

INFECTION PREVENTION

Annual Report

2022-2023



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 challenges facing Infection Prevention and Medical Device Reprocessing practices throughout the region.

Facilities and the associated staff are more familiar with Infection Prevention Program/Practitioners roles and responsibilities within the organization. There is an increased awareness that Infection Prevention support at the site level enables management to implement a preventative approach with communicable disease. With this support from Infection Prevention, leads and staff have become more confident in the implementation of infection prevention guidance.

This report summarizes the initiatives and accomplishments of the IP program during the 2022/23 fiscal year, and outlines major goals and continued priorities for the upcoming fiscal year.

Infection Prevention Health Care Report Card and Indicators for 2022/23

Infection Prevention Health Care Report Card and Indicators for 2022/23					
Indicator	Status	Target	2022/23	Preferred Direction	Page #
<i>Clostridium difficile</i>		< 0.30	0.41		12
Methicillin-Resistant <i>Staphylococcus aureus</i>		< 0.70	0.84		13
Hand Hygiene Compliance		≥ 85%	92%		10
*Cases per 1,000 patient days **Please see the Hand Hygiene section for further discussion regarding the 2022/23 hand hygiene compliance rates Meeting target Within 10% of target Outside of target range by more than 10%					
Additional Infection Prevention Indicators					
Indicator	Status	Target	2022/23	Page #	
Carbapenemase-Producing Organisms		Reduction in health care associated transmissions	0	15	
Surgical Site Infections		< 3 per 100 procedures	2 per 100 procedures	19	
Outbreak Management		Reduction in # of outbreaks	No COVID-19 Outbreaks	20	
			62 COVID-19 Clusters		
			5 ILI Outbreaks		
			5 GI Outbreaks		
■ Number of cases Meeting target Within 10% of target Outside of target range by more than 10%					

Based on this year's report, the key priorities for 2023 - 2024 will be:



Facility Quality Assessment



MDRD

- Staff training
- Product standardization



Quality Improvement (Co-lead)

Introduction

Under the administrative direction of Fraser Bell, Vice President of Planning, Quality, and Information Management, the Northern Health Infection Prevention (IP) program is dedicated to the prevention and reduction of healthcare associated illness in Northern BC patients, residents, and employees through a variety of strategies summarized in this annual report.

The prevention of healthcare associated infections is an organization wide responsibility, reflected in our motto “Infection Prevention is Everyone’s Business”. During 2022/23, the IP program has continued to provide infection prevention expertise, and support departments and front line staff.

The regional program provides on-site and consultative infection prevention and medical device 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). Each of the areas is represented by a multidisciplinary infection prevention committee that reports to the NH Infection Prevention Council, the NH Medical Advisory Committee, and the Executive team.

Infection Prevention liaises with other programs such as Communicable Disease (Public Health), and Workplace Health & Safety (WH&S) regarding communicable diseases and outbreak management.

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

- Obtains, manages and disseminates critical data and information, including surveillance for infections; and disseminates information to appropriate stakeholders.
- Develops and recommends best practices, policies, and procedures.
- Involved in infection prevention 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 (CSA) protocols.
- Promotes and facilitates infection prevention education within the department, as well as healthcare personnel, patients and their families.
- Provides consultation and 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.
- Provides expertise, and outbreak management support to non-healthcare organizations located in the NH geographic region i.e. work camps.

Infection Prevention Team Members

**Vice President, Planning, Quality, and
Information Management** – Fraser Bell

Medical Lead, IPAC – Dr. Abuobeida Hamour

Regional Manager, IPAC – Deanna Hembroff

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Working Groups and Initiatives

Guidelines and References Developed and Reviewed:

- SSI Protocols (reviewed)
- [Quick Guide to Outbreak Management](#) (reviewed)
- Outbreak manuals for [COVID-19](#), [Influenza-like Illness and Gastrointestinal Illness](#) (reviewed)
- 24 Infection Prevention policies (reviewed)

Participated in the following Working Groups/Committees:

- Antimicrobial Stewardship working group
- COVID-19 IPAC, WH&S provincial working group
- Endoscopy Value Analysis team meetings
- High Threat Pathogens working group
- Joint Occupational Health and Safety committee
- Long Term care (LTC) and Assisted Living (AL) task group
- LTC Accommodation capital working group
- Mortuary Management provincial committee
- NH Heat Preparedness task group
- NH Long Term Care community of practice
- NH Perinatal committee
- NH Skin and Wound committee
- NH PPE task group
- Pan Canadian Advisory Committee for the Measurement and Surveillance of Healthcare-Associated infections
- PHSA Request for Purchase regional representative
- PICNet precaution signs task group
- Provincial Aerosol-Generating Medical Procedures (AGMP) expert committee
- Provincial Reprocessing working group committee
- National Infection Prevention and Control Canada (IPAC) interest groups: Long Term Care (LTC), Medical Device Reprocessing (MDR), IPAC Environmental Hygiene Interest Group (EHIG), Surveillance and Applied Epidemiology (SAIEG), SSI Surveillance Canada, Health Care Facility Design and Home and Community Care

Participated in the following Working Groups Committees:

- **New Builds:** Mills Memorial Hospital, Dawson Creek District Hospital, Fort St. James Hospital, and UHNBC Surgical Tower
- **Large Renovation Projects:** GRB Emergency Room, UHNBC lab, Biomed and fluoroscopy, Fort St. John Hospital lab

Mills Memorial Hospital – New build

Construction of new hospital has surpassed [50% completion](#).



Education:

An integral part of the Infection Prevention program is the ongoing education and training in infection prevention practices, based on current evidence-based recommendations. Relevant and current information with regards to Infection Prevention and Medical Device Reprocessing department (MDRD) services is available on the [OurNH](#) website.

The majority of this year's employee educational needs continued to be driven by the COVID-19 pandemic with the focus on "Back to Basics" including hand hygiene, PPE training, outbreak management and protocols.

In person teaching was able to resume, but Microsoft team videoconferencing has continued to be a valuable communication tool for reaching a large amount of people in different locations.

All education opportunities located outside of NH facilities (i.e. university and college nursing programs) resumed as restriction eased.

In-person Infection Prevention orientation for staff resumed. The Infection Prevention team was involved in the development of a new orientation format for Long Term Care and Assisted Living staff.

Infection Prevention Professionals Education:







In keeping with the program's mandate to provide current infection prevention expertise, the IP team participated in the following education in 2022/23:

- 3 IP team members completed the CSA Infection Prevention During Construction, Renovation and Maintenance of Health Care Facilities Course
- 2 IP team members are currently enrolled in Canadian Infection Prevention Courses




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](#).




Infection Prevention Health Care Report Card and Indicators for 2022/23

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Hand Hygiene Compliance		≥ 85%	92%		10

* Cases per 1,000 patient days
 ** Please see the Hand Hygiene section for a further discussion regarding the 2022/23 hand hygiene compliance rates

-  Meeting target
-  Within 10% of target
-  Outside of target range by more than 10%

Additional Infection Prevention Indicators				
Indicator	Status	Target	2022/23	Page #
Carbapenemase-Producing Organisms		Reduction in nosocomial transmissions	0	15
Surgical Site Infections		< 3 per 100 procedures	2 per 100 procedures	19
Outbreak Management		Reduction in # of outbreaks	No COVID-19 Outbreaks	20
			62 COVID-19 Clusters	
			5 ILI Outbreaks	
			5 GI Outbreaks	

- Number of cases
-  Meeting target
-  Within 10% of target
-  Outside of target range by more than 10%

Hand Hygiene

Status	Target	Actual (2022/23)	Preferred Direction
●	≥ 85%	Acute Care Facilities (ACF): 92%	↑
●	≥ 85%	Long Term Care Facilities (LTCF): 83%	↑

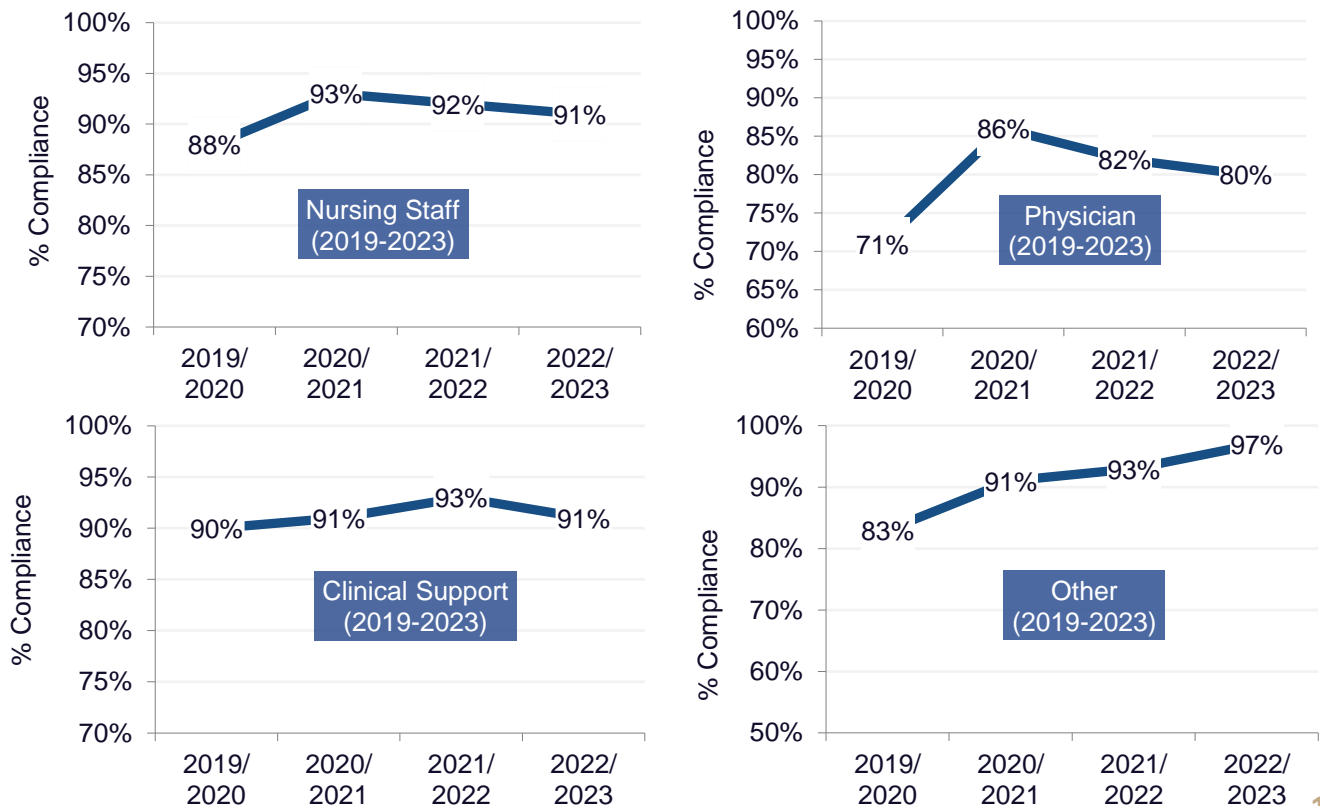
Hand hygiene (HH) with either soap and water or alcohol based hand rub is recognized as a key component in the prevention of Healthcare-Associated Infections (HAIs). HH is required both before and after contact with patients/residents and their environment. The minimum provincial requirement is 200 observations 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 staff engagement and awareness. Posting of hand hygiene rates and other communication strategies fell by the wayside during the pandemic.

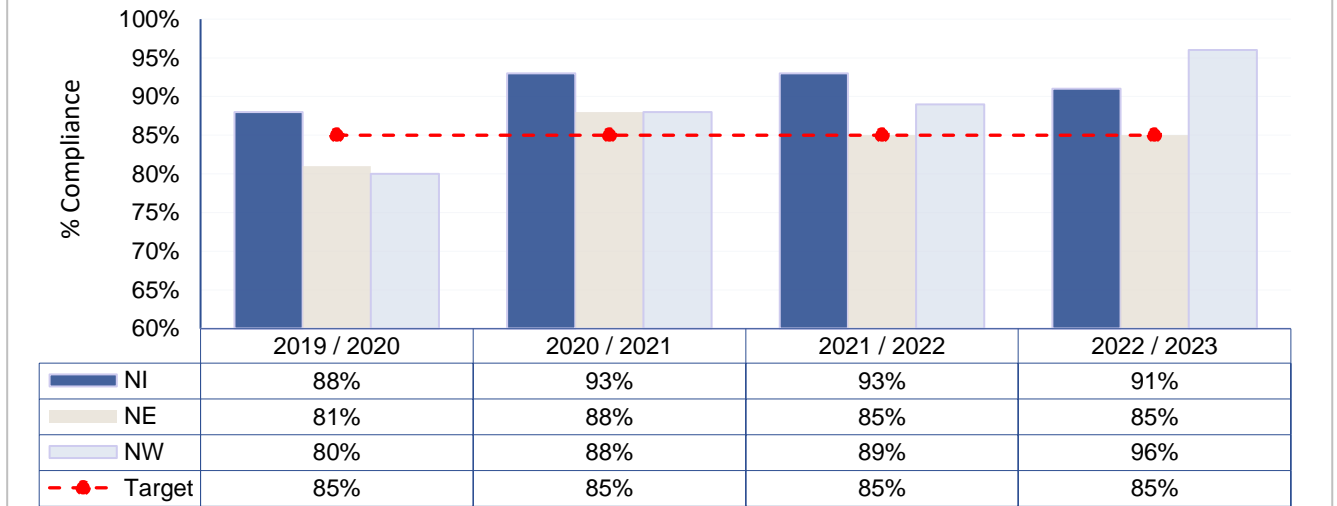
Provincial HH audit classification of staff/healthcare provider types is collated into four category codes:

Nurse	NP/RN/RPN, LPN, Care Aide/Student Aide, Student (Nursing)
Physician	Physician, Medical Student/Resident
Clinical	Medical Technician, Respiratory Therapy, Lab personnel, Porter, Social Worker, Rehab Therapy, Dietician, Pharmacist
Other	Housekeeper, Facilities Maintenance, Volunteer, Food Services, Other

Hand Hygiene Compliance in Acute Care Healthcare Provider Averages (2019-2023)



Hand Hygiene Compliance in Acute Care HSDA Averages (2019-2023)



Goals for 2022/23:

- All Northern Health Acute Care Facilities will complete and submit hand hygiene audits as per provincial requirements.
- All Northern Health Long Term Care Facilities will complete and submit hand hygiene audits as per provincial requirements.
- Westech Hand Hygiene web-based app for patients and visitors.
- Community and Primary Care Hand Hygiene review product usage and complete self audits and observational audits.

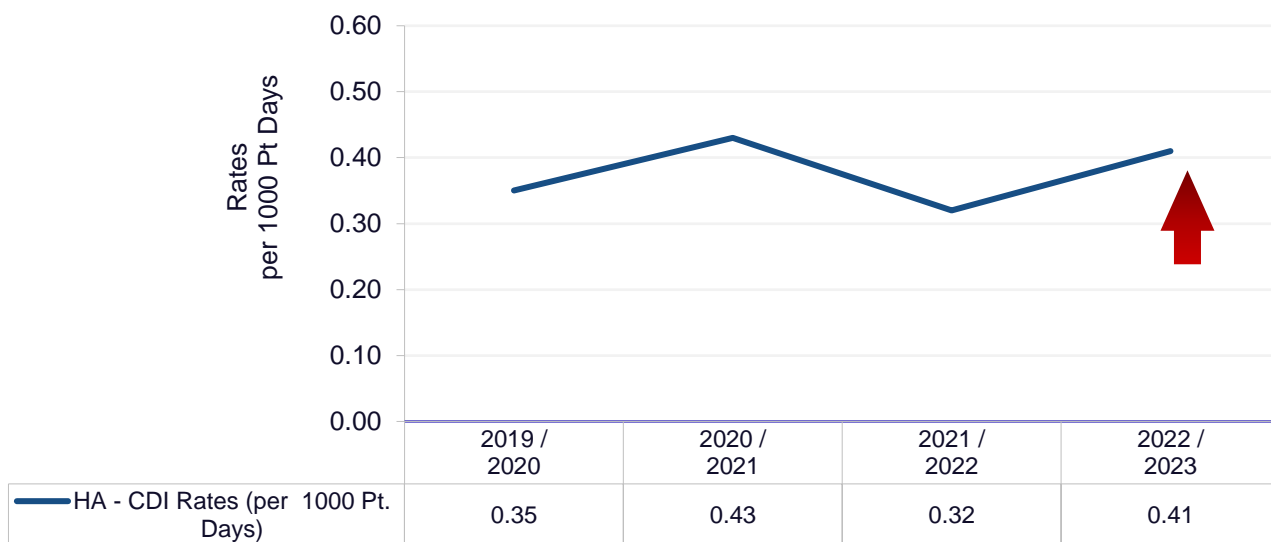
Healthcare-Associated Infection Indicators

Clostridium difficile Infection (CDI)

Status	Target	Actual (2022/23)	Preferred Direction
◆	< 0.30 per 1000 pt. days	0.41 per 1000 pt. days	↓

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.

Actions taken in 2022/23 include:

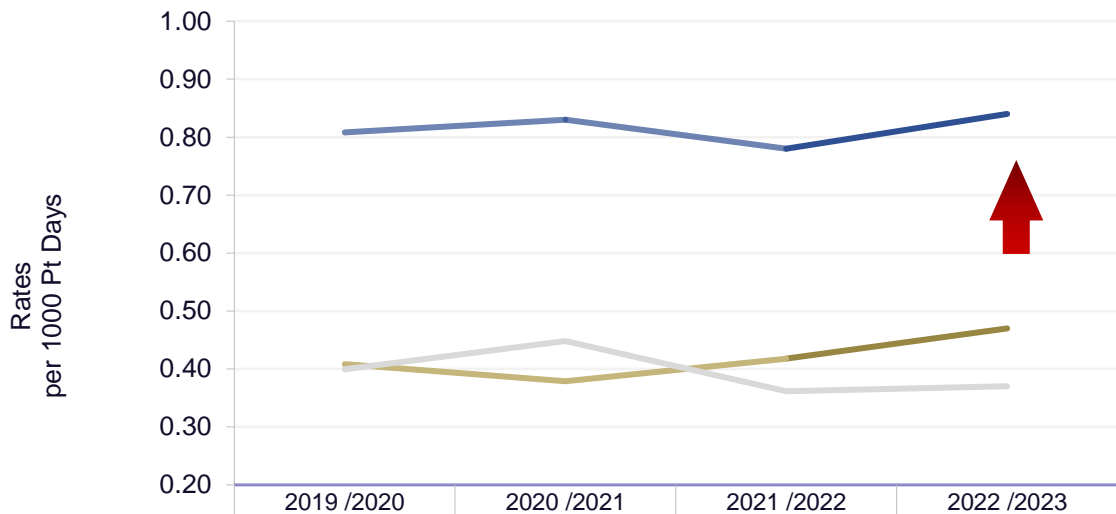
- Education provided on cleaning with sporicidal for all suspected and confirmed cases
- Facilitated increased communication between front line nursing staff and environmental services.
- Increased education sessions for Health Care Workers (HCWs) regarding importance of proper protocol, signage and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

Methicillin-resistant *Staphylococcus aureus* (MRSA)

Status	Target	Actual (2022/23)	Preferred Direction
◆	< 0.70 per 1000 pt. days	0.84 per 1000 pt. days	↓

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a strain of *Staphylococcus aureus* resistant to a number of antibiotics such as methicillin, penicillin, and amoxicillin. MRSA is primarily spread by skin to skin contact or contact with items and surfaces contaminated by the bacteria. The principle mode of transmission in healthcare facilities is considered to be from one (colonized or infected) patient to another via the contaminated hands of healthcare providers. Patients at greatest risk of acquiring MRSA are the elderly, those who have chronic diseases and/or undergoing invasive procedures.

MRSA Infection and Colonization Rates



	2019 /2020	2020 /2021	2021 /2022	2022 /2023
Total MRSA (per 1000 Pt Days)	0.81	0.83	0.78	0.84
Infections (per 1000 Pt. days)	0.41	0.38	0.42	0.47
Colonizations (per 1000 Pt. days)	0.40	0.45	0.36	0.37

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 increased to 0.84.

Limitations include:

- Difficulty with accommodating patients with an ARO(s) or risk factors for an ARO(s) in appropriate single rooms due to overcapacity and COVID-19 surge as well as due to many shared wards with older hospitals design structure.
- Staff disengagement with routine admission swabbing in part to expectations around pandemic.

Ongoing Actions:

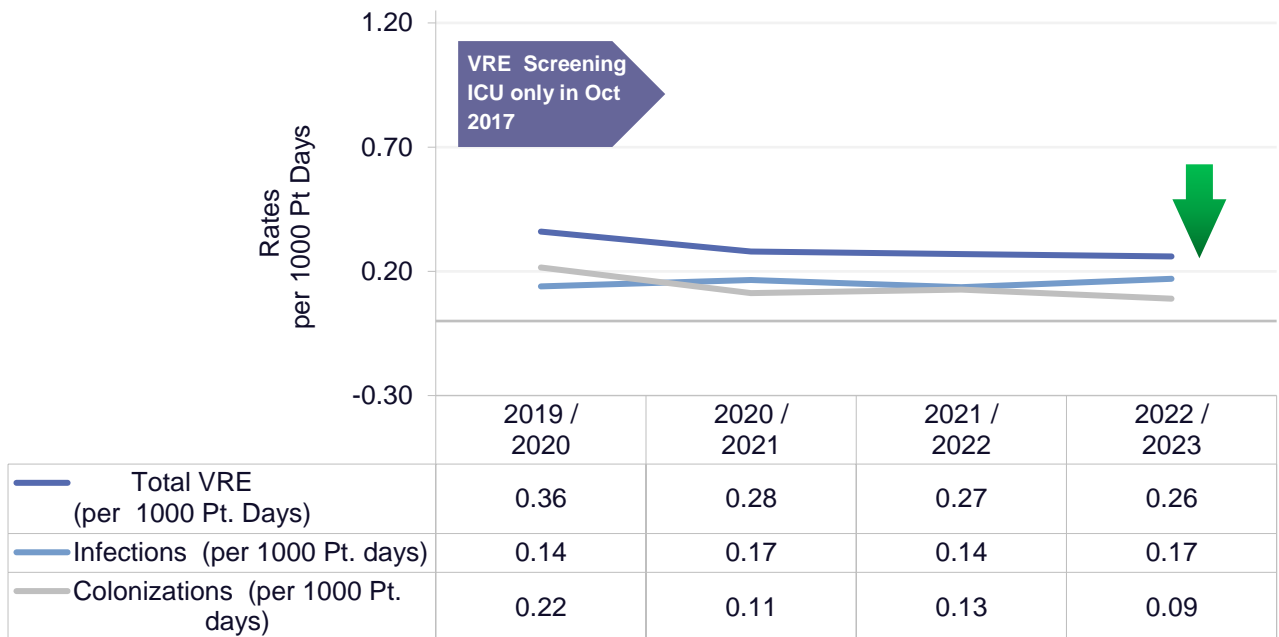
- All NH patients who test positive for an ARO have their health record flagged with that ARO alert.
- Continued 30-day prevalence screening of all previously tested negative in-patients.
- Infection prevention education for HCWs regarding importance of HH, environmental cleaning and appropriate cleaning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

Vancomycin Resistant *Enterococci* (VRE)

Status	Target	Actual (2022/23)	Preferred Direction
●	< 0.30 per 1000 pt. days	0.26 per 1000 pt. days	↓

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.

VRE Infection and Colonization Rates



Ongoing Actions:

- All NH patients who test positive for VRE have their health record flagged with an ARO alert.
- Continued 30-day prevalence screening of all previously tested negative patients admitted to Intensive Care Units.

- Infection prevention education for HCWs regarding importance of Hand Hygiene (HH), environmental cleaning and appropriate cleaning of shared equipment.
- Infection prevention education for patients, families and visitors.

Management of Carbapenemase Producing Organisms (CPO)

Carbapenemase Producing Organisms are gram negative bacteria that 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 2022/23, one case of CPO was identified in NH.

Actions taken in 2022/23 include:

- Education for HCW about importance of admission screening and screening of transfer patients.
- Communication of ongoing CPO investigations within the province to ward staff and management.

Surgical Site Infections (SSI)

Surgical Site Infections (SSIs) 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.



SSI surveillance is conducted by IP through post discharge surveillance. 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.

Prophylactic antibiotic rates vary. Challenges include incomplete or nonexistent documentation when antibiotics were given.

Actions taken in 2022/23 include:

- Patients are monitored for up to 90 days 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 pre and post-surgery.

Caesarean section:

Status	Target	Actual (2022/23)	Preferred Direction
	≤ 3 per 100 procedures	3 per 100 procedures	



C-sections are performed at a total of 9 Northern Health facilities.

Outcome:

718 C-sections performed in 2022/23.

- Antibiotics given within one hour of cut time - 82%. Rate of administration increased from the previous year at 79%. Challenges with finding documentation in the patient chart remains an ongoing issue, in particular emergency C-sections.
- 23 SSIs were identified
- The SSI rate was 3 per 100 procedures

Total Abdominal Hysterectomy (TAH):

Status	Target	Actual (2022/23)	Preferred Direction
	≤ 4 per 100 procedures	3 per 100 procedures	



Total Abdominal Hysterectomies are performed at 5 Northern Health facilities.

Outcome:

34 TAH performed in 2022/23.

- Antibiotics given within one hour of cut time - 85%. Rate of administration decreased from the previous year at 92%.
- 1 SSI was identified
- The SSI rate was 3 per 100 procedures

Total Primary Hip Replacement (THR):

Status	Target	Actual (2022/23)	Preferred Direction
	≤ 2 per 100 procedures	2 per 100 procedures	



Total Hip Replacements are performed at 4 Northern Health facilities.

Outcome:

353 THR performed in 2022/23.

- Antibiotics given within one hour of cut time - 97%. Rate of administration remains unchanged from the previous year at 97%.
- 6 SSIs were identified
- The SSI rate was 2 per 100 procedures

Total Primary Knee Replacement (TKR):

Status	Target	Actual (2022/23)	Preferred Direction
	< 2 per 100 procedures	1 per 100 procedures	



Total Knee Replacements are performed at 4 Northern Health facilities.

Outcome:

496 TKR performed in 2022/23.

- Antibiotics given within one hour of cut time - 98%. Rate of administration has a significant increase from the previous year at 80%.
- 7 SSIs were identified
- The SSI rate was 1 per 100 procedures

Bowel Resection (not including rectum):

Status	Target	Actual (2022/23)	Preferred Direction
	< 10 per 100 procedures	7 per 100 procedures	

Bowel Resections are performed at 6 Northern Health facilities.

Outcome:

60 Bowel Resections performed in 2022/23.

- Antibiotics given within one hour of cut time - 100%. Rate of administration increased from the previous year at 88%.
- 4 SSIs were identified
- The SSI rate was 7 per 100 procedures

Surgical Site Infections (SSI)

Rate Comparison with previous years:

Procedure	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Abdominal Hysterectomy	3 per 100 procedures	7 per 100 procedures	4 per 100 procedures	4 per 100 procedures	3 per 100 procedures
Caesarean Section	3 per 100 procedures	3 per 100 procedures	3 per 100 procedures	2 per 100 procedures	3 per 100 procedures
Bowel Resection	12 per 100 procedures	10 per 100 procedures	2 per 100 procedures	10 per 100 procedures	7 per 100 procedures
Total Primary Hip Replacement	4 per 100 procedures	4 per 100 procedures	2 per 100 procedures	5 per 100 procedures	2 per 100 procedures
Total Primary Knee Replacement	3 per 100 procedures	2 per 100 procedures	2 per 100 procedures	2 per 100 procedures	1 per 100 procedures

Cluster/Outbreak Management

Infection Prevention collected and provided data for the province regarding COVID-19 statistics (individual cases as well as NH facility outbreaks), influenza and GI illness.

Protocols put in place by the Provincial Health Officer (PHO) and Northern Health to help prevent COVID-19 clusters/outbreaks included:

- Visitor restriction (essential and designated visitors only)
- Enhanced symptom screening on arrival to facility of all visitors, and service providers
- Enhanced symptom screening of all new or returning patients as well as daily screening of inpatients
- Rapid antigen testing for visitors.
- Restriction of COVID-19 symptomatic visitors and service providers (symptoms such as fever, cough, difficulty breathing, chills, sore throat, runny nose, vomiting or diarrhea)

Declaring a cluster has become a more collaborative process with ease of restrictions as there are more possible modes of transmission and COVID-19 is widespread in communities across NH.

Of note, there were a total 62 COVID-19 related clusters.

There were 5 GI and 5 ILI outbreaks in NH facilities this fiscal year.

Lessons Learned

- **Timely Application of Precautions:** Lessons learned were well documented and IP team was able to apply them to other clusters/outbreaks in the NH region.
- **Communication is Key:** Early establishment of daily meetings and huddles were vital due to the scope and level of coordination required. Meeting early on with the MHO to discuss the differences between clusters and outbreaks helped to address worries and staff were receptive to the new format. The communications office provided support for communicating with families.
- **LTC and ALC Mandatory Education:** Mandatory staff education to now include guidelines for N95 Fit Testing, and outbreak protocols & preparedness.
- **Multidisciplinary Approach:** Multidisciplinary collaboration facilitates effective teamwork in early detection and efficient management of outbreaks. IP moved back into a consultative role as facilities felt more confident with managing clusters.
- **Vaccination improved resident/patient outcomes:** Severity of illness decreased with successive booster vaccinations, fewer admissions to hospital were seen with long-term care clusters and outbreaks.

- **Nature of unit dictates extent of precautions:** Isolating whole units became the exception instead of the norm with widespread vaccination, decreased severity of illness and focus on patient/resident mental health and wellbeing. Entire units were treated as potentially infectious when individual case isolation was not possible (i.e. non-compliant or wandering residents/patients, 4 bed wards).
- **Recognizing limitations:** Outbreak management teams pivoted from strict cohorting to reinforcing appropriate donning/doffing of personal protective equipment.

Quality Improvement

NH Facilities Quality Assessments 2022/23 - Infection Prevention

Background:

Starting June 2022 and ending April 2023, the Infection Prevention (IP) program started a quality assessment process for NH Acute care and Long Term Care (LTC) facilities. The quality assessment process fills the gap between policy and practices. Performing an Infection Prevention and Control (IPAC) quality assessment ensures the facility is following the standards of current best practice. It provides facilities with peace of mind that they are doing everything they can to ensure the safety and wellbeing of their clients.







In 2022, only primary sites (those with an ICP attached) were assessed. Secondary sites will be assessed during the next quality assessment cycle.

At the completion of each assessment, a written report was prepared by the IP assessor and shared with facility management. Recommendations included in the written reports have been collated and are presented below:

Acute Care

Facilities assessed included: Dawson Creek District Hospital, Fort St. John Hospital, Bulkley Valley District Hospital, Kitimat General Hospital, Mills Memorial Hospital, Prince Rupert Regional Hospital, UHNBC and Wrinch Memorial Hospital.

This table shows the number of recommendations related to each quality dimension that were rated as critical risk, high risk, moderate risk, or low risk.

Quality Dimension	Critical Risk	High Risk	Moderate Risk	Low Risk	Total
 Hand Hygiene (accessibility, auditing program)	2	0	9	1	12
 Clean to Dirty Workflow (soiled utility spaces, identification of clean equipment)	3	0	23	3	29
 Storage and Organization	0	0	24	2	26
 Reducing Shared Personal Supplies and Products	0	0	3	1	4
 Physical Environment (infrastructure, finishes, furniture)	1	0	16	10	27
 Staff Training and Education	0	0	4	3	7
Total	6	0	79	20	105







Bulkley Valley District Hospital, Kitimat General Hospital, Mills Memorial Hospital and Wrinch Memorial Hospital all had recommendations rated critical risk that required immediate action. Recommendations of note pertained to unfinished construction in areas being used for patient care, lack of alcohol-based hand rub (ABHR) at the point of care, and improper human waste disposal machines.

Majority of facilities were given recommendations rated moderate risk (action timeline 3 months). Areas of opportunity include replacing furniture and finishes that are non-wipeable, damaged or porous; creating or expanding designated spaces for storage; engineering controls to support dirty to clean workflow (e.g., human waste disposal systems that are in line with best practice, zones for equipment cleaning, access to PPE); and access to ABHR in all work and patient care areas.

Acute care facilities scored well in the reducing shared personal supplies and products dimension as well as staff training and education. See [Quality Assessments in Acute Care](#) for detailed assessment summary and recommendations.

Long Term Care

Facilities assessed included: Acropolis Manor, Bulkley Lodge, Dunrovin Park Lodge, Houston Health Centre, Jubilee Lodge, Mountain View Lodge, Parkside Care Home, Peace Villa, Rainbow Lodge, Rotary Manor, Simon Fraser Lodge, Stuart Nechako Manor, Terraceview Lodge and The Pines.

Quality Dimension	Critical Risk	High Risk	Moderate Risk	Low Risk	Total
 Hand Hygiene (accessibility, auditing program)	2	0	4	9	15
 Clean to Dirty Workflow (soiled utility spaces, identification of clean equipment)	2	0	14	20	36
 Storage and Organization	0	0	10	17	27
 Reducing Shared Personal Supplies and Products	0	0	6	10	16
 Physical Environment (infrastructure, finishes, furniture)	1	0	10	14	25
 Staff Training and Education	0	0	2	0	2
Total	5	0	46	70	121

This table shows the number of recommendations related to each quality dimension that were rated as critical risk, high risk, moderate risk, or low risk.

Bulkley Lodge, Jubilee Lodge and Terraceview Lodge all had recommendations rated critical risk that required immediate action. These recommendations have been addressed and completed. Recommendations of note pertained to lack of ABHR at the point of care, inconsistent hand hygiene auditing, improper disposal of sharps (i.e., full containers not replaced) and unsecure medication rooms (i.e., not locked when unattended).

As in Acute Care, Long Term Care facilities scored well in the staff training and education dimension. However, Long Term Care had an increased number of recommendations that were rated as low risk (action timeline 6 months or longer) compared to Acute Care. Majority of recommendations (across all risk categories) were regarding clean to dirty workflow. Aging and non-existent infrastructure were variables that influenced facilities' ability to meet standards for clean and dirty utility rooms.

Other areas of opportunity were creating or expanding designated spaces for storage to facilitate decluttering of resident rooms, hallways, tub rooms and nursing stations; replacing non-cleanable furniture and décor with wipeable, non-porous products; engineering controls to reduce stockpiling and shared personal supplies (e.g., wall mounted cartridge style dispensers for multi-use bathing products); and access to ABHR in all work and patient care areas.

See [Quality Assessments in Long Term Care](#) for detailed assessment summary and recommendations.

This quality improvement process is ongoing. Follow ups are occurring and updates will be communicated prior to the end of 2023. Report of the secondary site assessments will be sent out in 2024.

Onsite Gardens and Produce for Patient/Resident Consumption

Infection Prevention was involved with the creation of the Onsite Gardens and Produce for Patient/Resident Consumption policy. This multidisciplinary collaboration allows Residents/Patients to have a hands-on connection to their food, participate in meaningful activities and consume locally grown food. Infection Prevention provided guidance regarding cleaning of tools, hydroponic systems and measures to prevent food/water borne illness.

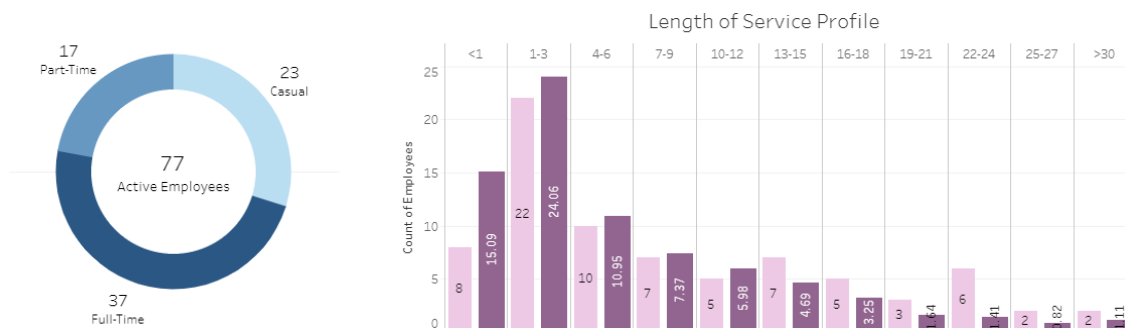
Medical Device Reprocessing Department

Reprocessing audits resumed in 2022 after a two-year delay due to the pandemic. Sites were supported during this period by utilizing on site team members, virtual team meetings, and phone call conversations when there was a concern with a reprocessing practice or procedure. Results from the 2022 audits indicate that sites were kept informed and continued to maintain high quality services during this challenging time. Regional audit survey results held at scores of 100% in most categories; lower scores in sterile storage and education are discussed in the report.

Sterile storage inventory reorganization needs are supported by the Quality Process and Planning Department with input from stakeholders in the operating room, medical device reprocessing and warehouse supply chain. This reorganization enables sites to reduce inventory items and lower the amount of outdates in a given time period. This is important because there has been an increase in single use devices required for surgical procedures in the operating rooms, and space is needed to store these supplies. One site that has outgrown the small sterile supply room has been working diligently at de-cluttering and creating space within other areas in the Operating Room Department for their single use sterile and clean supplies.

Wooden shelving and cabinets remain in some of the older Northern Health medical device reprocessing sites. Ideally all shelving should be stainless steel mobile carts. Potential issues are the costs of removing old wooden shelving, the costs of new shelving, facility buy in and commitment to move forward with the planning of this work. Regional support from the coordinator of medical device reprocessing is ongoing. Individual site recommendations to address quality improvement is part of the yearly MDR audit report.

Northern Health currently has 37 full-time, 17 part-time, and 23 casual medical device reprocessing technicians (MDRT). Education is provided through College of New Caledonia (CNC) and Sterile Processing University, depending on where individuals reside. The College offers the full MDRT program in Prince George; intake occurs once a year. For remote sites, NH accepts the theory course from Sterile Processing University and will provide on the job orientation by utilizing the Medical Device Reprocessing Technician Competency Tool (IH; Version 8, 2013). Certification is strongly recommended for new hires.

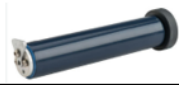






Northern Health MDR web page provides ongoing educational opportunities supporting yearly competency requirements, i.e. continuing education credit hours offered by MDR vendors and manufacturers. Monthly MDR meeting attendance allows for discussion of regional concerns thus allowing the regional coordinator indicators for future educational needs.

One recent educational initiative that came from the regional meetings was to design a poster showing the right usage for biological indicators for the different sterilizers and different cycles.

VALIDATED CYCLES FOR VERIFY TEST PACKS USING 1492V AND 1292 BIOLOGICAL INDICATORS

CYCLE	PCD (for each load being used)	BOWIE DICK (one per sterilizer per day)	REGULAR LOAD	IMPLANT LOAD
3 MIN PRE-VAC (IUSS) 135° C	Verify testpack + 1492V Biological, Verify CI PCC067	N/A	1492V Biological in peel pouch	Verify testpack + 1492V Biological
4 MIN PRE-VAC 132-134° C STANDARD LOAD*	Verify testpack + 1492V Biological, Verify CI PCC067	Verify testpack Bowie Dick strip EQC004	N/A	Verify testpack + 1492V Biological
10 MIN EXTENDED CYCLE 132-134° C	Verify testpack + 1492V Biological, Verify CI PCC067	N/A	N/A	Verify testpack + 1492V Biological
20 MIN EXTENDED CYCLE 132-134° C	Verify testpack + 1492V Biological, Verify CI PCC067	N/A	N/A	Verify testpack + 1492V Biological
GRAVITY CYCLE 121° C	Verify testpack + 1292 Biological, Verify CI PCC067	N/A	N/A	N/A

Verify test pack. Good for 200 uses (Steris)	1492V Biological Indicator (3M)	Verify Chemical Indicator (CI) PCC067 (Steris)	Bowie Dick EQC004 (Steris)	1292 Biological Indicator (3M)
				
EREX 5418634 Comes with PCC067 CI (200)	EREX 5205374	Can not be ordered. Comes as package of 200 with Verify test pack, but can be used on it's own	EREX 5418635	EREX 5270371

*Most stainless steel instruments, trays, containers, and peel pouch packages, should be sterilized using this load configuration, always.

All products listed are the standardized consumables for NH hospitals

Initiatives for the 2023:

Standardizing products continues to be a goal in Northern Health, especially since facing numerous consumable shortages during the pandemic. It was noted that when shortages occur, sites were able to share standard products back and forth depending on site usage. The Northwest Delivery area has been doing this for several years with great success.

The Regional Coordinator for MDR is participating with PICNet in updating the Best Practice Guidelines for disinfection and sterilization of semi-critical and critical medical devices. To date three sections have been prepared and reviewed; Foot care device reprocessing, Ultrasound transducer probe reprocessing, and reprocessing of flexible endoscopes.

Ongoing support for the 2023/24 Accreditation process.

Long Term Care Sites:

Audits were completed by Infection Prevention following the quality assessment checklist. Results are included under [Quality Improvement](#).

Northern Health Facilities

Acute Care

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 Center -
Xaayda Gwaay Ngaayskll Naay - Daajing
Giids
Kitimat General Hospital
Lakes District Hospital – Burns Lake
Mackenzie and District Hospital
McBride Hospital
Mills Memorial Hospital – Terrace
Northern Haida Gwaii Hospital and Health
Center - Masset
Prince Rupert Regional Hospital
St. John Hospital – Vanderhoof
Stuart Lake Hospital – Fort St. James
University Hospital of Northern BC – Prince
George
Winch 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 Community/Primary Care

Long Term Care

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
Terraceview Lodge - Terrace
The Pines – Burns Lake

APPENDICES

Appendix i: COVID-19 Cluster/Outbreak – Acute Care

OUTBREAKS (0)							
Facility/Ward	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths	Start Date	End Date	Length of Outbreak (days)
NONE							
CLUSTERS (28)							
Facility/Ward	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths*	Start Date	End Dates	Length of Outbreak (days)
<i>UHNBC – SSMU 1.0</i>	25	5	2	0	4/1/2022	4/12/2022	12
<i>McBride and District Hospital (AC/LTC)</i>	11	5	6	0	4/25/2022	5/22/2022	28
<i>Mills Memorial Hospital 1.0</i>	32	3	3	0	5/16/2022	5/26/2022	11
<i>St John Hospital (AC/LTC)</i>	24	5	3	0	5/17/2022	6/3/2022	18
<i>UHNBC - Psychiatry Unit</i>	24	2	0	0	5/17/2022	5/24/2022	8
<i>UHNBC - Rehab unit 1.0</i>	25	5	0	1	6/10/2022	6/21/2022	12
<i>Haida Gwaii Hospital</i>	8	5	2	0	7/4/2022	7/17/2022	14
<i>UHNBC - Rehab Unit 2.0</i>	24	13	2	0	7/4/2022	7/24/2022	21
<i>UHNBC – IMU 1.0</i>	37	6	9	3	7/5/2022	7/20/2022	16
<i>UHNBC - FMU</i>	29	3	2	0	7/25/2022	8/5/2022	12
<i>UHNBC – IMU 2.0</i>	36	4	0	0	8/2/2022	8/13/2022	12
<i>Mills Memorial Hospital 2.0</i>	32	13	6	0	8/11/2022	9/1/2022	22
<i>UHNBC - Rehab unit 3.0</i>	25	9	5	0	8/22/2022	9/2/2022	12
<i>UHNBC – IMU 3.0</i>	39	16	2	0	9/6/2022	9/14/2022	9
<i>UHNBC - NICU</i>	9	1	3	0	9/7/2022	9/14/2022	8
<i>UHNBC – SSMU 2.0</i>	24	5	3	1	9/11/2022	9/26/2022	16
<i>DCDH</i>	15	3	0	0	9/12/2022	9/21/2022	10
<i>DCDH - Surgical</i>	14	3	0	0	9/21/2022	9/30/2022	10
<i>UHNBC - FMU</i>	29	8	0	1	10/5/2022	10/28/2022	24
<i>PRRH - PCU</i>	3	3	2	1	10/15/2022	10/25/2022	11
<i>Mills Memorial Hospital 3.0</i>	32	6	0	0	11/6/2022	11/24/2022	19
<i>PRRH - PCU</i>	5	5	0	1	11/7/2022	11/21/2022	15
<i>Kitimat General Hospital</i>	18	4	0	0	11/14/2022	11/21/2022	8
<i>UHNBC - SS</i>	27	12	2	0	11/14/2022	11/27/2022	14
<i>Fort Nelson General hospital (AC/LTC)</i>	8	8	0	0	12/6/2022	12/23/2022	18
<i>Bulkley Valley District Hospital</i>	20	8	2	0	12/19/2022	12/28/2022	10
<i>UHNBC - FMU</i>	32	7	2	0	2/6/2023	2/13/2023	8
<i>UHNBC – SSMU 3.0</i>	25	10	3	0	2/25/2023	3/10/2023	14

Appendix ii: COVID-19 Outbreaks and Clusters - Long Term Care /Complex Care/Assisted Living

OUTBREAKS (0)							
Facility/Ward	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths	Start Date	End Date	Length of Outbreak (days)
NONE							
CLUSTERS (34)							
Facility/Ward	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths	Start Date	End Date	Length of Outbreak (days)
<i>Acropolis Manor 1.0</i>	47	12	5	0	4/9/2022	4/26/2022	18
<i>Laurier Manor</i>	32	15	1	0	4/11/2022	4/19/2022	9
<i>Gateway Lodge Main 1.0</i>	80	22	4	0	4/15/2022	5/2/2022	18
<i>Mountainview Lodge 1.0</i>	34	6	5	0	4/20/2022	5/9/2022	20
<i>Parkside Lodge 1.0</i>	58	6	1	0	4/27/2022	5/9/2022	13
<i>Gateway East Wing 2.0</i>	14	6	2	1	4/28/2022	5/11/2022	14
<i>Rainbow Lodge 1.0</i>	18	4	2	0	4/28/2022	5/9/2022	12
<i>Mountainview Lodge</i>	34	7	5	0	5/24/2022	6/6/2022	14
<i>Rotary Manor</i>	117	4	1	0	5/24/2022	6/1/2022	9
<i>Stuart Nechako Manor 1.0</i>	40	19	13	3	7/15/2022	8/12/2022	29
<i>Jubilee Lodge 1.0</i>	66	29	7	0	7/19/2022	8/15/2022	28
<i>Gateway Lodge 3.0</i>	50	5	2	0	7/29/2022	8/9/2022	12
<i>Dunrovin Park Lodge 1.0</i>	120	16	8	0	8/12/2022	8/29/2022	18
<i>Northview Assisted Living</i>	24	5	0	0	9/13/2022	9/26/2022	14
<i>Terraceview Lodge 1.0</i>	99	4	1	1	9/13/2022	9/24/2022	12
<i>Peace Villa 1.0</i>	12	3	0	0	9/15/2022	9/28/2022	14
<i>Maeford Place 1.0</i>	35	12	5	0	9/20/2022	10/4/2022	15
<i>Gateway Lodge 4.0</i>	50	10	4	0	10/3/2022	10/21/2022	19
<i>Parkside Lodge</i>	58	23	7	0	10/5/2022	10/31/2022	27
<i>Rainbow Lodge 2.0</i>	18	10	2	0	10/07/2022	10/27/2022	21
<i>Terraceview Lodge 2.0</i>	99	11	5	0	10/11/2022	10/17/2022	7
<i>Gateway - 3rd Floor 5.0</i>	18	7	1	1	10/12/2022	10/27/2022	16
<i>Dunrovin Park Lodge 2.0</i>	120	16	3	0	10/14/2022	11/7/2022	25
<i>Peace Villa 2.0</i>	30	16	1	0	10/18/2022	11/2/2022	16
<i>Birchview</i>	20	6	0	0	10/22/2022	10/31/2022	10
<i>Maeford Place 2.0</i>	35	3	8	0	11/25/2022	12/2/2022	8
<i>Terraceview Lodge 3.0</i>	99	35	5	0	12/28/2022	1/30/2023	34
<i>Jubilee Lodge 2.0</i>	66	16	5	0	1/3/2023	1/21/2023	19
<i>Acropolis Manor 2.0</i>	56	7	5	0	1/9/2023	1/23/2023	15
<i>Bulkley Lodge</i>	56	16	1	0	1/13/2023	1/31/2023	19
<i>GR Baker 2nd Floor</i>	10	5	0	1	1/26/2023	2/1/2023	7
<i>Stuart Nechako Manor 2.0</i>	52	6	0	0	2/13/2023	3/18/2023	34
<i>Terraceview Lodge 4.0</i>	99	4	0	0	2/13/2023	3/24/2023	40
<i>Pines</i>	32	17	0	1	2/25/2023	3/16/2023	20

Appendix iii: GI Outbreaks – Acute Care and LTC

Site and Type of Institution	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths	Start Date	End Date	Organism/Type	Length of Outbreak (days)
<i>Peace Villa</i>	20	3	3	0	7/14/2022	7/19/2022	Unknown	6
<i>Dunrovin Park Lodge</i>	18	14	0	0	9/21/2022	9/27/2022	Unknown	7
<i>Terraceview Lodge 1.0</i>	99	7	0	0	12/30/2022	1/3/2023	Unknown	5
<i>Mountain View Lodge</i>	32	17	19	0	2/2/2023	2/15/2023	Norovirus	14
<i>Terraceview Lodge 2.0</i>	99	20	5	0	3/20/2023	4/3/2023	Norovirus	14

Appendix iv: ILI Outbreaks – Acute Care and LTC

Site and Type of Institution	Total # of Clients in Facility/Unit	Total Positive Clients	Total Positive Staff	Total Client Deaths	Start Date	End Date	Organism/Type	Length of Outbreak (days)
<i>Terraceview Lodge</i>	28	2	0	0	12/4/2022	12/9/2022	Influenza A	6
<i>GR Baker</i>	10	4	0	0	12/16/2022	12/24/2022	Influenza A	9
<i>Prince Rupert Regional Hospital</i>	28	7	0	0	12/19/2022	12/26/2022	Influenza A	8
<i>Jubilee Lodge</i>	66	4	0	1	12/27/2022	1/3/2023	Influenza A	8
<i>UHNBC – SSMU</i>	25	3	0	0	02/25/2023	3/10/2023	RSV	14

Appendix V: Surveillance Cases 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

Surgical Site Infection (SSI):

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.

CDC SSI Definitions:

- Superficial Incision SSI – Occurs within 30 days *and* involves only skin and subcutaneous tissue *and* the superficial incision is opened by the surgeon *unless* the incision is culture negative. Does not include stitch abscess or infection at a localized stab wound/drain site. Diagnosis by surgeon or attending physician.
- Deep Incisional SSI – infection appears to be related to the operative procedure and involves deep soft tissues (fascial and muscle layers) of the incision. Evidence of abscess or infection is found on exam, during re-operation or by histopathologic/radiologic exam.
- Organ/space SSI: - infection appears to be related to the operative procedure and involves any part of the body, excluding the skin incision fascia or muscle layers that is

opened or manipulated during the operative procedure. Evidence of abscess or infection is found on exam during re-operation or by histopathologic/radiologic exam.

COVID-19-Like Illness Case Definition:

An acute onset of respiratory, systemic, or gastrointestinal illness, with ANY of the following symptoms (new or worsened), and no other definitive diagnosis*:

- Respiratory symptoms: cough, shortness of breath, rhinorrhea (runny nose), nasal congestion, sore throat, odynophagia (painful swallowing), loss of smell and/or taste
- Systemic symptoms: fever, chills, headaches, fatigue, or muscle aches
- Gastrointestinal symptoms: nausea, vomiting, diarrhea

*Note this does NOT include symptoms with a known cause, such as fever due to urinary tract infection, or diarrhea due to a new medication.

COVID-19 Cluster Definition

Long-term care: Any TWO residents have a laboratory-confirmed diagnosis of COVID-19.

Acute care: Any TWO admitted patients have a laboratory-confirmed diagnosis of COVID-19, AND the case investigation must conclude that the infection was most likely acquired at the facility, rather than prior to admission.

*COVID-19 outbreak definition determined by the Medical Health Officer.

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)

GI 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.

ILI 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.

Appendix vi – Abbreviations and Terminologies

NH – Northern Health
Acute Care (AC) – sites where a patient receives active but short-term treatment for a severe injury or episode of illness, an urgent medical condition or during recovery from surgery.
AC/LTC – combined Acute Care and Long Term Care in a single facility
Alert – an alert is called when there is a high number or proportion of cases on a unit, but the number does not meet the predetermined level for an outbreak to be declared.
Colonization – the presence and multiplication of microorganism without tissue invasion or damage.
GI – Gastrointestinal Illness
HEMBC – Health Emergency Management BC
ILI – Influenza-like illness
IP – Infection Prevention
Healthcare-Associated Infections (HAI) – infections patients get while staying in any healthcare facility, which include micro-organism from other patients, the environment or staff – not to be confused with facility-associated infections, which are acquired and identified at the same facility
SSI – Surgical Site Infection
UHNBC – University Hospital of Northern BC (Prince George)