



Interior Health

**Infection Prevention  
& Control  
2011-2012 Annual Report**

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## Executive Summary

The Infection Prevention and Control (IPAC) program's annual report, 2011-2012, highlights the achievements and continued challenges facing infection control practices in Interior Health. The report summarizes the progress of programs, the annual infection rates and outlines the future strategic plans for the coming years.

The progress of the Hand Hygiene Program, Link Nurse Program, Electronic Surveillance Project and Construction Projects are summarized with key highlights reported. Of note is the continued success of the Hand Hygiene Program which was able to report a significant increase in hand hygiene compliance over the 2011-2012 fiscal year. An increase from 46% to 65% across all health care workers is an accomplishment worthy of attention and celebration.

Annual infection rates are also included in this report with the inclusion, this year, of annual facility-level rates. However, it must be noted that due to small facilities having low numbers of patient days, the rates for those facilities can be subject to large variations. One or two infections can have a significant impact on the facility's rate. For this reason, rates in small facilities should be interpreted with caution. Included in this report are annual infection rates for *C. difficile*, MRSA, VRE, Surgical Site Infections and Ventilator-associated Pneumonia. The trend for most infections has been positive as most are declining although rates in some facilities have increased.

The report also addresses developments in education, residential care and outbreak management.

Finally, the annual report describes the six strategic areas for action over the next few years. Focusing on hand hygiene, surveillance, IPAC expansion into the community, communication, Tuberculosis and *C. difficile*, the IPAC program will aim to build its capacity, knowledge and awareness among staff and stakeholders. The continued efforts to ensure the comprehensiveness, efficiency and reliability of IPAC's surveillance system will be geared to making informed decisions to improve patient outcomes. It is anticipated that broadening the IPAC audience and increasing the knowledge of IPAC practices through these strategic initiatives will build capacity across the Health Authority and increase collaboration to address infection control issues more efficiently and effectively while ensuring the highest quality of care for patients.

## Introduction

### Infection Prevention and Control

Infection Prevention & Control is a corporate program under the administrative direction of the VP, Medicine/Quality. The overarching goal of IPAC is to prevent infections from occurring in patients, residents, clients, visitors, volunteers, physicians and employees. A variety of strategies has been implemented to achieve this goal and is summarized in this annual report.

The Infection Monitoring Prevention and Control Team (IMPACT) reports to the Health Authority Medical Advisory Committee (HAMAC), the Senior Executive Team, and the Board Quality Care Committee. Infection Prevention and Control has a standing time on each HAMAC agenda and the Medical Director of Infection Prevention and Control reports in person while the VP, Medicine/Quality reports to SET as required. The minutes of IMPACT are sent to the Board and presentations on various infection control strategies and issues are made to these committees as scheduled throughout the year. IPAC liaises across the continuum with other programs such as Public Health and Workplace Health and Safety in regards to communicable diseases and outbreak management. In addition, there is an extensive network of committees responsible for IPAC across the health authority.

The IPAC Program functions in accordance with international, national and provincial guidelines and best practices across the continuum of care. The IPAC Program influences practice through direct actions by managing infection surveillance and disseminating data to appropriate stakeholders. IPAC also develops and recommends policies, procedures and best practices including but not limited to Routine Practices, Additional Precautions, asepsis, equipment cleaning, disinfection and sterilization, product selection and evaluation, and construction consultation as it pertains to IPAC. Education and training healthcare providers, patients and nonmedical caregivers is also an important part of the IPAC program.

Key improvements to monitoring IPAC practices and improving safety for patients/residents/clients have been made in the past year. The IPAC Program implemented a new electronic surveillance system; hired new staff; extended its Hand Hygiene and Link Nurses Programs; and made significant changes and updates to guidelines contained in the Infection Control Manual. This report highlights the accomplishments of the IPAC Program and sets out the future directions for the coming year.

## Members of Team

### **President and Chief, Executive Office**

Dr. Robert Halpenny

### **Vice President, Medicine/ Quality**

Dr. Jeremy Etherington

### **Medical Director, Infection Prevention and Control**

Dr. Edith Blondel-Hill

### **Corporate Director, Infection Prevention and Control**

Janice de Heer

### **Epidemiologist**

Anne Marie Locas

### **Infection Prevention & Control Educator**

Nicki Gill

### **Administrative Assistant**

Connie Bergen

### **Infection Control Practitioners**

Missy Blackburn

Debbie Cosgrove-Swan

Kelly Dillon

Bonny Duncan

Nancy Gawletz

Eileen Lavoie

Lynden Lehman

Kim Leslie

Wendy Lutz

Maureen McLean-Young

Lorena McLure

Andrea Neil

Evelyn Nicol

Joy Pyett

Meg Rao

Coleen Reiswig

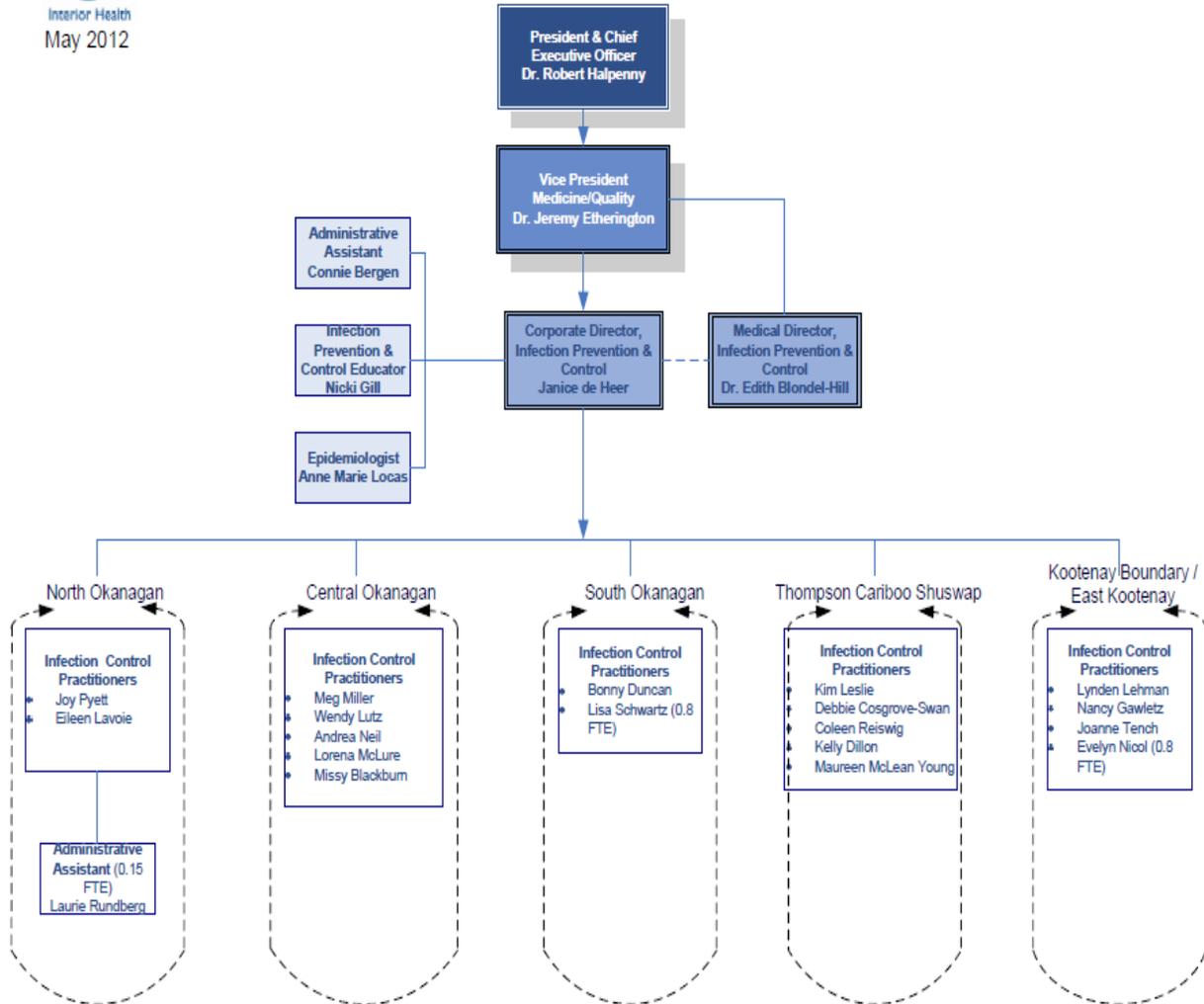
Lisa Schwartz

Joanne Tench

# Organizational Chart



## Infection Prevention & Control (IP&C)



## Programs and Initiatives

### Hand Hygiene Program

The Hand Hygiene (HH) Program is a multifaceted program designed to improve Health Care Worker (HCW) adherence to recommended HH practices. HH compliance has been identified as a Required Organizational Practice by accreditation Canada.

The main goals of the HH Program include the promotion of the importance of HH in reducing the occurrence of Healthcare Associated Infections (HAI); the improvement of patient safety; meeting regulatory accreditation requirements; educating healthcare workers, patients, and families about the importance of practicing optimal HH; and supporting organizations in making the delivery of healthcare safer for everyone.

The key program components include a variety of education modules, including basic orientation; promotion through instructional signage; and HH auditing.

#### **Priorities met from 2011/2012**

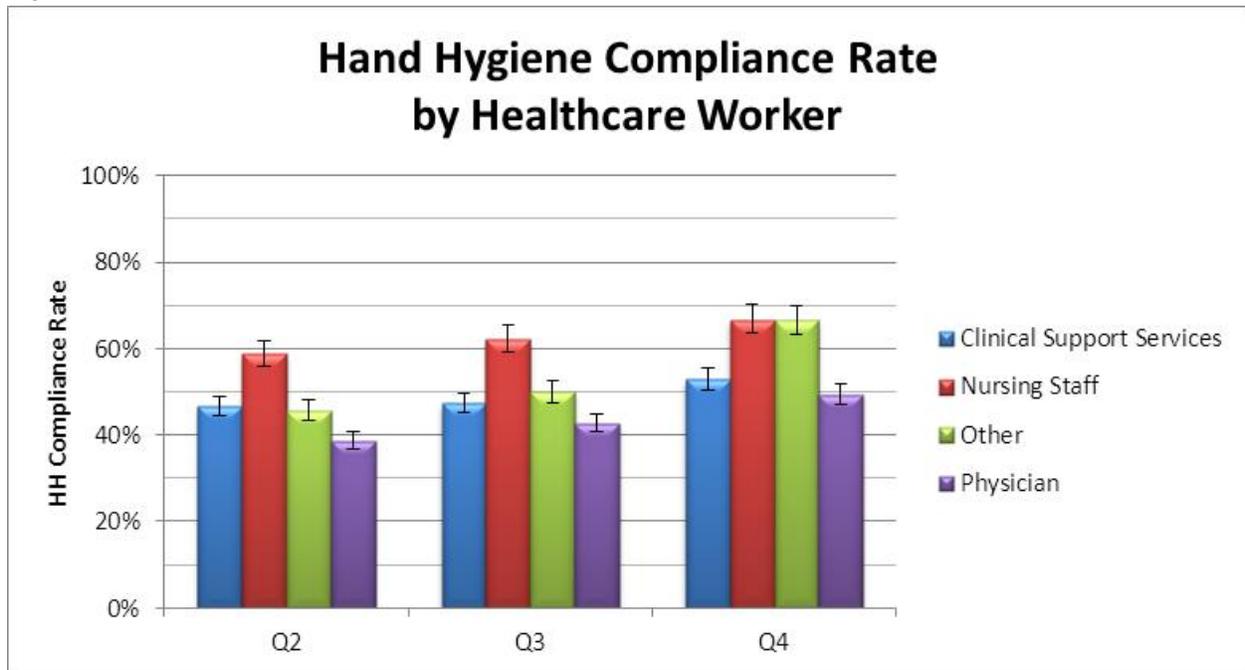
During the 2011-2012 fiscal year, changes to the HH Program were influenced mainly by the Auditor General's Report which recommended the implementation of a provincial HH program. Along with a provincial-wide program, Health Authorities were also required to begin public posting of HH rates. In addition to these efforts, a review of the auditing process and sampling methodology was initiated to improve the reliability of audit results.

As part of the HH Program, point-of-care alcohol-based hand rub (ABHR) was made widely available throughout Interior Health's Acute Care facilities. Ensuring the availability of ABHR is a key consideration in promoting effective HH practices.

#### **Current status**

The HH compliance rate has improved across the health authority over the last fiscal year. An increase from 46% to 65% was observed for Interior Health although some facilities continue to face challenges in changing the practice culture. Compliance rates (figure 1) for all HCWs improved over the fiscal year with nursing staff being the most compliant of all HCW groups. The HH Program continues to address areas for improvement by focusing on common HH misconceptions and increased attention to proper hand hygiene practices.

Figure 1



### Limitations

The overall aim of presenting HH compliance results is to give an indication of the compliance amongst staff and allow facilities to compare their own data over time. Audit results are primarily aimed at monitoring and comparing trends within facilities. Audit results do not present the same robust scientific data as surveillance data, however, aim to provide valuable and contextual information that can help target HH activities to improve compliance where required in each area. It has been recognized that 'being observed' in practice, e.g. during auditing, can lead to falsely elevated compliance rates. To minimize this effect, audits are completed in twenty to thirty (20-30) minute intervals with no greater than six (6) observations made of the same HCW within this period.

### Future Plans

An Interior Health HH policy will be developed to ensure that expectations are clearly understood and the approach to HH is standardized across the Health Authority. Signage to encourage HH will be improved at facility entrances as well as public reporting of HH compliance rates at the facility and/or unit level. Additional training modules will also be developed to address specific issues in HH compliance (i.e. glove use and hand hygiene) in an effort to improve understanding of best practice and increase the compliance rates.

### Link Nurse Program

A new IPAC Link Nurse Program was implemented to augment IPAC practices in Interior Health. The Link Nurse Program is designed to increase IPAC resources for staff in clinical areas by training volunteer nurses to promote patient safety and collaborate with Infection Control Practitioners (ICP) within their facility. The program sought to have two IPAC Link Nurses on each unit, working to increase awareness of IPAC issues in their area and motivating

staff to improve practice. The Link Nurses are provided with specialized education sessions designed to enable them to cascade information back to their colleagues. The aim is to promote and improve the practices to prevent and control infections in clinical areas as well as strengthen the linkage to ICPs.

### **Priorities met from 2011/2012**

In March, 2011 ICPs provided an eight hour training day to twenty-three Registered Nurses (RN) and one student nurse which represented thirteen clinical areas of Royal Inland Hospital. Two four-hour follow-up sessions were held in June and November of 2011 to provide further support and guidance. In March of 2012, a second cohort of thirteen RNs were trained representing an additional eight clinical areas of Royal Inland Hospital. Using a mentoring approach, the RNs from the first cohort provided support and guidance to the second cohort of RNs.

### **Current Status**

Since the inception of the Link Nurse Program, thirty-six RNs have received IPAC training through the Link Nurse Program. The initial feedback from the nurses has been extremely positive; participants reported that the information was very helpful, particularly in regards to Routine Practice and Additional Precautions practices. Attrition due to job changes, relocation and illness has been a challenge, but the majority of participants remain dedicated to the Program.

### **Future Plans**

Plans are in place to implement a Link Nurse Program at Kelowna General Hospital in the fall of 2012.

## **Electronic Surveillance Initiative**

An in-house Infection Control data tracking system was designed and built to detect potential HAIs. This system was designed to read data from a variety of sources so that HAI cases could be more efficiently investigated and reported on.

### **Priorities met from 2010/2011**

The IPAC Tracking system went “live” in September, 2011. ICPs were trained in the use of the new tracking system which is now the primary source for IPAC surveillance data and analysis.

### **Current Status**

Although the tracking system is operational, the validation of the system was not completed in 2011-2012. Validation is currently scheduled to be completed in the 2012-13 fiscal year. ICPs were also provided with a reporting template to assist with the standardization of data analysis reports across the Health Authority.

### **Future Plans**

Plans to expand the system to include post discharge surveillance and surgeon specific infection rates will be implemented once the system validation is completed.

## Construction

Construction projects, in particular renovation projects, pose potential health risks for patients, staff, visitors and construction personnel that may lead to HAIs. These risks most commonly develop when dust particles contaminated with bacteria and fungi are dispersed into adjacent patient care areas. The primary fungus associated with these infections is *Aspergillus* while the major bacterium is *Legionella*.

Early planning in construction and renovation projects must integrate IPAC, engineering services, and building design to prevent HAIs, and minimize allergen load and other workplace hazards. An IPAC Risk Assessment is required before construction or renovations begin. To facilitate an assessment, the Planning Department and Plant Services informs IPAC regarding the location of all areas of renovation and construction.

### Priorities met from 2010/2011

Numerous construction permits have been issued for projects ranging from the installation of x-ray machines and sinks to minor and major renovations, including the construction of buildings. Of particular note for the IPAC Program was the upgrading of airborne isolation rooms at Kelowna General Hospital and the East Kootenay Regional Hospital, as well as, the major construction projects at Kelowna General Hospital and Vernon Jubilee Hospital. In the fall of 2011, the new seven-storey, 231,500 square foot, Polson Tower was completed bringing together existing programs in a more efficient facility. Progress on Kelowna General Hospital's Centennial and Dr Walter Anderson buildings continue with an anticipated completion date of May 2012. These new buildings will consolidate, expand and modernize outpatient services and programs currently dispersed throughout Kelowna General Hospital into one facility.

### Current Status

There were no significant issues or increased infection rates associated with the large construction and renovation projects. IPAC continues to assess risk and issues construction permits accordingly; however, the volume of permits issued at some sites does pose a significant workload issue for ICPs.

### Future Plans

The completion of construction of the two new buildings at Kelowna General Hospital is scheduled for May, 2012; however, construction at Kelowna General Hospital will continue with the demolition of the old Pandosy Building to make room for the new Interior Heart and Surgical Centre with a completion date set for 2015.

## Surveillance

Surveillance for HAI is an Interior Health-wide strategy that is carried out by IPAC and ICPs. Surveillance data is used to guide performance improvement activities such as healthcare practices as well as measures clinical outcomes.

Surveillance identifies risk factors for infection and other adverse events, supports the implementation of risk reduction strategies and monitors the effectiveness of the interventions.

Employing a computerized surveillance system, potential infection cases are tracked across the continuum of care based on predetermined HAI case definitions.

Standardized electronic reports are generated on a regular basis and reviewed by site specific and corporate IPAC Committees. Analysis and interpretation of infection data is reported to a facility's IPAC Committee or other advisory body by the IPAC Team.

HAIs are expressed as a rate; three elements are required to generate these HAI rates:

- number of cases (i.e. persons developing a particular infection)
- number of patient days
- time period involved

It is a recommended practice to adjust rates of HAIs for patient length of stay by using the number of patient days as the denominator, rather than number of admissions or number of beds. It is also recommended best practice to calculate rates of device associated infections that are adjusted for duration of exposure to the device.

## Acute Care Facilities

### Clostridium difficile Infection

IHA Status	IHA Trend	IHA Benchmark	IHA Actual
		<b>&lt;6</b> Per 10,000 Patient Days	<b>6.25</b> Per 10,000 Patient Days

*Clostridium difficile* (*C. difficile*) is a gram-positive spore-forming bacillus that produces toxins that can cause diarrheal infections in persons in hospitals, residential care facilities and in the community.

*C. difficile* produces spores that are resistant to common types of disinfectants and their elimination may require the use of sporicidal chemicals in addition to thorough cleaning of the patient environment and hand hygiene using either soap and water or alcohol-based hand rub. Risk factors for *Clostridium difficile* infection (CDI) include a history of antibiotic usage (particularly clindamycin, fluoroquinolones, cephalosporins and ampicillin), bowel surgery, chemotherapy, age greater than 65, prolonged hospitalization and serious underlying illness or debilitation.

Since 2000 there has been an increase in the rates of healthcare associated CDI so ongoing surveillance is important to ensure increasing trends and clusters are quickly identified and addressed.

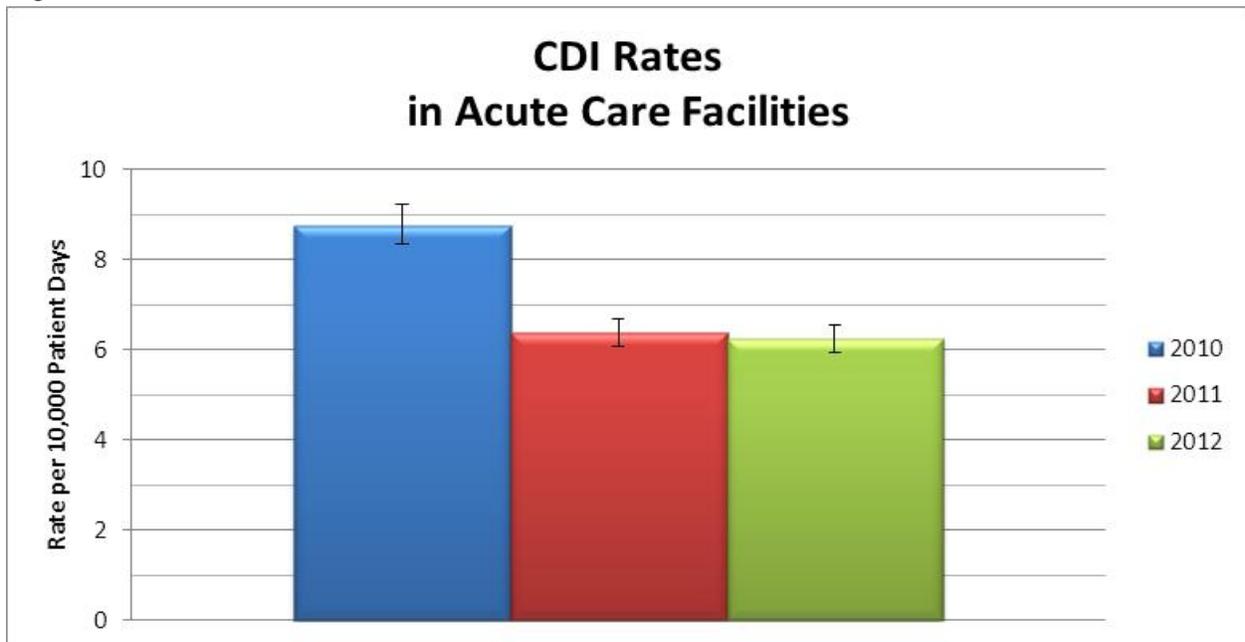
#### What is being measured?

The incidence rate of CDI is per 10,000 patient days. This is the number of new cases of CDI acquired by patients as a result of their stay in a hospital, divided by the total number of inpatient days over a specified time frame.

## Trend

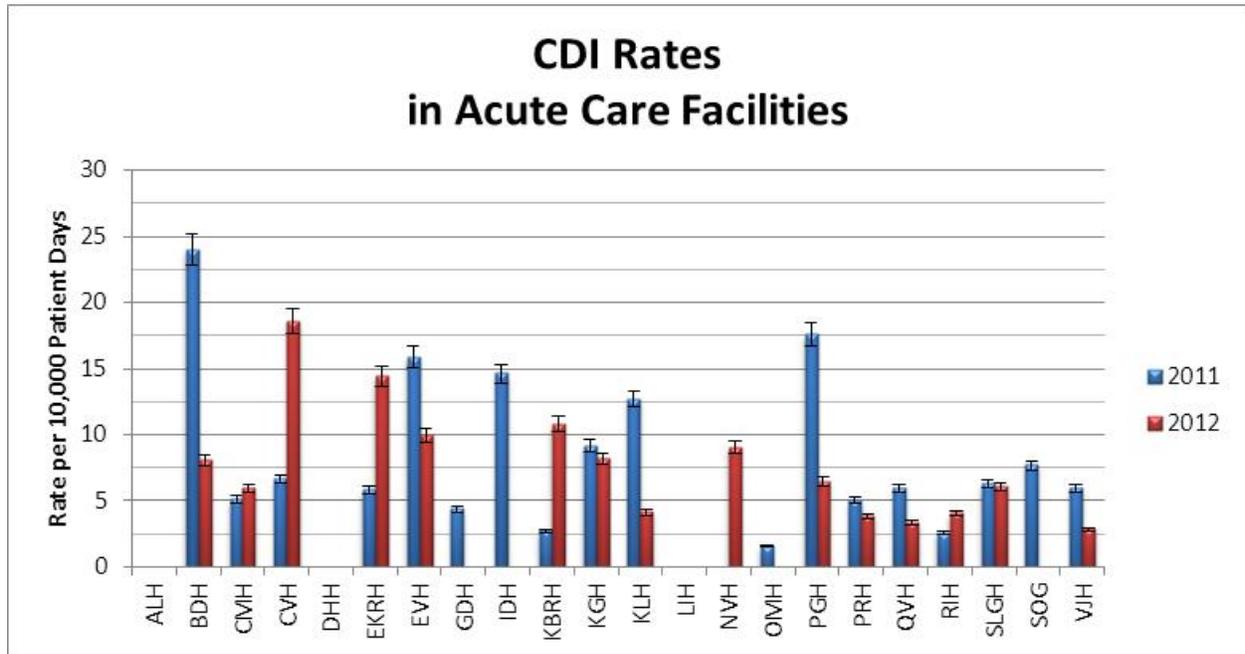
The overall CDI rate for Interior Health has declined since the peak of 2009-2010 (figure 2). Increases continue to be observed in three facilities, while in other facilities rates remain constant or are declining. In 2011-2012 the annual IHA CDI rate was 6.25 per 10,000 patient days down from the 2010-2011 annual rate of 6.38 per 10,000 patient days. The Provincial CDI rate of new infections was 7.1 for Quarter 1 and 7.7 for Quarter 2 per 10,000 inpatient days in the 2011-2012 fiscal year<sup>1</sup>; Interior Health CDI rates were below provincial rates in both quarters. However, several facilities within Interior Health exceeded the provincial rate (figure 3). This is mainly due to the issue of a small denominator where overall patient days are low resulting in high rate with, in some cases, a single case of CDI.

Figure 2



<sup>1</sup> Clostridium difficile Infection (CDI) Surveillance Report Quarter 1 and Quarter 2, 2011/2012  
Prepared by: Provincial Infection Control Network of British Columbia (PICNet) February 2012

Figure 3



### Actions Implemented

A number of actions continue to be implemented to address CDI within Interior Health. Ongoing hand hygiene education, attention to decluttering of units and focused CDI staff education have been rolled out across the Health Authority. In addition to these efforts, facilities have purchased equipment (e.g. commodes) that is dedicated to CDI patients. CDI patients are also provided with a private room, where feasible; cohorting of CDI patients has also taken place where private rooms are not available.

### Limitations

A patients' healthcare encounter history is reviewed by ICPs to determine whether the infections are healthcare-associated, community-acquired or unknown; there is some potential for the misclassification of CDI cases. It is assumed that any stool sent to the laboratory for *C. difficile* testing is from a patient that has had a least 3 episodes of loose stools in a 24 hour period. It is accepted that the surveillance protocol may overestimate the number of cases as some patients may have had only one or two loose stools prior to a specimen being collected.

Caution should be exercised in interpreting the rates in small facilities. A lower number of patient days (denominator) tends to artificially inflate the infection rate; an increase of one infection can dramatically change the rate when the denominator is small resulting in unstable rates and percentages. Additionally, the rates are not risk-adjusted, and therefore should not be used to make comparisons between individual facilities.

## Methicillin Resistant Staphylococcus Aureus

IHA Status	IHA Trend	IHA Benchmark	IHA Actual
		<b>5.6</b> Per 10,000 Patient Days	<b>3.51</b> Per 10,000 Patient Days

### What is it?

Methicillin-resistant Staphylococcus aureus (MRSA) is a type of bacteria that is resistant to certain antibiotics such as methicillin, penicillin, and amoxicillin. MRSA has been recognized as a major medical issue for the past 20 years, as people infected with MRSA are more difficult to treat.

MRSA is primarily spread by skin-to-skin contact or through contact with items contaminated by the bacteria. People who have MRSA on their skin, or who are infected with MRSA, can spread the bacteria to other people.

MRSA has been shown to spread easily in healthcare settings. MRSA can be passed through contaminated bed linens, bed rails, bathroom fixtures, and medical equipment. It can also spread to other people via the unwashed hands of doctors, nurses, other healthcare providers, and visitors. Outbreaks are more common in hospitals because some patients are more vulnerable due to pre-existing illnesses.

### What is being measured?

The incidence rate of MRSA cases per 10,000 patient days. This is the number of new cases of MRSA acquired by patients as a result of their stay in hospital or previous contact with a healthcare facility or program, divided by the total number of inpatient days over a specified time frame.

### Trend

The overall MRSA rate for Interior Health has declined since the peak of 2009-2010 (figure 4). Increases continue to be observed in six facilities, while rates in other facilities remain constant or are declining (figure 5). The Provincial MRSA rate per 10,000 inpatient days was 4.5 for Quarter 1 and 3.4 for Quarter 2 in the 2011-2012 fiscal year<sup>2</sup>; the Interior Health MRSA rate was below provincial rates in both quarters, 3.3 and 2.7 per 10,000 patient days respectively. In 2011-12, the annual IH MRSA rate was down to 3.51 from 4.83 in 2010-11.

<sup>2</sup> Methicillin-resistant *Staphylococcus aureus* (MRSA) Surveillance Report Quarter 1 and Quarter 2, 2011/2012 Prepared by: Provincial Infection Control Network of British Columbia (PICNet) April 2012

Figure 4

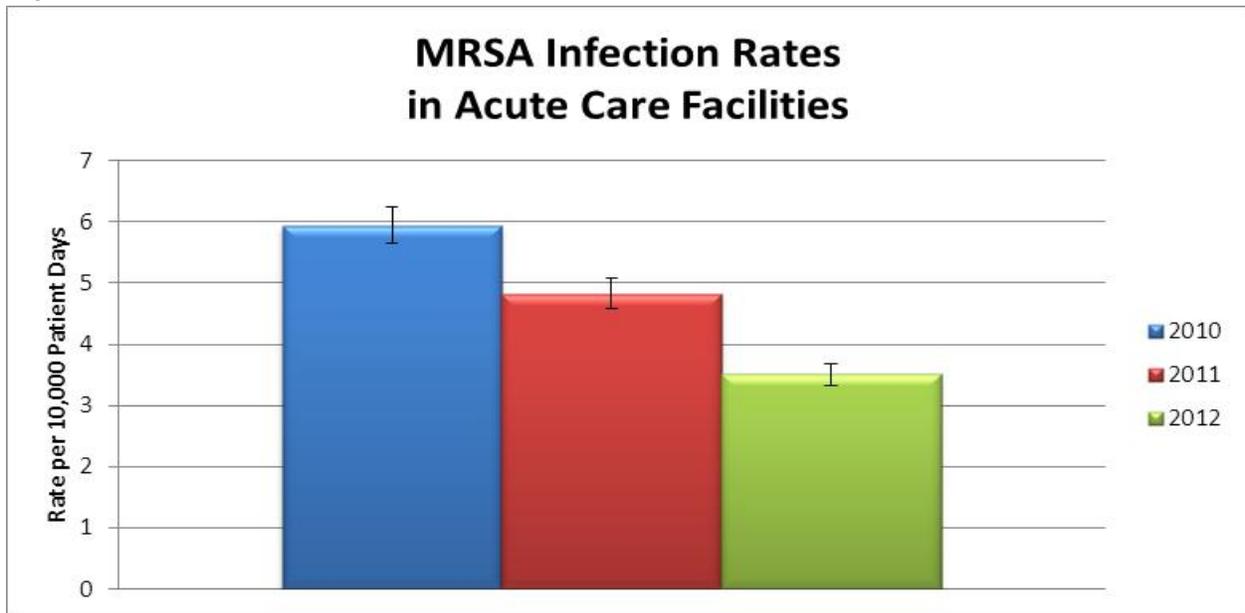
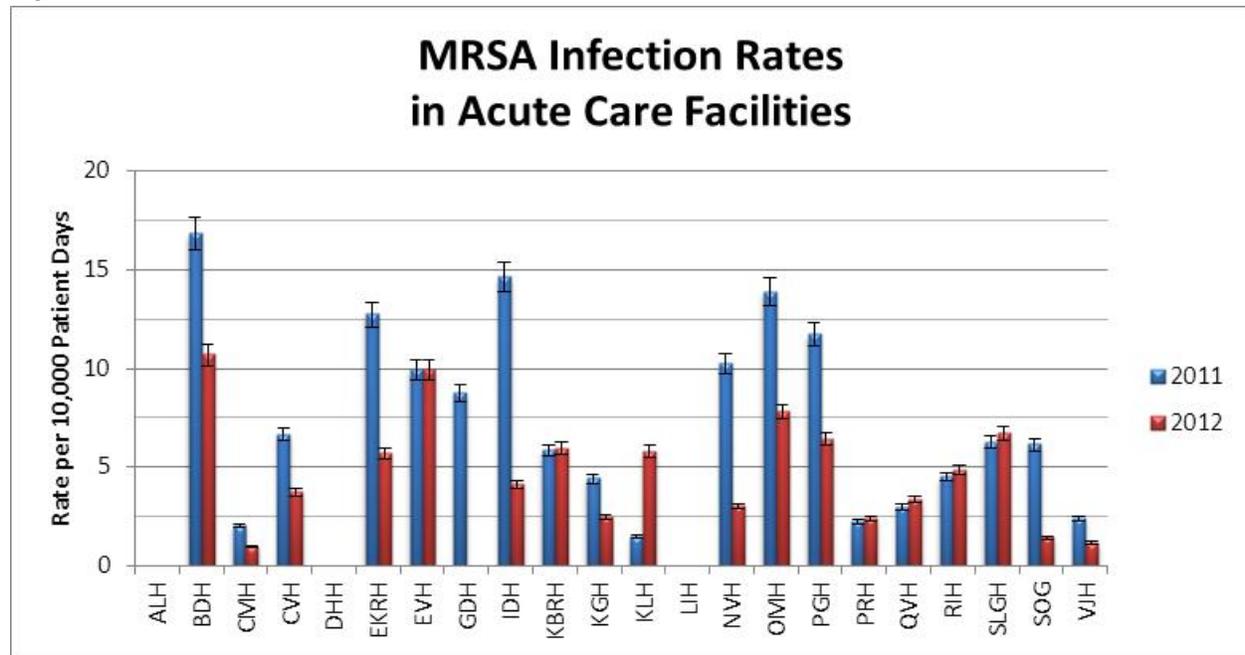


Figure 5



**Actions Implemented**

A number of actions continue to be implemented to address MRSA infections within Interior Health. Dedicated equipment for MRSA patients and the placement of patients in private rooms, where feasible, are actions taken in addition to ongoing staff education. Cohorting of MRSA patients has also taken place where private rooms are not available.

**Limitations**

MRSA data reported here is subject to limitations due to a number of factors. MRSA screening

can vary from hospital to hospital as screening protocols may not always be adhered to. Secondly, MRSA colonization and MRSA infections are not distinguished separately in the surveillance system which can lead to misinterpretation of the data. Determining a previous health care encounter relies on patient information and can lead to misclassification. Furthermore, data for some facilities in the Health Authority were not available for certain periods due to information system upgrades. Emergency room and Ambulatory Care outpatient visits are not included in this data.

Caution should be exercised in interpreting the rates in small facilities. A lower number of patient days (denominator) tends to artificially inflate the infection rate; an increase of one infection can dramatically change the rate when the denominator is small resulting in unstable rates and percentages.

It should be noted that rates are not risk-adjusted, and therefore should not be used to make comparisons between individual facilities.

### Vancomycin Resistant Enterococcus

IHA Status	IHA Trend	IHA Benchmark	IHA Actual
		<b>&lt;1.1</b> Per 10,000 Patient Days	<b>4.13</b> Per 10,000 Patient Days

Vancomycin-resistant Enterococci (VRE) are a type of bacteria called enterococci that have developed resistance to many antibiotics, especially vancomycin. Enterococci bacteria live in our intestines and on our skin, usually without causing problems. Enterococci bacteria become a problem when they cause infection. These infections can occur anywhere in the body. Some common sites include the intestines, the urinary tract, and wounds. For some people, especially those who are weak or ill, these infections can become serious.

VRE, like many bacteria, can be spread from one person to another through casual contact or through contaminated objects. VRE is not usually spread through the air like the common cold or flu virus unless you have VRE pneumonia and are coughing, which is rare.

#### What is being measured?

The incidence rate of VRE is per 10,000 patient days. This is the number of new cases of VRE acquired by patients as a result of their stay in hospital or previous contact with a healthcare facility or program, divided by the total number of inpatient days over a specified time frame

#### Trend

In 2011-12, Interior Health VRE rate was down to 4.13 from 4.48 in 2010-11 (figure 6). The rate is mainly a result of colonizations as opposed to infections. Screening for VRE continues for all admissions to facilities although variation in screening protocols has been noted in some facilities (figure 7).

Figure 6

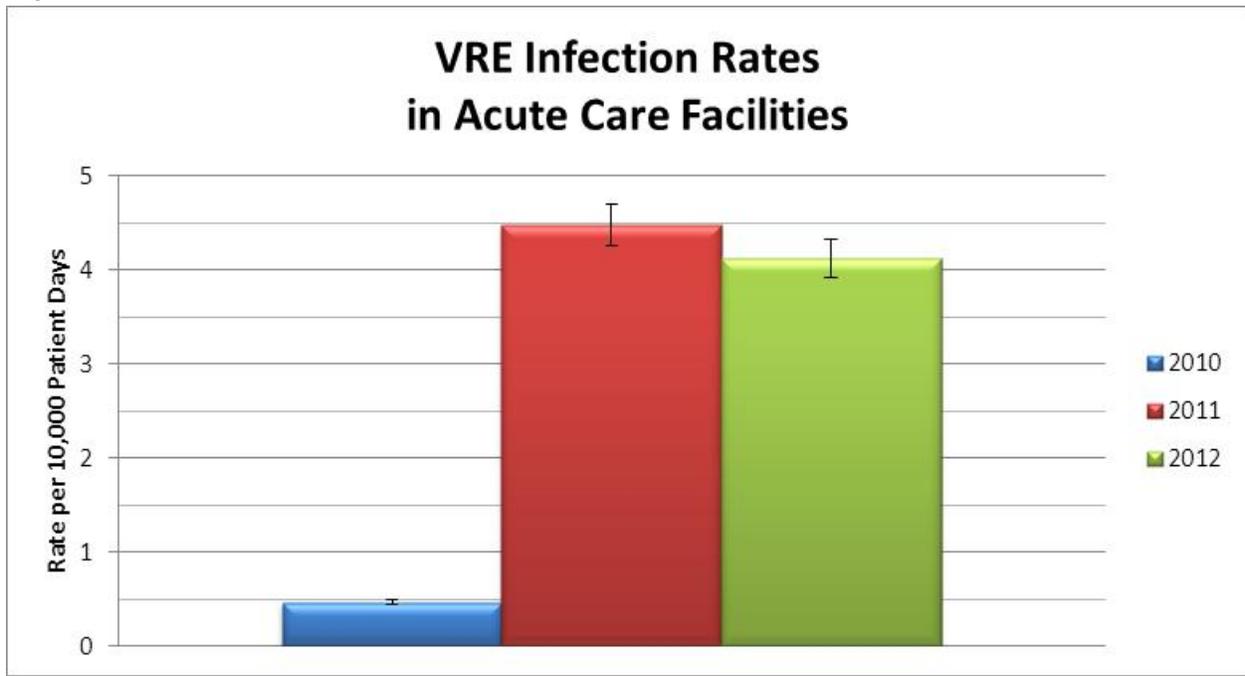
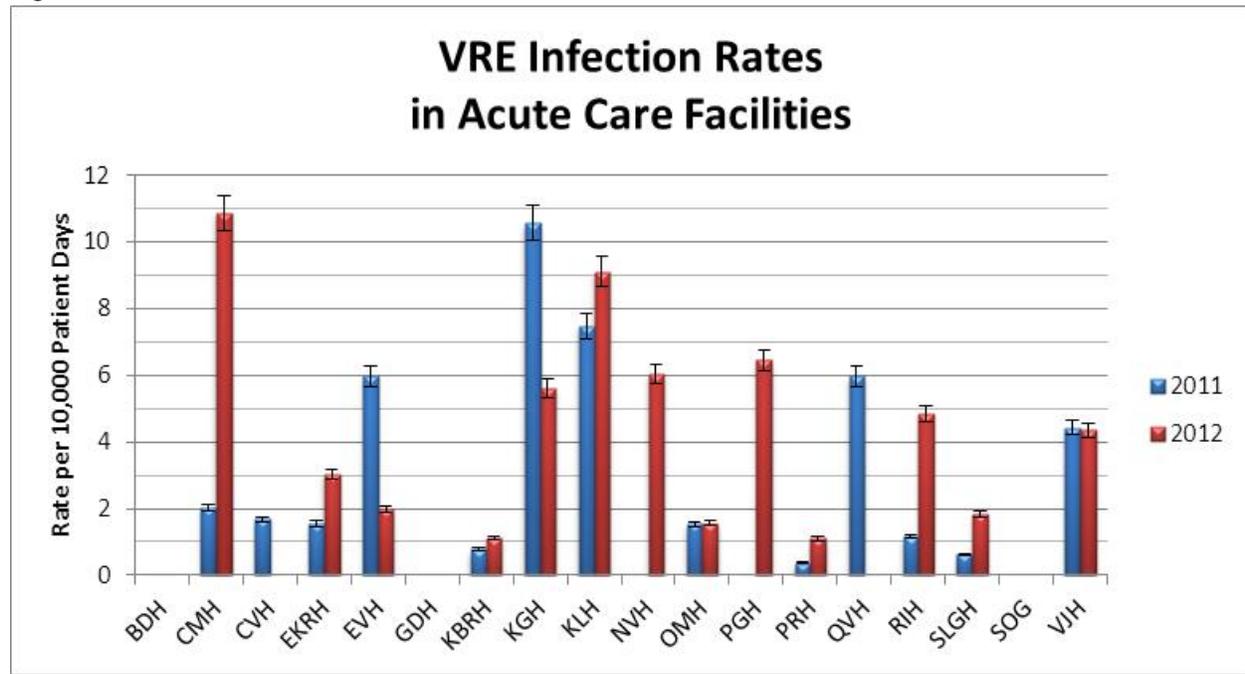


Figure 7



**Actions Implemented**

A number of actions continue to be implemented to address VRE infections within Interior Health. Dedicated equipment for VRE patients and the placement of patients in private rooms, where feasible, are actions taken in addition to ongoing staff education. Cohorting of VRE patients has also taken place where private rooms are not available.

## Limitations

VRE data reported here is subject to limitations due to a number of factors. VRE screening can vary from hospital to hospital as screening protocols may not always be adhered to. VRE colonization and VRE infections are not distinguished separately in the surveillance system which can lead to misinterpretation of the data. When determining a previous health care encounter, ICPs rely on patient information and this can lead to misclassification. Finally, the data for some facilities in Interior Health were not available for certain periods due to information system upgrades. It should be noted that data does not include Emergency room and Ambulatory Care outpatient visits.

Caution should be exercised in interpreting the rates in small facilities. A lower number of patient days (denominator) tends to artificially inflate the infection rate; an increase of one infection can dramatically change the rate when the denominator is small resulting in unstable rates and percentages. Additionally, the rates are not risk-adjusted, and therefore should not be used to make comparisons between individual facilities.

## Surgical Site Infections

IHA Status	IHA Trend	IHA Benchmark	IHA Actual
		<1%	0.74 Clean SSI
			0.84 Clean Contaminated SSI

Surgical Site Infections (SSI) occur as a complex interaction between the microbial contamination of the surgical site, the host response, and the local environment at the site of contamination. An SSI is generally considered to be present when purulent drainage is identified at the surgical site. SSI rates are the percentage of surgical incisions that are infected and are usually stratified based on the Surgical Wound Classification.

Clean Wounds – uninfected operative wound in which no inflammation is encountered, involve access only to the sterile body sites and carry the lowest risk (e.g. less than 5%) of SSI.

Clean-Contaminated Wounds– those in which respiratory, gastrointestinal, urinary, or genital tracts were involved under controlled conditions and without unusual contamination. A minor break in surgical sterile technique in an otherwise clean procedure would fit into this class.

### What is being measured?

The overall incidence rate of Clean SSIs and Clean Contaminated SSIs

### Trend

SSI rates continue to be below the benchmark (figure 8) at most sites. The Clean SSI rate dropped from .88 in 2010-11 to .74 in 2011-12; however, in three facilities the Clean SSI rate increased (figure 9). The Clean Contaminated SSI rate increased from .77 in 2010-11 to .84 in 2011-12 (figure 10); four facilities saw an increase in their Clean Contaminated SSI rates (figure 11).

Figure 8

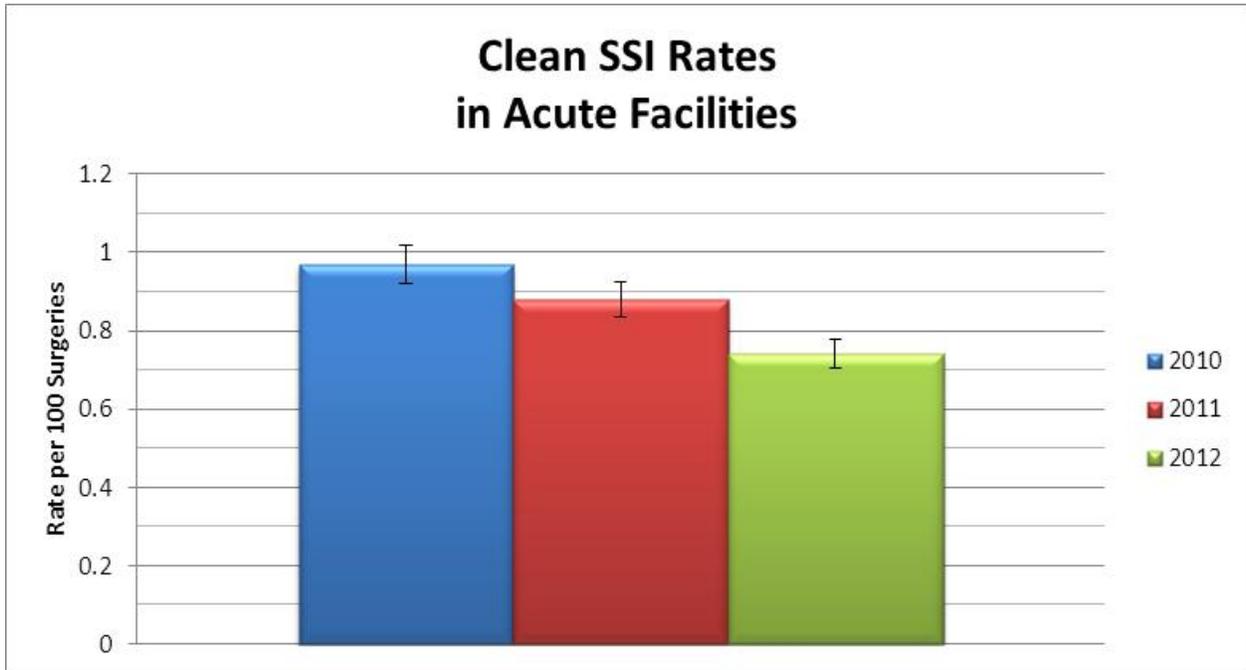


Figure 9

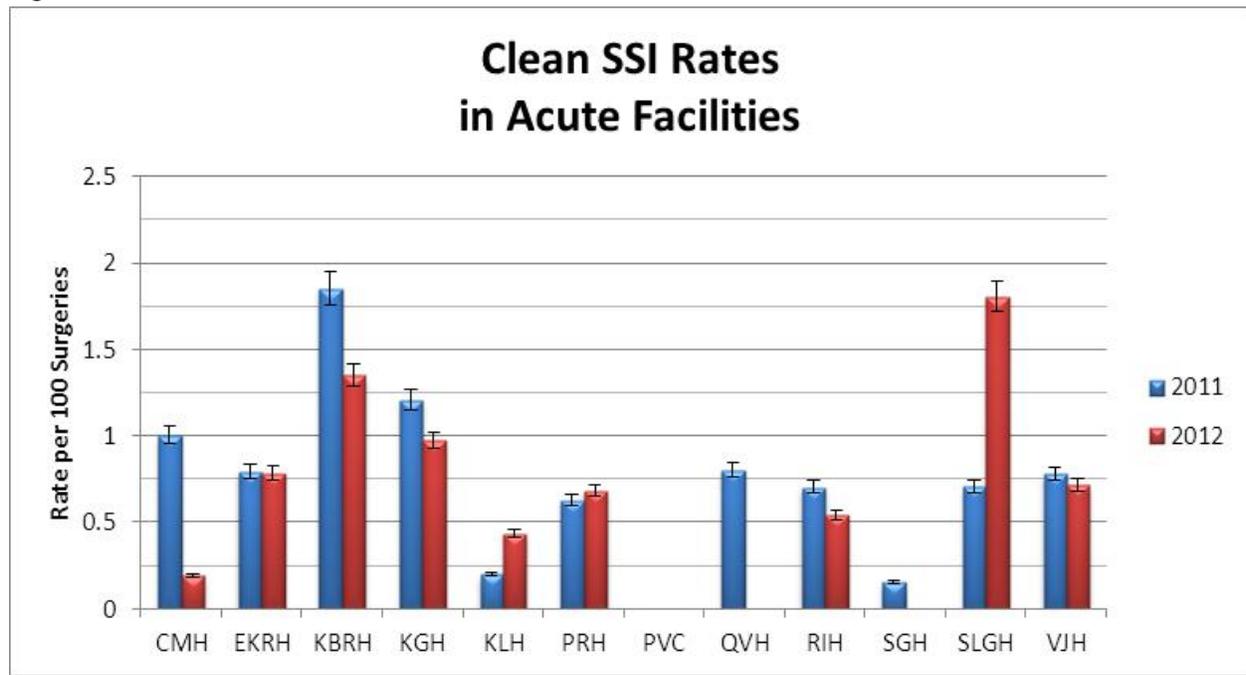


Figure 10

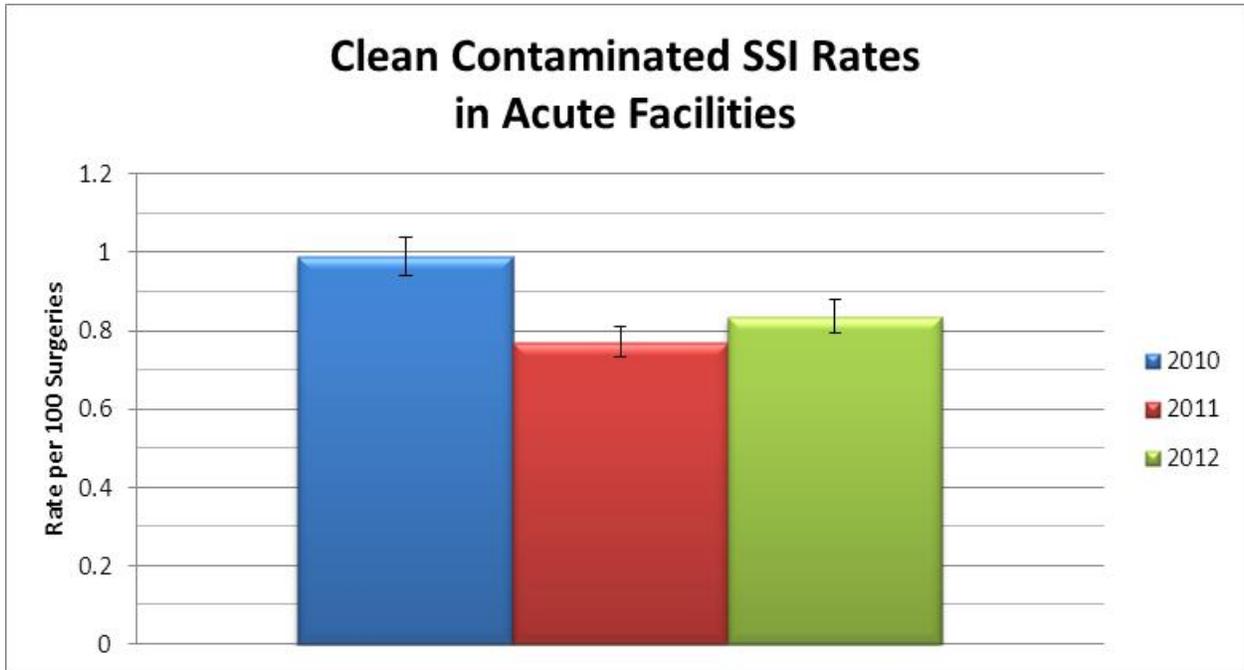
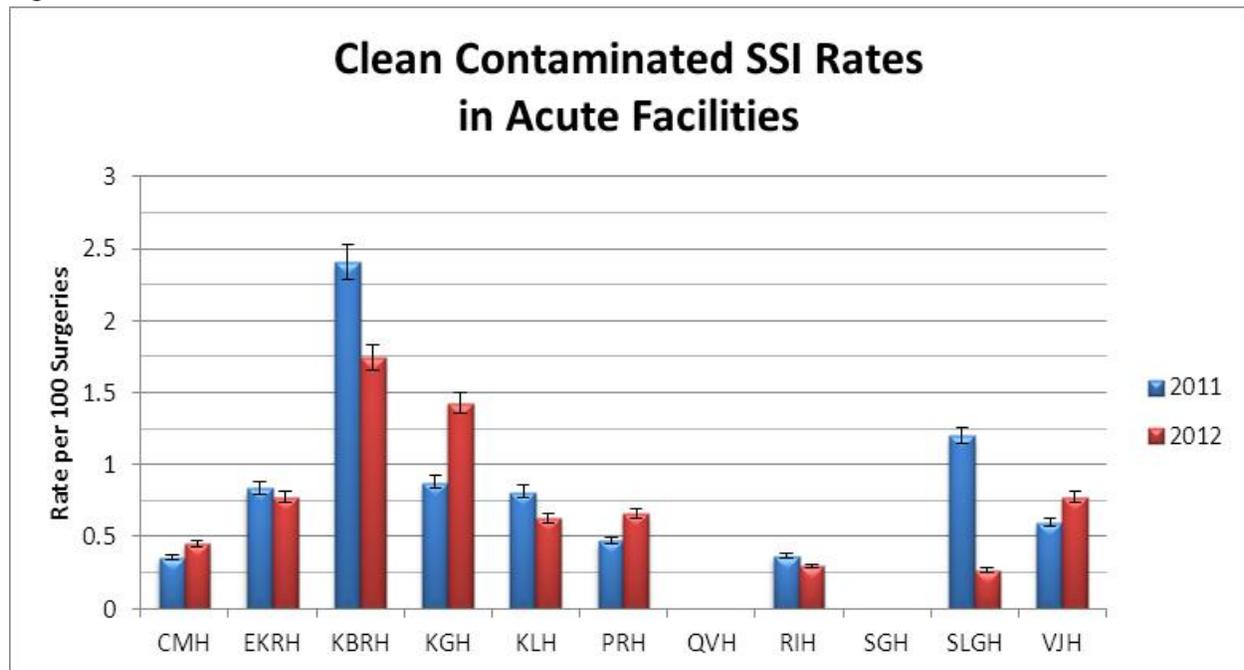


Figure 11



**Actions Implemented**

As increasing SSI trends are identified throughout the reporting periods, assessments of processes and practices related to the surgical procedure are completed with recommendations made to Surgical Services to improve outcomes.

## Limitations

Surgeries that are excluded from this surveillance are those surgeries without an incision or surgeries performed in Ambulatory Care.

## Ventilator Associated Pneumonia

IHA Status	IHA Trend	IHA Benchmark	IHA Actual
		<5 Per 1000 Ventilator Days	4.08 Per 1000 Ventilator Days

Ventilator-associated Pneumonia (VAP) is a sub-type of hospital-acquired pneumonia which is restricted to patients undergoing mechanical ventilation while in a hospital.

Due to sedation and an inability to communicate, ventilated patients may not exhibit many of the typical symptoms of pneumonia. As such, the most important signs are fever, low body temperature, new purulent sputum, and hypoxemia.

### What is being measured?

The incidence rate of VAPs is per 1,000 ventilator days. This is the number of new cases of VAP acquired by patients as a result of their stay in ICU and being on a ventilator divided by the total number of ventilator days over a specified time frame.

### Trend

VAP rates across Interior Health have increased over the last fiscal year (figure 12). The annual IH VAP rate increased from 2.92 per 1000 vent days in 2010-11 to 4.08 per 1000 vent days in 2011-12 with two facilities having increased over the last year (figure 13).

Figure 12

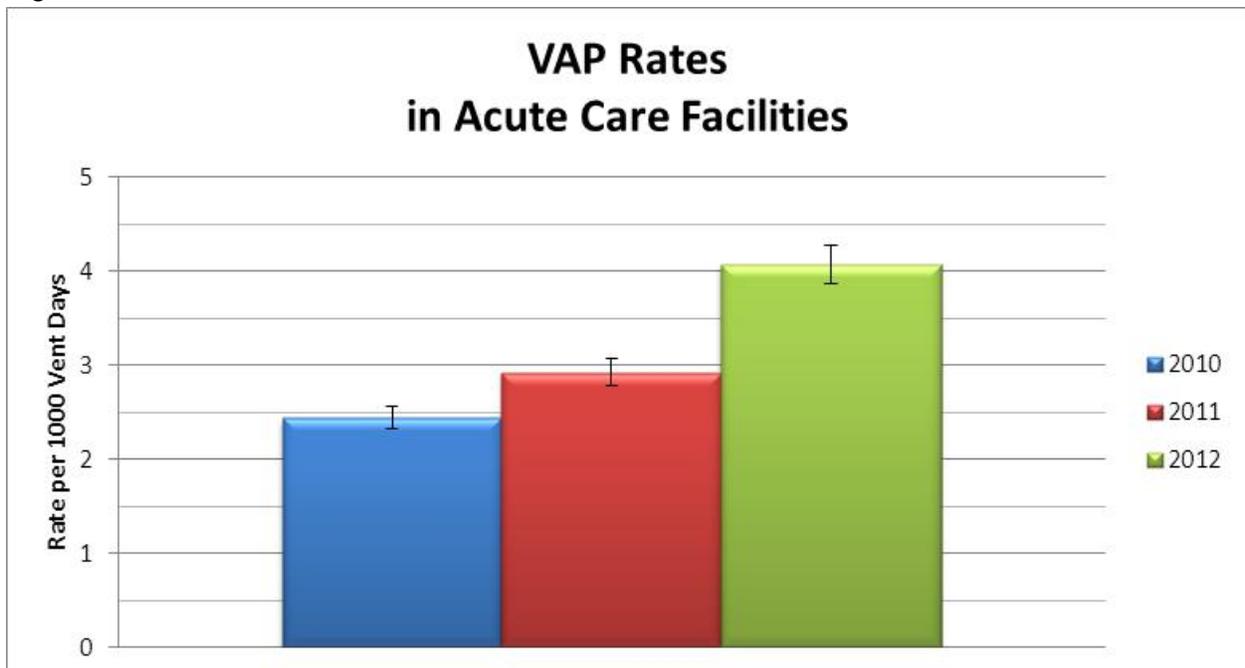
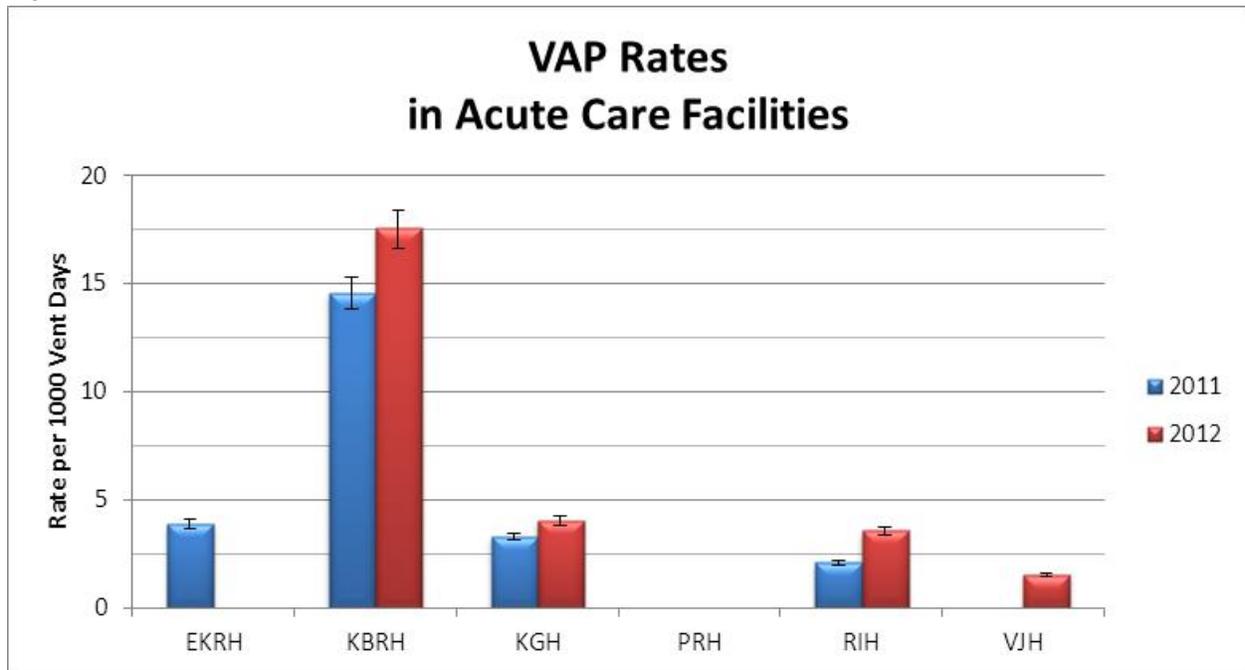


Figure 13



### Actions Implemented

Upon the identification of each VAP case, an investigation is made to determine potential risk factors so that recommendations are made to staff to improve outcomes. In some facilities, the daily VAP checklist was implemented in an effort to reduce VAP rates.

### Limitations

Only observed in ICU patients although vents could be used in other areas.

## Residential Care Facilities

Residential Care Surveillance includes data on *C. difficile*; lower respiratory infections and pneumonia; skin and soft tissue infections; and catheter-associated urinary tract infections.

*C. difficile* infections are tracked using the same definition as acute care, although fewer cases of CDI are identified in residential facilities. Of the cases that are observed, residents have often had a recent admission to an acute care facility. Tracking of CDI in residential care continues to be a priority; however, the electronic surveillance system requires improvements to enable the systematic reporting out of CDI in residential care.

The surveillance of lower respiratory infections focuses on taking action where significant pathogens are identified or where clusters of cases exist. ICPs work directly with residential care facilities to address these cases.

Skin and soft tissue infections continue to be tracked as a measure of quality care.

Catheter-associated urinary tract infection tracking continues although data to establish reliable rates is not always available. Device days, used as the denominator in the rate calculation, are not accurately tracked although some sites have had success in determining this figure.

## **Outbreak Management**

Interior Health uses Outbreak Management Teams (OMT) to manage outbreaks; these are multidisciplinary teams that includes representatives from all areas within the healthcare setting. They provide service to the affected patients and/or units and work collaboratively to ensure a timely and coordinated response to an outbreak. An OMT includes: IPAC, Workplace Health & Safety (WH&S), administration, nursing, medical staff, support services and external resource such as Public Health, as appropriate.

The primary components of outbreak management include the confirmation of the presence of an outbreak based on case definition and outbreak definition criteria; the notification of stakeholders; the implementation of control measures; and ongoing communication with all stakeholders including staff education as required throughout the outbreak episode.

## **Education**

An integral part of the IPAC Program is the ongoing education, training and support of Infection Control Practitioners. Training modules based on the IPAC Manual are regularly updated to stay current with Best Practices in infection Control. Corresponding tools are designed and implemented to support practice changes as well as support new processes such as surveillance and outbreak management. In 2011-2012, several screening, assessment and checklist tools were developed and rolled out to support ICP's in their role.

## **Moving Forward 2012-2013**

Future directions for the Infection Prevention and Control Program are illustrated in the strategic map (page 23) and are aimed at improving IPACs ability to meet the growing demands placed on the program. Moreover, these strategic initiatives are geared to effectively utilize current resources while enabling the program to tap into the broader health system to build capacity in infection control across the health authority. This will also lay the groundwork for the vision of having Infection Prevention and Control, Medical Microbiology, Infectious Diseases and Antimicrobial Stewardship together as one corporate program.

Six main areas of focus have been identified for the 2012-2013 fiscal year with plans extending to the 2014-2015 fiscal year. These strategic initiatives support the ongoing IPAC program but are specifically aimed at addressing current and emerging issues.

The Hand Hygiene Program will see additional efforts placed on auditing processes, expanded public posting of audit results and specialized hand hygiene education to increase knowledge and understanding of the importance of hand hygiene.

In 2012-2013, the electronic surveillance system will be validated so that expansion of the system can proceed with the confidence that the current system is efficient and reliable. Surveillance reporting will also be expanded to include in-depth, standardized analysis distributed to a list of key stakeholders. Finally, feasibility plans for future surveillance activities will develop in an effort to prioritize surveillance activities over the next several years.

An IPAC Community Integration Plan will be developed to improve the delivery of IPAC services across the continuum. IPAC will connect and engage with stakeholder in developing a plan to expand IPAC services into the community setting.

To build additional infection control capacity, knowledge and awareness, IPAC will focus its efforts on improving and expanding its communication strategy. To better inform staff and stakeholders of infection control initiatives and practices, IPAC will establish a common look and feel for all its promotional, educational and clinical materials, including the standardization of key quarterly messages and promotions.

IPAC also plans to address the recommendations expected to be released in a forthcoming Tuberculosis Report authored by Public Health's Medical Health Officers.

The final strategic initiative will be a *C. difficile* focus that promotes a Zero Tolerance Program for all *C. difficile* cases in the Health Authority. Modeled after the positive outcomes experience by Vernon's Royal Jubilee Hospital, a Zero Tolerance Program will be rolled out across the Health Authority to comprehensively address *C. difficile*. In addition to this CDI program, stakeholders will be engaged to increase collaboration within Interior Health to improve the management of CDI across departments and facilities.

STRATEGY	KEY PARTNERS	INITIATIVES	PERFORMANCE	SHORT-TERM GOALS	MEDIUM-TERM	ULTIMATE OUTCOME
Hand Hygiene	PHHWG, Quality, Sr. Medical Directors, Site/Unit Managers, HH Committee	Audits Education Public Posting	% of Quotas Met Audit Review Completed 2 New HH Training Modules # Trained in New Modules	Improve consistency of audit process and result Implement residential auditing as per PHHWG Standardize education & promotion materials Physician campaign as per Ministry Communique	Improve reliability of HH compliance rates HCWs receive consistent messaging & education Improved efficiency & reliability of electronic surveillance Reports are used to inform decision makers to improve patient outcomes Increase surveillance capacity to meet stakeholder needs	100% HH compliance rate for all HCWs
Surveillance	IMIT, PICNet, Strategic Management, CNISP HAMAC, SET, Lab, Site/Unit Managers, Site/Unit Committees	IPAC Electronic Surveillance Surveillance/ Public Reporting Future Surveillance Planning	Validation of Electronic System Completed Implemented Report Template # Feasibility Plans Completed	Increase data reliability & elimination of system error reducing ICP workload burden Standardize surveillance/ public reporting and distribution to key stakeholders Development of 2 high priority surveillance projects	Extension of IPAC into community setting Broaden audience & increase knowledge of IC practices Stakeholders are better informed Improved access to IC resources by external stakeholders	Comprehensive surveillance system to make informed decisions to improve patient outcomes
IPAC Community Integration	CIHS, Public Health, Non-IHA Facilities	CI Program Planning & Development	Completed Plan	Connect with stakeholders & engage in plan development	Extension of IPAC into community setting	IPAC's services across continuum of care
Communication	Communications, Document Services, IPAC Committees	Quarterly Exchange Branding, Social Marketing & Distribution Education Manual & Resources	# Quarterly Themes 52 FB Page Updates # FB Likes Distribution Plan # Guidelines Updated/ Changed # Resources Updated/ Changed	Increase awareness of IC activities & program identity Ensure the right people get the right info at the right times Increase the knowledge of current evidence-based IPAC practices	Stakeholders are aware and knowledgeable of IPAC Program	
Tuberculosis	Public Health/CDU, WH&S, Acute Care Site Administrators	TB Report Recommendations Education/ Awareness Campaign in Facilities	# Feasibility Plans Completed # Educated in TB prevention % of ERs with Respiratory Stations	Recommendations are prioritized as per feasibility plans Increase awareness of TB prevention practices	Implement high priority recommendations Improve TB practices	Reduced risk of TB exposure and transmission
Clostridium difficile Infection	Physicians, Pharmacy, Nursing, Housekeeping, Site/Unit Managers	Zero Tolerance Program CDI Stakeholder Engagement	Implementation of ZTP # Meetings/ Presentations	Immediate reduction of CDI cases Increase awareness & understanding of CDI All facilities below benchmark	Increase collaboration across IH to manage CDI Lower benchmark	Zero cases of CDI in IHA

## Appendices

### Abbreviations/ Terminology

<b>ABHR</b>	Alcohol Based Hand Rub
<b>Acute Care Facility</b>	Care facilities in which patients are treated for brief but severe episodes of illness, for traumas and injuries, or recovery from surgery.
<b>ARO</b>	Antibiotic Resistant Organism
<b>Benchmark</b>	A point of reference for judging value, quality, change, or the like, standard to which others can be compared.
<b>CDI</b>	Clostridium <i>difficile</i> Infection
<b>CDU</b>	Communicable Disease Unit
<b>CIHS</b>	Community Integration Health Services
<b>CMH</b>	Cariboo Memorial Hospital
<b>EKRH</b>	East Kootenay Regional Hospital
<b>HAI</b>	Healthcare Acquired Infection
<b>HAMAC</b>	Health Authority Medical Advisory Committee
<b>HCW</b>	Healthcare Worker
<b>HH</b>	Hand Hygiene
<b>ICP</b>	Infection Control Practitioner
<b>ICU</b>	Intensive Care Unit
<b>IHA</b>	Interior Health Authority
<b>IMIT</b>	Information Management Information Technology
<b>IMPACT</b>	Infection Monitoring Prevention and Control Team
<b>IPAC</b>	Infection Prevention and Control
<b>KBRH</b>	Kootenay Boundary Regional Hospital
<b>KGH</b>	Kelowna General Hospital
<b>KLH</b>	Kootenay Lake Hospital
<b>Limitations</b>	Limits or restrictions.
<b>LRI</b>	Lower Respiratory Infection
<b>LTC</b>	Long-term Care
<b>Methodology</b>	The methods, principles, and rules used for the activity or result.
<b>OMT</b>	Outbreak Management Team
<b>PHHWG</b>	Provincial Hand Hygiene Working Group
<b>PICNet</b>	Provincial Infection Control Network of British Columbia
<b>PRH</b>	Penticton Regional Hospital
<b>RIH</b>	Royal Inland Hospital
<b>RN</b>	Registered Nurse
<b>ROP</b>	Required Organizational Practice
<b>SET</b>	Senior Executive Team
<b>SLGH</b>	Shuswap Lake Regional Hospital
<b>SSI</b>	Surgical Site Infection
<b>SSTI</b>	Skin and Soft Tissue Infection
<b>TB</b>	Tuberculosis
<b>Trend</b>	General movement or direction of change.
<b>UTI</b>	Urinary Tract Infection
<b>VAP</b>	Ventilator Associated Pneumonia
<b>VJH</b>	Vernon Jubilee Hospital
<b>VRE</b>	Vancomycin Resistant Enterococci
<b>WH&amp;S</b>	Workplace Health and Safety
<b>ZTP</b>	Zero Tolerance Program

## Case Definitions

### CDI

*C. difficile* toxin positive results and > 3 loose stools within 24 hr period without another etiology, OR diagnosis of pseudo-membranes or toxic megacolon AND symptoms start more than 72 hours after admission or within 60 days of discharge from an IH facility.

New Infection: No history of CDI\* for this patient

Relapse: New category established April 1 2009: "HealthCare Associated Relapse" defined as "A CDI\* case with recurrence of diarrhea within 60 days of a previously resolved HealthCare Associated CDI\* episode".

- Infection Rates Expressed Per 10,000 Patient Days
- Only Healthcare Associated Cases are reported

It is assumed that any stool sent to the laboratory for *C. difficile* testing is from a patient that has had a least 3 episodes of loose stools in a 24 hour period. It is accepted that the surveillance protocol may overestimate the number of cases, as some patients may have had only one or two loose stools prior to a specimen being collected

### ARO (MRSA, VRE)

Healthcare-associated definition includes:

- Not previously positive for ARO and current hospitalization > 3 calendar days (unless an indwelling medical device in place) OR
- Prior contact with any Health Care facility including surgery, dialysis & LTC admissions in the previous 12 months OR
- Newborns if mother not known to be a case on admission or suspected to be colonized
- Infection Rates Expressed Per 10,000 Patient Days
- Only Healthcare Associated Cases are reported

Does not include Emergency room and Ambulatory Care outpatient visits.

### SSI (Clean/ Clean Contaminated)

An infection in the area affected by a surgery within 30 days of the procedure, or within 365 days if an implant is in place and infection related to operative procedure. This report includes SSI's related only to those surgeries under with a Wound Class of "Clean" and "Clean Contaminated". Surgeries under Surveillance do not include those with no incision or Surgeries performed in Ambulatory Care.

### VAP

Clinical presentation meets criteria for Pneumonia, including x-ray confirmation.

There is no minimum time for a patient to be on a ventilator.

Pneumonia is identified by using a combination of the following criteria:

- Radiologic - two or more serial chest x-rays with new or progressive & persistent infiltrate, consolidation, cavitation (only one x-ray if no lung/heart disease)
- Clinical S&S- breath sounds, fever, altered mental status, sputum, cough, increased respiratory rate or oxygen needs.
- Lab - sputum culture, elevated white blood count.
- Healthcare Associated VAP Infection rate calculation: (Cases/Vent Days) \* 1,000
- Does not include Emergency room and Ambulatory Care outpatient visits

## Rate/Trend Legend

 	<p>Green square indicates rate within benchmark Red circle indicates rate above benchmark</p>
  	<p>Direction of arrow indicates trend increasing or decreasing Green arrow indicates trend within benchmark Yellow arrow indicates trend close to benchmark Red arrow indicated trend outside of benchmark</p>

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