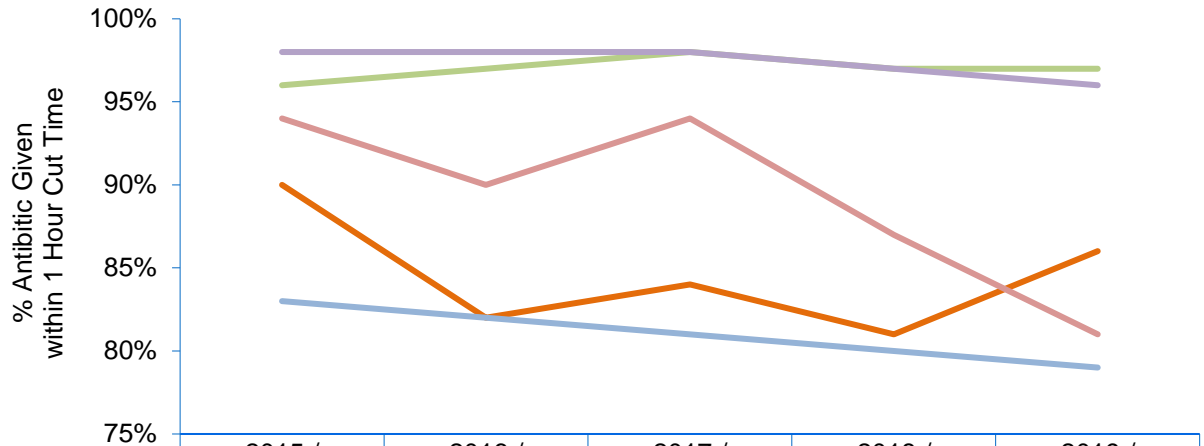
Surgical procedures surveyed for infection include: Caesarean section, total abdominal hysterectomy, total primary hip replacement, total primary knee replacement, and bowel resection (not including the rectum). Surveillance of antibiotic prophylaxis given within one hour of surgical cut time is also monitored.

### Surgical Site Infection Rates (%)



|  | 2015 / 2016 | 2016 / 2017 | 2017 / 2018 | 2018 / 2019 | 2019 / 2020 |
|--|-------------|-------------|-------------|-------------|-------------|
|  Bowel Resections Total %         | 8%          | 9%          | 11%         | 12%         | 10%         |
|  C-sections Total %               | 4%          | 4%          | 4%          | 3%          | 3%          |
|  Abdominal Hysterectomies Total % | 2%          | 1%          | 6%          | 3%          | 7%          |
|  Total Hip Replacements Total %   | 4%          | 2%          | 3%          | 4%          | 4%          |
|  Total Knee Replacements Total %  | 2%          | 3%          | 3%          | 3%          | 2%          |

## Antibiotics Given within 1 Hour of Cut Time (%)



|                          | 2015 / 2016 | 2016 / 2017 | 2017 / 2018 | 2018 / 2019 | 2019 / 2020 |
|--------------------------|-------------|-------------|-------------|-------------|-------------|
| Bowel Resections         | 90%         | 82%         | 84%         | 81%         | 86%         |
| C-sections               | 83%         | 82%         | 81%         | 80%         | 79%         |
| Abdominal Hysterectomies | 94%         | 90%         | 94%         | 87%         | 81%         |
| Total Hip Replacements   | 96%         | 97%         | 98%         | 97%         | 97%         |
| Total Knee Replacements  | 98%         | 98%         | 98%         | 97%         | 96%         |

Northern Health Surgical Site Infections (SSI) rates decreased to 3 per 100 procedures in 2019-20. The projected 2020-21 target is a continual decrease to 2.5 per 100 procedures.

Rates of antibiotic prophylaxis administered within one hour of procedure cut time have remained stable for c-sections, and total hip and knee replacements. An increase has been noted for bowel resections. A decrease has been noted in abdominal hysterectomies. Difficulty in finding prophylactic antibiotic administration information on the patient chart continues to be an ongoing challenge.

## Surgical Site Infections (SSI)

Benchmark and Rate Comparison with previous years:

| Procedure                     | Benchmark*                   | 2015/2016            | 2016/2017            | 2017/2018            | 2018/2019            | 2019/2020            |
|-------------------------------|------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Abdominal Hysterectomy</b> | 1.10-4.05 per 100 procedures | 2 per 100 procedures | 1 per 100 procedures | 6 per 100 procedures | 3 per 100 procedures | 7 per 100 procedures |
| <b>Caesarean Section</b>      | 1.46-3.82 per 100 procedures | 4 per 100 procedures | 4 per 100 procedures | 4 per 100 procedures | 3 per 100 procedures | 3 per 100 procedures |

|                                       |                                |                      |                      |                       |                       |                       |
|---------------------------------------|--------------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| <b>Bowel Resection</b>                | **3.99-9.47 per 100 procedures | 8 per 100 procedures | 9 per 100 procedures | 11 per 100 procedures | 12 per 100 procedures | 10 per 100 procedures |
| <b>Total Primary Hip Replacement</b>  | 0.67-2.40 per 100 procedures   | 4 per 100 procedures | 2 per 100 procedures | 3 per 100 procedures  | 4 per 100 procedures  | 4 per 100 procedures  |
| <b>Total Primary Knee Replacement</b> | 0.58-1.60 per 100 procedures   | 2 per 100 procedures | 3 per 100 procedures | 3 per 100 procedures  | 3 per 100 procedures  | 2 per 100 procedures  |

\*Benchmark data from National Healthcare Safety Network (NHSN) report: Data Summary for 2006 through 2008, issued December 2009. Doi: 10.1016/j.ajic.2009.10.001

#### Actions Taken in 2019 - 2020:

- Patients are monitored for up to 6 months for total hip replacement (THR) and total knee replacement (TKR).
- Facilitate communication with surgeons regarding infections.
- Clusters are investigated and discussion for quality improvements occur.
- Education provided for staff regarding the rationale behind appropriate antibiotic use pre-operatively and the importance of documentation.
- Education for patients and families prior to and after surgery.

# Quality Improvement

- Primary Care Accreditation Project (J)  
To assist Primary Care and Community Care in the accreditation process with regards to the infection prevention Required Organizational Practices.
  - The project assessed whether each ROP in infection prevention were being met, by way of staff surveys and meetings with management and stakeholders.
  - Gaps/educational needs/processes were identified as areas for Primary/Community Care and Infection Prevention and Control to collaborate on, to meet these specific ROP's.
    - 1) MDRD lead contacted sites to identify single use items/reprocessing being done at individual sites, with education and correction of practice. Education sessions were provided for HDSA's. Follow up was to be done in the upcoming year.
    - 2) Discussions with management/stakeholders and survey feedback determined education needs and informational sessions started with each HSDA.
    - 3) Staff were encouraged by managers to complete education needed to fulfill ROP requirements, through platforms like the Learning Hub.
    - 4) A Hand Hygiene surveillance system within Primary/Community Care was discussed and initial steps organized. Education and guidance provided by Infection Prevention and Control, using the process of Hand Hygiene surveillance that was established within acute care. Processes used in acute care were modified, in order to utilize these types of surveillance in Primary/Community Care, and to also meet the infection control ROP's.
- Medical Device Reprocessing Department
  - Work continues with the Home Birth Program's instrument needs for the midwives at UHNBC. There is a process for ordering new bundles and for tracking the bundles once they have left the reprocessing department. Midwives must fill out a form for "Borrowing equipment". A credit card number is attached in the event that equipment and instruments do not stay in the HA if the midwife leaves. Instruments are signed in and out each time they are borrowed.
  - Surgical count form and Operative record form revision (with Sue Carpenter and other NHA OR reps)
  - Fraser Lake sterile storage and procedure room organization (pictures to follow). Sterile reprocessing has been removed from the site and instruments are now transported to St. John Hospital (SJH) in Vanderhoof for reprocessing. Assisted with procurement of new instruments, instrument marking, tray set up, and the communication process between the sites.
  - New facility: Fort St. James clinic – Assisted with procurement of new instruments, instrument marking, tray set up, and transportation to SJH for reprocessing.

# Outbreak Management

Northern Health uses a multidisciplinary team approach to manage outbreaks. The team consists of site medical staff, nursing, support services, administration and representation from Infection Prevention and Control, Public Health, Medical Health Officers, Environmental Health Officers, Workplace Health & Safety (WH&S) and external resources such as BC Ambulance.

Outbreak meetings occur with each outbreak, the frequency of the meetings is dependent on the type of and intensity of outbreak. After the outbreak is declared over a debrief session occurs.

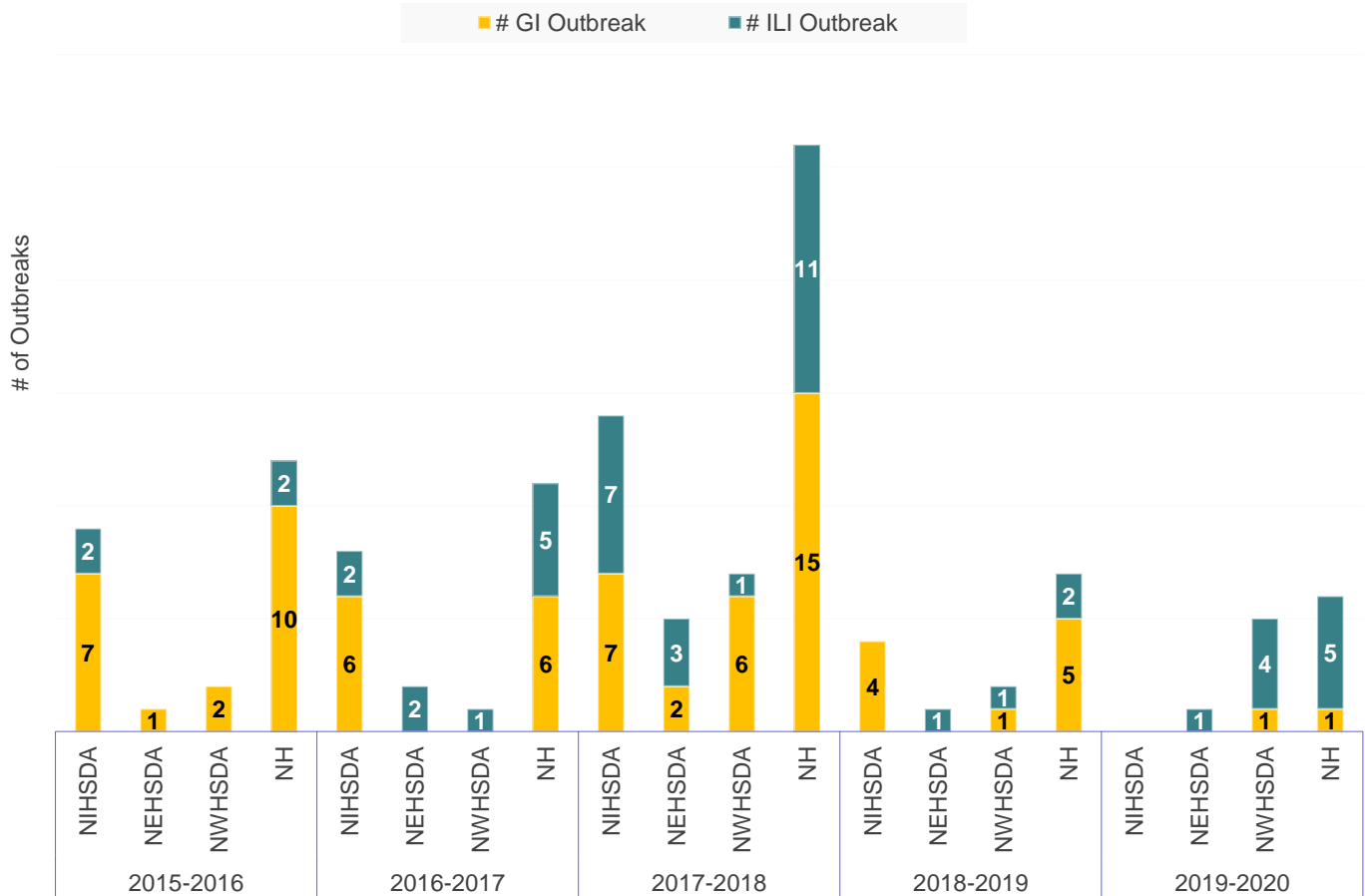
The Medical Health Officer retains primary responsibility for the investigation and management of communicable disease outbreaks within Northern Health. Members of the Outbreak Prevention and Management Team (OPMT) provide service to the affected patients/residents and/or units and work collaboratively to ensure a timely and coordinated response to an outbreak by:

- Ensuring a coordinated response to outbreaks thereby limiting morbidity, mortality and associated costs.
- Ensuring a timely communication to the appropriate stakeholders regarding an outbreak.
- Providing expertise and consultation to assist in the management of complex issues.
- Facilitating documentation of outbreaks and ensure timely distribution of same to stakeholders.
- Providing data that allows evidence-based recommendations for policy and practice that may help prevent future outbreaks.
- Facilitating the provision of resources (human and financial) to assist with outbreak investigation, management and control.

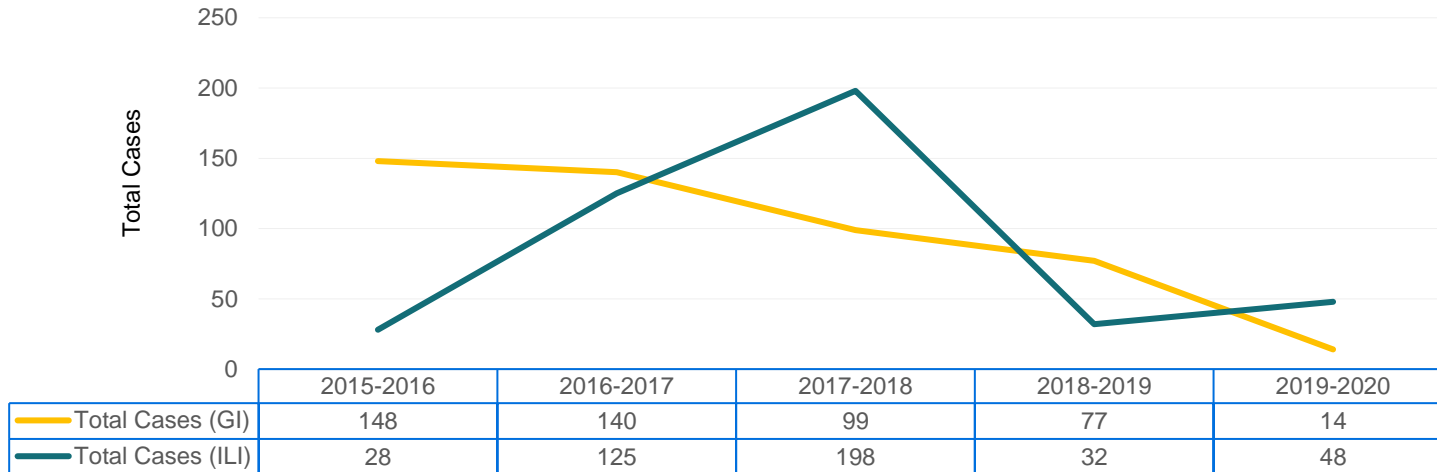
| Responsible Organism | # of Staff Affected | # of Patients Affected | Dates / Length of Outbreak | Facility Name and Location     |
|----------------------|---------------------|------------------------|----------------------------|--------------------------------|
| ILI – Influenza A    | 0                   | 4                      | Dec 26, 2019 – Jan 6, 2020 | Dawson Creek District Hospital |
| GI – Norovirus       | 6                   | 8                      | Dec 26, 2019 – Jan 7, 2020 | Bulkley Lodge                  |
| ILI – Influenza B    | 0                   | 6                      | Jan 14 – 22, 2020          | Acropolis Manor                |

| Responsible Organism | # of Staff Affected | # of Patients Affected | Dates / Length of Outbreak | Facility Name and Location |
|----------------------|---------------------|------------------------|----------------------------|----------------------------|
| ILI – Influenza B    | 0                   | 7                      | Jan 19 – 30, 2020          | Bulkley Lodge              |
| ILI - Unknown        | 0                   | 3                      | Feb 17 – 24, 2020          | Acropolis Manor            |
| ILI - Influenza A    | 3                   | 22                     | March 14 – April 6, 2020   | Terrace View Lodge         |

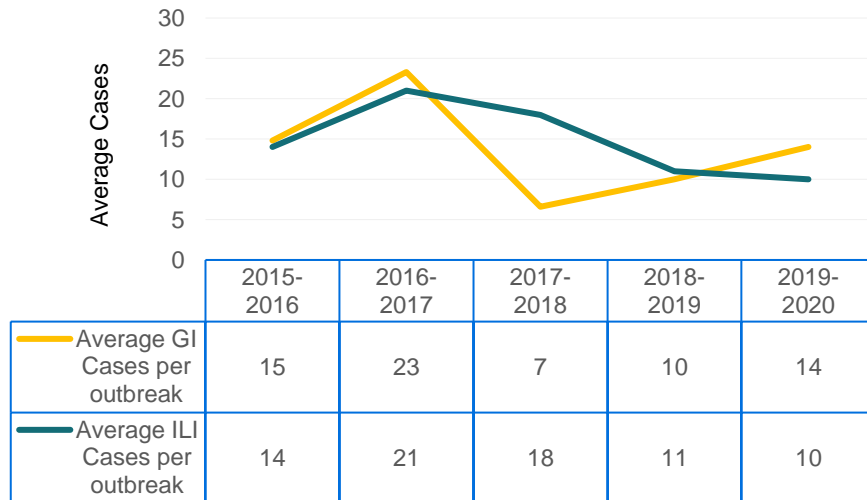
## NH # of Outbreaks per HSDA 2015 - 2020



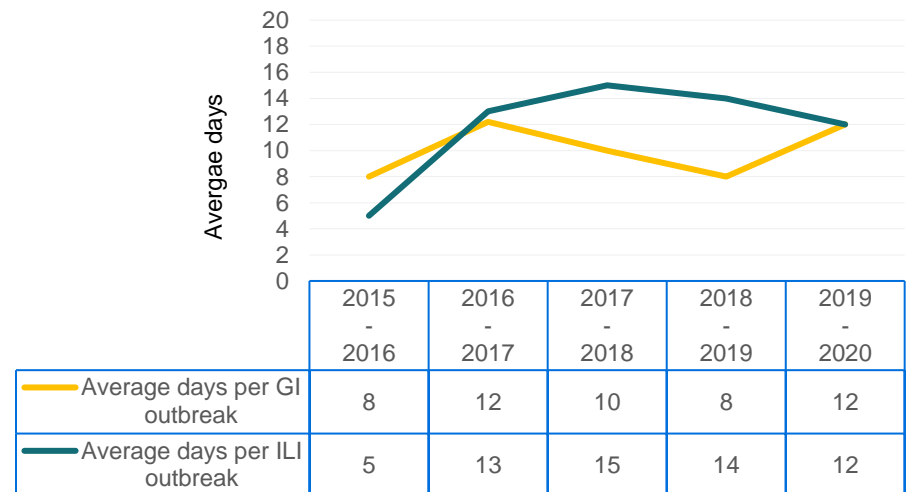
### NH Overall Total (GI & ILI) Total cases per Outbreak 2015 - 2020



### NH Overall Total (GI & ILI) Average cases per Outbreak 2015 - 2020



### NH Overall Total (GI & ILI) Average days per Outbreak 2015 - 2020





# Medical Device Reprocessing Department (MDRD)

## **Education:**

The Coordinator of MDRD along with Infection Prevention and Control continues to support the medical device reprocessing technicians' education needs by providing information, and online educational opportunities. A regularly updated communication book is available in each location, providing the staff current reprocessing information. A Learning Hub module is available regarding high-level disinfection of transducers. The module provides current education for staff (required to complete yearly competencies) as well as remaining up to date for the MDRD yearly audits and for Diagnostic Accreditation.

MDRD staff are very creative with their learning needs often reaching out for advice and direction when they notice inconsistency or unsafe practice; this allows the coordinator a perfect opportunity for department specific education and support.

MDR works closely with Support Services and other departments within the Health Service area to identify problem areas that require education and change, and to field questions from staff. As an example, during the initial stages of Covid-19, the laundry department was being asked to wash homemade surgical gowns that were brought into the facility. The MDR department was able to reference the Best Practice Guidelines, relating to procurement of medical devices, which resulted in no homemade gowns and masks placed in service.

## **Medical Device Reprocessing Audits:**

Medical Devices Reprocessing Departments continue to score well during the audit checklist. Quality improvement initiatives (2019/20) at Mills Memorial Hospital, Bulkley Valley District Hospital, Kitimat General Hospital and Prince Rupert District Hospital have addressed some of the overall inventory and storage concerns from previous audits. Mills Memorial replaced much of the wood shelving and cabinets with stainless steel counters and shelving. Redundant stocking was removed from the Operating Rooms and small hallway storage rooms. The overall work area is more organized and environmentally cleaner.

Bulkley Valley added extra stainless steel shelving for sterile supplies and continues to reduce inventory by standardizing. The decontamination sink was replaced with a height adjustable sink. Kitimat completed a 5 S QI project and now meets CSA standards for sterile storage. This site has taken on further QI projects including moving the small endoscopy procedure room into the Operating Room which is a more spacious area allowing for less congestion and better flow for patient movement in and out. Prince Rupert's sterile storage is divided into 4 small rooms. The rooms are now identified by surgical specialties for improved efficiencies.

Dawson Creek District Hospital opened the renovated MDRD on Oct 2019. The new sterilizer was installed Feb 2020. Renovation before and after pictures are included in this report



| Facilities Audited                                 | 2016<br>Percentage | 2017<br>Percentage | 2018<br>Percentage | 2019<br>Percentage |
|--|--------------------|--------------------|--------------------|--------------------|
| Bulkley Valley District Hospital - Smithers        | 99.64              | 98.94              | 98.94              | 98.94              |
| Dawson Creek and District Hospital                 | 94.88              | 96.91              | 96.91              | 94.16              |
| Fraser Lake D&T Centre                             |                    |                    |                    |                    |
| Fort Nelson General Hospital                       |                    | 99.35              | 99.35              | 98.05              |
| Fort St John Hospital                              | 98.84              | 98.05              | 98.05              | 97.66              |
| GR Baker Memorial Hospital - Quesnel               | 98.15              | 98.12              | 98.12              | 97.74              |
| Kitimat General Hospital                           | 96.95              | 95.53              | 95.53              | 96.08              |
| Lakes District Hospital - Burns Lake               |                    | 99.22              | 99.22              |                    |
| Mackenzie and District Hospital                    |                    |                    |                    | N/A                |
| Mills Memorial Hospital - Terrace                  | 97                 | 98.92              | 98.92              | 98.57              |
| Prince Rupert Regional Hospital                    | 90.91              | 98.95              | 98.95              | 98.95              |
| Queen Charlotte Islands Hospital                   | 92.41              |                    |                    |                    |
| St John Hospital - Vanderhoof                      | 96.15              | 99.57              | 99.57              | 99.58              |
| Stewart Health Centre                              |                    |                    |                    | N/A                |
| Stikine D&T Centre - Dease Lake                    |                    |                    |                    | N/A                |
| University Hospital of Northern BC - Prince George | 96.55              | 95.56              | 95.56              | 96.55              |
| Wrinch Memorial Hospital - Hazelton                | 99.16              | 95.58              | 95.58              | 95.58              |
| Total Average Score                                | **96.82            | **98.31            | **98.31            | 97.63              |
| * For all sites                                    |                    |                    |                    |                    |
| **For sites with Operating room                    |                    |                    |                    |                    |

## 2019 Overall Average Compliance Scores

| Practice Review Category                                 | Average for Acute Care sites |
|--|------------------------------|
| <b>1.0</b> Purchase of Medical Devices and Equipment     | 99.17%                       |
| <b>2.0</b> Environmental Requirements                    | 88.70%                       |
| <b>3.0</b> Policies and Procedures                       | 100%                         |
| <b>4.0</b> Education & Training                          | 93.78%                       |
| <b>5.0</b> Occupational Health & Safety                  | 97.50%                       |
| <b>6.0</b> Cleaning – Reusable Devices                   | 96.31%                       |
| <b>7.0</b> Liquid Chemicals for Disinfections            | 95%                          |
| <b>8.0</b> Disinfection – Reusable Medical Devices       | 98.94%                       |
| 8.1 Pasteurization                                       | 100%                         |
| <b>9.0</b> Reprocessing Endoscopy                        | 99.00%                       |
| 9.1 Disinfectant   | 100%                         |
| 9.2 Endoscope Process                                    | 100%                         |
| 9.3 Drying & Storage                                     | 95.23%                       |
| 9.4 Documentation of AER and HLD                         | 100%                         |
| <b>10.0</b> Sterilization – Reusable Medical Devices     | 98%                          |
| 10.1 Steam Monitoring                                    | 98.26%                       |
| 10.2 Flash Sterilization                                 | 90.49%                       |
| 10.3 Flash Documentation                                 | 94.66%                       |
| 10.4 Table Top Sterilizer                                | 100%                         |
| 10.5 SS1 – Monitoring & Documentation                    | 100%                         |
| 10.6 D – Sterrad   | 100%                         |
| 10.7 Sterrad – Monitoring & Documentation                | 100%                         |
| 10.8 E – Ethylene Oxide (ETO)                            | N/A                          |
| 10.9 ETO Monitoring & Documentation                      | N/A                          |
| <b>11.0</b> Storage & Use of Reprocessed Medical Devices | 96%                          |
| <b>12.0</b> Quality Assurance                            | 100%                         |
| <b>13.0</b> Single Use Medical Devices                   | 90%                          |
| <b>14.0</b> Long Term Care, HCC, PH Settings             | 70%                          |
| <b>15.0</b> Dental Clinics                               | 100%                         |
| Average Across all categories                            | <b>97.63</b>                 |

## Long Term Care Facilities Audited

Long Term Care facilities were reviewed in 2020. Soiled and clean utility rooms are kept separate, at the very least soiled is separate from clean. Patient care items are kept separate from sterile supplies and most cardboard is removed on a regular basis. There are no reprocessing areas within the facilities. Facilities that require instruments or basins to be reprocessed will transport them to the hospital Medical Device Reprocessing Department (MDRD) to be reprocessed. Single use devices continue to be encouraged at more remote sites.

# Accreditation

Accreditation Canada preparation for community and primary care was occurring throughout 2019-2020.

Accreditation deferred until Covid-19 pandemic is resolved.



# Appendix 1 – Surveillance Case Definitions

## **Clostridium *difficile* infection (CDI):**

A diagnosis of CDI applies to a person with:

- Presence of diarrhea (e.g. three liquid or loose stools within a 24 hour period) or toxic megacolon without other known etiology, and laboratory confirmation of the presence of *C. difficile* toxin A and or B (positive toxin or culture with evidence of toxin production or detection of toxin genes)
- Diagnosis of typical pseudo-membranes or sigmoidoscopy or colonoscopy or
- Histological/pathological diagnosis of CDI with or without diarrhea

A CDI case is considered healthcare-associated when:

- Patient develops symptoms in hospital equal to or greater than 72 hours after admission; or
- Symptoms occur in a patient that has been hospitalized or discharged within the previous 4 weeks, and the patient is not in a long term care facility

## **Antibiotic Resistant Organism (ARO) Case Definition:**

An ARO case is defined as meeting ALL of the following criteria:

- Laboratory identification of an ARO;
- Patient must be admitted to an acute care facility
- ARO must be newly identified from the specimen collected at the time of hospital admission or during hospitalization
- Patient must have no known history of either infection or colonization with an ARO in any BC acute care facilities

This includes:

- ARO identified for the first time during hospital admission
- ARO newly identified in the emergency dept. and then admitted to your acute care facility;

This does not include:

- ARO cases previously identified by NH or other BC acute care facilities
- ARO cases identified in the ER or outpatient clinics but are not subsequently admitted
- ARO cases re-admitted

An ARO case is considered Healthcare-associated Infection (HAI) based on the following criteria:

- Length of time in acute care facility is >48 hours prior to ARO identification
- Prior healthcare facility admission >24 hours within the previous 12 months
- Prior history of chemotherapy, dialysis, or surgery in healthcare facility within the previous 12 months
  - Indwelling catheter or other medical device (excluding Foley catheters and peripheral IV's) at time of admission which was installed at your facility

## **Surgical Site Infection:**

Surgical procedures surveyed for infection include: caesarean sections, total abdominal hysterectomies, total primary hip and knee replacements, and bowel resections that do not involve the rectum.

## **Gastrointestinal (GI) illness case definition:**

A case of probable GI infection is defined as any one of the following conditions that cannot be attributed to another cause (e.g., laxative use, medication side effect, diet, prior medical condition):

- Two or more episodes of diarrhea in a 24-hour period above what is considered normal for that individual
- Two or more episodes of vomiting in a 24-hour period
- One episode each of vomiting and diarrhea in a 24-hour period
- One episode of bloody diarrhea
- Positive culture for a known enteric pathogen with a symptom of GI infection (e.g., vomiting, abdominal pain, diarrhea)

## **Outbreak Definition**

Three or more cases of probable viral GI infection, potentially related within a four-day period, within a specific geographic area (e.g. unit, ward)

## **Influenza-like illness (ILI) case definition:**

An acute onset of respiratory illness with cough and fever and with one or more of the following: headache, sore muscles/joints/, extreme fatigue/weakness or sore throat.

## **Outbreak Definition**

Two or more cases of Influenza like Illness in clients and/or staff within a seven-day period, with at least one case identified as a resident.

