

Annual Report

2018 - 2019

Infection Prevention and Control



northern health
the northern way of caring

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Executive Summary

The Northern Health Infection Prevention (IP) program's annual report highlights achievements and continued challenges facing Infection Prevention, Medical Device Reprocessing and Antimicrobial Stewardship practices throughout the region. The report summarizes the progress of programs and initiatives, education, hand hygiene compliance, outbreaks, and annual infection rates within Northern Health (NH) during the fiscal year 2018 - 2019 (April 1, 2018 – March 31, 2019).

Regional:

- Updated the Outbreak Management manual
- UTI Surveillance Program at Long Term Care (LTC) test sites
- Patient, Family Hand Hygiene project
- Cleaning hand book
- NHA Perinatal Committee
- Basic Infection Prevention Workbook orientation mandatory for new hires
- Coordination with Emergency preparedness in Wild fires
- Accreditation
- Antimicrobial Stewardship Working group

Provincial:

- Participated in the Varicella Zoster virus (Chicken Pox) Guidelines
- Provincial Emerging Pathogens Learning modules development
- CBIC Working group meetings
- Involved in Hand Hygiene Provincial Communications Campaign
- Participated in the updated provincial Respiratory Infection Outbreak guidelines
- Participated in the provincial working group for revision of the BC Hand Hygiene Best Practices
- BC Ministry of Health – UV Cleaning and Robots Working group
- Participated with BC Clinical Support Services product review

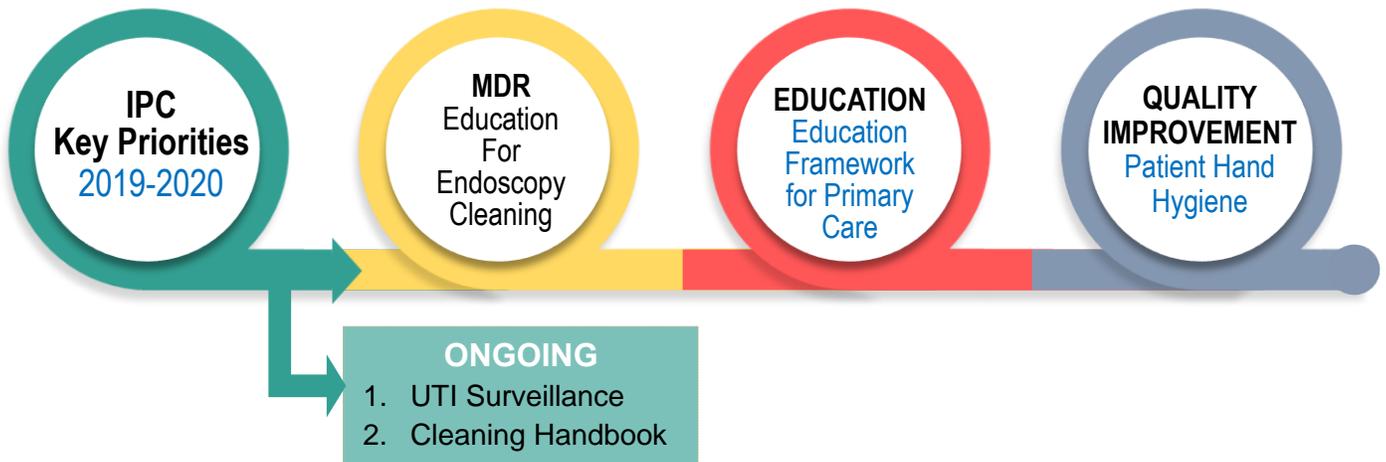
National:

- Participated in Canadian Nosocomial Infection Surveillance Program (CNISP), CNAPP rural prevalence study
- 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), PICNet Education Steering Committee, PHSA Critical Shortage Working group, Surveillance and Applied Epidemiology (SAIEG), SSI Surveillance Canada, Health Care Facility Design and Home and Community Care

Medical Device Reprocessing Department (MDRD):

- Participated in Ministry of Health working group
- Participated in Provincial Medical Device Reprocessing Committee
- Member of Value Analysis Team for Endoscopy
- Accreditation preparation 2020
- Team member for Medical Device Reprocessing renovation project for Dawson Creek District Hospital
- Northern Health representative for PHSA Request for Proposals' (RFP) related to Medical Device Reprocessing MDR
- Completed Intermediate Quality Improvement and Green Belt

Based on this year's report, the key priorities for 2019 - 2020 will be:



Introduction

The Northern Health Infection Prevention and Control (IPC) program is part of the Vice President Planning, Quality, and Information Management portfolio. The program is dedicated to the prevention and reduction of healthcare associated illness in Northern British Columbia residents 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 and a Medical Device Reprocessing Coordinator. The group (including a dedicated practitioner for long term care), 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 IPAC 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 IPAC Council, the NH Medical Advisory Committee, and the Senior Executive Team.

The IPAC 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 Members

Deanna Hembroff
IPAC Manager

Infection
Prevention &
Control
Practitioners

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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 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 MDRD 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.
- We do 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:

- Health care workers, 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 for acute, community and long term care
- Surgical site infection surveillance
- 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
- Outbreak Management
- Community outreach i.e. Sparks (Girl Guides), Senior Centres, summer camp, local high school, Kidney Foundation PG chapter, Junior volunteers, needle exchange, Group homes

Medical Device Reprocessing Department

Education:

Reprocessing technicians hired in Northern Health shall successfully complete a recognized Medical Device Reprocessing educational program. The Vancouver Community College program is offered via distance education for those in remote locations. Orientation and practical hours are obtained at the site of employment. It is recommended to obtain some orientation hours at University of Northern British Columbia Hospital.

Certification through CSA continues to be encouraged, with re-certification expected every 5 years. All acute sites have at minimum one CSA or IAHCSSM certified sterile technician.

Training and orientation is usually provided by a senior sterile technician. A checklist is used and signed off upon completion of a task. This checklist along with yearly competencies is kept on file with the department manager.

Supporting an online educational opportunity for staff interested in taking an Endoscopy technician course through Sterile Processing University will be a key priority this year. Weekly meetings will allow students of the course to receive feedback and support while completing the course. They will then be qualified to work as technicians in the Endoscopy departments, and will be responsible for cleaning, high level disinfecting, inspecting and storing all semi-critical flexible endoscopes.

There are few formal educational opportunities in NH, however sterile technicians understand that it remains their responsibility to seek continuous educational hours and to keep up to date with standards. Learning opportunities provided include invitations to webinars, on-line workbooks, courses, self-studies, as well as the Learning Hub.



In-services were provided as needed with the purchase of new equipment or consumables.

There are educational opportunities accessed on-line that provide credit hours for education.

These include:

- Webinars
- On-line courses
- Training videos
- Power Points
- In-services

The Vancouver Community College (VCC) medical device reprocessing technician theory and practical course offered through the College of New Caledonia (CNC) in Prince George did not offer enrollment since 2017. At the time of this report, CNC is working on replacing the VCC course with an approved medical device reprocessing technician course exclusive to CNC. The next intake is planned for 2019 or 2020.

Surveillance

The IPAC 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](#).

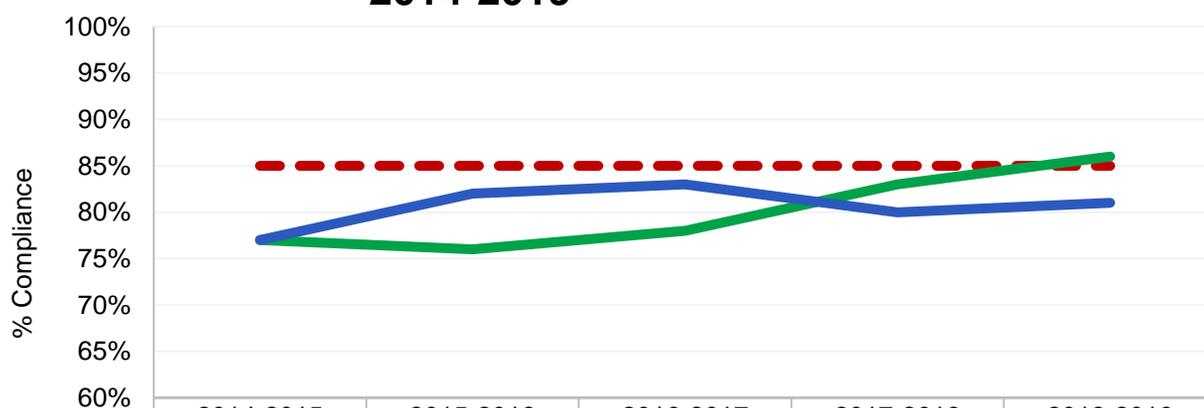
Hand Hygiene

| Indicator | 2018 – 2019 Rate | Trend* | Target |
|--|--|---|--------|
| Hand Hygiene Compliance | Acute Care Facilities (ACF): 86% Long Term Care Facilities (LTCF): 81% Nursing Staff: 89% Physicians: 72% Clinical Support Services: 89% Other: 86% |  | 85% |
| *  = improving; at least 4 consecutive data points moving towards target  = deteriorating; at least 4 consecutive data points moving away from target  = 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.

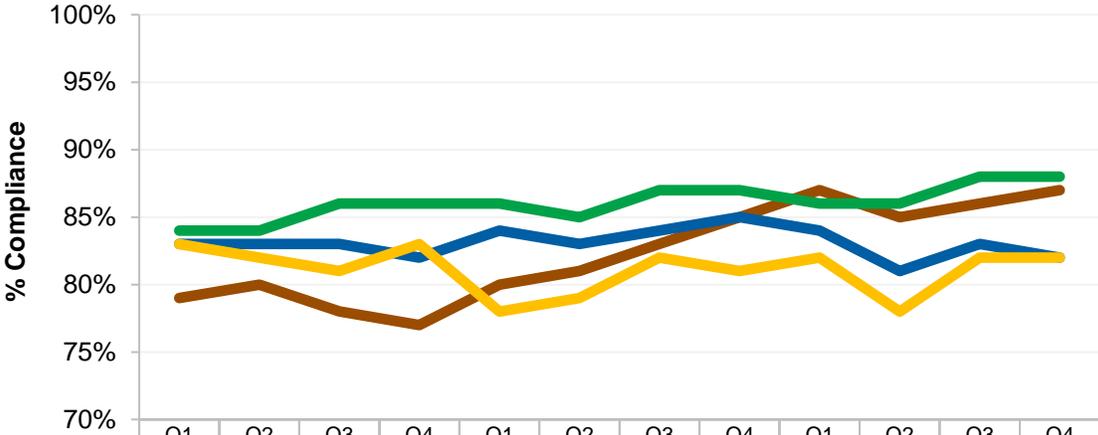
Ongoing challenges within NH are recruitment of HH auditors, and maintaining sustainability with auditing at both acute and long term care facilities.

Hand Hygiene Compliance - Northern Health 2014-2019



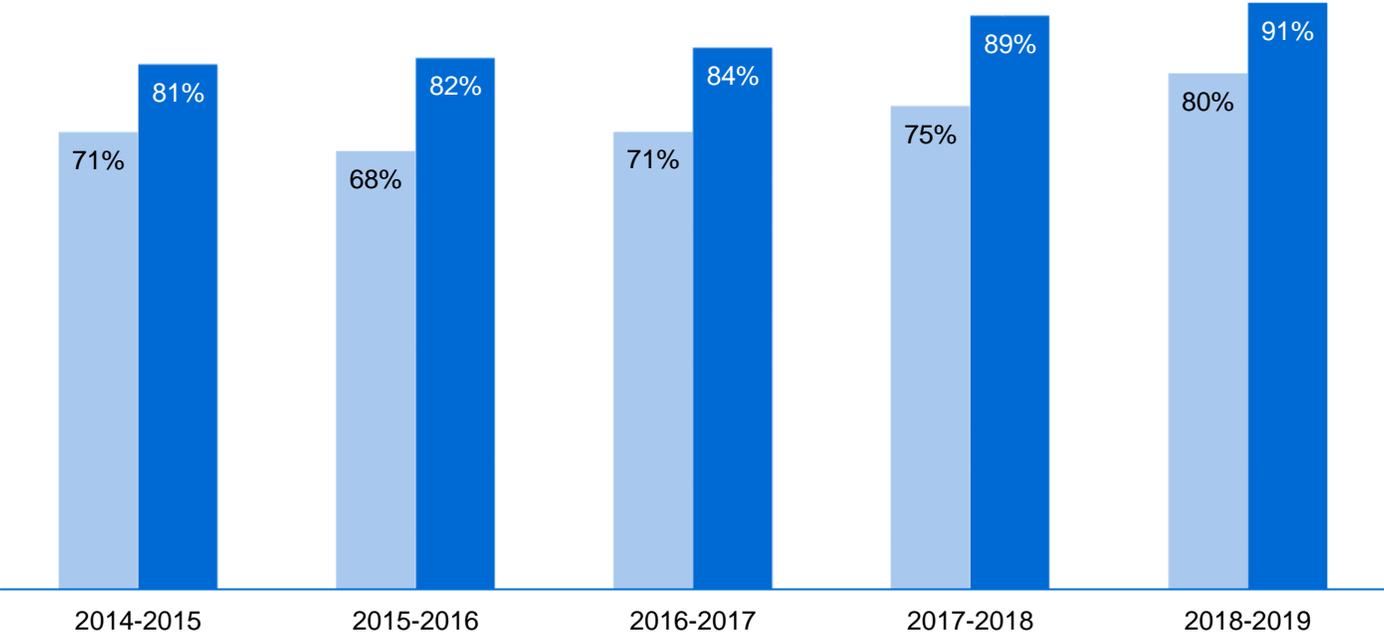
| | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| Target Performance | 85% | 85% | 85% | 85% | 85% |
| Percent Compliance ACF | 77% | 76% | 78% | 83% | 86% |
| Percent Compliance LTC | 77% | 82% | 83% | 80% | 81% |
| Total Opportunities ACF | 13763 | 14722 | 15758 | 19812 | 21293 |
| Total Opportunities LTC | 8237 | 7222 | 6112 | 5423 | 5596 |

Hand Hygiene Compliance - NHA & Province of BC

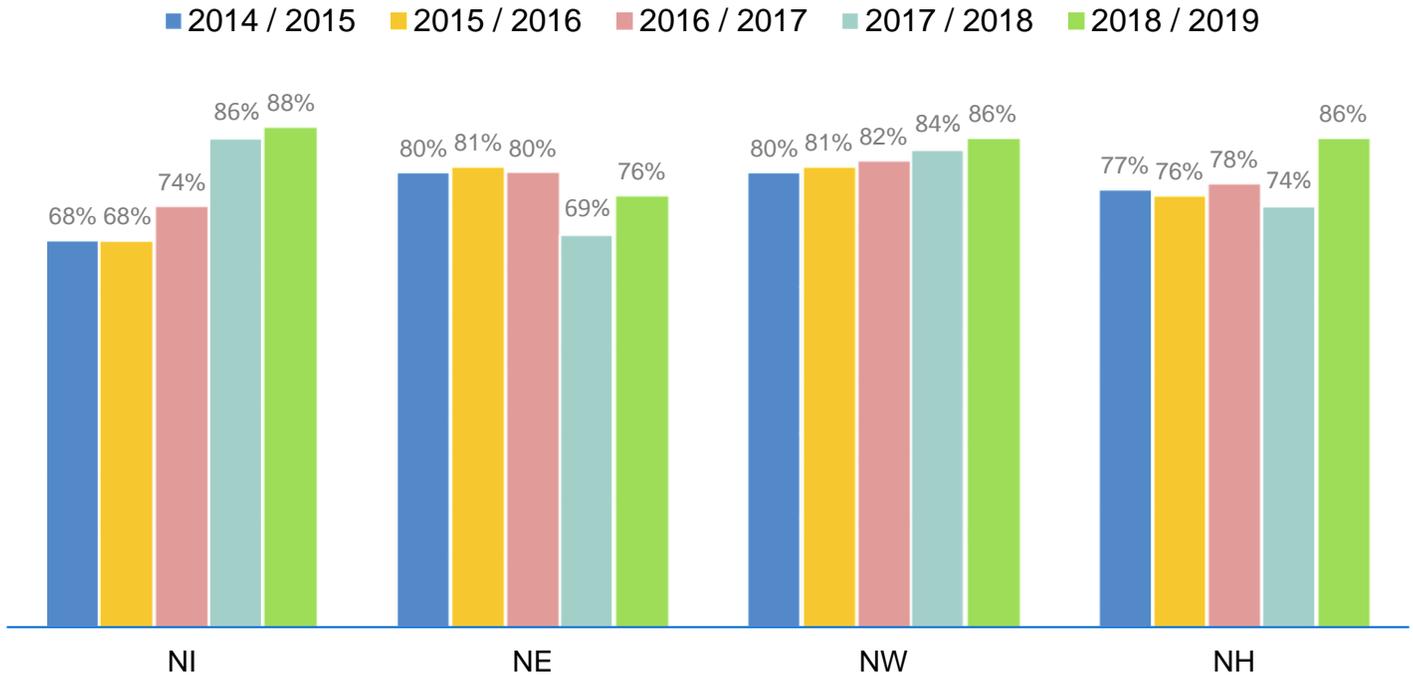


| | 2016/2017 | | | | 2017/2018 | | | | 2018/2019 | | | |
|---------------------------------------|-----------|-------|-------|-------|-----------|-------|-------|-------|-----------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| NH Percent Compliance ACF | 79% | 80% | 78% | 77% | 80% | 81% | 83% | 85% | 87% | 85% | 86% | 87% |
| Province of BC Percent Compliance ACF | 83% | 83% | 83% | 82% | 84% | 83% | 84% | 85% | 84% | 81% | 83% | 82% |
| Province of BC Percent Compliant LTC | 84% | 84% | 86% | 86% | 86% | 85% | 87% | 87% | 86% | 86% | 88% | 88% |
| NH Percent Compliant LTC | 83% | 82% | 81% | 83% | 78% | 79% | 82% | 81% | 82% | 78% | 82% | 82% |
| NH Opportunities ACF | 3360 | 3581 | 3632 | 5187 | 3653 | 4524 | 5122 | 6534 | 5644 | 4505 | 5229 | 5995 |
| Province of BC Opportunities ACF | 47640 | 47013 | 48981 | 63917 | 41694 | 38974 | 43269 | 53406 | 45724 | 25669 | 32232 | 39939 |
| Province of BC Opportunities LTC | 11688 | 12610 | 11944 | 13996 | 10220 | 10289 | 9883 | 11438 | 9770 | 4611 | 4492 | 5026 |
| NH Opportunities LTC | 1191 | 1645 | 1438 | 1902 | 1094 | 1330 | 1273 | 1746 | 1587 | 1434 | 1195 | 1400 |

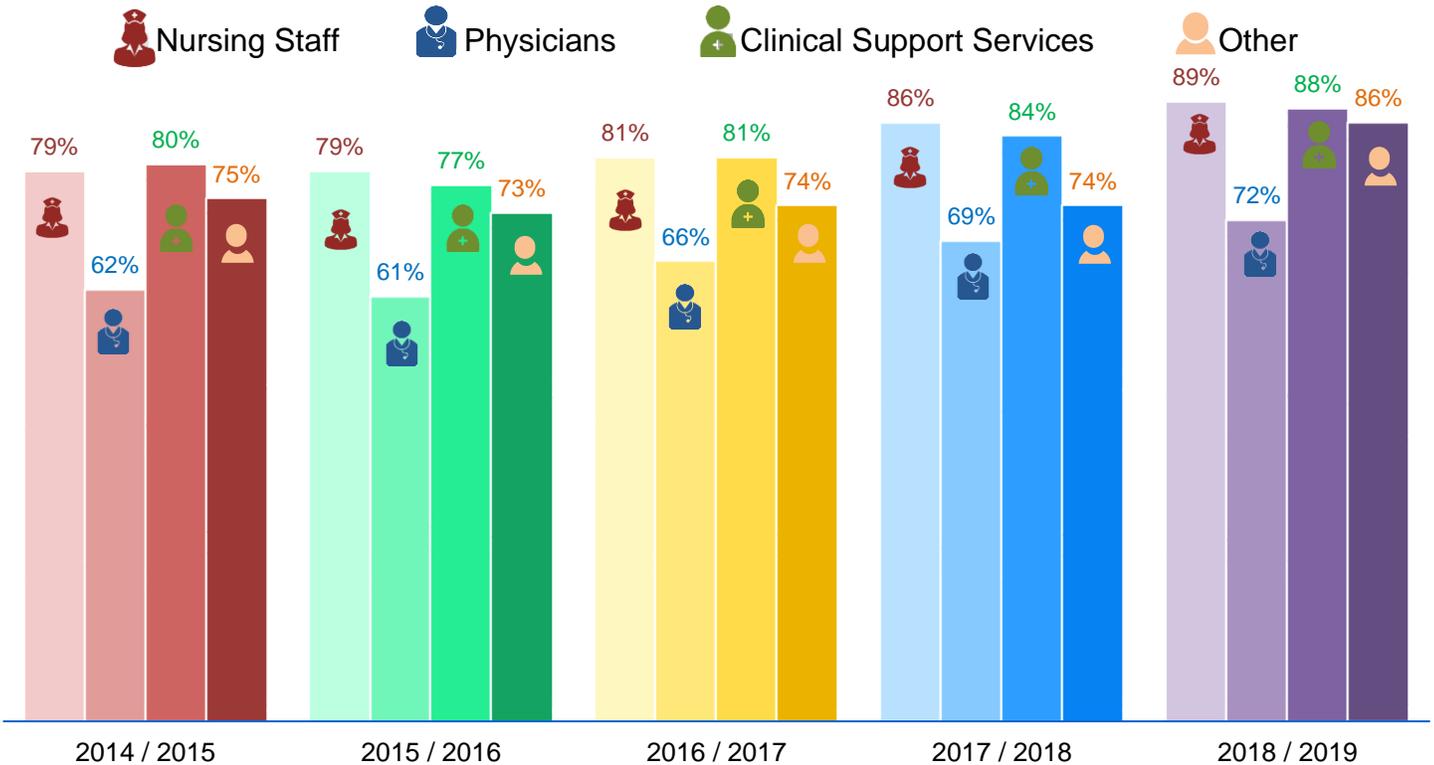
Hand Hygiene Compliance in Northern Health Before and After Patient Contact Averages (2014-2019)



Hand Hygiene Compliance in Northern Health Averages 2014 - 2019



Hand Hygiene Compliance in Northern Health per Healthcare Provider (2014-2019)



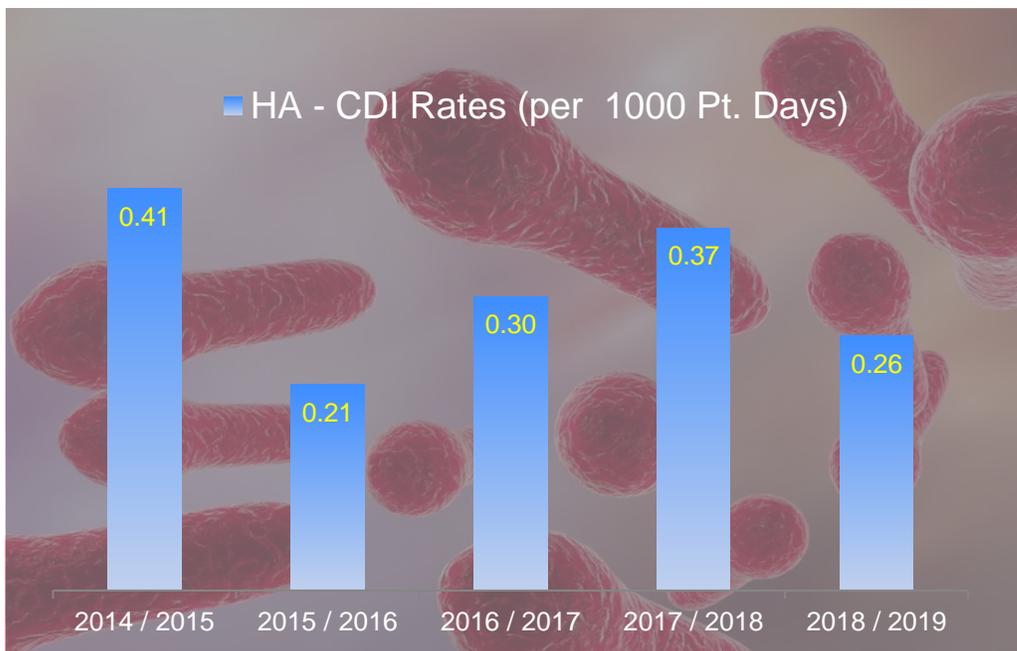
Actions taken in 2018-19 include:

- Participation provincially with the Patient Voices Network - Patient, Family Hand Hygiene focus group.
- Patient hand hygiene project. Encouragement of health care worker to assist patients to clean their hands, and provision of resources.
- Continual participation of NH facilities in the HH auditing process resulting in an increased number of HH audits.
- 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, feedback provided on hand hygiene opportunities completed or missed.

Clostridium difficile Infections (CDI)

| Indicator | 2018 – 2019 Rate | Trend* | Target |
|--|------------------------|--|--------------------------|
| Healthcare-associated (nosocomial) CDI rates | 0.26 per 1000 pt. days |  | < 0.30 per 1000 pt. days |
| *  = improving; at least 4 consecutive data points moving towards target  = deteriorating; at least 4 consecutive data points moving away from target  = 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).



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 2018-19 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.

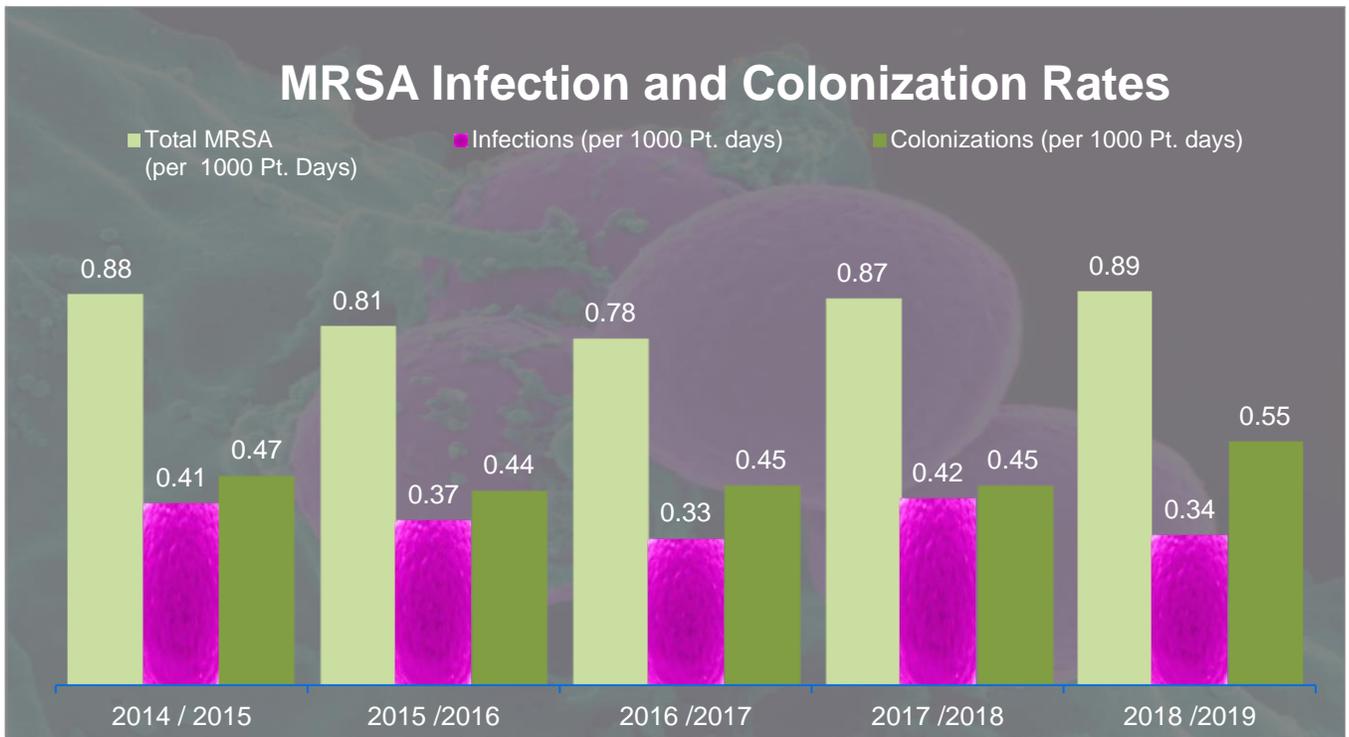
Actions taken in 2018-2019 include:

- Education 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 | 2018 – 2019 Rate | Trend* | Target | Actual |
|--|------------------------|---|--------------------------|---|
| Healthcare-associated (nosocomial) MRSA Infection & Colonization Rates | 0.89 per 1000 pt. days |  | < 0.70 per 1000 pt. days | Infections 0.34/1000 pt. days Colonizations 0.55/1000 pt. days |
| <p>*  = improving; at least 4 consecutive data points moving towards target  = deteriorating; at least 4 consecutive data points moving away from target  = steady; fewer than 4 consecutive data points moving in either direction</p> | | | | |

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, have chronic diseases and/or undergo invasive procedures.



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 0.89.

Limitations include:

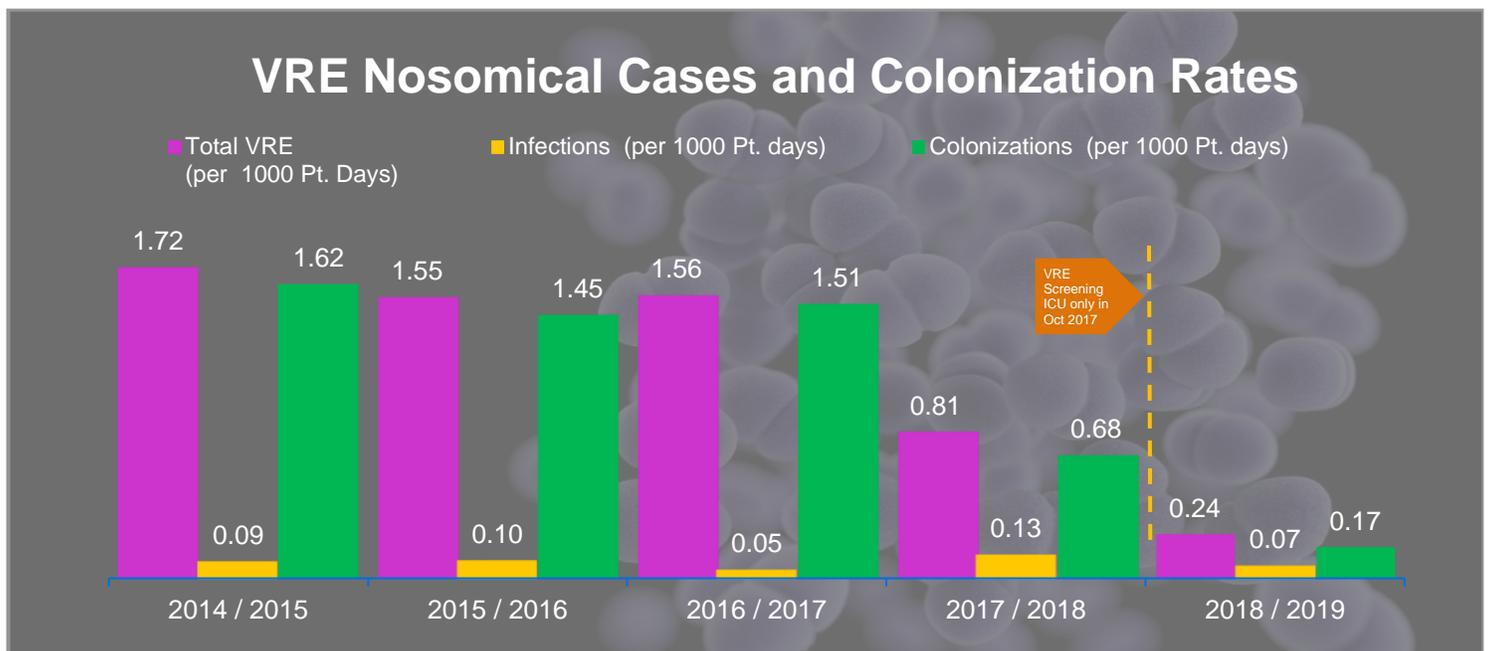
- Difficulty with accommodating patients with an ARO (s) or risk factors for AROs in appropriate single rooms due to overcapacity and due to many shared wards with older hospitals design structure.

Ongoing Actions:

- Rates of hand hygiene compliance increased to 86% above the 85% target.
- 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; aseptic technique of wounds etc.
- 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 | 2018 – 2019 Rate | Trend * | Target | Actual |
|---|------------------------|---------|--------------------------|---|
| Healthcare-associated (nosocomial) VRE Infection & Colonization Rates | 0.24 per 1000 pt. days | ↓ | < 0.30 per 1000 pt. days | Infections 0.07 /1000 pt. days Colonizations 0.17 /1000 pt. days |
| * ↑ = improving; at least 4 consecutive data points moving towards target ↓ = deteriorating; at least 4 consecutive data points moving away from target ⇄ = steady; fewer than 4 consecutive data points moving in either direction | | | | |



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 (HH), environmental cleaning and appropriate cleaning of shared equipment; aseptic technique of wounds etc.
- Infection prevention education for patients, families and visitors.

Management of Carbapenemase Producing Organisms (CPO)

Carbapenemase Producing Organisms are gram negative bacteria that harbor 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 2018 - 2019, no cases of CPO were identified in NH.

Surgical Site Infections (SSI)

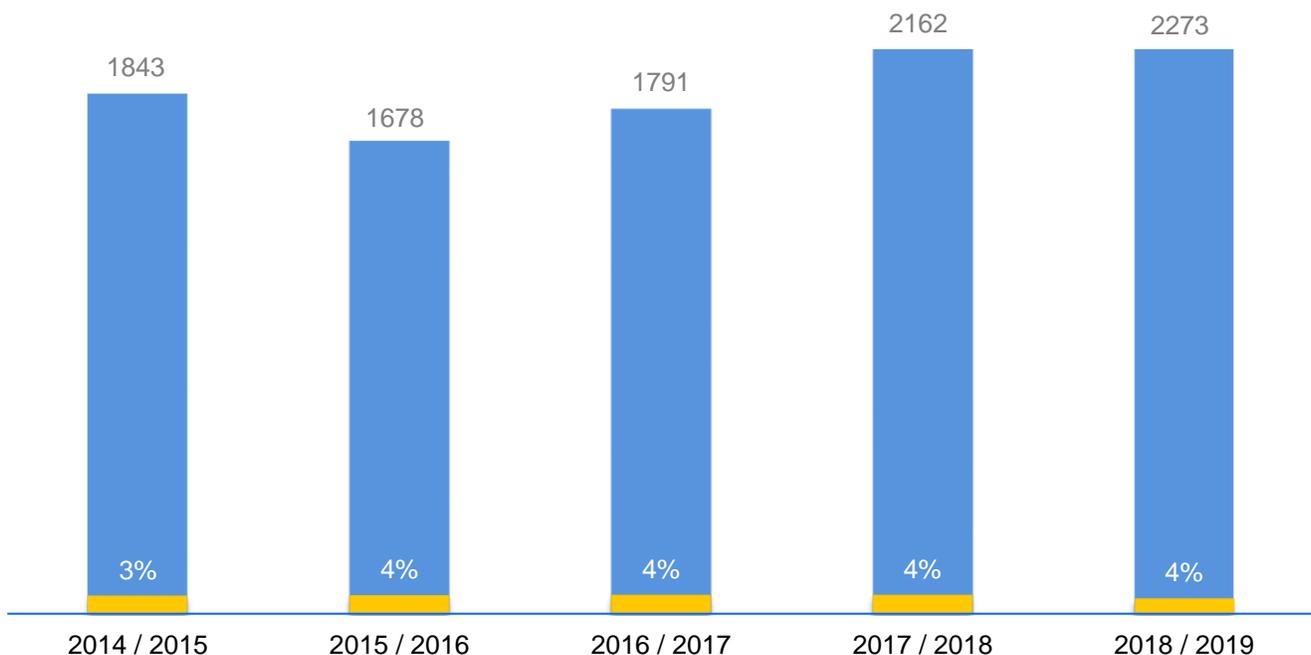
| Indicator | 2018 – 2019 Rate | Trend * | Target |
|---|----------------------|---|------------------------|
| Surgical Site Infection Rates | 4 per 100 procedures |  | < 3 per 100 procedures |
| *  = improving; at least 4 consecutive data points moving towards target  = deteriorating; at least 4 consecutive data points moving away from target  = 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.

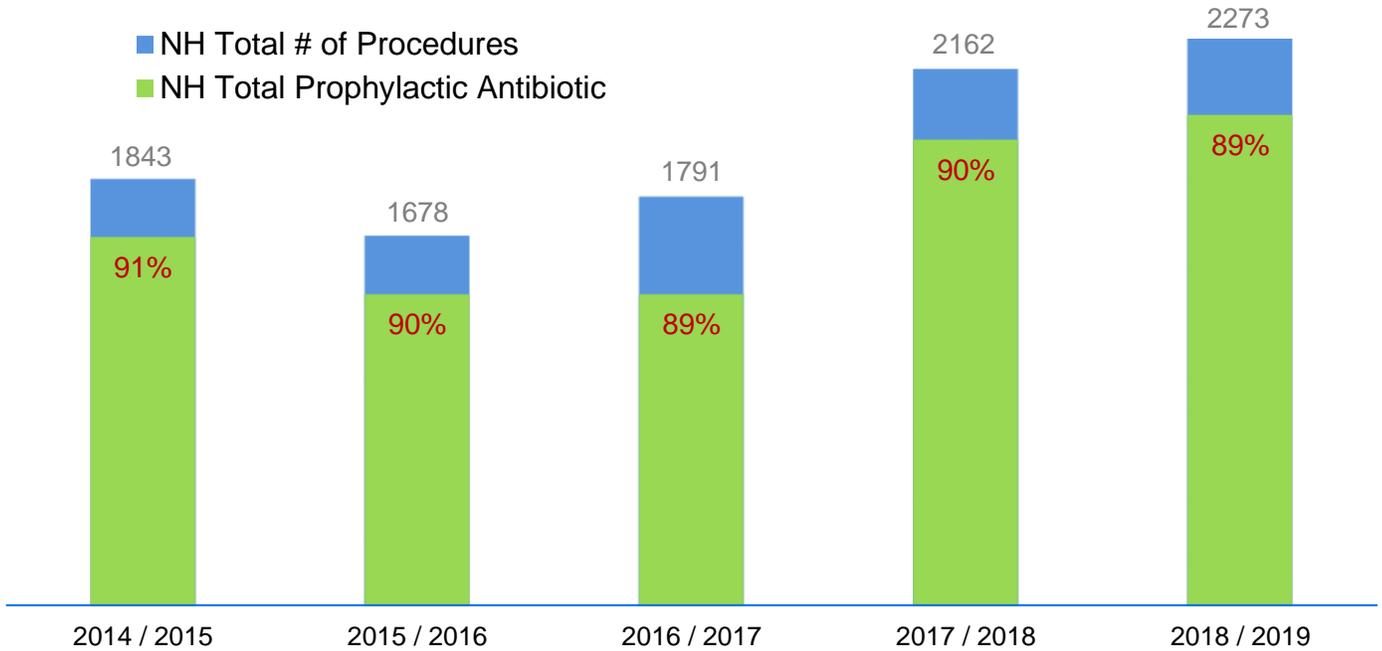
Surgical procedures surveyed for infection include: Caesarean section, total abdominal hysterectomy, total primary hip replacement, total primary knee replacement, and bowel resection (not including the rectum). Surveillance of antibiotic prophylaxis given within one hour of surgical cut time is also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

NH Overall Total Surgical Site Infection 2014 - 2019

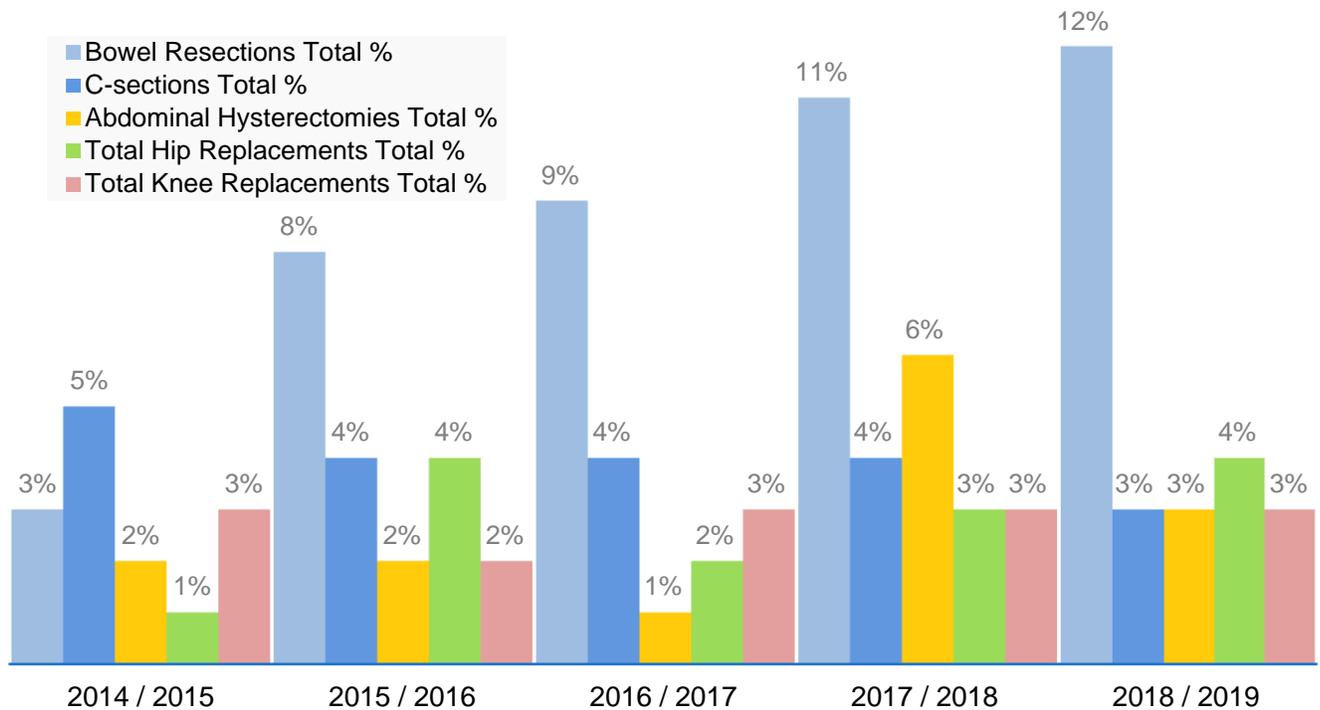
■ NH Total # of Procedures ■ NH Total # Surgery Infections



NH Overall Total Prophylactic Antibiotic 2014 - 2019

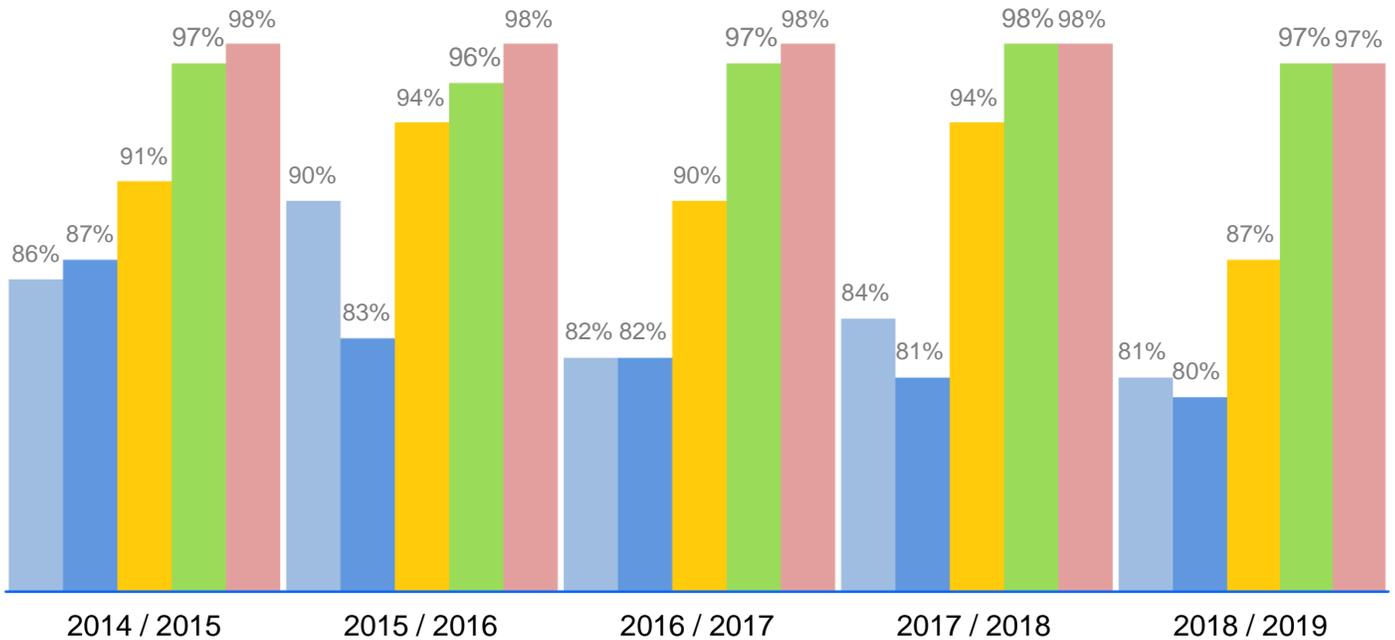


Surgical Sites Infection Rate (%)



Antibiotics Given within 1 Hour of Cut Time (%)

- Bowel Resections
- C-sections
- Abdominal Hysterectomies
- Total Hip Replacements
- Total Knee Replacements



Northern Health Surgical Site Infections (SSI) rates remain the same at 4 per 100 procedures in 2018-19. The projected 2019-20 target is a continual decrease to 3 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 and 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* | 2014/2015 | 2015/2016 | 2016/2017 | 2017/2018 | 2018/2019 |
|---------------------------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|
| Abdominal Hysterectomy | 1.10-4.05 per 100 procedures | 2 per 100 procedures | 2 per 100 procedures | 1 per 100 procedures | 6 per 100 procedures | 3 per 100 procedures |
| Caesarean Section | 1.46-3.82 per 100 procedures | 5 per 100 procedures | 4 per 100 procedures | 4 per 100 procedures | 4 per 100 procedures | 3 per 100 procedures |
| Bowel Resection | **3.99-9.47 per 100 procedures | 3 per 100 procedures | 8 per 100 procedures | 9 per 100 procedures | 11 per 100 procedures | 12 per 100 procedures |
| Total Primary Hip Replacement | 0.67-2.40 per 100 procedures | 1 per 100 procedures | 4 per 100 procedures | 2 per 100 procedures | 3 per 100 procedures | 4 per 100 procedures |
| Total Primary Knee Replacement | 0.58-1.60 per 100 procedures | 3 per 100 procedures | 2 per 100 procedures | 3 per 100 procedures | 3 per 100 procedures | 3 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 2018 - 2019:

- 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

SSI Rates Quarter 4 2018

In Quarter 4 of 2018/2019 there was an increase in SSI rates in the Dawson Creek District Hospital (DCDH). Investigation, followed by prevention strategies including education, were put in place in an effort to decrease rates. The prevention strategies were as followed:

- Return to the use of previous waterproof dressings. New supplier had dressings for all total hip and knee replacement surgeries that were ineffective due to the adhesive not sticking and they were too short to cover the incision. This resulted in a number of challenges; at least two dressing were needed, more frequent dressing changes and increased contact dermatitis due to the adhesive on the dressings. Education provided for staff consisted of; removal of dressing, dressing change technique and the documentation process.
- Meetings were held with OR management and staff. Discussion with management focused on the ratio of new staff/contract nurses to experienced staff and patient prepping prior to surgery. Meetings with OR staff focused on education on the use of the ORNAC best practices as well as clarification on surgical prep product and steps of using the product.
- Using a multidisciplinary approach, surgeons, assisting physicians and OR staff were involved in the following:
 - Ongoing peer assessments of proper pre-op prepping of the patient
 - Appropriate pre-op surgical hand scrubs
 - Maintaining sterile technique
 - Identifying any breaks in sterility with immediate correction
- One major concern expressed by the Orthopaedic Surgeons was family physicians prescribing antibiotics for symptoms that did not indicate an infection. The surgeons indicated that they would prefer to see the patient. The new process is when a potential SSI is identified in the community, the patient would be instructed to contact the surgeon with any concerns. Prior to documenting an SSI, Infection Prevention would contact the surgeon to clarify their findings. This has resulted in better follow up and a decreased rate of misdiagnoses.
- Post-operative infection rates were communicated to all hospital staff, creating an awareness and increased diligence from staff.

Prevention strategies were put in place for all surgeries. A significant decrease was noted with obstetrical and gynecological surgeries.

Urinary Tract Infections Surveillance Program

Urinary tract infections (UTIs) is the most common infection found in Long Term care. The UTIs Surveillance Program is designed to

- Improve resident safety by ensuring proper assessment skills and differentiation between UTIs and asymptomatic bacteriuria.
- Improve resident health by minimizing incidence of adverse effects and antibiotic resistance caused by unnecessary antibiotic usage.
- Improve cost savings on lab specimens by reducing inappropriate testing.
- Meet accreditation standards for surveillance.

A multidisciplinary group was involved in creating the program. Education was started in September at our test site, Gateway Lodge. The education focused on:

- Understanding the difference between asymptomatic bacteriuria and UTI.
- Completing a through UTI assessment. Teaching emphasizes the difference between specific and non-specific signs and symptoms.
- If only non-specific sign and symptoms are noted, a 24-hour rehydration program is started with continual resident assessment.
- Dip sticks are not a reliable measure and should not be used.
- Filling out the Infection Control notification form.

Staff fill out an Infection Control notification form, which is then followed up by the Infection Control Practitioner assigned to the Long Term Care facility.

The objectives of the UTI surveillance program is to:

- To establish baseline infection rates for urinary tract infection in LTC facilities within NH.
- To establish UTI incidence rates for trend analysis over time.
- To establish UTI rates for the purpose of comparison to accepted national and international bench marks.
- To evaluate the effectiveness of current infection prevention practices, and update as necessary.
- To provide information, education and reinforce evidence based best practice standards.

Data will be collected and reported quarterly (fiscal quarter). The report will include the numerator (catheter associated and non-catheter associated UTI events) and the denominator (resident days and urinary catheter days) data for LTC facilities in NH. Data will be stratified by time and aggregated across the entire facility. Data will be reported as:

- Total number of UTI events
- Percentage and incidence rate of symptomatic UTIs
- Percentage and incidence rate of catheter associated UTIs
- Percent that are asymptomatic bacteriuria.

Patient Hand Hygiene Project

Hand hygiene is one of the most important and easiest ways to prevent the spread of potentially infectious organisms. Research shows patients are not provided with consistent opportunities to do hand hygiene. In Northern Health, hand hygiene products are available but not always accessible to patients who are bed bound or who are cognitively impaired.

This project attempted to increase the opportunities for nursing staff to interact and educate patients about hand hygiene. Four Northern Health facilities took part in this project. They focused on patients who were unable to perform proper hand hygiene on their own and needed assistance before each meal. There were three surveys conducted.

A survey of 45 patients prior to the start of the project was conducted. This survey revealed that all staff and all patients agreed that hand hygiene prior to meals was important. Most patients said they either had never or very rarely been reminded or offered assistance with hand hygiene. Posters were developed and placed in each patient room. Canisters of hand wipes were given to nursing staff and patients, and education completed with nursing staff about the expectations of the project. Reminders were given to staff through out the project length.

Feedback at the mid point and final survey of the project suggested that nurses were struggling to provide the assistance required. Barriers that were encountered include workload and staffing challenges.

Outbreak Management

Northern Health uses a multidisciplinary team approach to manage outbreaks, and includes site medical staff, nursing, support services, administration and representation from Infection Prevention, 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 type of and intensity of outbreak. After the outbreak is declared over a debrief session occurs.

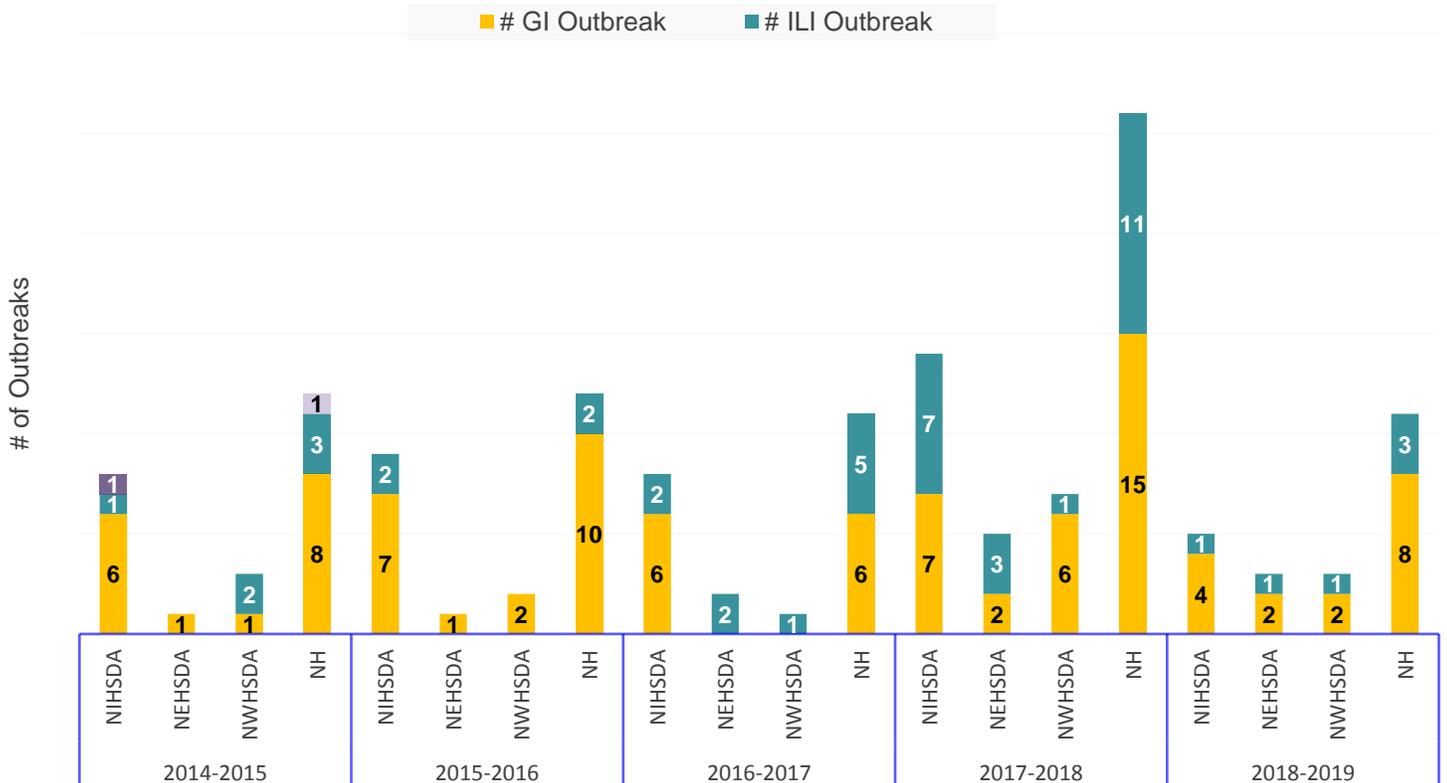
The Medical Health Officer retains primary responsibility for the investigation and management of communicable disease outbreaks within Northern Health. Members of the Outbreak Prevention and Management Team (OPMT) provide service to the affected patients/residents and/or units and work collaboratively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

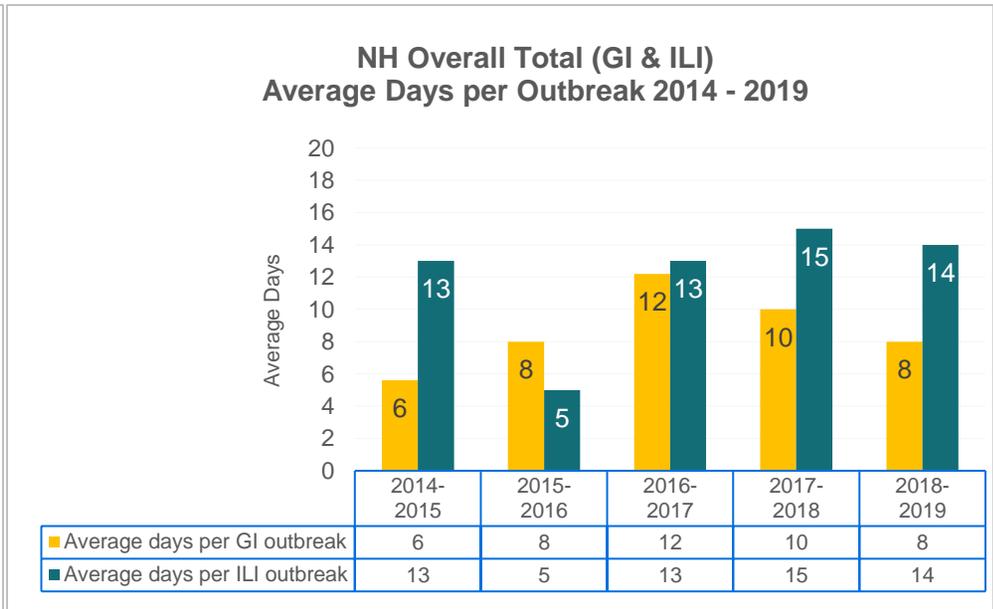
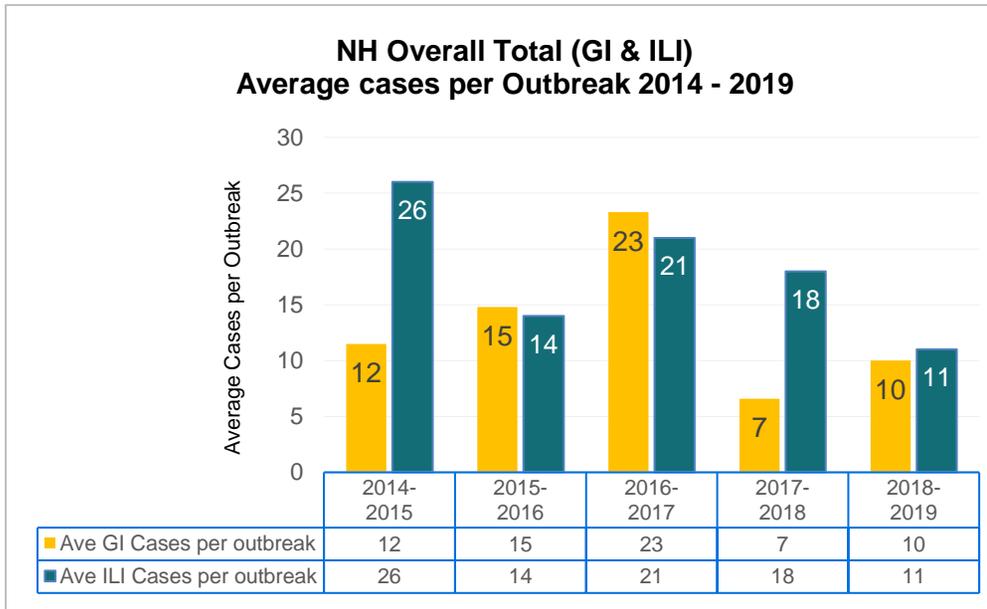
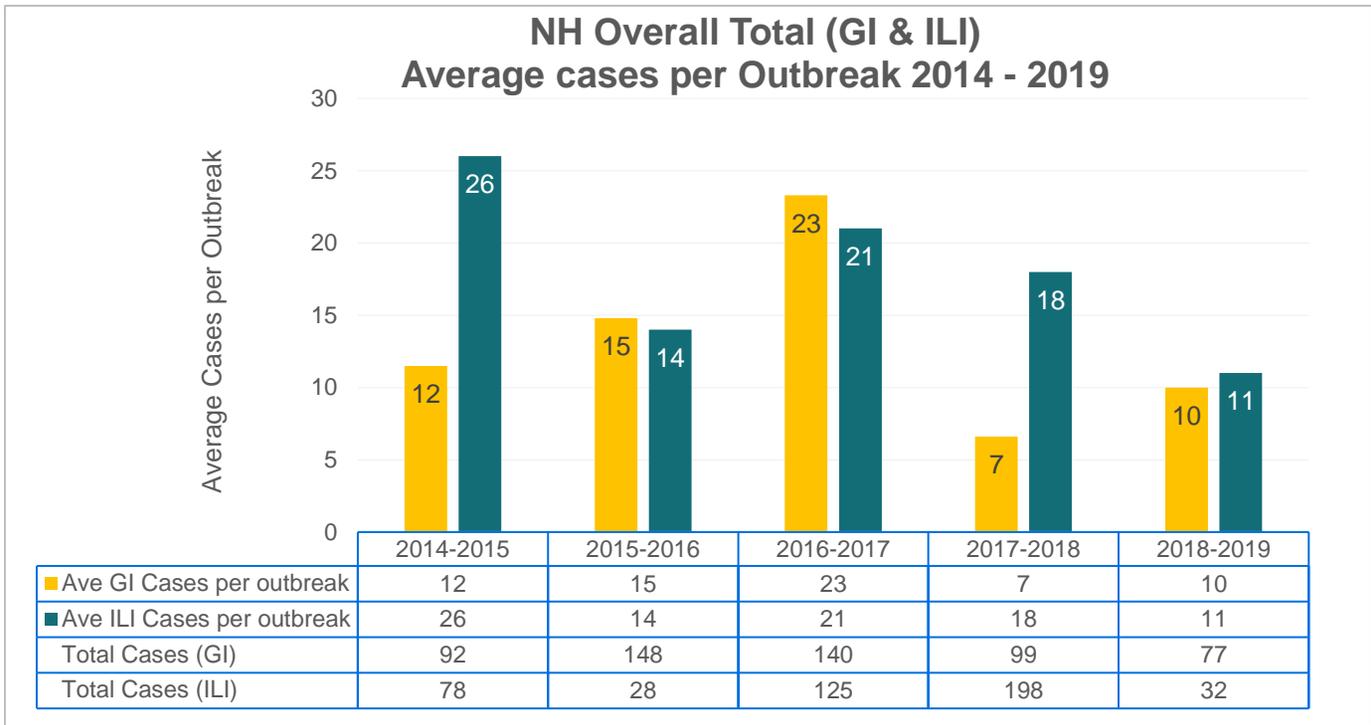
- Ensuring a coordinated response to outbreaks thereby limiting morbidity, mortality and associated costs.
- Ensuring a timely communication to the appropriate stakeholders regarding an outbreak.
- Providing expertise and consultation to assist in the management of complex issues.
- Facilitating documentation 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 – unknown | 7 | 3 | Mar 27 - April 12, 2018 | Chetwynd Hospital, Chetwynd |
| GI – Norovirus | 3 | 13 | Apr 1 – 12, 2018 | Terrace View Lodge - Terrace |
| ILI – Norovirus | 0 | 5 | Apr 21 – 30, 2018 | Terrace View Lodge - Terrace |
| GI – Norovirus | 0 | 6 | May 16 – 28, 2018 | UHNBC – Surgery South – Prince George |

| Responsible Organism | # of Staff Affected | # of Patients Affected | Dates / Length of Outbreak | Facility Name and Location |
|----------------------|---------------------|------------------------|----------------------------|--|
| GI – Norovirus | 5 | 10 | Oct 6 – Oct 17, 2018 | UHNBC – 3NE, Prince George |
| GI – Norovirus | 6 | 3 | Dec 28, 2018 – Jan 1, 2019 | UHNBC – Surgery South, Prince George |
| GI – Norovirus | 1 | 4 | Dec 30, 2018 – Jan 2, 2019 | UHNBC – Short Stay, Prince George |
| ILI – Influenza A | 1 | 16 | Jan 15 – Feb 1, 2019 | Simon Fraser LTC, Prince George |
| GI – Norovirus | 0 | 9 | Jan 24 – Feb 2, 2019 | Acropolis Manor, Prince Rupert |
| GI – Unknown | 5 | 9 | Feb 19 – 28, 2019 | Rotary Manor, Dawson Creek |
| GI – Norovirus | 0 | 3 | Mar 2 – Mar 6, 2019 | Dawson Creek District Hospital, Dawson Creek |

NH # of Outbreaks per HSDA 2014 - 2019





Medical Device Reprocessing Department (MDRD)

Medical Devices Reprocessing Departments maintained above 95% in the Ministry of Health audits, except in the areas of Environment Requirements, and Storage and Use of Reprocessed Medical Devices. Quality Improvement initiatives have focused on the following five areas.

- Renovation requirements to meet Canada Standards Association at one site.
- Monitoring Patient Safety & Learning System (PSLS) related to sharps related incidents.
- Updating and revising policies and procedures.
- Continuous work to identify never or rarely used medical devices, or excess inventory that takes up space in sterile storage.
- Lean project to organized the preparation and pack area and sterile storage area at one site.

Other areas of Quality Improvement include the continuation of standardizing consumables used in the MDR and the endoscopy reprocessing areas.

We continue to use the scoring from 2017 for 2018, allowing the focus to remain on two sites requiring extensive support.

| Facilities Audited | 2015 Percentage | 2016 Percentage | 2017 Percentage | 2018 Percentage |
|--|-----------------|-----------------|-----------------|-----------------|
| Bulkley Valley District Hospital - Smithers | 97.33 | 99.64 | 98.94 | 98.94 |
| Dawson Creek and District Hospital | 95.90 | 94.88 | 96.91 | 96.91 |
| Fraser Lake D&T Centre | 95.80 | | | |
| Fort Nelson General Hospital | 98.01 | | 99.35 | 99.35 |
| Fort St John Hospital | 96.43 | 98.84 | 98.05 | 98.05 |
| GR Baker Memorial Hospital - Quesnel | 98.51 | 98.15 | 98.12 | 98.12 |
| Kitimat General Hospital | 99.63 | 96.95 | 95.53 | 95.53 |
| Lakes District Hospital - Burns Lake | 95.04 | | 99.22 | 99.22 |
| Mackenzie and District Hospital | 92.24 | | | |
| Mills Memorial Hospital - Terrace | 95.08 | 97 | 98.92 | 98.92 |
| Prince Rupert Regional Hospital | 97.19 | 90.91 | 98.95 | 98.95 |
| Queen Charlotte Islands Hospital | 92.41 | 92.41 | | |
| St John Hospital - Vanderhoof | 96.93 | 96.15 | 99.57 | 99.57 |
| Stewart Health Centre | 100 | | | |
| Stikine D&T Centre - Dease Lake | 100 | | | |
| University Hospital of Northern BC - Prince George | 98.61 | 96.55 | 95.56 | 95.56 |
| Wrinch Memorial Hospital - Hazelton | 99.15 | 99.16 | 95.58 | 95.58 |
| Total Average Score | *97.48 | **96.82 | **98.31 | **98.31 |

* For all sites
**For sites with Operating room

2018 Overall Average Compliance Scores

| Practice Review Category | Average for Acute Care sites |
|--|------------------------------|
| 1.0 Purchase of Medical Devices and Equipment | 98.48% |
| 2.0 Environmental Requirements | 87.88% |
| 3.0 Policies and Procedures | 100% |
| 4.0 Education & Training | 97.20% |
| 5.0 Occupational Health & Safety | 100% |
| 6.0 Cleaning – Reusable Devices | 98.08% |
| 7.0 Liquid Chemicals for Disinfections | 100% |
| 8.0 Disinfection – Reusable Medical Devices | 99.48% |
| 8.1 Pasteurization | N/A |
| 9.0 Reprocessing Endoscopy | 99.10% |
| 9.1 Disinfectant | 100% |
| 9.2 Endoscope Process | 100% |
| 9.3 Drying & Storage | 100% |
| 9.4 Documentation of AER and HLD | 100% |
| 10.0 Sterilization – Reusable Medical Devices | 96.74% |
| 10.1 Steam Monitoring | 99.25% |
| 10.2 Flash Sterilization | 90.49% |
| 10.3 Flash Documentation | 97.33% |
| 10.4 Table Top Sterilizer | N/A |
| 10.5 SS1 – Monitoring & Documentation | 100.00% |
| 10.6 D – Sterrad | 100.00% |
| 10.7 Sterrad – Monitoring & Documentation | 100.00% |
| 10.8 E – Ethylene Oxide (ETO) | N/A |
| 10.9 ETO Monitoring & Documentation | N/A |
| 11.0 Storage & Use of Reprocessed Medical Devices | 93.67% |
| 12.0 Quality Assurance | 100% |
| 13.0 Single Use Medical Devices | 100% |
| 14.0 Long Term Care, HCC, PH Settings | 90.91% |
| 15.0 Dental Clinics | 91.68% |
| Average Across all categories | 98.31 |

Long Term Care Facilities Audited

Long Term care facilities were audited in 2016. 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. Most sites use little to no instruments or have moved to single use instruments. Single use continues to be encouraged at more remote sites. Dirty hold areas are separate from clean areas, and all but 2 sites followed this strictly.

Capital Equipment:

Capital equipment purchases depend on budget allowance. Sterilizers and washer disinfectors are replaced at end of life. Equipment related to endoscopy is beyond life expectancy at several sites, and will require a substantial budget to replace.

Accreditation

Accreditation Canada preparation was occurring throughout 2018-2019.

Infection Prevention and Reprocessing met 100% of the Required Organizational Practice (ROPs) and standards, and received recognition for a 100% achievement.

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.

