



northern health

the northern way of caring

INFECTION PREVENTION and CONTROL
Annual Report 2012 - 2013

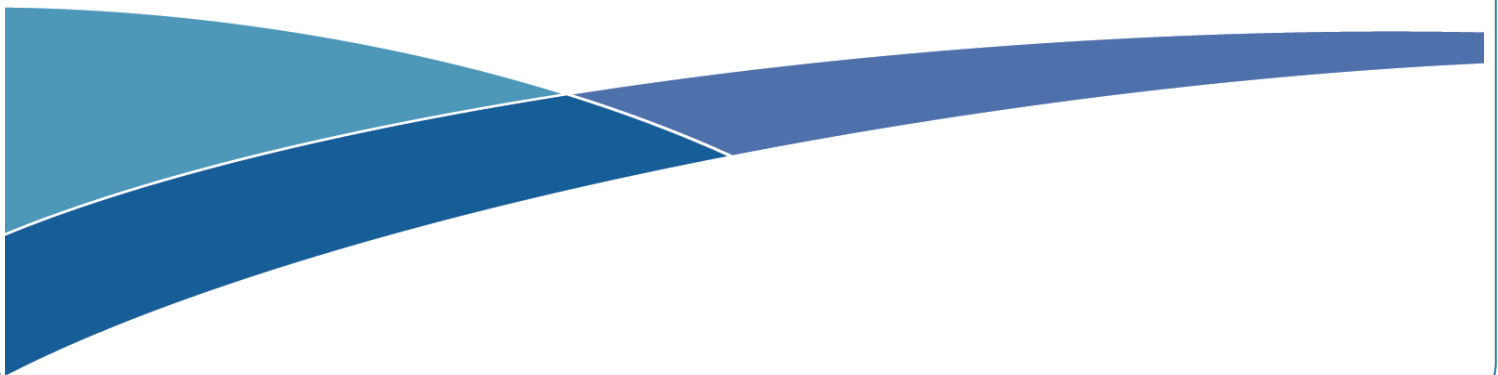


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Executive Summary

The annual report of the Northern Health Infection Prevention & Control Program provides the opportunity to highlight infection prevention and control activities throughout the Northern Health Authority, as well as illustrate the extensive and diverse scope of the Infection Prevention & Control Program.

Healthcare Associated Infections (HAIs) presented in this report include:

Methicillin-Resistant Staphylococcus aureus (MRSA)

Northern Health has seen an increase in MRSA. In 2011-2012 rates were 0.65 per 1000 patient days. In 2012-2013, NHA reported 1.03 per 1000 patient days. This trend could be attributed partly to overcapacity admissions and the continuance of the 30 day screening process. To combat this trend, infection prevention and control practitioners continue to provide educational opportunities regarding hand hygiene, routine practices, environmental cleaning strategies and risk assessment screening prior to bed assignments on new admissions.

Vancomycin-Resistant Enterococcus (VRE)

Northern Health has seen an increase in VRE. In 2011/2012 rates were 1.07 per 1000 patient days. For 2012/2013 rates were 1.08 per 1000 patient days. This trend could be attributed to the same reasons as outlined above in the MRSA discussion along with the same educational opportunities.

Clostridium Difficile Infection (CDI)

Northern Health CDI rates decreased slightly from 0.38 to 0.34 per 1000 patient days in 2012/2013. The NH incident rate remains below the benchmark (0.6 per 1000 patient days) as well as below provincial and national CDI rates.

Surgical Site Infection (SSI)

Rates of Surgical Site Infections in 2012/2013, in comparison to the previous year's rates, varied. Abdominal hysterectomies have increased, total hips and knees have remained the same and bowel resections and cesarean sections have decreased.

Rates of prophylactic antibiotic administration within one hour of procedure cut time ranged from 84 to 98%, an improvement from 2011/2012.

Communicable disease outbreaks 2012-2013

Northern Health experienced twenty-three outbreaks in 2012/2013: sixteen were due to gastrointestinal infections, eight were confirmed Norovirus, and eight were undetermined; seven were due to respiratory infections, five were due to H3N2 influenza virus and two were undetermined.

Infection Prevention & Control Program achievements in 2012/2013 include:

- The ongoing development of the Hand Hygiene Program including mandatory hand hygiene audits for acute care sites;
- Public reporting of quarterly hand hygiene rates to be posted in visible areas of NH hospitals;
- One time funding granted for the purchase of “Stop signs” at the entrances to all NH facilities that states “Please clean your hands before entering and leaving” with an attached alcohol based hand rub dispenser.
- The continued inclusion of IPCPs in healthcare facility construction projects;
- Converting Acute and Complex Care Policy and Procedure Manuals to DST format.

Sterile Processing Department (SPD) achievements in 2012/2013 include:

- Decision Support Tools (DSTs) and links to education sessions are available on iPortal site for NH staff;
- Seventeen sites in NH were audited with average results of 95%.

Future directions of the NH Infection Prevention & Control Program:

- The continued implementation of the Hand Hygiene Program, building a sustainable program and addressing every aspect of hand hygiene necessary to ensure a safe environment for client care;
- The development of accessible resources for a diverse group of staff, particularly tools to be used during Infection Prevention & Control challenges (e.g. outbreaks, construction), in order to best facilitate staff capacity for addressing these challenges efficiently and effectively;
- Striving to complete the conversion of Acute Care Infection Prevention & Control policies and procedures from the paper manual format to online Decision Support Tools available on iPORTAL, followed by the conversion of Complex Care Infection Prevention & Control policies and procedures to DSTs.

Based on this year’s report, the key priorities for next year will be:

Priority 1:
To achieve a 5% increase in Hand Hygiene Compliance (baseline 61%)

Priority 2:
To achieve a 5% reduction in nosocomial infection rates in Northern Health

Priority 3:
Administration of pre-surgical prophylactic antibiotic within one hour will be 95%

Priority 4:
Conversion of ICP manuals into DST format - Acute care to be completed by December 1, 2014.

Introduction

Infection Prevention and Control Program

Northern Health Infection Prevention and Control is a region wide health program dedicated to the prevention and reduction of healthcare associated illnesses in Northern British Columbia residents. The program acts as a quality and safety program within Northern Health. Infection surveillance, outbreak management and education for staff, visitors and clients are cornerstones to the success of the Infection Prevention & Control Program throughout Northern Health. The Infection Prevention & Control Program incorporates evidence - based best practices and Canadian Standards Association (CSA) standards when developing and implementing policies and decisions with stakeholders within Northern Health.

The Infection Prevention & Control team is composed of a Regional Manager, eight infection prevention and control practitioners and an Epi-technologist. The group provides onsite Infection Prevention & Control expertise to eight Acute Care facilities and a dedicated IPCP for Complex Care. The Infection Prevention & Control group provides consultation to over thirty-nine other Acute Care facilities, Complex Care facilities, Diagnostic & Treatment Centres and Residential Living Centers in a wide geographical area of Northern British Columbia covering Haida Gwaii to Valemount and as far north as Fort Nelson. The program is further complemented by a Regional Coordinator for Sterile Processing whose role is to implement and monitor quality assurance processes and education of staff in Sterile Processing Departments across the region.

Northern Health is geographically divided into three Health Service Delivery Areas and each of these areas is represented by a multidisciplinary Infection Prevention and Control Committee. These committees report to the Northern Health Infection Prevention and Control Council. New DSTs or practices are forwarded through the committees for review and discussion so as to make the best possible decisions for Northern Health patients, staff and visitors.

The following organizational chart represents the reporting structure of the Infection Prevention & Control Program within NH:

Infection Prevention and Control Team Members

Regional IPCP Manager

Deanna Hembroff

Infection Prevention & Control

Practitioners

Beth McAskill
Bonnie Schurack
Debbie Foster
Debora Giese
Holly Lynn Nelson
Judy Klein
Kelsey Breault
Monica Sephton
Roxanne Fitzsimmons
Sylvia Eaton

Coordinator Sterile Processing

Penny Brawn

Acute Care Facilities

Atlin Hospital
Bulkley Valley District Hospital -
Smithers
Chetwynd General Hospital
Dawson Creek & District Hospital
Fort Nelson General Hospital
Fort St. John Regional Hospital
G.R. Baker Memorial Hospital - Quesnel
Haida Gwaii Hospital
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
University Hospital Northern BC-UHNBC
Wrinch Memorial Hospital - Hazelton

Home and Community Care

Residential Care Facilities

Diagnostic and Treatment Centres Health Centres

Acropolis Manor - Prince Rupert
Alward Place Seniors Assisted Living -
Prince George
Bulkley Lodge -Smithers
Dunrovin Park Lodge-Quesnel
Fraser Lake D &T Centre
Gateway Lodge -Prince George
Granisle Community Health Center
Houston Health Center
Hudson Hope Health Center
Jubilee Lodge - Prince George
Kitimat Multi Level Care Unit
Laurier Manor - Prince George
Peace Villa formerly North Peace - Fort
St. John
Parkside Care - Prince George
Peace River Haven -Pouce Coupe closed
June 22, 2012
Rainbow Lodge - Prince George
Rotary Manor - Dawson Creek
Simon Fraser - Prince George
Stewart Health Center
Stikine D&T Center - Dease Lake
Stuart Nechako Manor
Terrace View Lodge
The Pines - Burns Lake
Tumbler Ridge D&T Center
Valemount D&T Center

Infection Prevention and Control Committees

Northern Health Regional Infection Prevention and Control Committee

Dr. David Bowering, Chief MHO
Dr. Ronald Chapman, MHO NWHSDA
Dr. Charl Badenhorst, MHO NEHSDA
Dr. Willem Osei, MHO NIHSDA
Dr. Randall Dumont, Pathologist UHNBC
Dr. Abuobeida Hamour, Internal Medicine and Infectious Disease
Angela DeSmit, HSA North Peace NEHSDA
Deanna Hembroff, Regional Manager Infection Prevention and Control
Frank Talarico, Director Workplace Health and Safety
Fraser Bell, VP Planning, Quality and Information
Joanne Archer, Education and Best Practices Coordinator
Kirsten Thomson, Regional Manager Risk Management
Lois Barney, Regional Director Support Services
Dixie Ross, Manager Communicable Disease Prevention Workplace Health & Safety
Deanne Nickolet, Occupational Health Nurse Workplace Health & Safety
Mary Margaret Proudfoot, Regional Manager Communicable Diseases
Mike Hickey, Director Facilities Management and Support Services
Penny Brawn, Regional Coordinator Sterile Processing

Northeast HSDA Infection Prevention and Control Committee

Dr. Charl Badenhorst, MHO NEHSDA
Ann Green, Communicable Disease, Public Health
Angela DeSmit, HSA North Peace NEHSDA
Audra Holloway, Manager Lab Service DCDH
Betty Asher, Nurse Manager Fort Nelson
Cheryl Danchuk, Manager of Support Services
Christine Morey, Health Services Administrator
Dave Callahan, Residential Care Program Manager
Deanna Hembroff, Regional Manager Infection Prevention and Control
Dionne Sanderson, Environmental Health Officer
Deanne Nickolet, Occupational Health Nurse Workplace Health & Safety
Elaine Washington, Residential Program Manager
Greta Westergard, Medical Laboratory Technologist
Harry Gelowitz, NE Manager Support Services
Jaret Clay, HSA, South Peace
Judy Klein, IPCP Fort St. John Hospital
Kathy Peters, DOC Fort St. John Hospital
Kelsey Breault, IPCP, DCDH
Kendra Cournoyer, Director of Care DCDH
Lexie Gordon, NE Quality Improvement Lead

Troy Walsh, Manager P&P DCDH
Penny Brawn, Regional Coordinator Sterile Processing
Rick Bruce, Site Manager Chetwynd
Sarah MacDougall, Environmental Health Officer
Susan Worrall, Manager Hudson's Hope D&T Centre

Northern Interior HSDA Infection Prevention and Control Committee

Dr. Abuobeida Hamour, Internal Medicine and Infectious Disease
Dr. Randall Dumont, Pathologist UHNBC
Dr. Tony Preston, UHNBC Medical Director/Chief of Staff
Dr. William Osei, Medical Health Officer
Debbie Strang, HSA Robson Valley
Andrew Aucoin, Manager Housekeeping and Laundry Services
April Hughes, HSA St. John Hospital Vanderhoof
Arlene Crawford, Regional Medication Safety Officer
Barb Crook, HSA Mackenzie
Bill Carlson, Manager Plant Services UHNBC
Bonnie Schurack, IPCP/Regional Epi -Tech UHNBC
Cathy Antoniazzi, Clinical Practice Leader UHNBC
Carolyn Bouchard, PHN Manager Communicable Disease Team
Amanda Edge, Head Nurse Fort St James
Deanna Hembroff, Regional Manager Infection Prevention and Control
Deanne Nickolet, Occupational Health Nurse Workplace Health & Safety
Heather Floris, Head Nurse Acute Care and Emergency Vanderhoof
Holly Nelson, IPCP GR Baker Hospital
Jan Trippel, Manager, Surgical Services UHNBC
Lois Barney, Director, Support Services
Loretta Jackson, Residential Care Program Manager
Marie Hunter, Site Manager Lakes District Hospital
Monica Sephton, IPCP Residential & Home and Community Care
Paula Tait, Environmental Health Officer
Penny Brawn, Regional Coordinator Sterile Processing
Sylvia Eaton, IPCP UHNBC
Vicky Rensby, Home & Community Care Manager
Virginia Schneider, Community Services Manager

Northwest HSDA Infection Prevention and Control Committee

Amanda Martins, Occupational Health Nurse Workplace Health & Safety
Beth McAskill, IPCP BVDH
Deanna Hembroff, Regional Manager, Infection Prevention and Control
Debbie Foster, IPCP PRRH
Debora Giese, IPCP MMH
Deanna Hawkins, Housekeeping Supervisor
Helen Smith, MMH Lab Tech/QA


Jennifer Hogan, NW Safety Advisor
John Short, Nurse Manager & Clinical Educator Northern Haida Gwaii Hospital
Kim Trombley, Nursing, Wrinch Memorial Hospital
Leanne Derow, MMH OR Manager
Linda McMynn, NW Manager Support Services
Lori McWilliams, NWHSDA Regional Laboratory Technologist
Martha Murray, Public Health Nurse, Communicable Disease Coordinator
Penny Brawn, Regional Coordinator Sterile Processing
Roxanne Fitzsimmons, IPCP PRRH
Sheila Nelson, Nurse Supervisor QCI
Dr. Willem Lombard, General Surgeon KGH

Contact Information

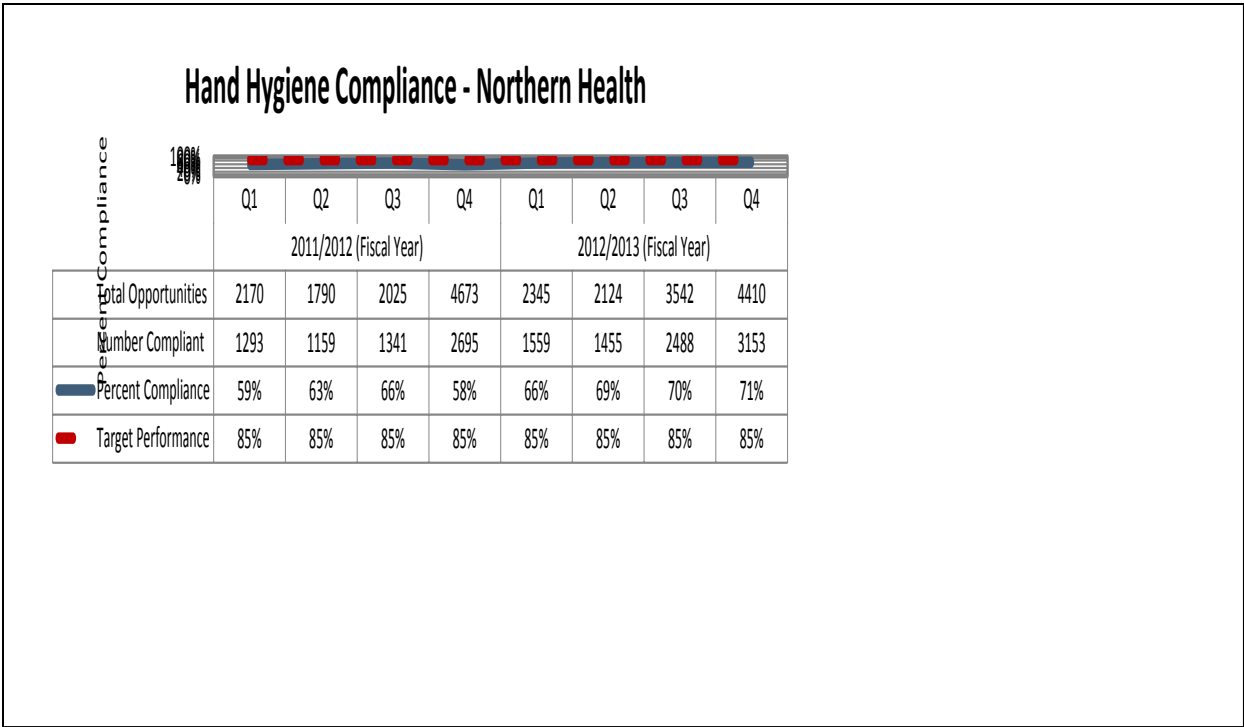
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
Healthcare Associated Infection (HAI) Indicators

1. Hand Hygiene Compliance

Trend* 	Target 85%	Actual 70%
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Optimal hand hygiene in healthcare facilities has been recognized as being of primary importance in the prevention of Healthcare Associated Infections. The majority of acute care facilities have been participating in 2012-13 and many Residential Care facilities have joined the initiative with the goal of all participating by September 2013. A primary challenge of the facilities has been recruiting Hand Hygiene Auditors to sustain a viable hand hygiene auditing process. Education of Health Care Providers, Patients and Visitors remain an ongoing endeavour in the NH Hand Hygiene Program.



*  = 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

What is being measured?

Hand Hygiene (HH) rates are based on compliance with Northern Health Hand Hygiene policy. Compliance with Hand Hygiene is defined as a percentage of the number of compliant Hand Hygiene events over the total number of Hand Hygiene opportunities and is expressed in the following formula:

$$\text{Compliance (\%)} = \frac{\text{Compliant HH events}}{\text{Total HH opportunities}} \times 100$$

Methodology: How was the data collected?

All healthcare providers are expected to perform hand hygiene before and after contact with any client and/or client environment. In addition, all healthcare providers are expected to perform hand hygiene before doing an aseptic procedure, after a blood and body fluid exposure, or donning and doffing gloves.

A case definition of having performed correct hand hygiene (HH) is, at appropriate moments (as noted above), either:

- Using Alcohol-Based Hand Rub (ABHR) - 70% alcohol content, applying a quarter-sized amount of ABHR on hands, rubbing for at least 20 to 30 seconds, until ABHR has completely dried, prior to contact with the client and/or client's environment.
- Washing hands and wrists with soap and water for 40-60 seconds, ensuring that areas inclined to harbour pathogens (i.e. cuticles, between fingers) are scrubbed effectively, drying hands with paper towels and turning off faucet with paper towel to avoid re-contamination.

Hand hygiene is considered "Not Done" in the following circumstances:

- If HH is done with gloves on, it is marked as Not Done
- If gloves are worn between patients or between care activities and HH is not done, it is marked as Not Done
- If hand washing is performed without soap or without visible rubbing of hands, it is marked as Not Done
- If hand washing is performed and clean hands are used to turn off the taps, it is marked as Not Done
- If alcohol-based hand rub (ABHR) is used without visible rubbing of hands, it is marked as Not Done

Data is collected from Acute Care and Residential Care facilities by trained auditors who are facility staff, through direct observation using B.C. standardized audit forms. Integration of HH audits into regular staff duties should increase staff engagement in the data collection process and increase staff awareness of optimal HH practices.

Data is entered into a Northern Health shared database by Infection Prevention & Control Practitioners and the Epitech compiles the data monthly and quarterly across Northern Health. Quarterly compliance rates are disseminated to all Northern Health sites via the COOs and monthly compliance rates are disseminated by the IPCPs.

Quarterly data is posted on the NH website, posted at public entrances, and also provided to PICNet for inclusion in provincial HH compliance statistics.

What is the Annual Target the organization seeks to reach?

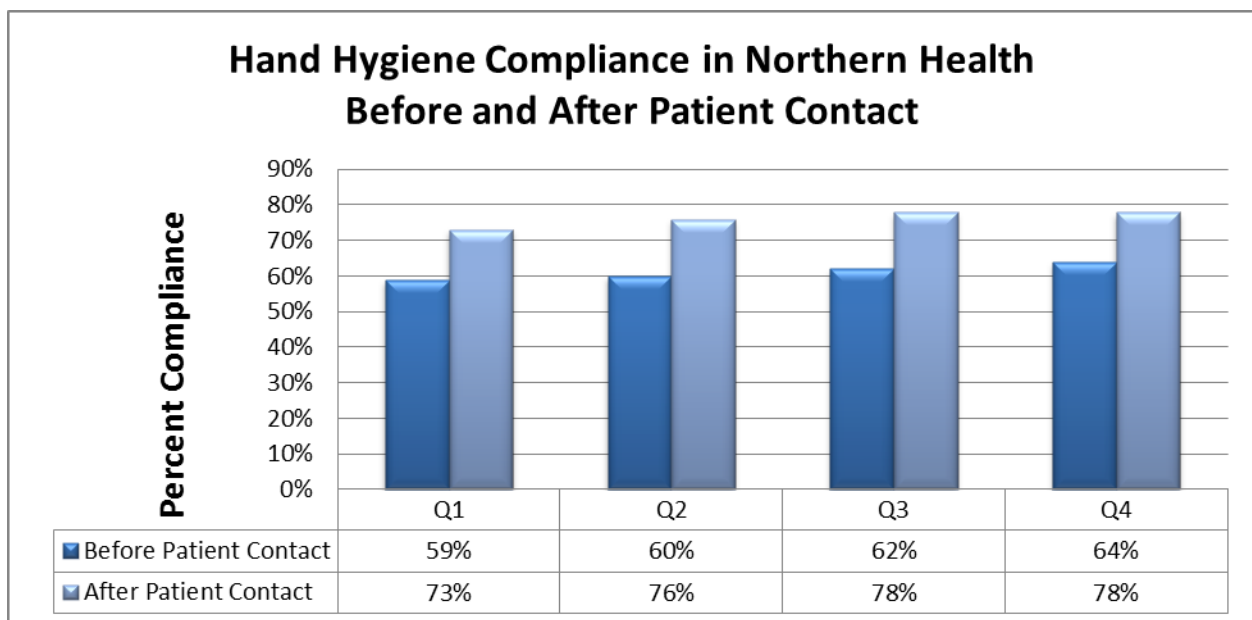
Northern Health’s ultimate hand hygiene compliance target, as outlined in the Hand Hygiene Policy, is 100% hand hygiene compliance in non-emergency situations. However, in regards to annual target and in keeping with Provincial Hand Hygiene Working Group recommendations, NH intends to increase hand hygiene compliance by 5% each year, which is more realistic, rather than the original 15%. Northern Health’s compliance rate increased 9% for 2012/2013 (61% to 70%).

Benchmark & Comparators: How does the rate compare to other areas?

Internationally, according to the World Health Organization’s *Guidelines on Hand Hygiene in Health Care: a Summary* (2009), “Adherence of [Healthcare providers] to recommended hand hygiene procedures has been reported as variable, with mean baseline rates ranging from 5% to 89% and an overall average of 38.7%”. Northern Health’s 2012-13 Hand Hygiene compliance rate of 70% is above the average found by the World Health Organization.

Trend: What does the data show?

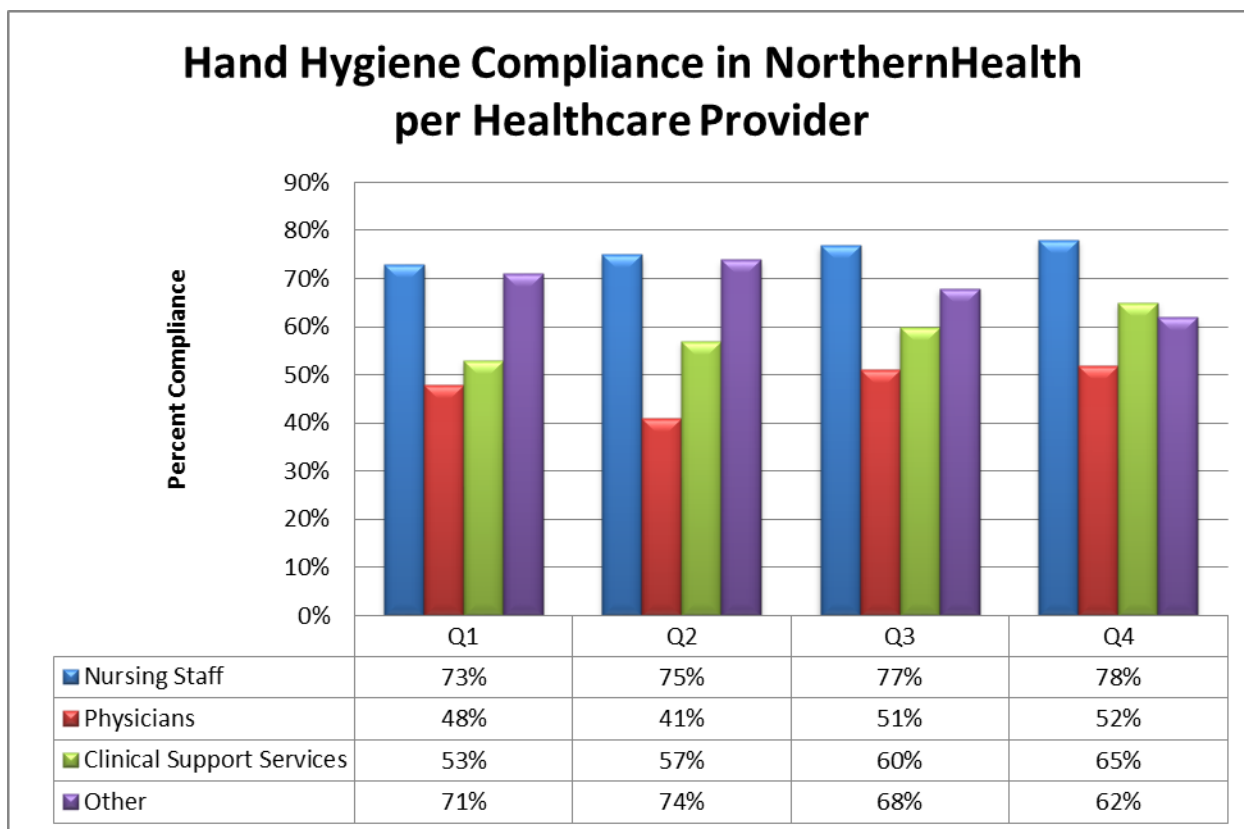
The 2011-12 NH Hand Hygiene data collected established the baseline year at 61%. The 2012-13 data showed only a 9% increase and not the anticipated 15%, however that number has now been adjusted to a 5% increase based on Provincial guidelines.



Limitations: What may have affected the quality of this measure?

Clear and consistent methodology, observer training and periodic inter-rater reliability testing will ensure that the data collected minimizes observational limitations. These limitations include:

- The potential influence an observer may have on Healthcare Provider behaviour (The Hawthorne Effect);
- Variation in an observer’s classification over time (intra-observer variability);
- Variation between observer classifications (inter-observer variability).



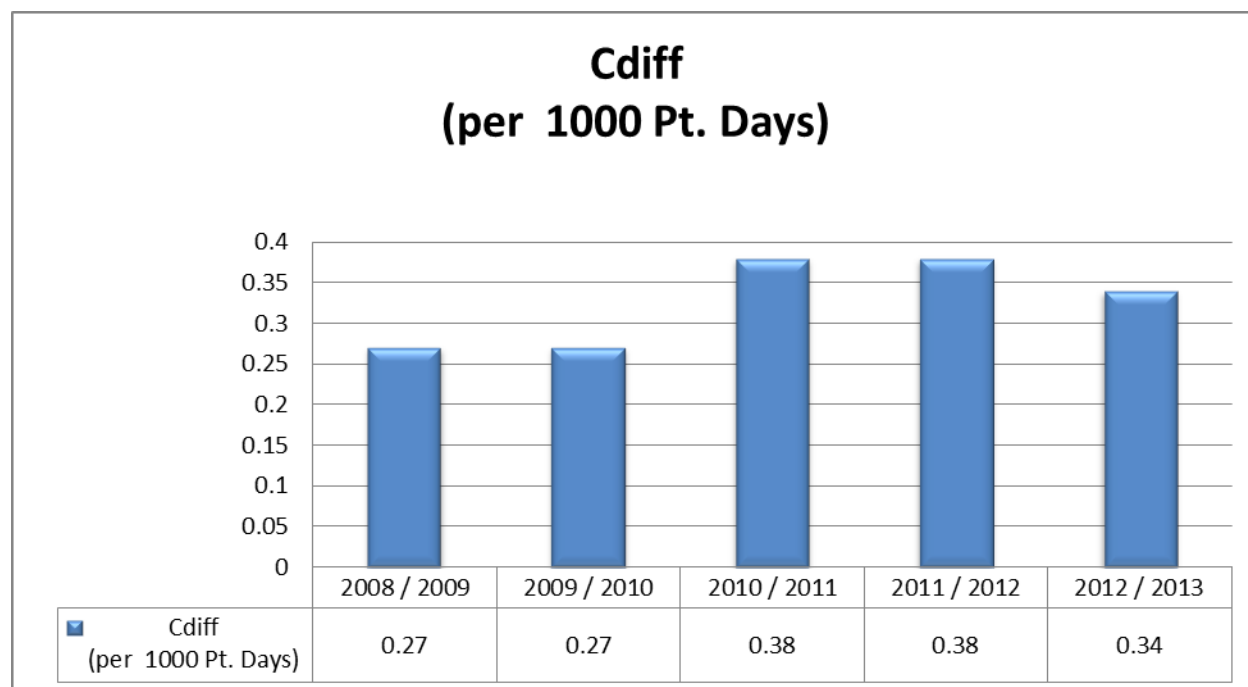
What actions have been taken over the last year?

Ongoing development and implementation of the NH Hand Hygiene Action Plan started in 2010-11 year. Ongoing actions for 2012-13 included:

- Hand Hygiene Audits occurring in all NH acute care facilities and initiated in residential care facilities, with site rates posted monthly on each unit.
- Hand hygiene educational module available to all staff on iPortal site.
- Results of the Provincial Hand Hygiene Perception Survey released.
- All facilities were encouraged to participate in “Stop clean your hands Day” 2012 and Patient Safety week 2012.
- Switch from “Laura line gel” to “Avagard foam” hand sanitizer.
- To improve compliance, patients are being encouraged to remind HCW to comply with hand hygiene standards.

2. *Clostridium Difficile* Infections (CDI) Incidence Rate

Trend* ➔	Target <0.6 per 1000 pt. days	Actual 0.34 per 1000 pt. days
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What is *Clostridium difficile* infection?

Clostridium Difficile infection (CDI) is the most common cause of healthcare associated infectious diarrhea in Canada. This organism is easily transferred to patients in the healthcare setting and the ability of the organism to produce spores enables the organism to survive for long periods of time in the environment. Symptoms of infection include abdominal pain and cramping with diarrhea to the most serious complication of toxic megacolon which may result in the patient having surgery. The elderly and immunocompromised are at extreme risk of infection and death may result in severe cases. *Clostridium Difficile* (*C. Difficile*) has been responsible for major outbreaks in Acute and Complex Care facilities across Canada. Northern Health has not had a *Clostridium difficile* outbreak.

What is being measured?

The annual rate of *Clostridium difficile* infection (CDI) per 1000 patient days. The measurement is the number of new cases in NH facilities of CDI acquired by clients as a result of their stay in the hospital, divided by the number of patient days, multiplied by 1000. The incidence rate is reported as both an overall NH rate as well as site-specific incidence rates.

* ↑ = 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

Methodology: How was the data collected? / Where did the data come from?

Information is collected daily by the IPCPs from microbiology reports and all positive Toxin A/B assays are reviewed to determine if the result meets the standard definition set out by PICNet. Once the case has been determined to meet the definition it is entered into a shared computer database and the data is sent to the various sites within Northern Health on a quarterly basis.

The PICNet definition is based on national guidelines and is as follows:

A case of CDI is:

- Presence of diarrhea (e.g. three liquid or loose stools within a 24-hour period) or toxic megacolon (i.e. abnormal dilation of the large intestine documented radiologically) 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 on sigmoidoscopy or colonoscopy or
- Histological/pathological diagnosis of CDI with or without diarrhea

What is the Annual Target the organization seeks to reach?

Northern Health's goal is to reach a 20% reduction in CDI across the region from a rate of 0.38 per 1000 pt days to 0.30 cases per 1000 pt days. In 2012/2013, the rate has decreased to 0.34 cases per 1000 patient days. Achieving this goal would result in incidence rates similar to those seen in previous years (0.27 per 1000 pt. days in 2008/2009 and 2009/2010).

Benchmark & Comparators: How does the rate compare to other areas?

The Canadian Nosocomial Infection Surveillance Program's 2007 CDI Report identifies a national rate of 0.72/1000 patient days. The Provincial Infection Control Network of British Columbia (PICNet) 2011/12 CDI Report identifies the provincial rate as 8.1/10,000 patient days (0.81/1000 patient days). Northern Health rates are below the national and provincial rates.

Trend: What does the data show?

The overall data indicates that facilities within Northern Health continue to display rates of CDI that are below the provincial level and below the benchmark set at 0.6 cases/1000 pt days.


Limitations: What might have affected the quality of this measure?

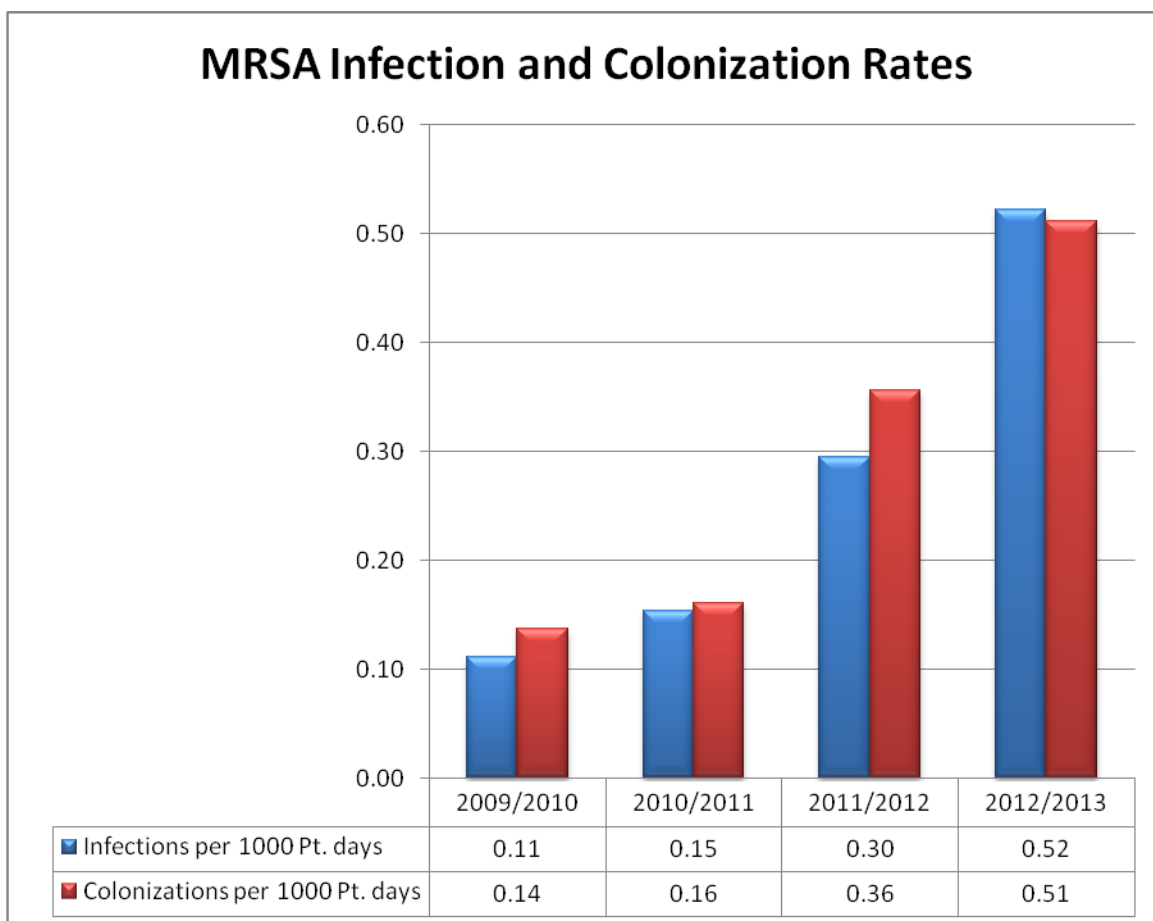
Delay in the identification by hospital staff of patients who should be tested for CDI when presenting with diarrhea.

What actions have been taken over the last year?

Northern Health continues to aim for below benchmark rates of CDI. Regular education sessions for housekeeping staff concerning appropriate cleaning methods and for healthcare providers to ensure high suspicion of CDI, as well as emphasising the necessity for early implementation of Contact Precautions for clients with diarrhea have been successful in keeping the number of cases low.

3. Methicillin-resistant *Staphylococcus aureus* (MRSA) Incidence Rate

Trend* 	Target < 0.5/1000 Pt days	Actual Infections 0.52/1000 Pt. days Colonization 0.51/1000 Pt. days
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What is being measured?

The annual rate of Methicillin-resistant *Staphylococcus aureus* (MRSA) per 1000 patient days, which is the number of new cases of MRSA (infection & colonization) acquired by clients as a result of their stay in hospital, divided by the total number of inpatient days, multiplied by 1000.

Methodology: How was the data collected?

Data is collected by the Infection Prevention & Control Practitioners throughout NH via microbiology reports, and compiled in the shared NH MRSA database.

*  = 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

Source: Where did the data come from?

- Routine ARO screening upon admission to any NH acute care facility;
- Routine testing of all clients for every 30 consecutive days spent in any NH acute care facility;
- Routine testing of all client infections;
- Selective testing based on clinical evidence (e.g. persistent, difficult to treat infection, non-responsive to standard antibiotic treatment).

What is the Annual Target the organization seeks to reach?

The annual target for MRSA is a 10% decrease in incidence in 2013/2014.

Benchmark & Comparators: How does the rate compare to other areas?

Canadian Nosocomial Infection Surveillance Program (CNISP) rates are recommended: <http://www.phac-aspc.gc.ca/nois-sinp/projects/res2009/index-eng.php>

The CNISP 2009 Surveillance Report found a national average of 1.237 MRSA cases per 1,000 patient days. NHA reported 1.03 MRSA per 1,000 patient days in 2012-2013.

Trend: What does the data show?

Incidence of MRSA has increased: Infections 0.30 per 1000 patient days in 2011/2012 to 0.52 per 1000 patient days for 2012-2013 and colonizations 0.36 per 1000 patient days in 2011/2012 to 0.51 per 1000 patient days for 2012-2013.


Limitations: What may have affected the quality of this measure?

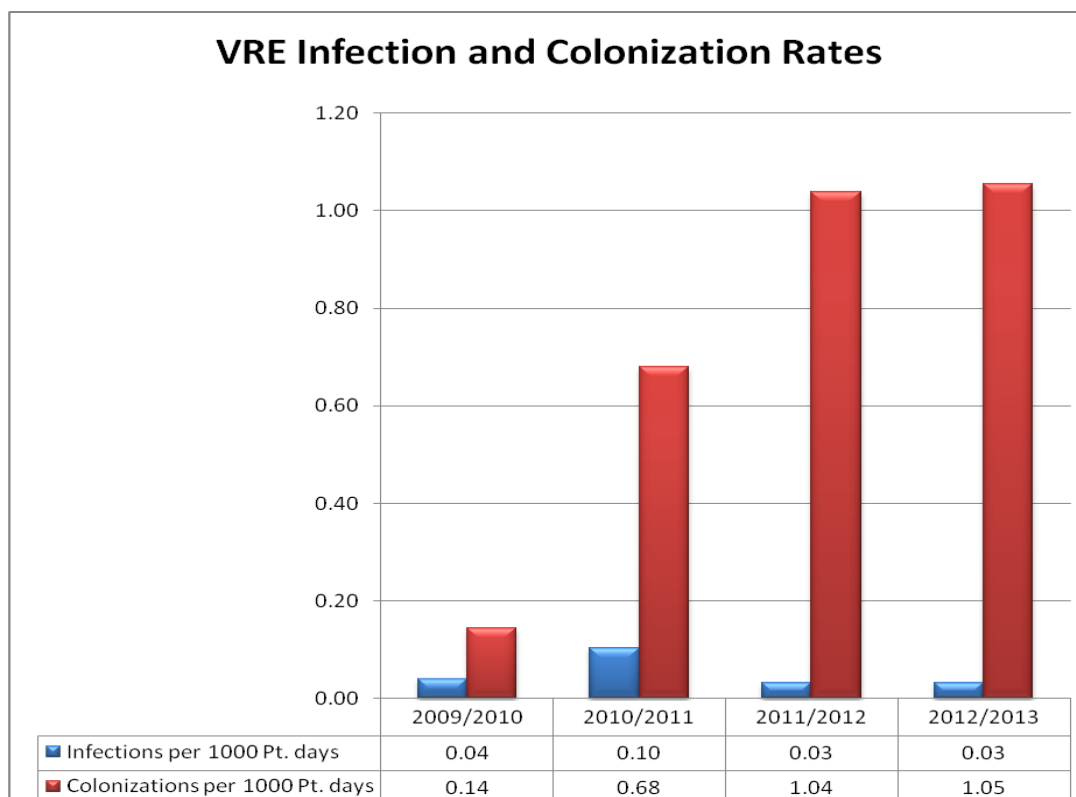
We are identifying those at risk sooner on admission. This could be a reflection of provincial and national increases. There is an increased incidence in the community. There is difficulty accommodating patients with AROs or having risks for AROs in appropriate single rooms.

What actions have been taken over the last year?

Continuing the “30 Day” ARO rescreening on in-patients. The BC Best Practice Guidelines for Environmental Cleaning were implemented in two facilities that saw increased cases, emphasizing increased cleaning and monitoring adherence to contact precautions.

4. Vancomycin-Resistant *Enterococci* (VRE) Incidence Rate

Trend* 	Target < 0.8/1000 Pt days	Actual Infections 0.03/1000 Pt. days Colonization 1.05/1000 Pt. days
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What is Vancomycin Resistant Enterococcus (VRE)?

Vancomycin-Resistant Enterococcus is a type of bacteria from the genus *Enterococcus* that is resistant to the antibiotic Vancomycin. *Enterococci* are normal inhabitants of the gastrointestinal tract of humans and mammals. Infection and colonization by Enterococcus is thought to be endogenously acquired but infection and colonization in hospitalized patients may be through transmission of the organism from patient to patient through fomites in the environment and health care workers' hands.

What is being measured?

The annual rate of Vancomycin-resistant Enterococcus (VRE) per 1000 patient days; which is the number of new cases of VRE (infection & colonization) acquired by clients

*  = 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

as a result of their stay in hospital, divided by the total number of inpatient days, multiplied by 1000.

Methodology: How was the data collected?

Data is collected by the Infection Prevention & Control Practitioners throughout NH via microbiology reports, and compiled in the shared NH VRE database.

Source: Where did the data come from?

Data is collected through:

- Routine ARO screening upon admission to any NH acute care facility;
- Routine testing of all clients for every 30 consecutive days spent in any NH acute care facility;
- Selective testing based on clinical evidence (e.g. persistent, difficult to treat infection, non-responsive to standard antibiotic treatment).

What is the Annual Target the organization seeks to reach?

A decrease of 10% health care associated rates by 2013/2014.

Benchmark & Comparators: How does the rate compare to other areas?

Currently there is no established Provincial benchmark with which to compare Northern Health rates.

Trend: What does the data show?

The data indicates that there has been a slight increase from the previous year (1.04 per 1000 patient days in 2011/2012 to 1.05 per 1000 patient days in 2012/2013) in the number of VRE colonizations isolated across NH. Infections have remained the same at 0.03 per 1000 patient days.

Limitations: What may have affected the quality of this measure?

Numbers of patients tested have increased from previous years.

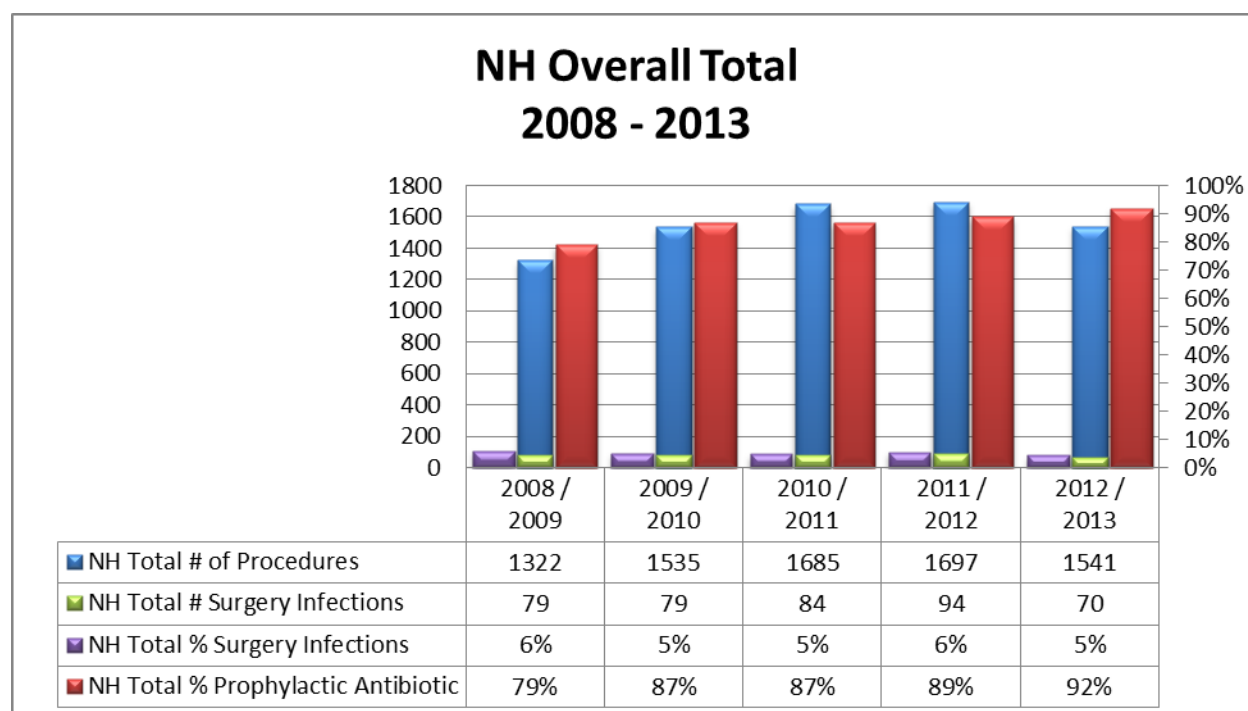
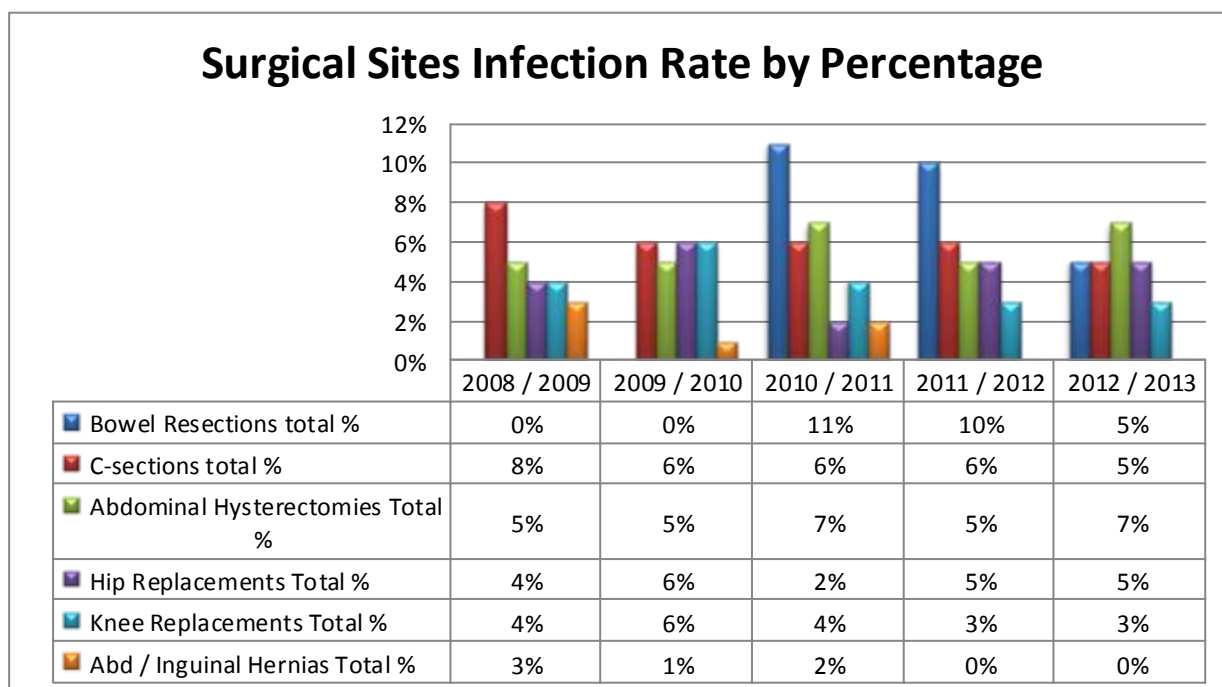
What actions have been taken over the last year?

The inpatient 30 day length of stay ARO screening process continues to identify any patient colonized with VRE.

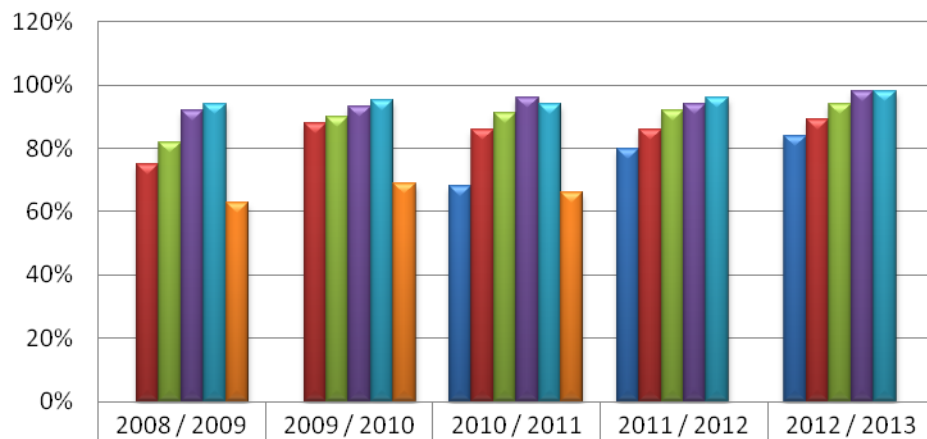
5. Management of Carbapenem Resistant Gram Negative Bacilli (CRGNB)

There have been no cases of CRGNB within NH in 2012/2013.

6. Surgical Site Infection (SSI)



Antibiotics Given within 1 Hour of Cut Time (%)



	2008 / 2009	2009 / 2010	2010 / 2011	2011 / 2012	2012 / 2013
■ Bowel Resections	0%	0%	68%	80%	84%
■ C-sections	75%	88%	86%	86%	89%
■ Abdominal Hysterectomies	82%	90%	91%	92%	94%
■ Total Hip Replacements	92%	93%	96%	94%	98%
■ Total Knee Replacements	94%	95%	94%	96%	98%
■ Abd / Inguinal Hernias	63%	69%	66%	0%	0%

What is being measured?

The annual rate of surgical site infections, as defined by the Center for Disease Control (CDC) and the Canadian Nosocomial Infection Surveillance program (CNISP), in Northern Health is expressed as a percentage. The surgical procedures surveyed for infection include: caesarean sections, total abdominal hysterectomies, total primary hip and knee replacements, and bowel resections.

The frequency of antibiotic prophylaxis given within one hour of surgical cut time is also monitored. It has been found that the provision of antibiotic prophylaxis outside of the one hour time period is a significant risk factor for postoperative infection. This measurement is expressed as a percentage of the whole number of each type of surgical procedure conducted.

Methodology: How was the data collected?

Northern Health surveillance targets specific surgical procedures in select acute care sites. IPCPs track all clients who have one of the specific procedures, first while in the facility and after discharge. This post-discharge follow-up is done through phone calls to clients, electronic and/or paper medical records and laboratory reports. Total primary hip and knee replacements are followed periodically for twelve months, and the remaining targeted surgical procedures are followed at thirty days post surgery. Phone calls by the IPCPs asks a series of questions relating to the client's wound healing progress after the procedure, and any follow-up required with their physician and/or surgeon.

Source: Where did the data come from?

- Client medical records (chart & electronic records)
- Laboratory reports
- Client self-reporting

What is the Annual Target the organization seeks to reach?

The NH target for 2012/2013 is a 10% reduction in SSI rates, and the optimal target for antibiotic prophylaxis given within one hour of cut time is 100%.

Benchmark & Comparators: How does the rate compare to other areas?

Procedure	Benchmark*	SSIs 2011/2012	SSIs 2012/2013
Abdominal Hysterectomy	1.10-4.05 per 100 procedures	4.8 per 100 procedures	7 Per 100 procedures
Caesarean Section	1.46-3.82 per 100 procedures	6.5 per 100 procedures	5 Per 100 procedures
Bowel Resection	**3.99-9.47 per 100 procedures	10 per 100 procedures (denominator data <100)	5 per 100 procedures (denominator data <100)
Total Primary Hip Replacement	0.67-2.40 per 100 procedures	5.0 per 100 procedures	5 per 100 procedures
Total Primary Knee Replacement	0.58-1.60 per 100 procedures	3.3 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

Trend: What does the data show?

In comparison to the previous year, rates of Surgical Site Infections in 2012/2013 are as follows: Abdominal hysterectomies have increased by 2.2%; bowel resections have decreased by 5%; Cesarean sections have decreased by 1.5%; Total hips and knee replacements have remained the same.

**Rates for bowel resection are within the benchmark, however the denominator data does not meet benchmark requirements of 100 procedures. There were only 87 Bowel Resections recorded for the 2012-2013 reporting period.

Rates of antibiotic prophylaxis administration within one hour of procedure cut time have shown a slight improvement of 2 to 4 %. Bowel Resections and C-section rates remain below 90%.

Limitations: What may have affected the quality of this measure?

One of the challenges of tracing antibiotic prophylaxis rates is reliability of documentation. The antibiotic prophylaxis may be administered within the one hour window, but if healthcare providers do not correctly document the administration time (e.g. omit the precise time the antibiotics are administered), the surveyor must

classify the antibiotic prophylactic treatment as being given outside the one hour window. This continues to be a challenge for SSI surveillance in some NH facilities.

What actions have been taken over the last year?

Teaching has continued with healthcare providers concerning such issues as the importance of administering antibiotic prophylaxis within one hour of cut time. Infection prevention, Surgical, Perinatal Leads and the NH Medical Advisory Committee will address the need for improved documentation of antibiotic(s).

Challenges for upcoming fiscal year surveillance and reporting includes the introduction of Surginet at UHNBC (July 2013). Inconsistent data entry for all SSI fields poses a minor issue as providers become familiar and comfortable with using the electronic application.

Outbreak Management

In response to outbreak situations in Northern Health, the Medical Health Officers (MHOs), in conjunction with Infection Prevention, developed a system where the MHO office would organize an AD-HOC Action Committee immediately after declaring an outbreak. The purpose of this committee is to communicate the progress of the outbreak. The Committee incorporates various members from the affected site.

This committee formation has resulted in faster response and implementation of control practices. In addition it has streamlined the communication process so that the people that need to know the information are receiving it in a timely, organized and consistent manner.

Outbreaks within Northern Health 2012-13

Type of Outbreak	Responsible Organism	# of Staff Affected	# of Patients /Residents Affected	Dates / Length of Outbreak	Facility/ Type (R=Residential Care) (A=Acute Care)
GI	Norovirus	0	6	Apr 10 - Apr 30/12	Rotary Manor/R
RI	Influenza A (H3N2)	34	39	April 17 – May 1/12	Terrace View Lodge/ R
GI	Norovirus	16	35	May 22-Jun1/12	Gateway Residential Care/ R
GI	Norovirus	1	4	May 22-Jun 12/12	Gateway Assisted/R
GI	Norovirus	5	5	Jun 15 - Jun 20/12	Queen Charlotte Hospital/A
RI	Non Influenza	18	17	Aug 10-Aug 28/12	Dunrovin Park Lodge /R
GI	Non Norovirus	7	6	Oct 2-Oct 5/12	Dunrovin Park Lodge /R

GI	Undetermined	3	4	Nov 8/12	Gateway ALC/R
GI	Undetermined	?	?	Nov 8/12	Chateau (non NH facility) ALC/R
GI	Undetermined	16	24	Nov 8/12	Simon Fraser ALC/R
GI	Undetermined	19	3	Nov 16-Dec 7/13	Mills Memorial/ A
GI	Norovirus	1	7	Dec 5 - Dec 13/12	Dawson Creek Psychiatry Unit/ A
GI	Norovirus	6	11	Dec 10 - Jan 16/13	The Pines/ R
GI	Norovirus	1	8	Dec 20 - Dec 26/12	Dawson Creek Hospital/ A
GI	Undetermined	2	10	Dec 21-30/12	Peace Villa / R
RI	Influenza A (H3N2)	?	12	Dec 28-Dec 31/12	Jubilee Lodge/ R
GI	Undetermined	5	4	Dec 28- Jan 2/13	Rainbow Lodge/ R
RI	Influenza A (H3N2)	1	11	Dec31-Jan7/13	Laurier Manor/ R
RI	Undetermined	12	13	Jan 2- Jan 8/13	Jubilee Lodge/ R
GI	Undetermined	17	16	Jan 1 - Jan 10/13	Acropolis Manor/ R
RI	Influenza A (H3N2)	18	13	Jan 2 – Jan 9/13	Simon Fraser Lodge/ R
RI	Influenza A (H3N2)	12	19	Jan 7-Jan14/13	Dunrovin Park Lodge/R
GI	Norovirus	6	10	February 2-12/13	Wrinch Memorial LTC/ R

Outbreak Discussion

Terrace View Lodge

RI outbreak Laboratory confirmed H3N2 Influenza A from April 10 -30, 2012.

Interventions: Consult to NH RI outbreak DST and MHO. Staff restricted if non immunized and Tamiflu offered; Tamiflu offered to Residents; Contact Precautions implemented.

Challenges: clarification of staff restrictions and immunized versus non-immunized status and need for Tamiflu in staff. For residents taking Tamiflu clarification of when contact precautions to be discontinued required.

Queen Charlotte Island Hospital

Gastrointestinal (GI) outbreak at QCI Hospital declared by the MHO June 15th/2012 was confirmed by BCCDC to be Norovirus. A total of 5 staff and 5 residents met the case definition criteria determined by the MHO. Infection Control outbreak measures were carried out appropriately. The outbreak was declared over by the MHO June 20th. Areas of improvement for future were identified as enhanced housekeeping for both wards and staff eating areas.

Dunrovin Park Lodge 2nd Floor North (Mountain Ash)

August 10 - 28, 2012

Type Non febrile Respiratory, Lab confirmed non Influenza

Significant impact on the Institution 17 Residents and 18 staff affected

Interventions: Affected Residents isolated to their rooms; No activities on affected floor;

Cleaning solution switch to Virox with twice a day cleaning of high touch surfaces; Cohorting of staff to not work with Residents who are not in the affected area; No visitor restriction but visitors are wearing PPE during visits

Corrective actions identified during post-outbreak review; Index case was identified on August 10th however Infection control not notified of ill Residents until August 22. Emphasis to report illnesses, confine and implement contact precautions on affected residents immediately with an emphasis on hand hygiene and containment of secretions.

Dunrovin Park Lodge 4 East (Moose Heights)

October 2 - 5, 2012

Gastrointestinal Lab confirmed non Norovirus

Significant impact on the Institution: 6 Residents 7 staff

Interventions: Affected Residents on Contact/ Droplet precautions and remain in their rooms until 48 hours symptom free. Visitors restriction with the exception of critically ill Residents; Staff movement restricted; Only affected Residents limited for outside activities; No Resident movement between facilities; Cleaning solution switched to Virox and double clean the high touch areas

Post-outbreak review results: Outbreak contained to one corner of the 4 East wing; Staff affected more than Residents possibly due to community exposure where there was significant illness occurring and Staff were exposed prior to declaration of the outbreak and before transmission precautions were in place.

Mills Memorial

MMH 2012 GI outbreak; Challenge: many 4 bed/shared wards; Notable: Ratio of staff vs. inpatients - 19 symptomatic staff versus 3 symptomatic inpatients

The Pines

Gastrointestinal (GI) lab confirmed Norovirus outbreak at the Pines complex care facility in Burn Lake, was declared by the MHO December 10, 2012. Total of 6 staff and 11 residents involved. Outbreak declared over December 16, 2012. Hand hygiene emphasized with all staff; and affected staff remains off work.

Peace Villa

GI outbreak from December 21 to 31, 2012. Total of 10 residents out of 124 were ill and 2 staff, no samples were successfully obtained. Ill residents confined to their rooms on contact precautions, Virox disinfectant used by housekeeping; EHO provided education to staff. Corrective action required: outbreak manual available on each wing; transmission signs posted; communication and coordination improvements between shifts and different wings; no crossover of staff between wings.

Jubilee Lodge #1

December 24 to 28, 2012

Respiratory Lab confirmed H3N2 Influenza A (all residents had received flu vaccine)

Significant impact on the Institution 12 Residents

Jubilee Lodge #2

December 24 to 31, 2012

Not Lab confirmed as this outbreak occurred on a different wing from the first outbreak so is presumed the same strain as the Lab confirmed H3N2 Influenza A outbreak of December 24th on the west wing.

Significant impact on the Institution 13 Residents (all Residents had received flu vaccine)

Interventions: 4 Residents received antibiotics and 2 Resident received Tamiflu; Affected Residents isolated to their rooms; In Four bed rooms all four roommates were isolated; Staff cohorted to the affected wing; Facility wide restriction of outside activities, common areas and group activities stopped - The exception was Residents continued their hemodialysis; Limited visitors to one Resident per visit; Emphasis on Hand hygiene; Droplet and Contact precautions instituted; twice daily cleaning; Non immunized staff excluded from work until outbreak declared over unless staff opted to take Tamiflu for the duration of the outbreak.

Measures established in Prince George: All Residential Care and Acute Care facilities in Prince George switched cleaning product to VIROX or bleach during the outbreak cluster.

Laurier Manor Assisted Living

December 28, 2012

Respiratory outbreak, specimens sent and lab confirmed H3N2 Influenza A.

Significant impact on the Institution; 9 residents affected (all received Influenza vaccine)

Interventions: One non immunized staff sent home and offered Tamiflu; Affected Residents isolated to their rooms; All Residents given Tamiflu for 10 days; Staff cohorted to affected Residents; Programs with outside visitors restricted; Admissions cancelled.

Post-outbreak review results 70% of the staff had been immunized.

Acropolis Manor

Gastrointestinal (GI) outbreak declared January 1, 2013 by the MHO. The total number of residents affected with diarrhea and vomiting was 16. Total number of staff affected 17. Outbreak declared over January 10, 2013. Infection Control outbreak measures were immediately started under MHO direction, such as appropriate Transmission Precautions, visitor restrictions, enhanced housecleaning, cohorting of staff and residents and vigilant hand hygiene emphasized. Future improvement identified: increase sample collection.

Dunrovin Park Lodge (Maple House, Jack Pine and Mountain Ash wings)

January 7 -14, 2013

Respiratory - Lab confirmed H3N2 Influenza A

Significant impact on the Institution: 19 Residents and 12 Staff

Interventions: Affected Residents confined to their rooms on Droplet/Contact precautions; Education on hand hygiene and cough etiquette to staff; Cleaning solution changed to Virox and twice daily clean of high touch surfaces; Cancelled activities outside the facility; Continued with Day Center but did not allow participants who did not have their Influenza vaccine; Bathing of community clients cancelled; New admission confined to his room until the end of the outbreak; Staff and visitor restricted if they have not had their Influenza vaccine and do not accept Tamiflu; Visitors to wear PPE and restricted to visit only one Resident.

Wrinch Memorial Long Term Care

GI Outbreak declared on Feb 2, over on February 12, 2013. There were 10 clients and 6 staff affected. Lab confirmed Norovirus. The usual Outbreak measures were implemented, contact precautions and enhanced environmental cleaning with Virox.

Construction and Renovation

Construction and Renovation in health care facilities is regulated under the Canadian Standards Association (CSA). Infection Prevention and Control Practitioners are given the following responsibilities:

- (a) be an active member of the multidisciplinary team (MDT) throughout the life of the construction project, from the planning stage to the final evaluation after completion of the work;
- (b) ensure that the appropriate preventive measures are initiated and adhered to;
- (c) have the authority to stop construction if there is a significant failure to adhere to the required preventive measures;
- (d) educating members of the MDT on measures that decrease construction related infections and;
- (e) monitor changes in infection rates and patterns during and immediately after construction, renovation, maintenance or repairs.

(Infection control during construction, renovation, and maintenance of health care Facilities, CAN/CSA - Z317.13-12; 6.3.2.2; 6.3.2.3)

In 2012-2013, there was an increase in the number of renovations that IPCP's were involved with. The new hospital in Fort St. John and the new Cancer Clinic at UHNBC were completed.

In 2012/2013 there was a total of 225 construction permits issued and 7 violation tickets.

All construction/renovation projects began following the updated CSA Z317.13-12 standard in December 2012. The new CSA Z8000-11 "Canadian Health Care facilities design and construction" applies new standards for all construction of new health care facilities or existing facilities undergoing additions or renovations. Northern Health IPCPs use this document as a guideline.

Education

Type	Description	Participants
Hand Hygiene (NH wide)	Hand hygiene education module for online learning was launched, on internal website - iPortal	Available to all NH staff and physicians.
Orientation (NH wide)	IPCPs involved in both general staff orientation as well as nursing-specific orientation sessions. A variety of teaching methods are used.	Newly hired staff, staff interested in reviewing orientation info.
Education given within Northern Health	IPCPs provide education to a variety of disciplines. A variety of teaching methods are used: PowerPoint, on-line modules and practice sessions for many IC topics. Patients from surgical site infection surveillance program are given written and verbal information on preventing infection.	Nursing, clinical and non-clinical support services, ambulance personnel, volunteers, administrators.
World & National Hand Hygiene Day	On May 5, a variety of information sessions, interactive games, posters, and presentations were carried out to bring attention to hand hygiene.	Patients and staff
Infection Control Week in October (NH wide)	Infection Control Week provided an excellent opportunity for a variety of education opportunities involving fun activities, posters/banners and education sessions. This assists the IPCPs to increase awareness of their role in NH as well as share pertinent information.	Healthcare providers and physicians
Student teaching (NH wide)	IPCPs have taken the initiative to offer learning opportunities to a wide range of healthcare students.	Nursing students, Care Aides, medical students and Resident doctors.

Projects & Initiatives

Project/Initiative DST Development

Description:	The Infection Prevention & Control team continued to review and restructure all Northern Health IP&C policies & procedures, in the interest of moving away from the large paper manual format to separate Decision Support Tools for each topic. Each IPCP assisted in revising the policies /procedures into DST format and this subsequently was reviewed by the IPC team via live teleconferences. The DSTs reflect best practice findings.
Status:	Complex Care DSTs are in-progress.
Activities & Milestones:	Acute Care DSTs are nearing completion and uploaded when finalized to the Northern Health internal website.
Organization Impact:	Discontinuing the paper version to on-line format makes updating the DSTs easier and ensures all health care providers have the current information.

Sterile Processing Department (SPD)

All sites were audited in 2012 that reprocess medical devices, with an overall score of 95.24%. The tool was updated in the latter part of 2011 and asks a few different questions, hence the drop in score.

In 2012, 17 sites across NH were audited. Nine sites now send their reprocessing to larger facilities, while seven smaller sites (who do not run operating rooms) resulted with a 95.05% average and ten large sites that do run operating rooms resulted with a 95.38% average.

STERILE PROCESSING AUDIT 2011, 2012

SITE:	2011	Score	2012	Score
			Date	
Queen Charlotte City			July 23rd	98.07%
Stewart			July 12th	99.02%
Burns Lake			July 13th	97.05%
Fraser Lake			July 18th	93.04%
Kitimat	July 12th	99.51%	May 11th	99.56%
Smithers	June 27th	99.50%		94.44%
Hazelton	July 8th	98.37%		97.71%
Terrace	July 12th	97.88%		94%

Vanderhoof	June 15th	98.52%	July 18th	98.64%
Quesnel	Aug 12th	95.33%	July 17th	96.13%
Fort St John	Aug 15th	98.17%	May 31st	97.51%
Fort Nelson			July 10th	94.96%
MacKenzie			May 29th	89.55%
Dawson Creek	Aug 15th	97.56%	June 1st	87.67%
Dease Lake			July 11th	93.81%
Prince Rupert	April 27th	97.73%		92.54%
Prince George	July 26th	98.48%	July 24th	95.42%
Overall %		98.11%		95.24%

Education:

Steadily staffs across the region are upgrading their skills with the National CSA exam for Sterile Processing. In 2012 four more staff passed this exam for 2012 (out of nine). The next registration will be January 2013. Only two sites left in the region who have not participated.

The Quality Assurance document has been updated for 2012.

A number of DST's were updated to reflect changes in practice and Standards.

Terminology & Abbreviations

ABHR - Alcohol-Based Hand Rub

ARO - Antibiotic Resistant Organism

BVDH - Bulkley Valley District Hospital

CA-MRSA - Community-Associated Methicillin-Resistant Staphylococcus aureus.

CDAD - Clostridium difficile Associated Diarrhoea

CDC - Center for Disease Control & Prevention

CDI - Clostridium difficile Infection

CNISP - Canadian Nosocomial Infection Surveillance Program

DCDH - Dawson Creek & District Hospital

DOC - Director of Care

DST - Decision Support Tool

EHO - Environmental Health Officer

FSJH - Fort St. John Hospital

GI - Gastrointestinal Illness

HAI - Healthcare-Associated Infection

HA-MRSA - Healthcare-Associated Methicillin-Resistant Staphylococcus aureus

HH - Hand Hygiene

HSA - Health Service Administrator
HSDA - Health Service Delivery Area
IDC -Innovations and Development Commons
IPCP - Infection Prevention & Control Practitioner
KGH - Kitimat General Hospital
LPN - Licensed Practical Nurse
MAC - Medical Advisory Committee
MHO - Medical Health Officer
MMH - Mills Memorial Hospital
MRSA - Methicillin-Resistant Staphylococcus aureus
NEHSDA - Northeast Health Service Delivery Area
NEMAC - Northeast Medical Advisory Committee
NH - Northern Health
NHIPCP - Northern Health Infection Prevention & Control Program
NHSN - National Healthcare Safety Network
NIHSDA -Northern Interior Health Service Delivery Area
NIMAC - Northern Interior Medical Advisory Committee
NNIS - National Nosocomial Infection Surveillance
NWHSDA- Northwest Health Service Delivery Area
NWMAC - Northwest Medical Advisory Committee
UHNBC - University Hospital of Northern British Columbia
OR - Operating Room
PHHWG - Provincial Hand Hygiene Working Group
PHN - Public Health Nurse
PHSA - Provincial Health Services Authority
PRRH - Prince Rupert Regional Hospital
QCCH - Queen Charlotte City Hospital
RI - Respiratory Illness
RN - Registered Nurse
SHEA - Society for Healthcare Epidemiology of America
SPD - Sterile Processing Department
SSI - Surgical Site Infection
VP - Vice President
VRE - Vancomycin-Resistant Enterococcus