

# Infection Prevention and Control

Annual Report 2017 - 2018



**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 2017 - 2018 (April 1, 2017 – March 31, 2018).

## Regional:

- Infection Prevention Workbook - Intermediate
- Updated the Outbreak Management manual
- DebMed hand hygiene monitoring system trial
- Westech hand hygiene app trial – phone version
- Partnered with Occupational Health and Public Health to provide education sessions through influenza vaccination clinics
- Participated with Wildfire planning and response working group
- Extensive educational sessions for outbreaks and intermediate workbook
- Changes in VRE and ESBL surveillance protocol
- Construction Risk Reduction Measures checklist developed
- Accreditation preparation
- Urinary Tract Infection in Long Term Care program planning started

## Provincial:

- Participated in the Provincial Emerging Pathogens Learning modules development
- 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
- Participated with BC Clinical Support Services product review

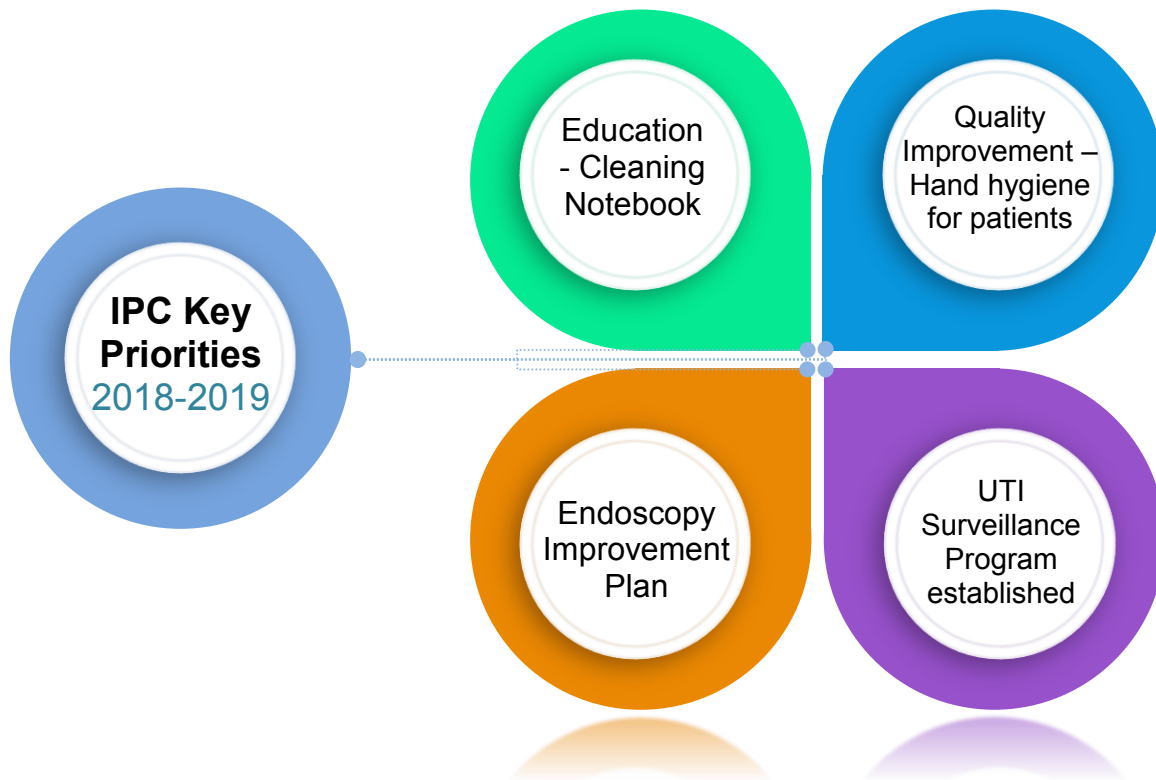
## National:

- Participated in the following Infection Prevention and Control Canada (IPAC) Interest Groups: Long Term Care (LTC), Medical Device Reprocessing (MDR), Surveillance and Applied Epidemiology (SAIEG), Health Care Facility Design and Home and Community Care
- Participated in Canadian Nosocomial Infection Surveillance Program (CNISP)

### Medical Device Reprocessing Department (MDRD):

- Participated in Ministry of Health working group
- Member of Value Analysis Team for Endoscopy
- Accreditation preparation 2018
- Team member for Medical Device Reprocessing renovation project for Dawson Creek District Hospital
- Evaluation Committee member for procurement process with BCCSS
- Standardized chemistries used in washer/disinfector
- Centralized Medical Device Reprocessing from smaller site to larger site

Based on this year's report, the key priorities for 2018 - 2019 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 residential care), provides on-site and consultative infection prevention and control and sterile reprocessing expertise to thirty-five acute care facilities, residential 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, residential 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, residential care facilities, assisted living facilities, diagnostic and treatment centres, health centres, and community programs within Northern Health.

## Infection Prevention and Control Team Members

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Deanna Hembroff  
IPAC Manager

### Infection Prevention & Control Practitioners

Beth McAskill  
Bonnie Schurack  
Debora Giese  
Holly-Lynn Nelson  
Juanita Kerbrat  
Judy Klein  
Kelsey Breault  
Monica Sephton  
Roxanne Fitzsimmons  
Sylvia Eaton

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### Medical Device Reprocessing

Bonnie Mackenzie,  
Regional Coordinator  
MDRD

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Administrative Assistant    Cecille Conocido

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## Contact Information

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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**

### **Residential Care Facilities**

Acropolis Manor – Prince Rupert  
Bulkley Lodge – Smithers  
Dunrovin Park Lodge – Quesnel  
Gateway Lodge Residential Care – 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

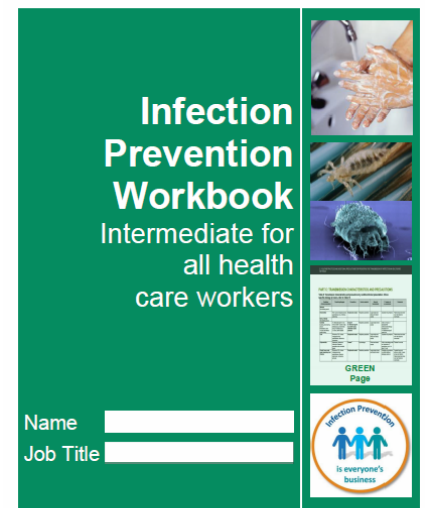
The Infection Prevention team continuously strives to provide NH staff, patients, visitors, and residents with relevant education, based on current evidence-based recommendations. Relevant and current information with regards to Infection Prevention and MDRD services is available on the OUR NH website.

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:

- Purchased Northern Health [Routine Practices](#) video
- 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
- Development and accessibility through e-learning of Infection Prevention workbook – Basic and Intermediate
  - Incorporating Basic workbook in the 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
- Hand hygiene and auditor training
- Reprocessing of medical devices
- Construction and renovation
- Routine practices for acute, community and residential 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 Centre: 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 on-line 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.

A self –assessment questionnaire was completed by all sterile technicians and kept on file with the Regional Coordinator of Medical Device Reprocessing. The questionnaire identified areas where there were gaps. Educational sessions became part of the monthly MDR meetings to fill in areas where knowledge was lacking. Self-studies were provided to individuals that required more education as were one on one phone calls.

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 in 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 January 2019.

# 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](#).

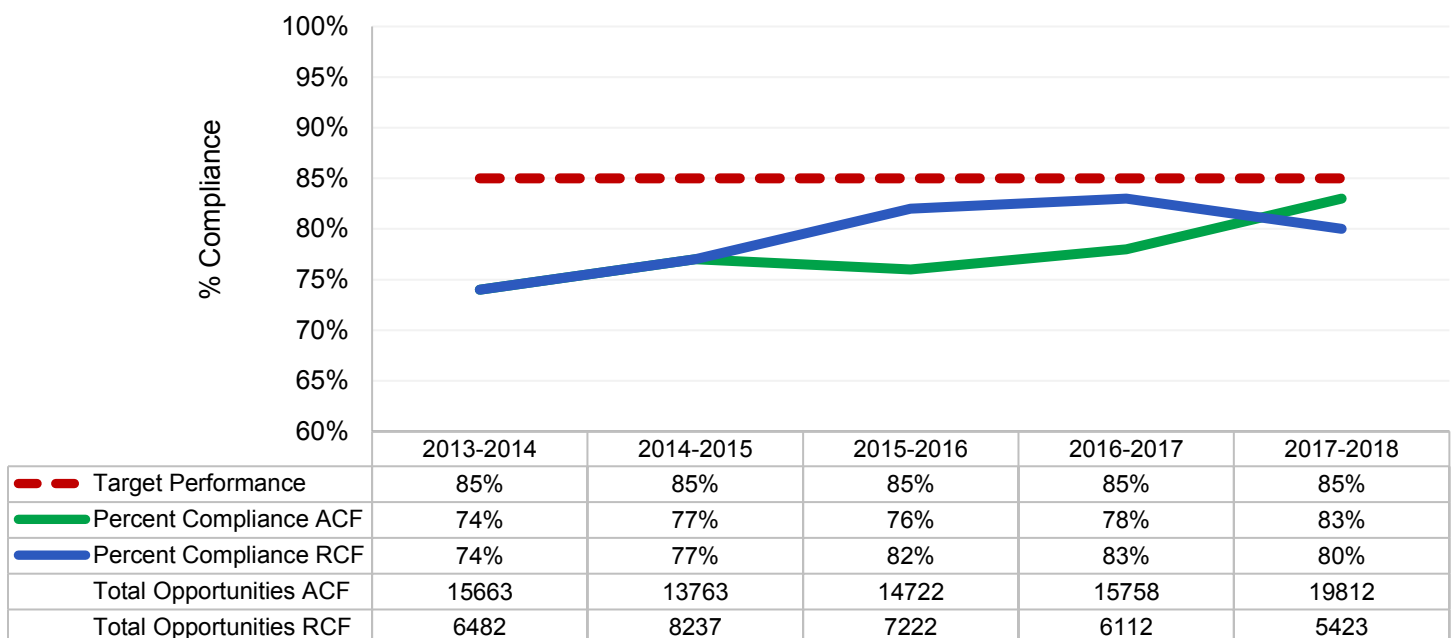
## Hand Hygiene

Indicator	2017 – 2018 Rate	Trend*	Target
Hand Hygiene Compliance	Acute Care Facilities (ACF): 83% Residential Care Facilities (RCF): 80%  Nursing Staff: 86% Physicians: 69% Clinical Support Services: 84% Other: 74%		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 2017 – 2018			

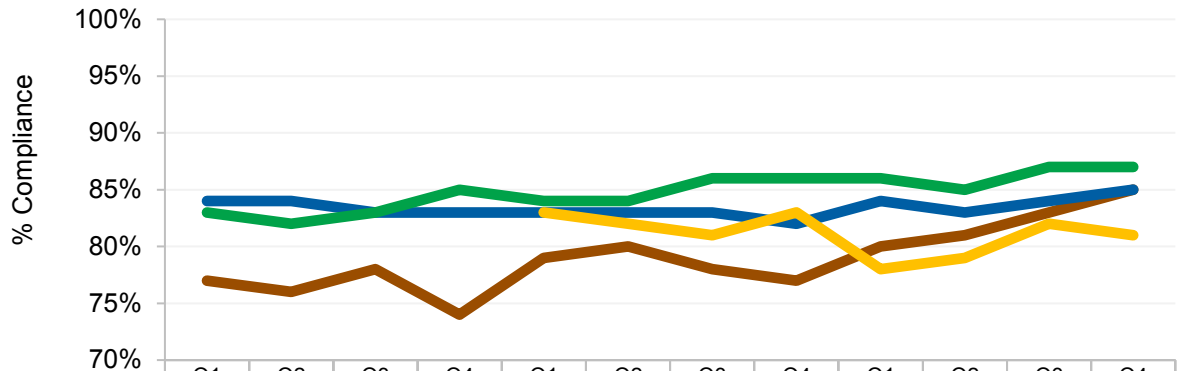
Hand hygiene (HH) with either soap and water or alcohol based hand rub is recognized as a key component in the prevention of Healthcare-associated Infections (HAIs). HH is required both before and after contact with patients and their environment. The minimum provincial requirement is 200 observations 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 residential care facilities.

## Hand Hygiene Compliance - Northern Health

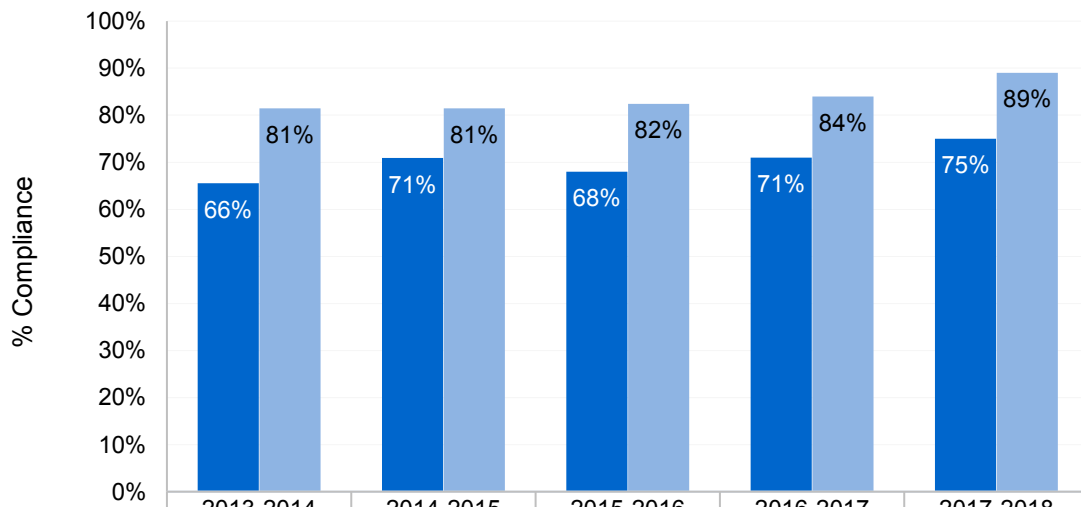


## Hand Hygiene Compliance - NHA & Province of BC



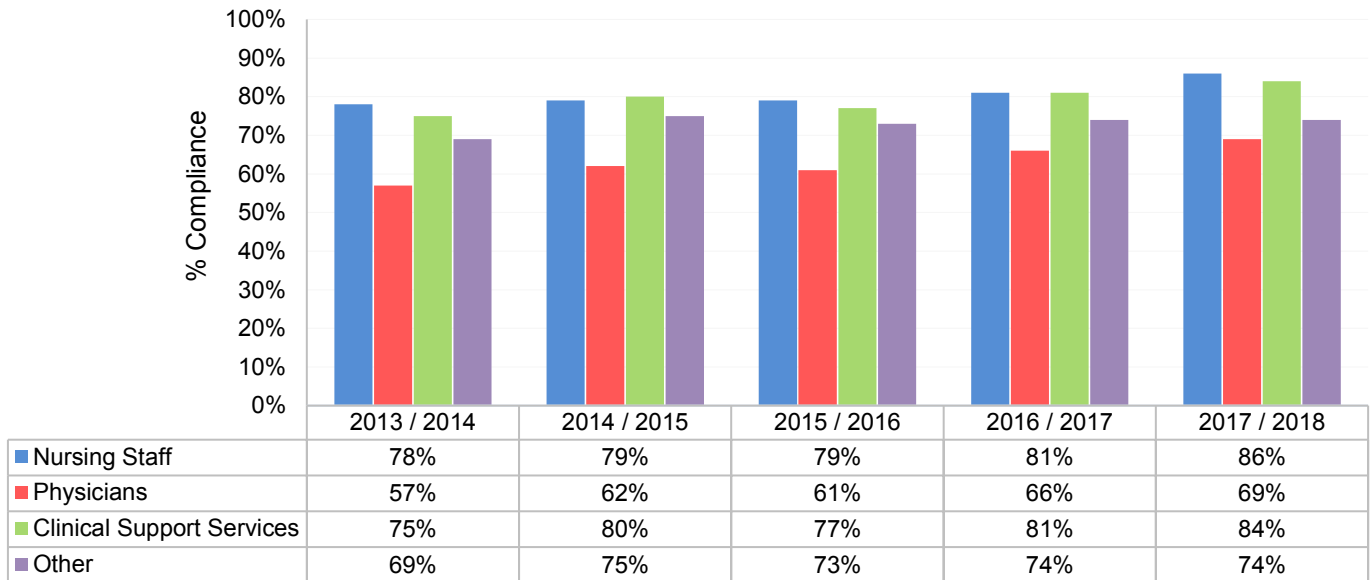
	2015/2016				2016/2017				2017/2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
NH Percent Compliance ACF	77%	76%	78%	74%	79%	80%	78%	77%	80%	81%	83%	85%
Province of BC Percent Compliance ACF	84%	84%	83%	83%	83%	83%	83%	82%	84%	83%	84%	85%
Province of BC Percent Compliant RCF	83%	82%	83%	85%	84%	84%	86%	86%	86%	85%	87%	87%
NH Percent Compliant RCF					83%	82%	81%	83%	78%	79%	82%	81%
NH Opportunities ACF	2845	3171	2911	5827	3360	3581	3632	5187	3653	4524	5122	6534
Province of BC Opportunities ACF	56411	53452	48393	61967	47640	47013	48981	63917	41694	38974	43269	53406
Province of BC Opportunities RCF	9775	10455	9631	12832	11688	12610	11944	13996	10220	10289	9883	11438
NH Opportunities RCF					1191	1645	1438	1902	1094	1330	1273	1746

## Hand Hygiene Compliance in Northern Health Before and After Patient Contact Averages (2013-2018)



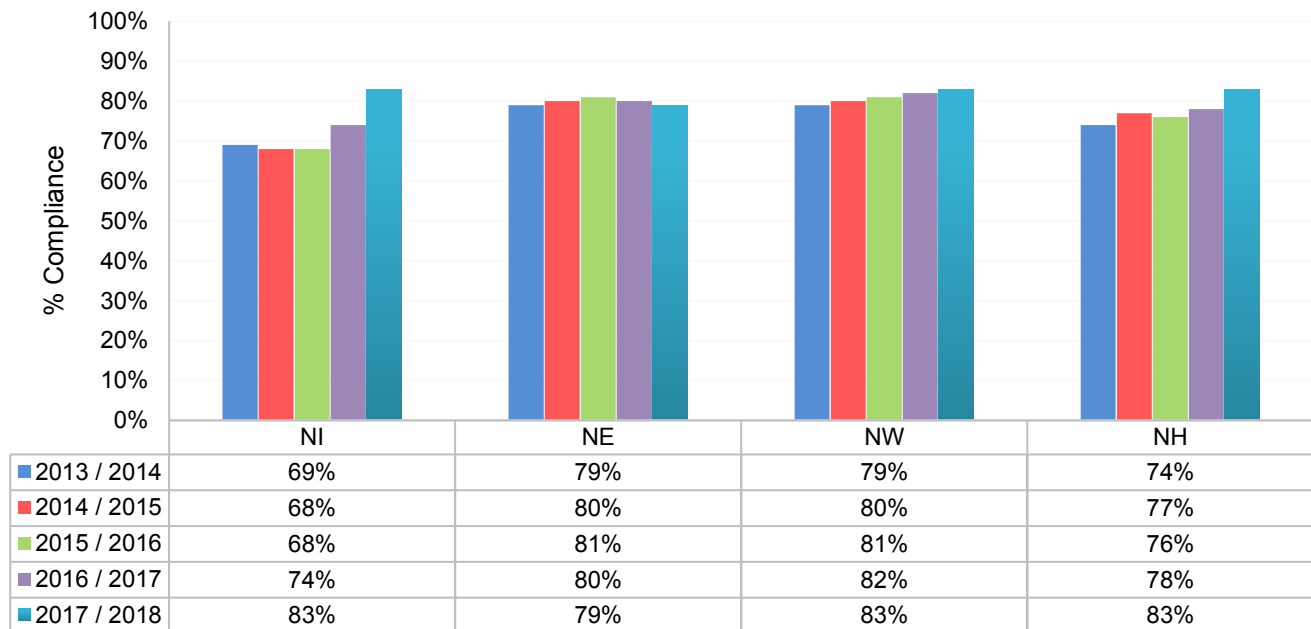
Before Patient Contact	66%	71%	68%	71%	75%
After Patient Contact	81%	81%	82%	84%	89%

## Hand Hygiene Compliance in NorthernHealth per Healthcare Provider (2013-2018)



Overall in 2017-18 all healthcare provider groups improved their HH compliance rates.





## Hand Hygiene Compliance in Northern Health HSDA Averages 2013 - 2018



Actions taken in 2017-18 include:

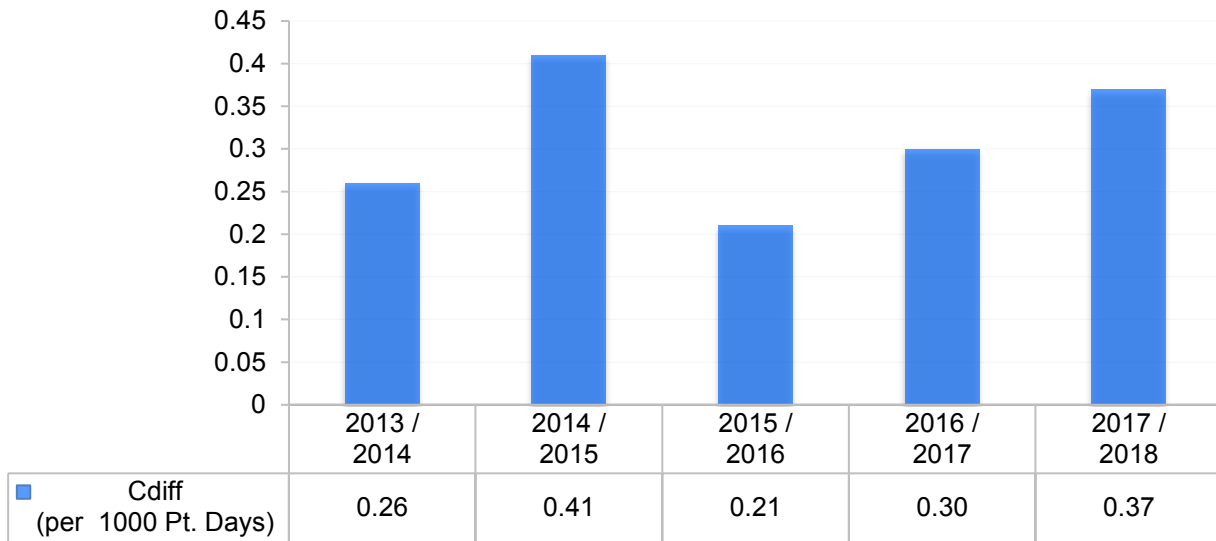
- Participation provincially with the Patient Voices Network - Patient, Family Hand Hygiene focus group
- Continual communication and involvement with senior management
- Continual participation of NH facilities in the HH auditing process resulting in an increased number of HH audits
- Continual hand hygiene auditor training
- Quality Improvement project on Electronic Hand hygiene monitoring system in Prince Rupert
- 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.
- Encouragement of health care worker to assist patients to clean their hands, and provision of resources

## ***Clostridium difficile* Infections (CDI)**

Indicator	2017 – 2018 Rate	Trend*	Target
Healthcare-associated (nosocomial) CDI rates	0.37 per 1000 pt. days		< 0.30 per 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 PICNet BC Hand Cleaning Compliance 2017 – 2018</p>			

*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.

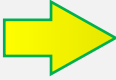



The projected 2017-18 target is a HA-CDI rate of < 0.30 cases per 1000 pt. days.

In comparison to the Antimicrobial Resistance Surveillance, Public Health Agency of Canada 2015 rate of 0.42 HA-CDI cases per 1000 patient days, NH rates were lower at 0.37 per 1000 pt. days in 2017 - 2018.

Actions taken in 2017-18 include:

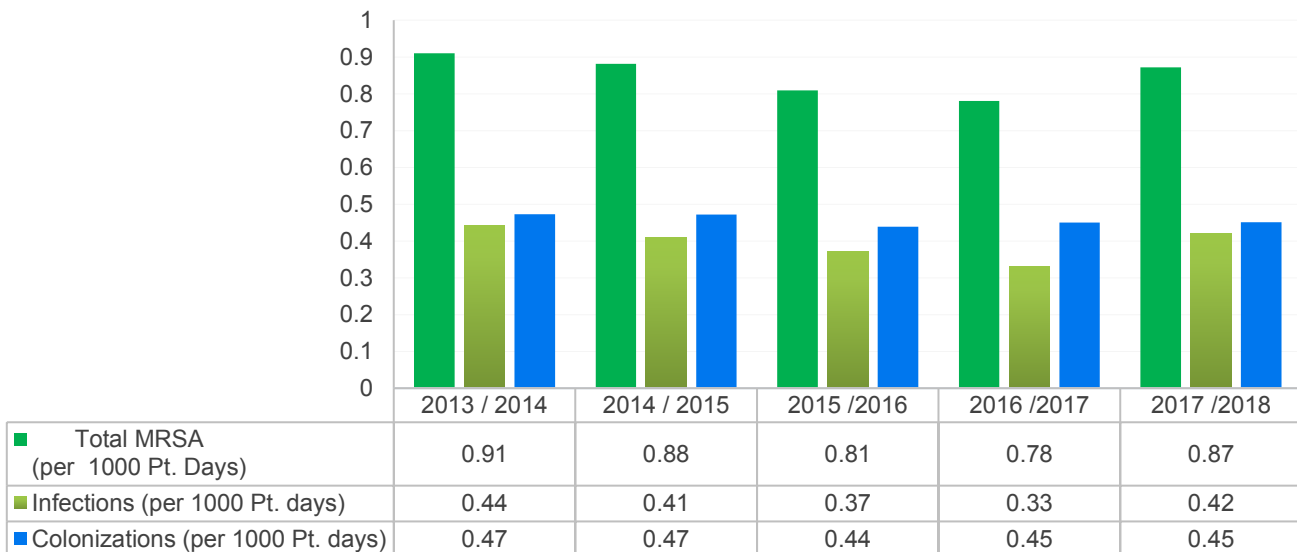
- Education on cleaning with sporicidal for all suspected and confirmed cases
- Facilitated increased communication between front line nursing staff and environmental services
- Increased education sessions for Health Care Workers (HCWs) regarding importance of proper protocol, signage and precautions
- Discussed with patients, families and visitors *Clostridium difficile* transmission

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

Indicator	2017 – 2018 Rate	Trend*	Target	Actual
Healthcare-associated (nosocomial) MRSA Infection & Colonization Rates	0.87 per 1000 pt. days		< 0.70 per 1000 pt. days	Infections 0.42/1000 pt. days Colonizations 0.45/1000 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 PICNet BC Hand Cleaning Compliance 2017 – 2018				

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.

### MRSA Infection and Colonization Rates



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 0.87.

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
- Rates of hand hygiene compliance remained steady at 83% but below 85% target



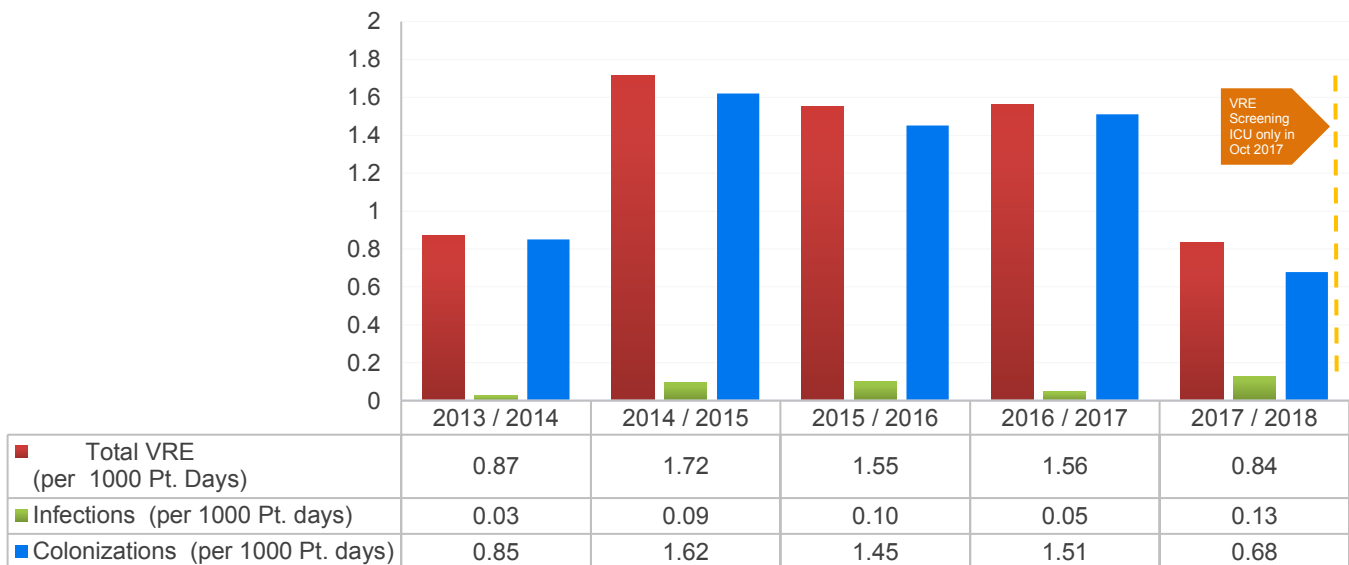
Ongoing Actions:

- 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; 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	2017 – 2018 Rate	Trend *	Target	Actual
Healthcare-associated (nosocomial) VRE Infection & Colonization Rates	0.81 per 1000 pt. days		< 0.70 per 1000 pt. days	Infections 0.13 /1000 pt. days Colonizations 0.68 /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 PICNet BC Hand Cleaning Compliance 2017 – 2018				

## VRE Nosocomial Cases 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.

Limitations included:

- Rates of hand hygiene compliance remained steady at 83% but below 85% target.

Ongoing Actions:

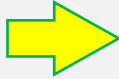



- All NH patients who test positive for VRE have their health record flagged with that ARO alert
- Infection prevention education for HCWs regarding importance of Hand Hygiene (HH), environmental cleaning and appropriate cleaning of shared equipment; aseptic technic of wounds etc.
- Infection prevention 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 2017 - 2018, no cases of CPO were identified in NH.

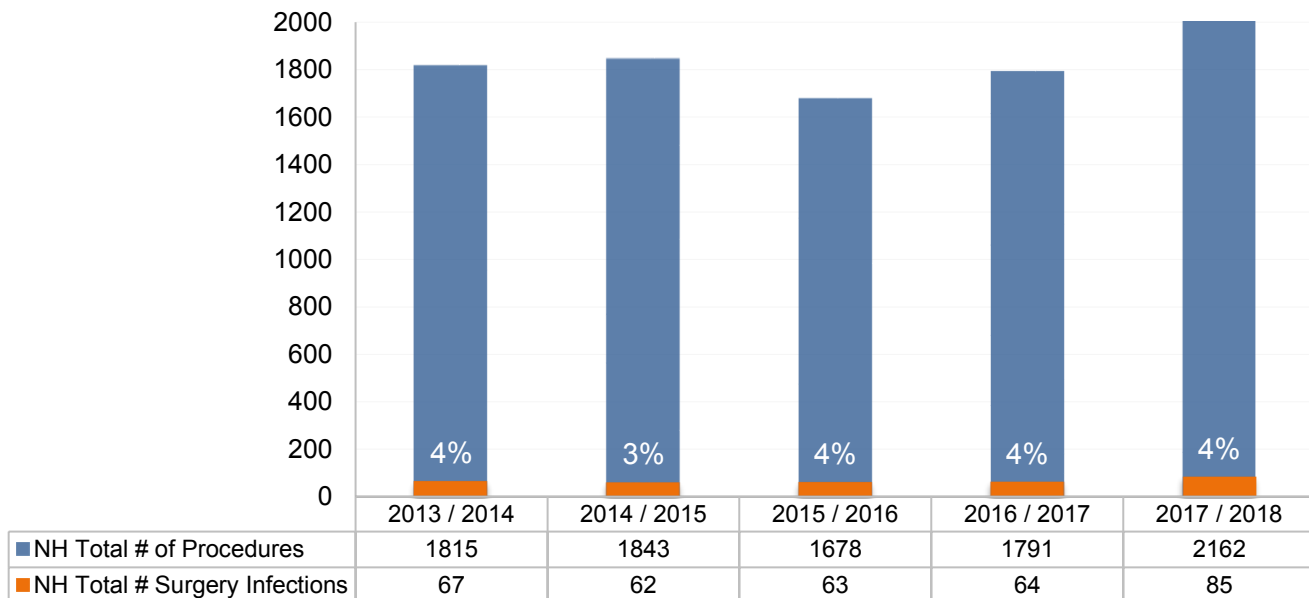
## Surgical Site Infections (SSI)

Indicator	2017 – 2018 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 PICNet BC Hand Cleaning Compliance 2017 – 2018			

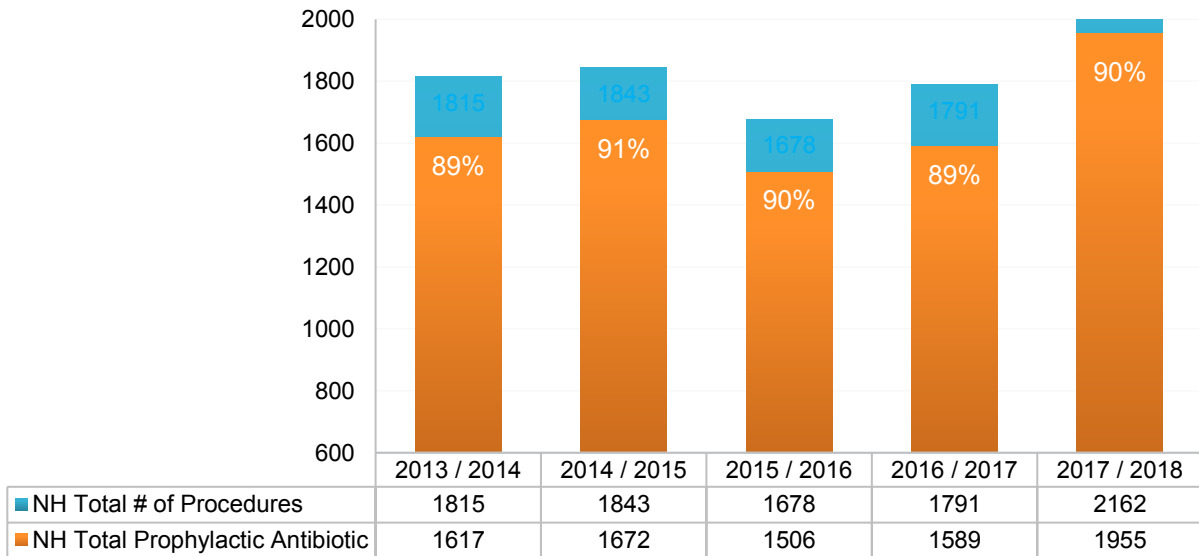
Surgical Site Infections (SSI) are the most common Healthcare-associated Infections (HAIs) as found in a prevalence study done by the CDC. SSI's remain a substantial cause of morbidity, prolonged hospitalization, and death.

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.

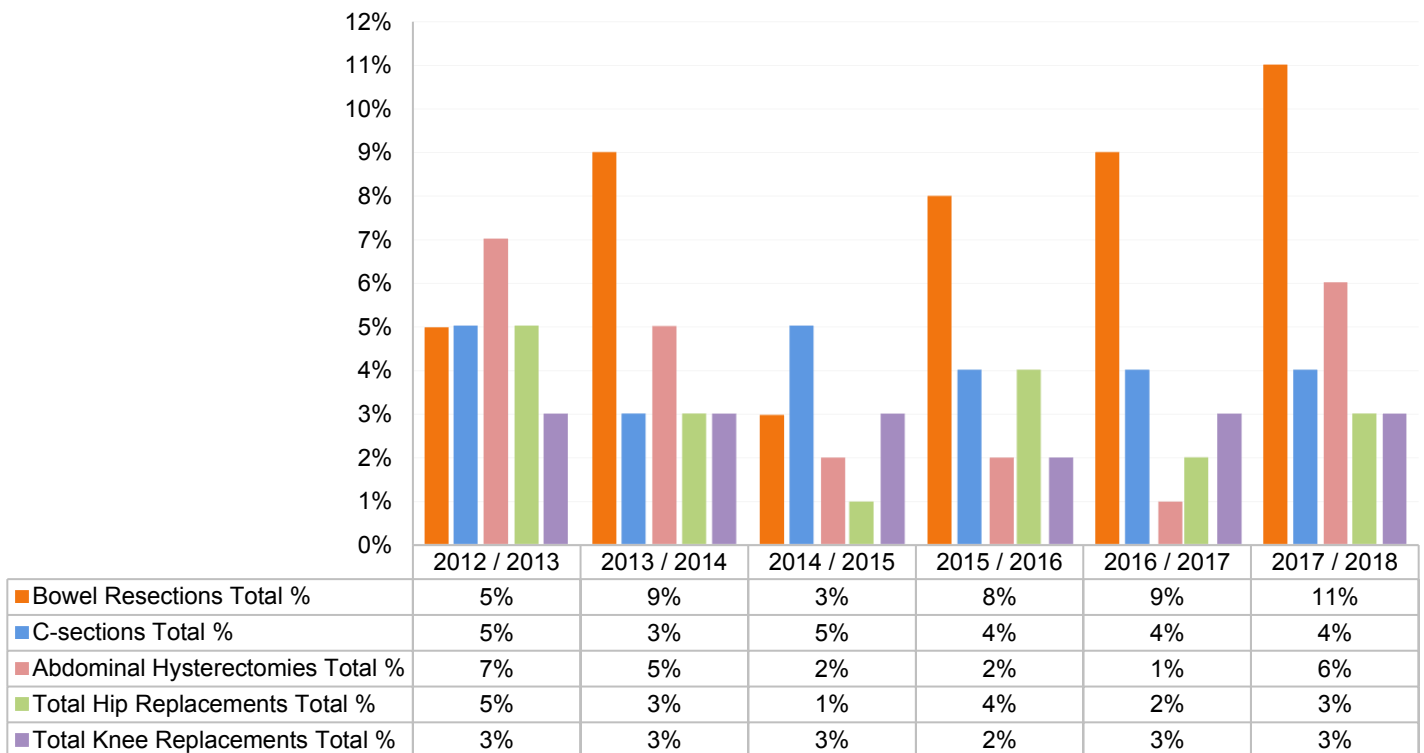
### NH Overall Total Surgical Site Infection 2013 - 2018



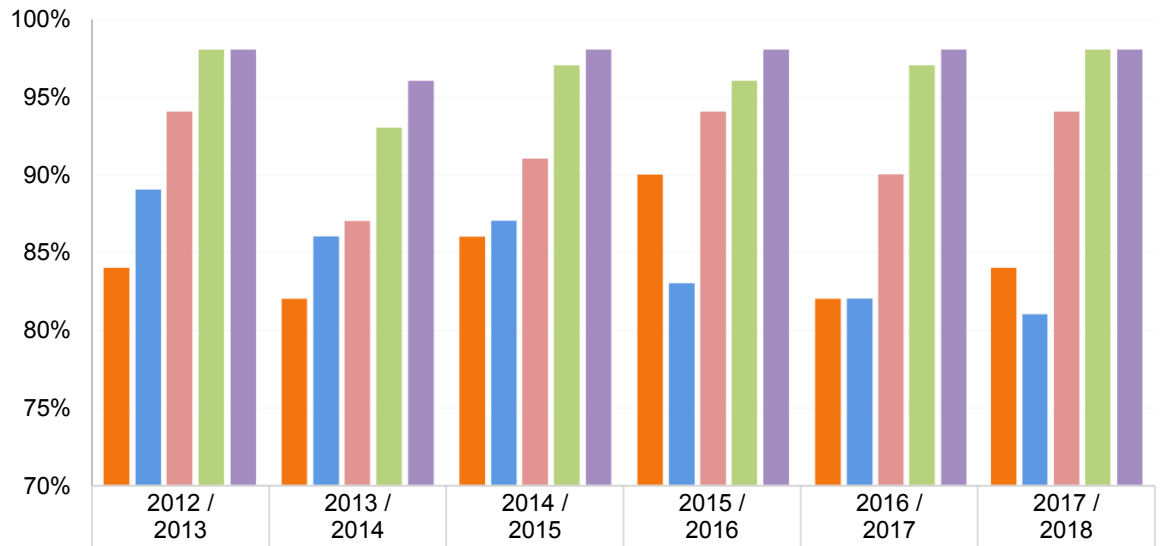
## NH Overall Total Prophylactic Antibiotic 2013 - 2018



## Surgical Sites Infection Rate (%)



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



■ Bowel Resections	84%	82%	86%	90%	82%	84%
■ C-sections	89%	86%	87%	83%	82%	81%
■ Abdominal Hysterectomies	94%	87%	91%	94%	90%	94%
■ Total Hip Replacements	98%	93%	97%	96%	97%	98%
■ Total Knee Replacements	98%	96%	98%	98%	98%	98%

Northern Health Surgical Site Infections (SSI) rates remain the same at 4 per 100 procedures in 2017-18. The projected 2018-19 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, 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*	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
<b>Abdominal Hysterectomy</b>	1.10-4.05 per 100 procedures	5 per 100 procedures	2 per 100 procedures	2 per 100 procedures	1 per 100 procedures	6 per 100 procedures
<b>Caesarean Section</b>	1.46-3.82 per 100 procedures	3 per 100 procedures	5 per 100 procedures	4 per 100 procedures	4 per 100 procedures	4 per 100 procedures
<b>Bowel Resection</b>	**3.99-9.47 per 100 procedures	9 per 100 procedures	3 per 100 procedures	8 per 100 procedures	9 per 100 procedures	11 per 100 procedures
<b>Total Primary Hip Replacement</b>	0.67-2.40 per 100 procedures	3 per 100 procedures	1 per 100 procedures	4 per 100 procedures	2 per 100 procedures	3 per 100 procedures
<b>Total Primary Knee Replacement</b>	0.58-1.60 per 100 procedures	3 per 100 procedures	3 per 100 procedures	2 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 2017 - 2018:

- 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

# 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

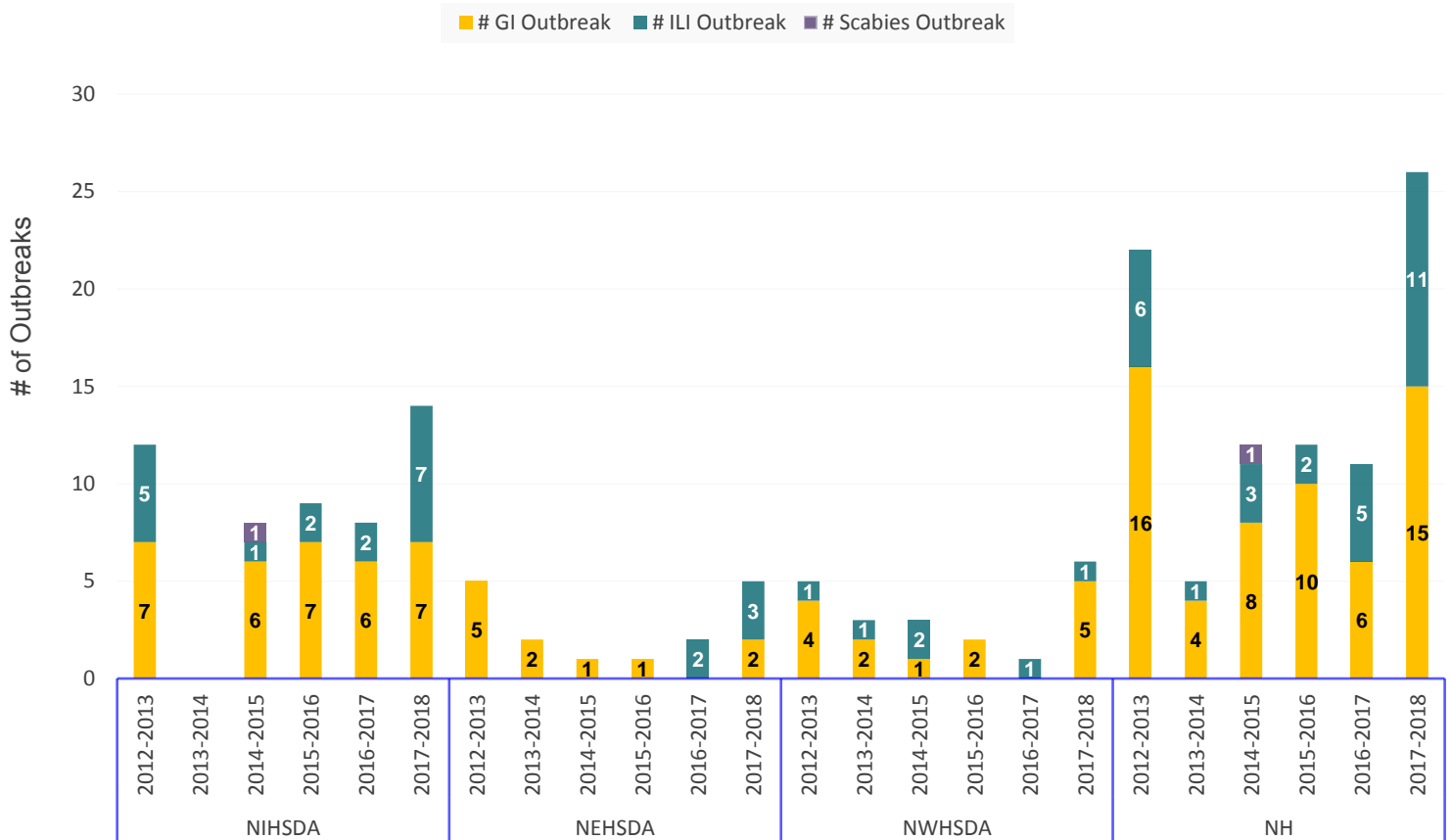
Responsible Organism	# of Staff Affected	# of Patients Affected	Dates / Length of Outbreak	Facility Name and Location
GI – Norovirus	8	8	June 10 – 23, 2017	Stuart Nechako Manor, Vanderhoof
ILI – unknown	5	5	June 29 – July 9, 2017	Dunrovin Park Place, Quesnel
GI – Norovirus	3	4	July 1, 2017 – July 10, 2017	Stuart Nechako Manor, Vanderhoof *This outbreak happened in the wards not affected by previous outbreak
GI – Unknown	6	3	July 14 – 19, 2017	UHNBC – Pediatrics, Prince George

Responsible Organism	# of Staff Affected	# of Patients Affected	Dates / Length of Outbreak	Facility Name and Location
GI – Norovirus	15	28	Nov. 12 – 27, 2017	Terrace View Lodge - Terrace
GI – Norovirus	9	15	Nov. 26 – Dec. 5, 2017	Bulkley Lodge - Smithers
GI – Norovirus	4	21	Nov. 29, 2017 – Dec. 14, 2017	Acropolis Manor. Prince Rupert
ILI – Influenza A	2	9	Nov. 28 – Dec. 8, 2017	Dawson Creek District Hospital, Dawson Creek
ILI – Influenza B	0	6	Nov. 30 – Dec. 12, 2017	Rotary Manor, Dawson Creek
GI – Norovirus	7	8	Nov. 30 – Dec. 4, 2017	The Pines, Burns Lake
ILI – Influenza A	10	40	Dec. 7 – Dec. 27, 2017	Simon Fraser Lodge, Prince George
GI – Unknown	2	3	Dec. 28 – Jan 2, 2018	Peace Villa (Marigold Lane), FSJ
GI – Norovirus	18	26	Dec. 28 – Jan 10, 2018	Bulkley Lodge, Smithers
ILI – Unknown	0	5	Dec. 30 – Jan 15, 2018	Stuart Nechako Manor, Vanderhoof
ILI – Influenza B	5	9	Dec. 31 – Jan 15, 2018	Parkside Care facility, Prince George
GI – Unknown	4	3	Jan. 5 – Jan. 15, 2018	UHNBC – SSMU, Prince George
GI – Unknown	2	2	Jan. 7 – Jan. 11, 2018	Mountain View Lodge, Kitimat
ILI – Influenza A	0	2	Jan. 10 – Jan. 15, 2018	UHNBC, Prince George
GI – Norovirus	9	13	Jan. 13 – Jan. 31, 2018	Simon Fraser Lodge, Prince George
ILI – Influenza A	12	15	Jan. 10 – Jan. 29, 2018	Dunrovin Park Lodge, Quesnel
GI – C. Difficile, non norovirus	1	9	Jan. 23 – Jan. 29, 2018	GR Baker Hospital, Quesnel

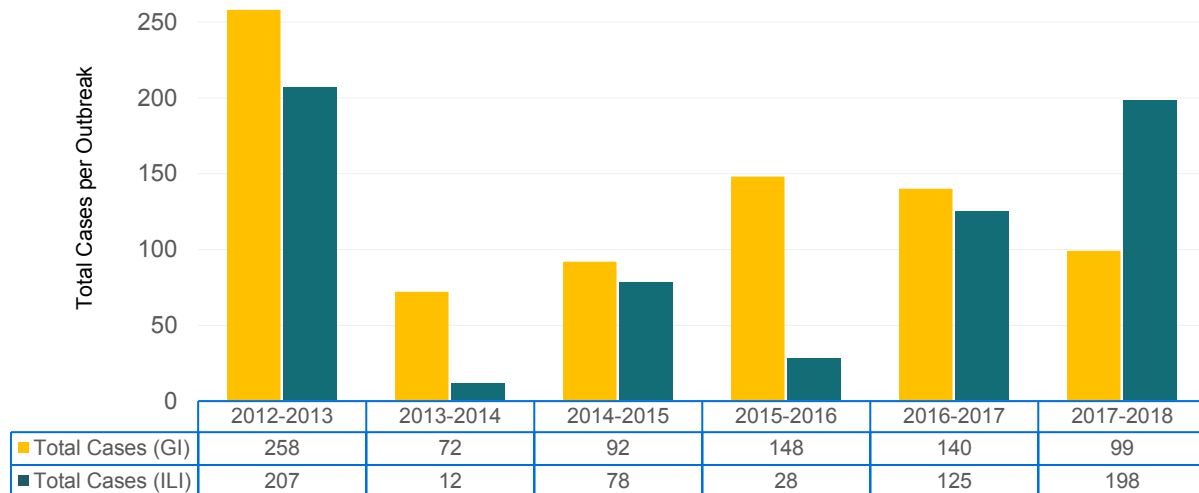


Responsible Organism	# of Staff Affected	# of Patients Affected	Dates / Length of Outbreak	Facility Name and Location
ILI - Respiratory Syncytial Virus	0	5	Feb. 3 – Feb. 28, 2018	Terrace View Lodge, Terrace
ILI – Influenza A H3N2	15	33	Feb. 27 – Mar. 16, 2018	Parkside Care facility, Prince George
ILI – Influenza B	8	11	Feb. 28 – Mar. 19, 2018	Peace Villa, FSJ
GI – Norovirus	4	9	Mar. 7 – Mar. 21, 2018	Stuart Nechako Manor, Vanderhoof
GI – Norovirus	3	4	Mar. 21 – Mar. 31, 2018	Bulkley Lodge, Smithers

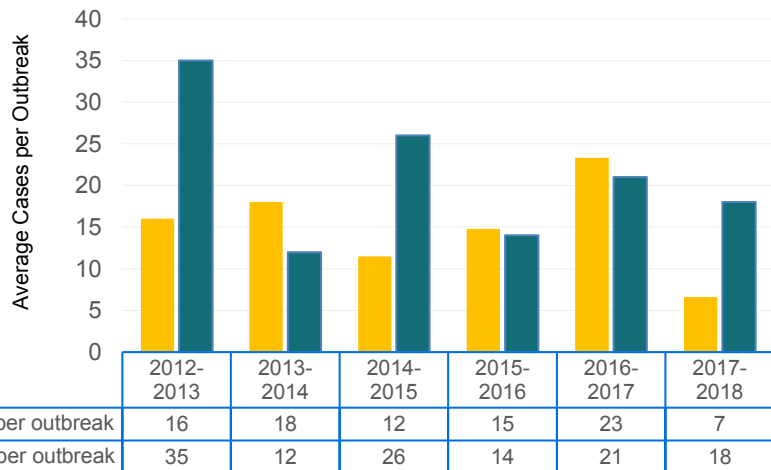
### NH # of Outbreaks per HSDA 2012 - 2018



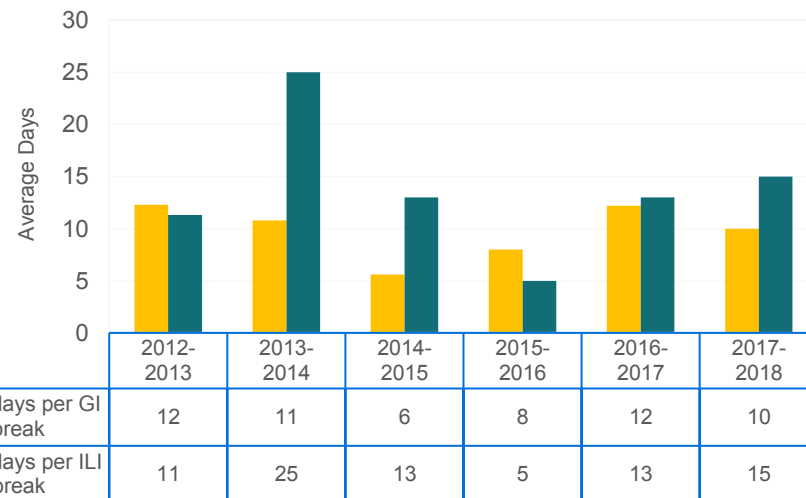
### NH Overall Total (GI & ILI) Total cases per Outbreak 2012 - 2018



### NH Overall Total (GI & ILI) Average cases per Outbreak 2012 - 2018



### NH Overall Total (GI & ILI) Average Days per Outbreak 2012 - 2018



# 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, Flash Sterilization and Storage and Use of Reprocessed Medical Devices. Quality Improvement initiatives have focused on the following five areas.

- Discussed the importance of keeping up to date documentation re: housekeeping cleaning schedule and to have them available for on-site audits.
- Monitoring Patient Safety & Learning System (PSLS) related to Flash Sterilization. Identifying equipment shortages and recommending inventory increases.
- Updated Event related Sterility Policy
- Continuous work to identify never or rarely used medical devices, or excess inventory that takes up space in sterile storage.
- Replacement of worn shelving with A-cart system to improve organization of sterile storage

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

Facilities Audited	2014 Percentage	2015 Percentage	2016 Percentage	2017 Percentage
Bulkley Valley District Hospital - Smithers	93.3	97.33	99.64	98.94
Dawson Creek and District Hospital	95.5	95.90	94.88	96.91
Fraser Lake D&T Centre		95.80		
Fort Nelson General Hospital		98.01		99.35
Fort St John Hospital	95.2	96.43	98.84	98.05
GR Baker Memorial Hospital - Quesnel	91.06	98.51	98.15	98.12
Kitimat General Hospital	96.3	99.63	96.95	95.53
Lakes District Hospital - Burns Lake		95.04		99.22
Mackenzie and District Hospital		92.24		
Mills Memorial Hospital - Terrace	88.46	95.08	97	98.92
Prince Rupert Regional Hospital	93.2	97.19	90.91	98.95
Queen Charlotte Islands Hospital		92.41	92.41	
St John Hospital - Vanderhoof	95.3	96.93	96.15	95.57
Stewart Health Centre		100		
Stikine D&T Centre - Dease Lake		100		
University Hospital of Northern BC - Prince George	97.2	98.61	96.55	95.56
Wrinch Memorial Hospital - Hazelton	96.88	99.15	99.16	95.58
Total Average Score	**93.45	*97.48	**96.82	**98.31
* For all sites				
**For sites with Operating room				

## 2017 Overall Average Compliance Scores

Practice Review Category	Average for Acute Care sites
<b>1.0</b> Purchase of Medical Devices and Equipment	98.48%
<b>2.0</b> Environmental Requirements	87.88%
<b>3.0</b> Policies and Procedures	100%
<b>4.0</b> Education & Training	97.20%
<b>5.0</b> Occupational Health & Safety	100%
<b>6.0</b> Cleaning – Reusable Devices	98.08%
<b>7.0</b> Liquid Chemicals for Disinfections	100%
<b>8.0</b> Disinfection – Reusable Medical Devices	99.48%
8.1 Pasteurization	N/A
<b>9.0</b> 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%
<b>10.0</b> 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
<b>11.0</b> Storage & Use of Reprocessed Medical Devices	93.67%
<b>12.0</b> Quality Assurance	100%
<b>13.0</b> Single Use Medical Devices	100%
<b>14.0</b> Residential HCC, PH Settings	90.91%
<b>15.0</b> Dental Clinics	91.68%
Average Across all categories	<b>98.31</b>

## **Residential Care Facilities Audited**

Residential care facilities were audited in 2016. There are no reprocessing departments 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:**

No capital equipment to report.

# Accreditation




Accreditation Canada preparation was occurring throughout 2017-2018.

**Q & A**

**INFECTION PREVENTION Accreditation 2018**

- 1. What is the goal of the infection Prevention theme?**  
The Infection Prevention theme focuses on reducing the risk of health care-associated infections and their impact across the care continuum. Specifically, it covers hand hygiene education and compliance, health care-associated infection rates and sterilization process.
- 2. What Required Organizational Practices (ROPs) are covered in the Infection Prevention theme?**  
Within the Infection Prevention theme, there are five ROPs that must be met in order to successfully complete Accreditation. They are:
  - 2.1. **Hand Hygiene education and training** – delivers hand hygiene education and training for staff, service providers and volunteers.
  - 2.2. **Hand Hygiene Compliance** – evaluates compliance with accepted hand hygiene practices.
  - 2.3. **Infections rates** – tracks infection rates, analyses the information to identify clusters, outbreaks and trends, and shares the information throughout the organizations.
  - 2.4. **Reprocessing processes** – monitors processes for reprocessing equipment and make improvements as appropriate.
- 3. How will the Infection Prevention ROPs be evaluated?**  
Surveyors will tour our site and will follow a test(s) of compliance for each ROP. Specifically, surveyors will gather information by:
  - Reviewing patient files and documentation
  - Talking and listening to leaders, physicians, staff, students, volunteers, patients and families
  - Observing what takes place
  - Recording what they read, see and hear.
- 4. Who needs to be aware of the Infection Prevention ROPs?**  
Surveyors will meet with teams, physicians, staff patients and families, students and volunteers. If you are asked a question on an unfamiliar topic, please refer the surveyor to the appropriate individual or to your supervisor.

Adapted from Provincial Health Services Authority Accreditation Q and A 2017

**IPC SURVEY QUESTIONS PREPARATION for ACCREDITATION 2018**

The purpose of this survey is to determine how Northern Health (NH) aligns with Infection Prevention and Control (IPC) self-assessments from June 2017. Please answer questions honestly based on your own experiences and understanding of the questions. There are 25 questions, and survey results will remain anonymous. Once you have completed the survey, select **submit** at the bottom of page two to submit your responses.

Please check mark  appropriate responses.

QUESTION (revised from red indicators)	AGREE	DISAGREE	I WILL REFER TO MY SUPERVISOR	DON'T KNOW
1 ROP#1 Hand hygiene rates are available on OurNH and posted in public areas at my facility (e.g., elevators, lobby, and information boards).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 ROP#2 NH Infection rates are posted on OurNH and available on the scorescard page of the annual report.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 I know who to contact regarding the infection prevention program and practices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 The medical lead for infection prevention is Dr. Abuobena Harbour and he provides input on the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 There is a NE, NW and regional infection prevention committees that meet every 3 months, and evaluate the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Infection Prevention is discussed at staff team meetings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 When renovations or new construction is planned, infection prevention is part of the multidisciplinary team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 When there is an environmental concern (i.e. poor air quality, infection prevention and occupational health are consulted and part of the team approach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Infection prevention is part of the team that reviews processes for selecting and handling medical devices/equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Infection prevention policies and procedures are monitored and updated to reflect current best practice changes or reviewed every 5 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Infection prevention practice priorities are promoted using a variety of tools (e.g., one to one, education modules, online learning, OurNH, and public webpages) and are tailored for staff, patients/families, families, and volunteers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 There are two infection prevention workbooks located on the Learning Hub.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Team members and volunteers are required to attend the IPC education program at orientation and on a regular basis based on their IPC roles and responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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**ACCREDITATION TRACER QUESTIONS MDRD – ENDOSCOPY**

Questions	Responses
1) What education do you have around scope reprocessing?	
2) How often are you recertified?	
3) Does Northern Health have written requirements for education and recertification?	
4) Can you show the surveyor how you keep track of education/recertification?	
5) How do staff who do not reprocess scopes other remain competent?	
6) Are there separate clean and dirty work areas in the endoscope reprocessing areas?	
7) Are doors to the reprocessing area closed at all times?	
8) Is the decontamination area physically separate from the storage of clean medical devices?	
9) Is the receiving area separate from the clean area?	
10) Is there restricted access to the reprocessing area?	
11) Is there a designated area for donning and removing Personal Protective Equipment?	
12) Where is the eye wash station?	
13) Where are the MSDS sheets? WHMIS information?	
14) Can you show the surveyor how you would access the manufacturers' instructions/policy and procedure re: cleaning of flexible endoscopes?	
15) How do you choose and prepare which type of enzymatic solution to use?	
16) How often should cleaning brushes be used?	
17) What procedures are in place to limit soaking time in water or detergent solution, waiting time between reprocessing steps and standing time in an AER after cycle completion?	

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**MRDR SURVEY QUESTIONS PREPARATION for ACCREDITATION 2018**

The purpose of this survey is to determine where Northern Health (NH) is regarding results from the MRDR self-assessment in June 2017. Questions that received low marks have been re-worded but the meaning remains. Please answer questions honestly based on your own understanding of the question. There are 20 questions. The survey results will remain anonymous. Click **submit** at the end of the questionnaire once completed.

Please check mark  appropriate responses.

QUESTION (revised from red indicators)	AGREE	DISAGREE	I WILL REFER TO MY SUPERVISOR	DON'T KNOW
1 There is a department in NH that collects information regarding types of surgeries and how many surgeries are performed each year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 The above information is used to determine the needs of the health authority, such as growing numbers of surgeries equals more equipment needs/staffing needs. Surgeries and procedures are booked according to what is usual for the site (there are enough instruments, and instruments are sterilized according to the MIPU), i.e. instruments that require low-temperature sterilization will not be used at a site that does not have a Sterrad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 NH does not send non-processed to external providers such as third party reprocessing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 NH does re-process instruments for other NH sites that do not have reprocessing facilities on site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Work space is adequate at my site. If not, a) I am aware that there has been or will be improvements/changes to work space and/or resources. The HVAC system maintains positive air pressure in the pre- and post-area, and negative air pressure in the decontamination area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Temperature and humidity are monitored daily and logged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Temperature is maintained between 18-23 degrees and humidity is maintained between 30-60%. Humidity can go as high as 70% without compromising sterility. Floors, walls and fixtures are cleanable, work surfaces are non-porous and non-shedding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 The MRDR department is clean and well-maintained. a) Areas not well-maintained have been identified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 There is a process that is followed before new equipment is purchased for the department; all stakeholders are involved. IBC Clinical and Support Services is contacted to provide quotes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Equipment that has reached end of life is added to capital spending as equipment can be replaced.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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# Antimicrobial Stewardship

Northern Health's Antimicrobial Stewardship (AMS) Program is continually striving to meet the needs of our various facilities and patient populations being managed at these facilities. We are working towards improvements in antimicrobial prescribing and ultimately patient care.

We are constantly seeking engagement at the site level and encourage anyone interested in Antimicrobial Stewardship with ideas for improvement at their facility to contact the program coordinator. Only when we work together can we truly improve the use of antimicrobials within the Northern Health Authority.

## Best Practices

There is ongoing work to develop and revise clinical tools, protocols and order sets. Items completed and actively being developed/revised include:

- Pharmacist Managed Pharmacokinetic Monitoring and Dosing of Vancomycin and Aminoglycosides Clinical Practice Standard
- All-Staff [Antimicrobial Stewardship](#) webpage on OurNH
- Pharmacy Resident Research project – IV to PO conversion rate for high bioequivalent antibiotics at UHNBC (final manuscript pending)
- Retrospective Evaluation of *Clostridium Difficile* Infection Risk Factors and Management at a University Teaching Hospital in Northern BC (final manuscript pending)
- Education sessions for prescribers – Friday Grand Rounds
- Urinary Tract Infections - Education Module on Learning Hub
- Regional Outpatient IV Antimicrobial Therapy order set (complete)
- Creation/Regionalization of Chronic Obstructive Pulmonary Disorder Acute Exacerbation (COPDAE) order sets (complete)
- Regional Sepsis protocol revisions/updates (complete)

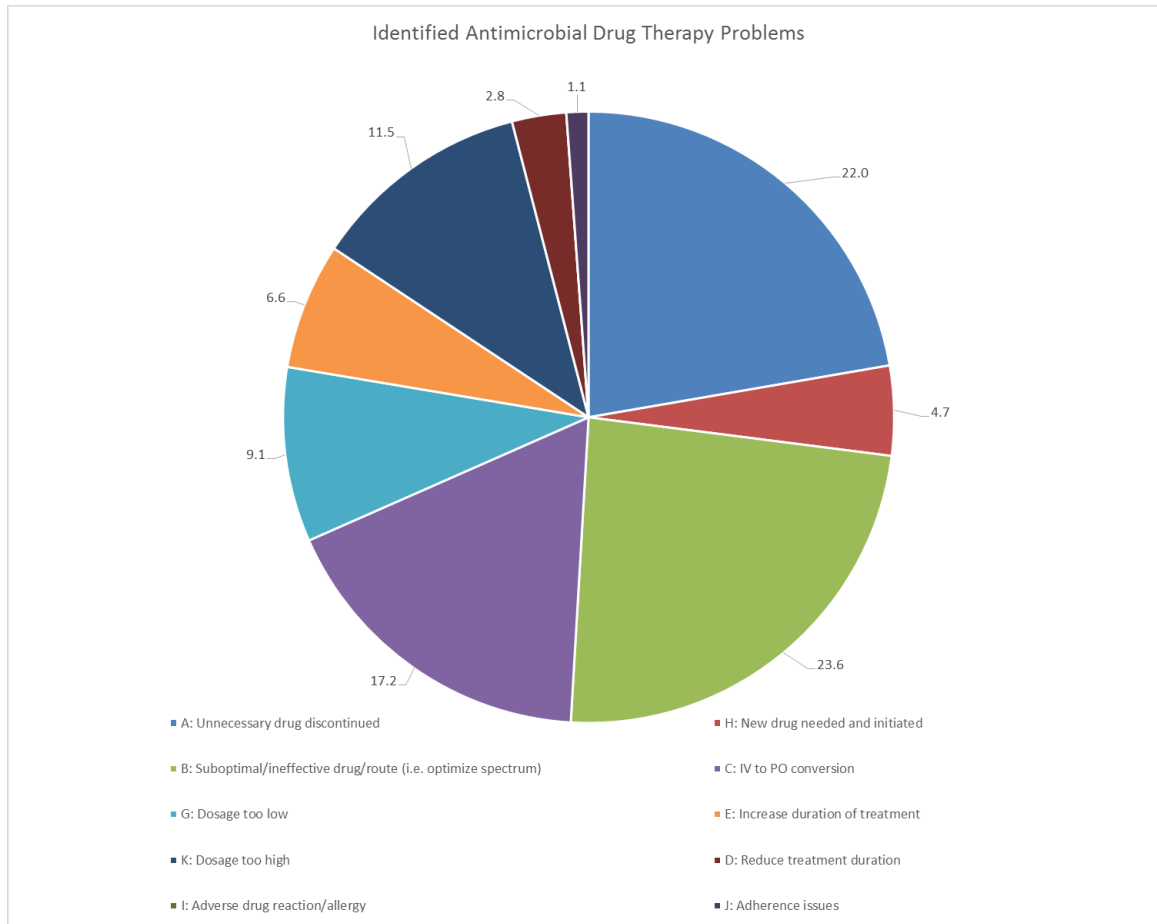
## Clinical Service/Audit & Feedback

In quarter 3 and 4 of this fiscal year variations of Prospective Audit and Feedback (A&F) of targeted antimicrobials have continued (with mentorship from the AMS program coordinator at UHNBC) at Bulkley Valley & District Hospital, the Omineca Lakes district facilities and Fort St. John Hospital. Patient case reviews at GR Baker Hospital re-started at the end of quarter 4 and will continue with AMS program coordinator mentorship for quarter 1 and 2 of the next fiscal year.

The second half of this fiscal year 1950 patient cases were reviewed and 888 drug therapy problems were identified with a 69% resolution rate, which is slightly lower than in quarter 1 & 2. This brings our total drug therapy problems (DTPs) identified this year to approximately 1300 with a resolution rate of 71%. This is still under our goal of 80% however this is higher than in the previous fiscal year where the resolution rate was only 60%. Looking at the whole fiscal year our rates of unresolved DTPs due to pharmacist workload and patient status change (discharged or deceased) are 24% and 28% respectively compared to 56% and 25% from quarter 4 of 2016/17 (this data was not collected for the full year).

There are a variety of types of antimicrobial therapy problems; Figure 1 displays various types of drug therapy problems **identified**. The top 3 drug therapy problems are consistent from last fiscal and include: #1 Unnecessary Antimicrobial Discontinued, #2 Suboptimal or ineffective therapy and #3. Converting IV antimicrobial to an oral agent.

**Figure 1 – Antimicrobial Drug Therapy Problem Types**



### Leadership

The Antimicrobial Stewardship (AMS) Subcommittee is pleased to welcome an interim AMS program coordinator, Ryan Doerksen, who will be taking over maintenance of the AMS program alongside Dr. Hamour starting September 2018 until Alicia Rahier returns from a maternity leave in the fall of 2019.

### Full Report

The full annual report with detailed antimicrobial usage metrics will be available by September 2018 on the OurNH [Antimicrobial Stewardship Webpage](#). If you have any questions or comments regarding the NH AMS program, please contact the AMS program coordinator at 250-565-5956.



# 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 residential 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.

