Infection Prevention & Control 2013 Fiscal Year Annual Report

February 18, 2014

EXECUTIVE SUMMARY

The Infection Prevention and Control (IPAC) Program's 2013 fiscal year (FY) Annual Report, highlights the achievements and continued challenges facing infection control practices in Interior Health (IH). 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. The continued success of the Hand Hygiene Program has increased hand hygiene compliance from the previous fiscal year (58% to 69%). Also of note is the expansion of the Link Nurse Program, which now includes Kelowna General Hospital.

IH's acute care healthcare associated infection (HAI) rates all reported an increase from the previous FY. Methicillin-resistant *Staphylococcus aureus* (4.73) and ventilator associated pneumonia (4.57) continue to report infection rates below benchmark, while *Clostridium difficile* (6.16), surgical site infections (clean (1.3%), clean contaminated (1.1%) and vancomycin-resistant enterococcus (9.69) infection rates all report above benchmark. Despite all HAIs increasing from the previous year, Methicillin-resistant *Staphylococcus aureus* and ventilator associated pneumonia are the only HAIs to report a significant increase in risk per period over time from Period 1, FY 2009 through Period 13, FY 2013.

The report also addresses developments in education and communication, 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 the IPAC electronic 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.

TABLE OF CONTENTS

INTRODUCTION

IPAC is a corporate program under the administrative direction of the Vice President, Medicine and Quality. The overarching goal of IPAC is to prevent infections from occurring in patients, residents, clients, visitors, volunteers, physicians and employees. Several strategies that have been implemented to achieve this goal are summarized in this annual report.

The Infection Monitoring Prevention and Control Team reports to the Health Authority Medical Advisory Committee, and through the Senior Executive Team to the Board Quality Care Committee. IPAC has a standing time on each Health Authority Medical Advisory Committee agenda and the Medical Director of IPAC reports in person while the Vice President, Medicine/Quality reports to the Senior Executive Team as required. The minutes of Infection Monitoring Prevention and Control Team 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 & Safety in regard 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 AND FACILITIES

President and Chief, Executive Office
Dr. Robert Halpenny

Medical Director, IPAC
Dr. Edith Blondel-Hill

Epidemiologist, IPAC
Anne Marie Locas (to January 2013)

Educator, IPAC
Nicki Gill

Manager, IPAC
Marijke Henkemans

Vice President, Medicine/ Quality
Dr. Jeremy Etherington

Corporate Director, IPAC
Janice de Heer

Administrative Assistant, IPAC
Connie Bergen

Surveillance Information Assistant, IPAC
Jennifer Tchir

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

Acute Care Facilities:

Cariboo Memorial Hospital
East Kootenay Regional Hospital
Kelowna General Hospital
Kootenay Boundary Regional Hospital
Kootenay Lake Hospital
Penticton Regional Hospital
Royal Inland Hospital
Shuswap Lake General Hospital
Vernon Jubilee Hospital

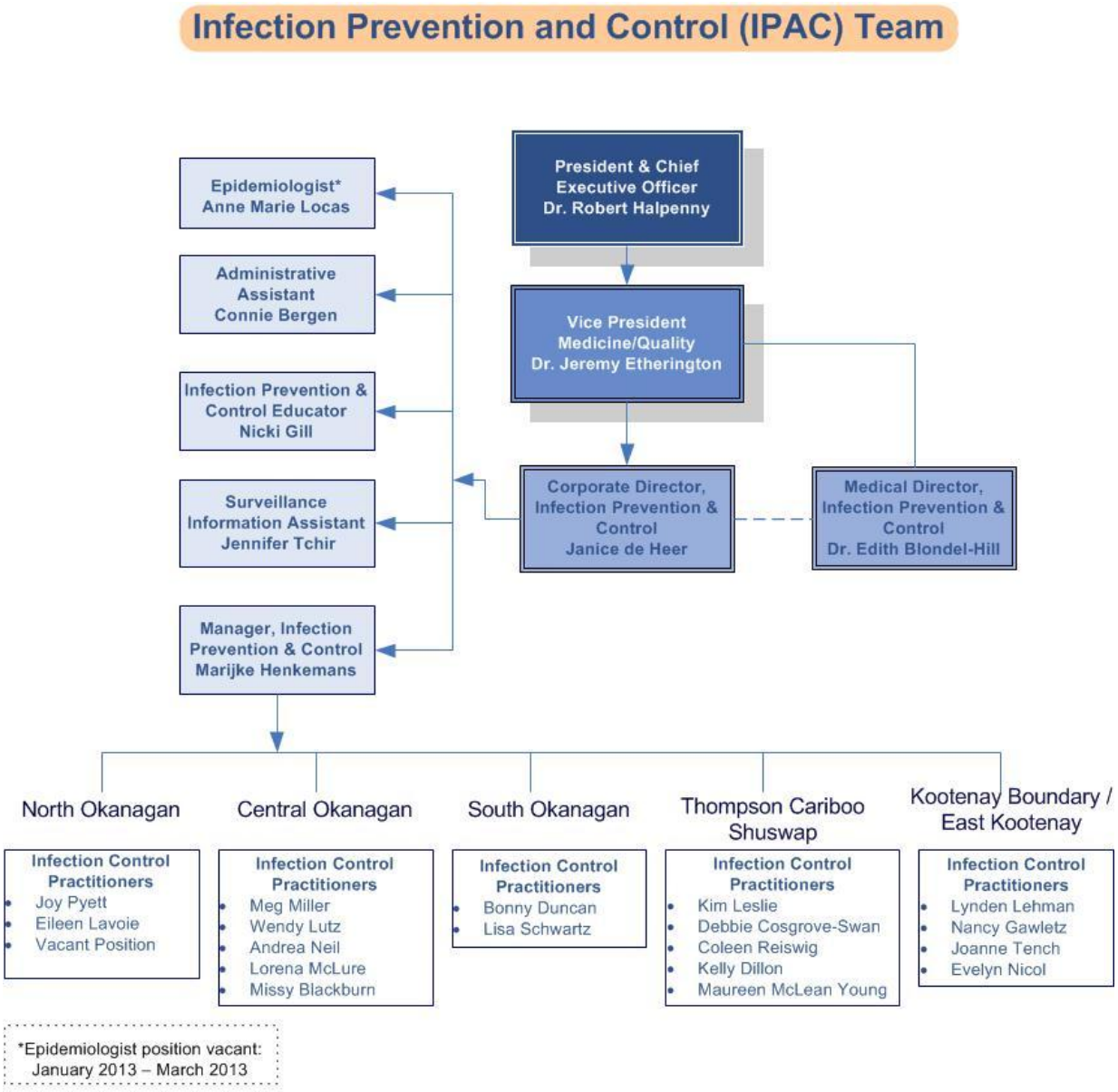
Rural Acute Care Facilities (≤20 beds):

100 Mile District Hospital
Arrow Lakes Hospital
Boundary Hospital
Creston Valley Hospital
Dr. Helmcken Memorial Hospital
Elk Valley Hospital
Golden & District Hospital
Invermere & District Hospital
Lillooet Hospital
Nicola Valley Hospital
Princeton General Hospital
Queen Victoria Hospital
South Okanagan General Hospital

Residential/ Long Term Care Facilities:

Ashcroft Hospital
Bastion Place
Brookhaven
Columbia House
Columbia View Lodge
Cottonwoods
David Lloyd Jones
Deni House
Dr. Andrew Pavilion
Dr. F. W. Green Home
Fischer Lodge/ Mill Site Lodge
Forestview
Gillis House
Hardy View Lodge
Henry Durand Manor
Kimberley Special Care Home
McKinney Place
Minto House
Mountainview Lodge
Mt. Cartier Court
Nelson Jubilee Manor
Nordic House
Orchard Haven
Overlander
Parkview Place
Pleasant Valley Manor
Polson Place
Ponderosa Lodge
Poplar Ridge
Ridgewood Lodge
Slocan Community Health Centre
Spintlum Lodge
Sunnybank Care Home
Swan Valley Lodge
Talarico Place
The Gateby
Three Links Manor
Trinity Care Centre
Victorian Hospital
Westview Extended Care

ORGANIZATIONAL CHART



FISCAL YEAR 2012 STRATEGIC PLAN ACCOMPLISHMENTS

The Hand Hygiene Program saw additional focused efforts 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 FY 2013, the electronic surveillance system was validated so that expansion of the system could proceed with confidence that the current system is efficient and reliable. Surveillance reporting was also expanded to include in-depth, standardized analysis distributed to a list of key stakeholders.

An IPAC Community Integration Plan was to be developed to improve the delivery of IPAC services across the continuum. Due to lack of funding and available resources the IPAC Program is unable to move forward with this strategy at this time. Should the funding and resources become available, IPAC will again look at connecting and engaging with stakeholders in developing a plan to expand IPAC services into the community setting.

By working with the IH Communications Department to build additional IPAC capacity, knowledge and awareness, the team focused its efforts on improving and expanding its communication strategy. IPAC is now better at informing staff and stakeholders of program initiatives and practices. The program has also established a common look and feel for all its promotional, educational and clinical materials, including the standardization of key quarterly messages and promotions. Some avenues that were taken to distribute IPAC information included:

- Rotating advertisements on IH internal and external webpages
- Information updates on IH external webpage
- Articles in various IH monthly and weekly newsletters
- Promotion and awareness through the IH Facebook page
- Internal email messages and memoranda

The strategic initiative focused on *Clostridium difficile*, promoted a Zero Tolerance Program for all *Clostridium difficile* cases in the Health Authority. Modeled after the positive outcomes experience by Vernon's Royal Jubilee Hospital, a Zero Tolerance Program was rolled out across the Health Authority to comprehensively address *Clostridium difficile*. In addition to this *Clostridium difficile* Infection program, stakeholders were engaged to increase collaboration within IH to improve the management of *Clostridium difficile* across departments and facilities.

PROGRAMS AND INITIATIVES

ACCREDITATION CANADA

Helping organizations promote quality healthcare for over 50 years, Accreditation Canada is a not-for-profit, independent organization accredited by the International Society for Quality in Healthcare.

Standards built on previous Accreditation Canada Infection Prevention and Control recommendations, updated research and best practice in the field, as well as standards from the Canadian Standards Association, the Public Health Agency of Canada, and the Community and Hospital Infection Control Association-Canada were used to evaluate the program and services.

During the September 2012 on-site survey, the IPAC Program met 95.9% of high priority criteria (93.5% of total criteria). Accreditation Surveyors commended the Program for the comprehensive and current IPAC Manual, prompt response to current IPAC events, regular audits of facility areas and development of actions plans to address gaps, standardized checklist for orientating new staff, and good communication with the Communicable Diseases Unit of Public Health.

Unmet criteria, that have since become an urgency for the IPAC Program, includes:

- Easier access for staff to unit-specific infection rates and recommendations from outbreak reviews
- Standardized cleaning practice for mobile equipment across the health authority
- Improved collaboration with community staff as more invasive care is now provided in the home

In the 2012 Accreditation Canada report, IPAC was further acknowledged for:

- Being well-supported clinically and administratively
- Having knowledgeable and dedicated healthcare professionals that make up the team
- Having strong leadership from both the Medical Director, Dr. Edith Blondel-Hill, and Corporate Director, Janice de Heer.

HAND HYGIENE PROGRAM

The Hand Hygiene Program is a multifaceted program designed to improve healthcare worker (HCW) adherence to recommended hand hygiene practices. Hand hygiene compliance has been identified as a Required Organizational Practice by Accreditation Canada.

The main goals of the Hand Hygiene Program include;

- Reducing the occurrence of HAIs by improving hand hygiene compliance
- Improving patient safety
- Meeting regulatory Accreditation Canada requirements
- Educating HCWs, patients, and families about the importance of practicing optimal hand hygiene
- Supporting organizations in making the delivery of healthcare safer for everyone

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

ACCOMPLISHMENTS

In the last year, the Hand Hygiene Program has grown immensely. As such, a 0.5 FTE Project Lead position and an IH Hand Hygiene Working Group were created. This working group of eleven members consists of various HCWs, corporate staff, and a physician from across the health authority who meet quarterly to discuss various hand hygiene topics.

In addition to regular education/ orientation sessions, topic-specific quarterly education modules were introduced in the third quarter of FY 2013. The first module, *Gloves, Hand Hygiene and You*, was well received and featured proper glove use and hand hygiene for all healthcare providers. The second module, *Clinical Support & Clean Hands*, features details of hand hygiene methods appropriate for individual healthcare procedures. New education modules will continue to be created on a quarterly basis.

To be more efficient and environmentally friendly, the IPAC Program purchased electronic devices for acute care Infection Control Practitioners (ICPs) to perform hand hygiene audits. The devices allowed for a customizable application to be created by the Surveillance Information Assistant. By eliminating paper forms used during hand hygiene audits, additional steps that were previously required to compile and analyze the data are no longer necessary. At the end of FY 2014, all ICPs will be fully trained in the use of the electronic devices. Once ICPs are trained this will be the only format for auditing.

PRIORITIES MET FROM FISCAL YEAR 2013

Guidance documents set out by the British Columbia Ministry of Health have been well received, however, challenging to implement.

Minimum reporting requirements for acute care facilities have made hand hygiene auditing provincially-consistent. This process has increased the credibility of the publicly reported audit results. IPAC has been able to maintain and meet required quarterly quotas at each large acute care facility, while smaller acute care facilities were also able to meet their annual quotas. Publicly posting audit results (in facilities and online) has increased the awareness of the program and accountability of all healthcare providers within IH.

The creation and launch of the first Physician *Ask Me Campaign* occurred during the last quarter of FY 2013. Six physicians at Royal Inland Hospital, Kootenay Boundary Regional Hospital, and Kootenay Lake Hospital were willing to be featured on site-specific photo endorsement posters, wear *Ask Me* buttons and encourage fellow physicians to do the same.

Stop! Clean Your Hands stop signs were created and placed on respiratory stations at main entrances of all acute and some residential care facilities. This was done to encourage staff, visitors and patients to clean their hands when entering and exiting IH facilities and be mindful of what they may be carrying on their hands.

CURRENT STATUS

In accordance with the Provincial Hand Hygiene Policy Communiqué (2012-04), the IH Hand Hygiene Policy is currently in the draft stage and under review by various IH committees. This policy is intended to protect patients and HCWs by ensuring that high-quality hand hygiene is practiced. The policy outlines the minimum provincial expectations for hand hygiene programming in acute care settings, including requirements for best practices, auditing, reporting and quality assurance.

In order to ensure proper hand washing is done not only by HCWs, but also by patients, residents and visitors, 6-step hand washing instructional vinyl stickers were developed. With the assistance of housekeeping staff, these stickers are placed on paper towel holders in all acute care and residential facilities.

FUTURE PLANS

Launch of the Physician *Ask Me Campaign* at additional acute care facilities is anticipated. Feedback from the first campaign is scheduled for early May 2013. Excitingly, physicians from two different facilities have already expressed interest in their facilities being the next location for the *Ask Me Campaign*.

On-going auditing, education and promotion of hand hygiene will continue into FY 2014. Directives from the Ministry of Health are also expected and will be followed accordingly.

LIMITATIONS

The overall aim of presenting hand hygiene 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; instead they, aim to provide valuable and contextual information that can help target hand hygiene 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. In an effort to maintain consistency in audit practices, hand hygiene audits are currently only observed by ICPs and the Surveillance Information Assistant.

TREND

All acute care facilities saw an **increase** in hand hygiene compliance between FY 2012 and FY 2013. Overall, IH's hand hygiene compliance rate for FY 2013 was 69%. This was an **increase** of 11% in compliance from the previous year. Additionally, there was a 31% **increase** in the total number of observations across the authority.

East Kootenay Regional Hospital and Royal Inland Hospital saw the largest change in compliance rates from the previous year. Overall **increases** were 31% (35% to 66%) and 24% (43% to 67%) respectively. Vernon Jubilee Hospital saw the least overall change in compliance rate with an **increase** of 1% (63% to 64%). Vernon Jubilee Hospital, at 64%, also had the lowest compliance rate for FY 2013. At 73%, Cariboo Memorial Hospital had the highest hand hygiene compliance rate in FY 2013.

Figure 1 Hand Hygiene Compliance Rate by Fiscal Quarter

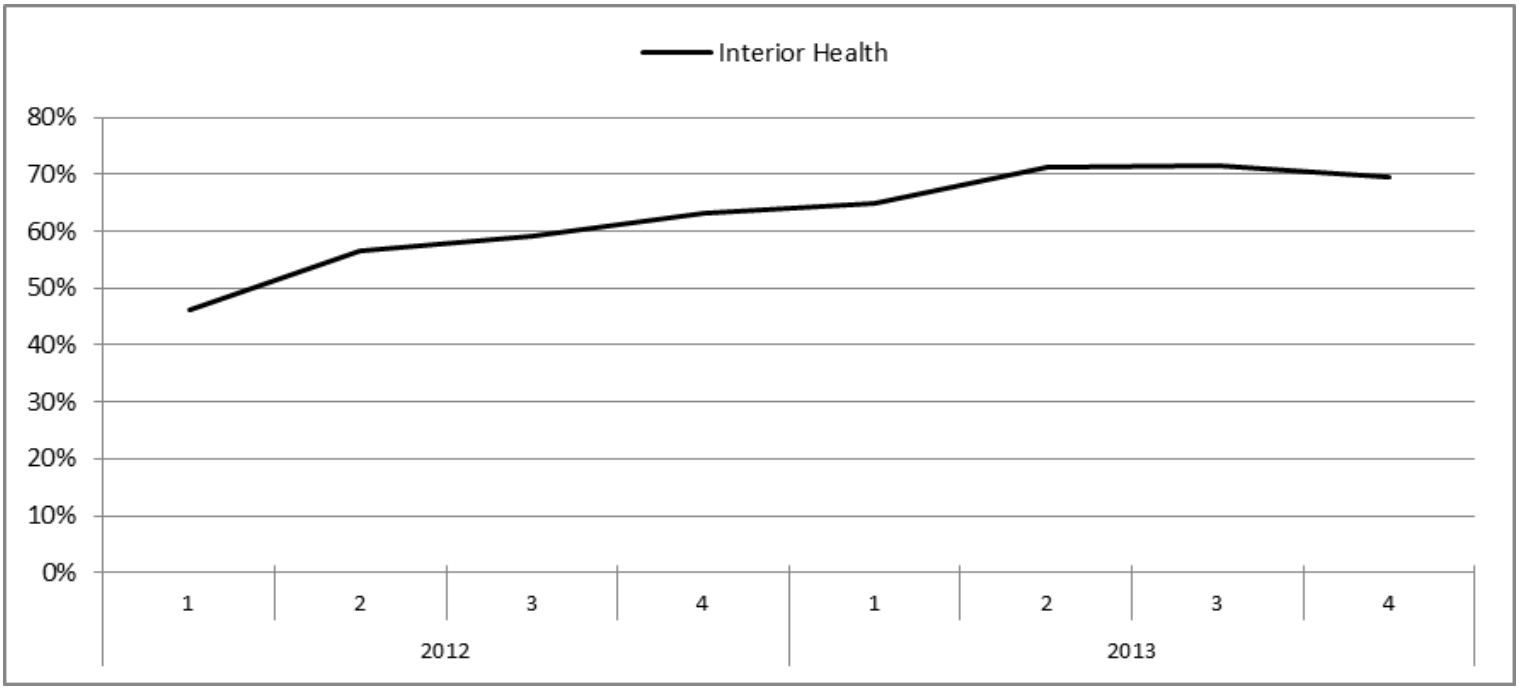


Figure 2 Hand Hygiene Compliance Rate by Fiscal Quarter

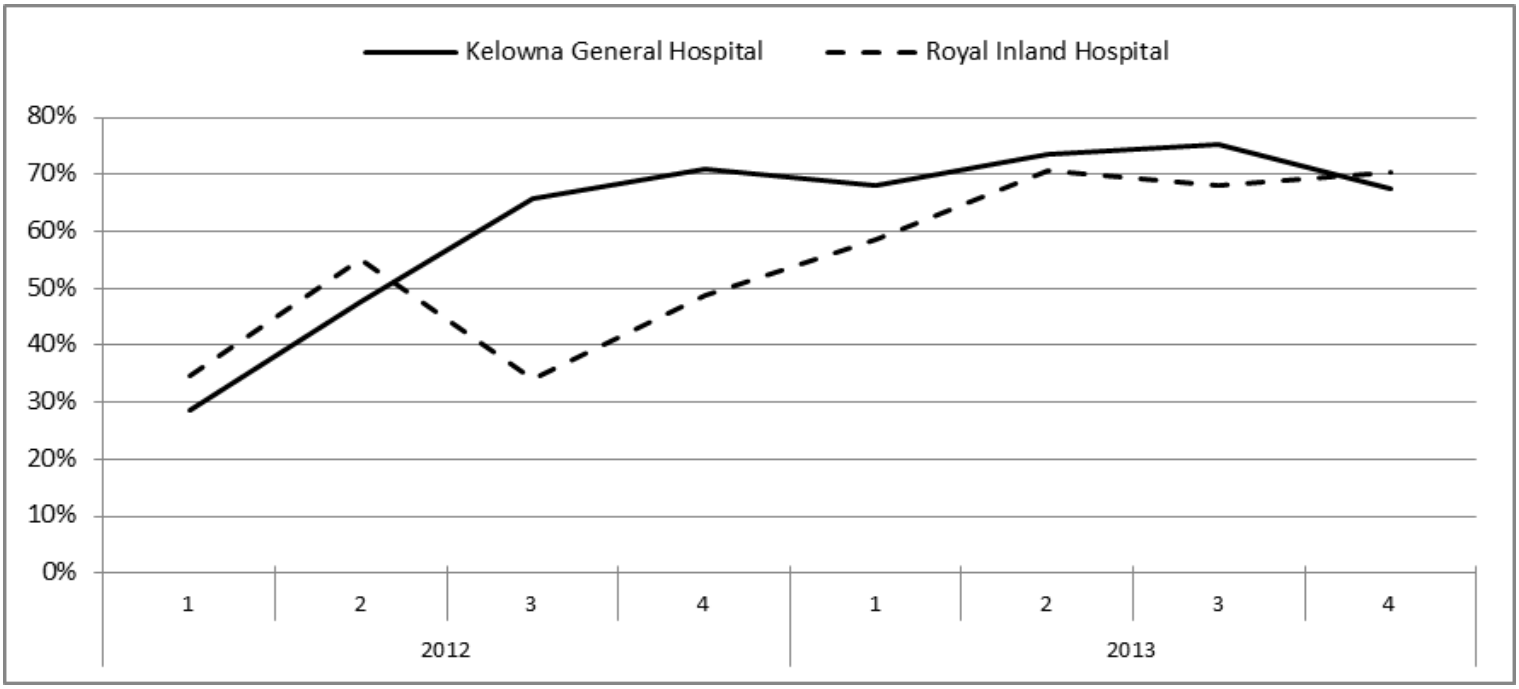


Figure 3 Hand Hygiene Compliance Rate by Fiscal Quarter

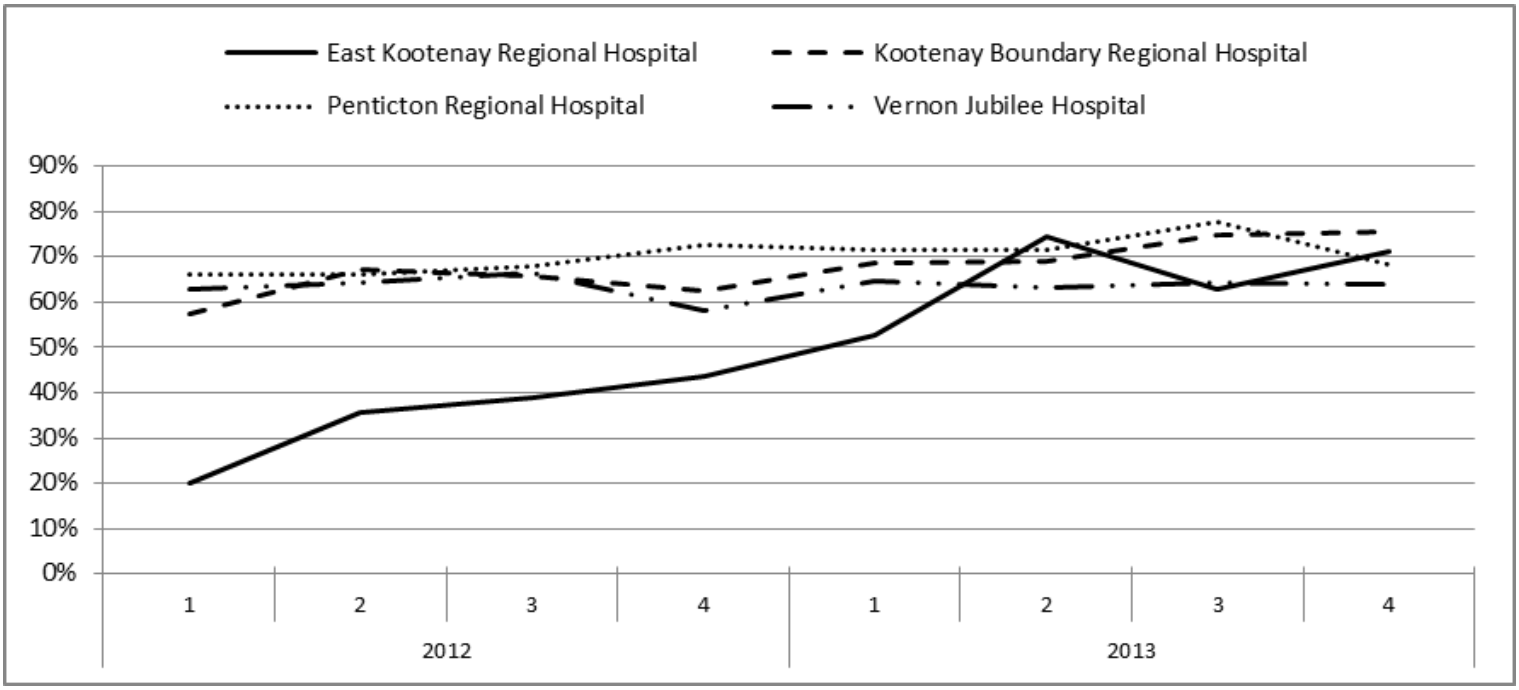
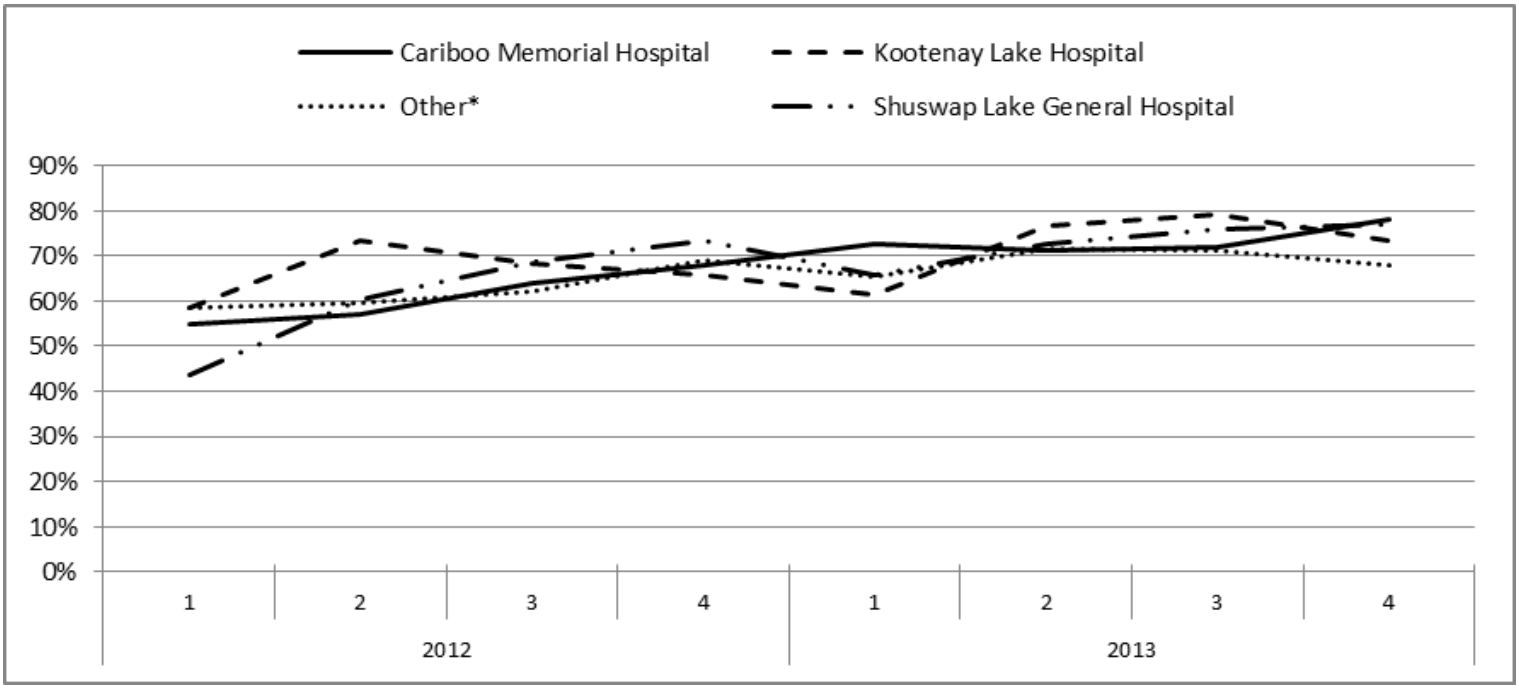


Figure 4 Hand Hygiene Compliance Rate by Fiscal Quarter



Other* indicates rural acute care facilities with ≤20 beds: 100 Mile Hospital, Arrow Lakes Hospital, Boundary District Hospital, Creston Valley Hospital, Dr. Helmcken Memorial Hospital, Elk Valley Hospital, Golden District Hospital, Invermere and District Hospital, Lillooet Hospital, Nicola Valley Hospital, Princeton General Hospital, Queen Victoria Hospital, South Okanagan General Hospital.

LINK NURSE PROGRAM

The IPAC Link Nurse Program was implemented in March 2011 to augment IPAC practices in IH. The Link Nurse Program was designed to increase IPAC resources for staff in clinical areas by training volunteer nursing staff to promote patient safety and collaborate with ICPs 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 motivate staff to improve practice. The Link Nurses are provided with specialized education sessions designed to enable them to cascade information back to their colleagues.

ACCOMPLISHMENTS

In March of 2012, a second cohort of thirteen Registered Nurses (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. Two four-hour follow-up sessions were held in June and October of 2012 to provide further support and guidance to both first and second year Link Nurses. In March 2013, an additional four-hour education session took place for the current pool of fifteen Link Nurses at Royal Inland Hospital.

PRIORITIES MET FROM FISCAL YEAR 2013

Representing fourteen clinical areas of Kelowna General Hospital, the first eight-hour education session of Link Nurse training was provided to twenty-four RNs. 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. A follow up four-hour education session took place in March 2013.

CURRENT STATUS

Since the inception of the Link Nurse Program, fifty-nine RNs have received IPAC training through the Link Nurse Program. Feedback from the nurses has been positive indicating that the content delivered is appropriate and useful for application in the clinical area. Furthermore, comments provided by participants following each education session helps direct development of educational modules for additional sessions.

FUTURE PLANS

A formal evaluation of the Link Nurse Program by IPAC is scheduled for summer 2013. In doing so, it is anticipated that the Program will be able to expand to additional facilities within IH.

LIMITATIONS

Attrition due to job changes, relocation and illness has been a challenge. This has resulted in an approximate 30% loss of nurses since the initial launch of the Link Nurse Program in FY 2011. Excitingly, the majority of participants remain dedicated to the program. Ongoing communication with Link Nurses has also been challenging due to shift work and email correspondence.

ELECTRONIC SURVEILLANCE INITIATIVE

Surveillance for HAIs is an IH wide program that is carried out by trained ICPs. An in-house electronic surveillance system is in place to track potential infection cases across the continuum of care. This system was designed to read data from a variety of sources so that HAI cases could be more efficiently investigated and reported.

In acute care settings, the system identifies potential infection cases based on predetermined HAI case definitions. In residential and community care settings, ICPs collect data based on predetermined HAI case definitions and enter the data into the computerized surveillance program.

Standardized electronic reports are generated on a regular basis and reviewed at site-specific and corporate Infection Control Committees. Analysis and interpretation of infection data may be done with the facility's IPAC Committee or other advisory body to the Infection Control Team. Information is also disseminated to additional stakeholders with the ability to change IPAC practice.

PRIORITIES MET FROM FISCAL YEAR 2013

In July 2012, a Medical Systems Project Support position was created to start the validation of the electronic surveillance system. The final stages of the validation were completed between January and March of 2013.

At the completion of the validation, the Project Support position was terminated and transformed into a permanent fulltime Medical Systems Programmer/Systems Analyst that provides dedicated support to the IPAC Program. During the last year, the support and attention to detail provided by Medical Systems has become indispensable to the program.

CURRENT STATUS

In conjunction with the educator, planning is underway to revise current worksheets and electronic reports to incorporate the latest Center for Disease Control (CDC) HAI definitions.

FUTURE PLANS

In early 2013, the CDC, National Healthcare Safety Network (NHSN), and the Provincial Infection Control Network of British Columbia (PICNet) released new surveillance definitions and protocols for HAIs. In order to facilitate these modifications, working groups within IPAC will be created in the coming months. It is expected that these new definitions and protocols will be in place by fall 2013.

Requests for reports on post discharge surveillance and surgeon specific infection rates have occurred over the last year. The feasibility of these reports will be examined and addressed in the coming FY.

LIMITATIONS

The System Surgical Data Warehouse Load that refreshes each day has on occasion failed to load correctly. As a result, HAI data is not current for duration of time (usually lasting a few hours). This can be problematic as it can cause delays in reporting out data and/or errors should the Information Management Information Technology (IMIT) email alert be missed.

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, Capital Planning and Projects informs IPAC regarding the location of all areas of renovation and construction.

ACCOMPLISHMENTS

Over the last year, rapport between IPAC, the Planning Department, Plant Services and various contracting companies has grown immensely across IH. These relationships, despite being trying at times, have made construction projects run more smoothly and safely for all stakeholders as infection control requirements may become extensive depending on the project.

In June 2012, one ICP was able to attend the ``Fundamentals of Infection Control during Construction, Renovation and Maintenance of Healthcare Facilities`` conference in Vancouver. This educational course provided by the Canadian Standards Association (CSA) focused on the application of CSA 317.13 standard and how to address necessary measures

and help control infection risk in healthcare facilities. This is the fifth ICP that has been able to attend a CSA course or workshop since the IPAC Program was introduced in 2005.

PRIORITIES MET FROM FISCAL YEAR 2013

Construction and renovation permits generated by ICPs continue to rise each year. Over 460 permits were issued across IH during FY 2013. Of these issued permits, construction and renovation projects ranged in size, completion time, and health risk. Some of the completed projects included:

- Renovation or construction of airborne isolation rooms in East Kootenay Regional Hospital and Kelowna General Hospital
- Installation of new hand-washing sinks and countertops in multiple facilities
- Opening of the new Centennial Tower and Dr. Walter Anderson Building at Kelowna General Hospital
- Demolition of the Pandosy building at Kelowna General Hospital (to make way for the new Interior Heart and Surgical Centre (IHSC))
- Renovation of two operating rooms in Kelowna General Hospital to allow for cardiac surgeries until the IHSC opens in mid-2015(first open heart surgery performed December 3, 2012)
- Asbestos abatement in Kelowna General Hospital, Kootenay Boundary Regional Hospital, Gillis House and Penticton Regional Hospital
- Renovation of emergency room and triage area in Kootenay Lake Hospital and Shuswap Lake General Hospital
- Installation of new medical device reprocessors (MDR) in Kootenay Boundary Regional Hospital and Royal Inland Hospital
- Mould remediation in multiple facilities

CURRENT STATUS

Numerous new construction and renovation projects continue in acute, residential and community care facilities throughout the authority.

FUTURE PLANS

Having IPAC educational documents readily available is vital to promote best practices within IH. As such, development of external contractor topic specific documents will be created for construction work, such as hand hygiene. These documents will be distributed to contractors at the beginning of each new project.

SURVEILLANCE

Surveillance for HAIs is an IH-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 measured 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 an electronic 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, surgeries or ventilator days
- Time period involved

It is a recommended best 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.

LIMITATIONS

Caution should be exercised in interpreting the rates in small facilities. When denominators (patient days, surgeries or ventilator days) are low, the impact of individual occurrences is greater. In these situations, small numbers of outcomes can result in high rates with very poor precision. Additionally, rates are not risk-adjusted, and therefore comparisons between individual facilities are not suggested.

During an IH wide system upgrade in the fall of 2011, multiple facilities in the East Kootenay and Kootenay Boundary regions experienced electronic data availability issues with the standardized electronic reports. Data from quarters 3 and 4 in FY 2011 and quarters 1 and 2 in FY 2012 may not correctly reflect actual HAI rates shown in this report. (Appendix A) However, this data is available upon request in archived hard-copy documents.

CLOSTRIDIUM DIFFICILE INFECTION

Clostridium difficile is a Gram-positive spore-forming bacillus that produces toxins that can cause diarrheal infections in persons in acute and 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 *C. 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 CDIs in North America. Ongoing surveillance is important to ensure increasing trends and clusters are quickly identified and addressed.

Table 1: CDI

Interior Health Rate	Interior Health Trend	Interior Health Benchmark	Interior Health Status
6.16 Per 10,000 patient days		<6 Per 10,000 patient days	

WHAT IS BEING MEASURED?

The incidence rate of *C. difficile* is per 10,000 patient days. This is the number of new cases of CDIs acquired by patients as a result of their stay in an acute care facility, divided by the total number of inpatient days over a specified time frame, expressed as a ratio per 10,000 days.

As per PICNet protocol, to standardize case definitions, data collection and reporting, the population under CDI surveillance are inpatients admitted to IH acute care facilities. Patients excluded from the population are:

- Outpatient visits to an acute care facility
- Emergency room patients not admitted to an acute care inpatient unit
- Patients in extended care beds or in mental health beds housed in the acute care facility
- Patients less than one year old

ACTIONS IMPLEMENTED

A number of actions continue to be implemented to address CDIs within IH. Promotion of the Zero Tolerance Program included multiple presentations to key stakeholders on:

- Site specific infection rates across the authority
- Site specific antibiotic purchases based on patient days
- Estimated costs associated with new CDIs within IH
- Daily patient lists of CDI cases on each unit for nursing, housekeeping and dietary staff
- Education to HCWs, patients and visitors on the importance of decluttering
- Significance of dedicated patient equipment

Continuous education is provided by ICPs for both HCWs and patients. The IPAC manual is reviewed and updated regularly and, when necessary, the cohorting of patients takes place to minimize the transmission of CDI when private rooms are unavailable.

LIMITATIONS

Even though patients' healthcare encounter histories are reviewed by ICPs to determine if the infections are healthcare-associated, community-associated or unknown, there is some potential for the misclassification of CDI cases. It is assumed that any stool sent to the laboratory for CDI testing is from a patient that has had at 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.

Furthermore, data for some facilities in IH were not available for certain periods due to information system upgrades. (Appendix A)

TREND

Short-term:

The overall IH CDI rate per 10,000 patient days was 6.16 in FY 2013. The difference between this and the rate of 5.93 in FY 2012 was not statistically significant. (Appendix B)

Across IH, statistically significant changes in CDI rates from FY 2012 to FY 2013 were identified in 2 facilities. The CDI rate in Cariboo Memorial Hospital **increased** from 5.93 to 29.20. The CDI rate in East Kootenay Regional Hospital **decreased** from 16.41 to 8.63.

Long-term:

During FY 2013, a total of 302 cases of healthcare-associated CDIs were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of CDI cases identified were 207, 390, 280 and 263, respectively.

Overall, IH did not report a significant increasing or decreasing trend in CDI over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 5). (Appendix B)

In facilities with greater than 100 beds, Royal Inland Hospital reported a significant **increasing** trend in CDI over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 5). The likelihood or risk of acquiring CDI in Royal Inland Hospital **increased** by 1.2% per period over the 5 years (95% confidence interval 0.2 - 2.1). This represents a slight but steady increase.

Figure 5: CDI Infection Rate Trend Analysis by Fiscal Period

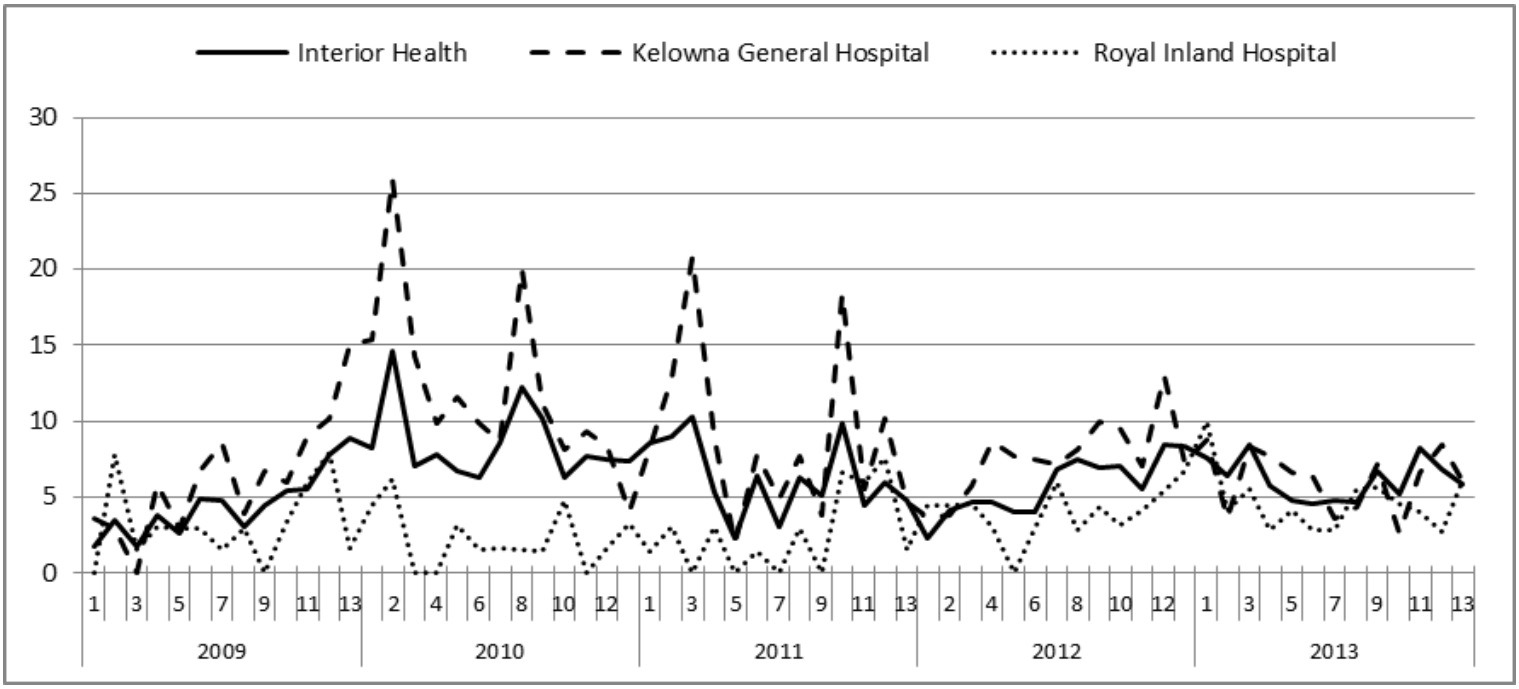


Figure 6: CDI Infection Rate by Fiscal Quarter

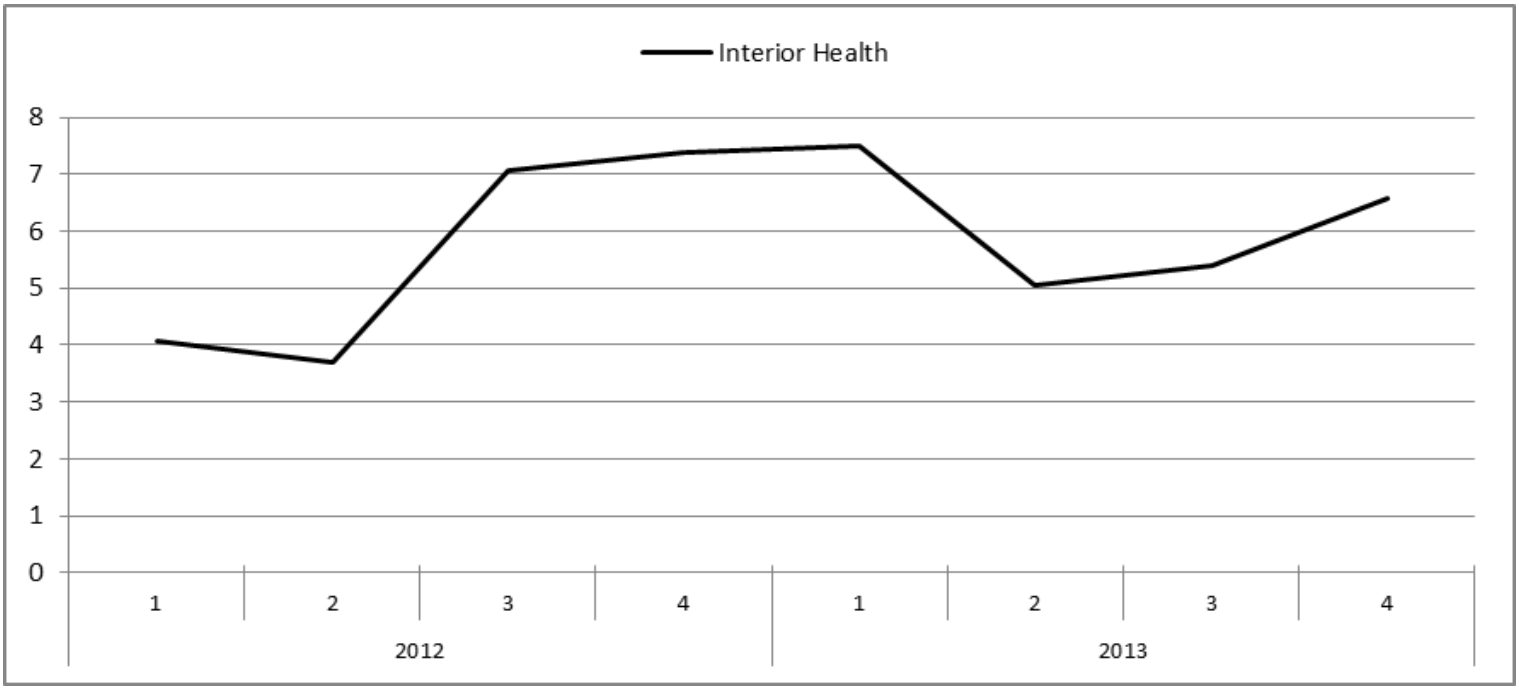


Figure 7: CDI Infection Rate by Fiscal Quarter

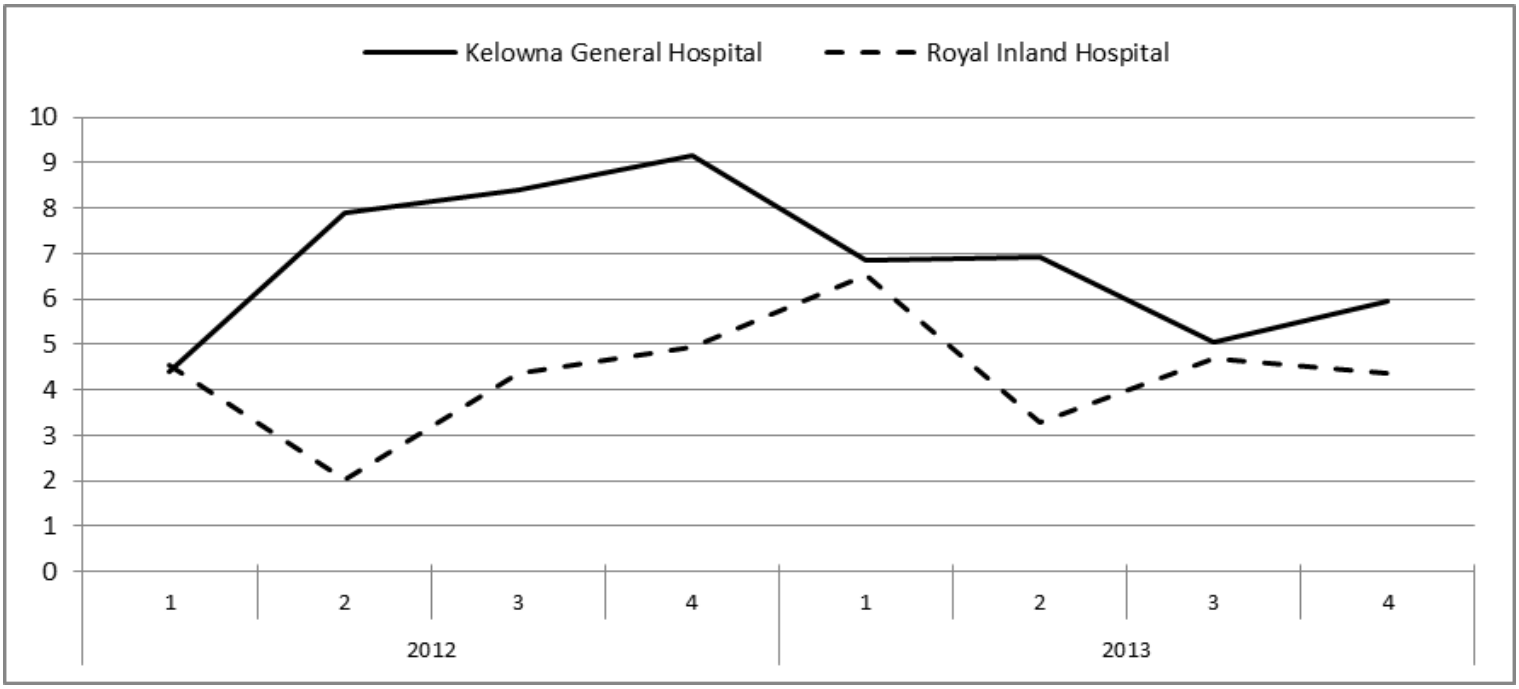


Figure 8: CDI Infection Rate by Fiscal Quarter

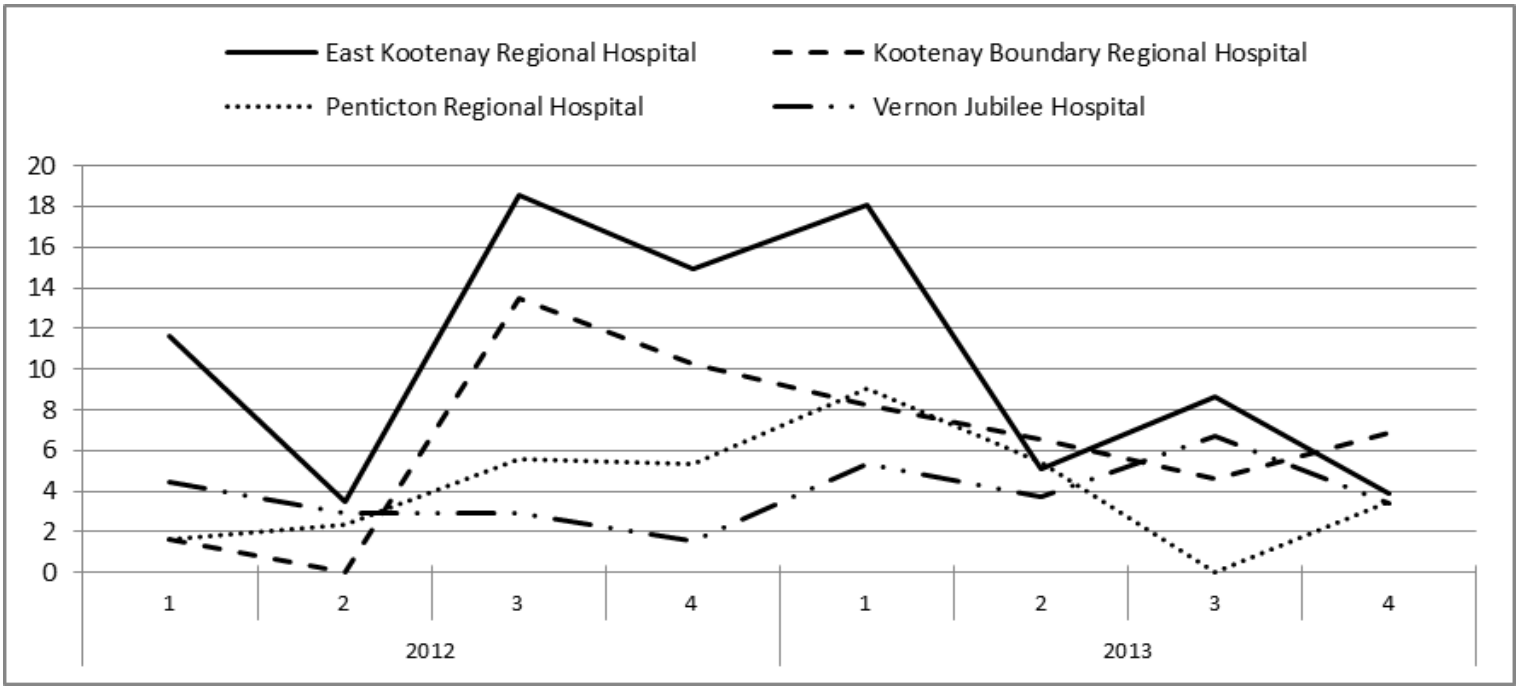
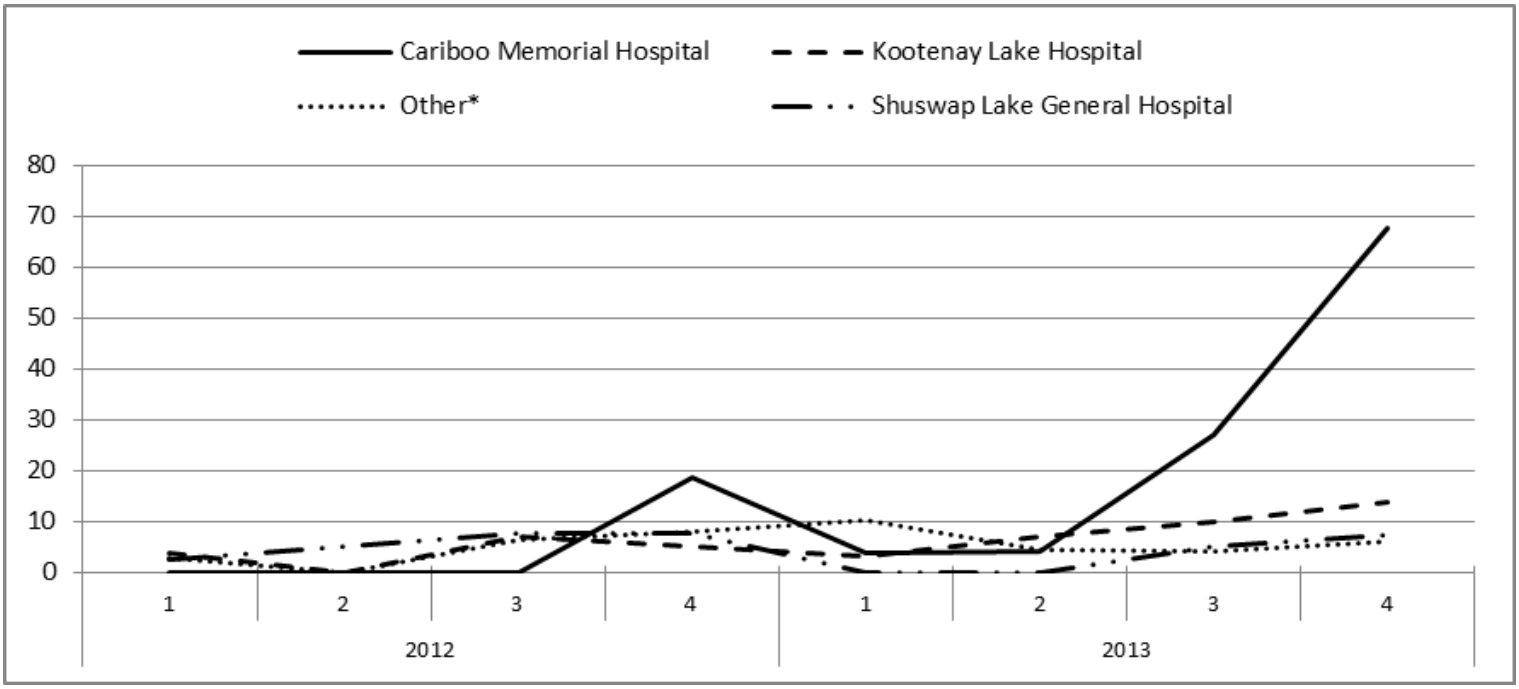


Figure 9: CDI Infection Rate by Fiscal Quarter



Other* indicates rural acute care facilities with ≤20 beds: 100 Mile Hospital, Arrow Lakes Hospital, Boundary District Hospital, Creston Valley Hospital, Dr. Helmcken Memorial Hospital, Elk Valley Hospital, Golden District Hospital, Invermere and District Hospital, Lillooet Hospital, Nicola Valley Hospital, Princeton General Hospital, Queen Victoria Hospital, South Okanagan General Hospital.

METHICILLIN RESISTANT *STAPHYLOCOCCUS AUREUS*

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of bacteriium 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.

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. It can be passed through contaminated bed linens, bed rails, bathroom fixtures, and medical equipment. MRSA 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.

Table 2: MRSA

Interior Health Rate	Interior Health Trend	Interior Health Benchmark	Interior Health Status
4.73 Per 10,000 patient days	↑	<5.6 Per 10,000 patient days	☑

WHAT IS BEING MEASURED?

The incidence rate of MRSA cases is 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, expressed as a ratio per 10,000 days.

As per PICNet protocol, to standardize case definitions, data collection and reporting, the population under MRSA surveillance are inpatients admitted to IH acute care facilities. Patients excluded from the population are:

- Outpatient visits to an acute care facility
- Emergency room patients not admitted to an acute care inpatient unit
- Patients in extended care beds housed in the acute care facility

ACTIONS IMPLEMENTED

A number of actions continue to be implemented to address MRSA infections within IH. An acute-care admission-screening tool is completed as a part of the initial patient admission history and assessment, and then placed in the nursing demographics section of the Meditech system. The use of dedicated patient equipment and the placement of patients in private

rooms, where feasible, are actions taken in addition to ongoing staff and patient 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 may not be identified by screening protocols in some populations such as surgical pre-screening.

MRSA colonization and MRSA infections are not distinguished separately in the electronic surveillance system which can lead to misinterpretation of the data. Furthermore, data for some facilities in IH were not available for certain periods due to information system upgrades. (Appendix A)

TREND

Short-term:

The overall IH MRSA rate per 10,000 patient days **increased** from 3.18 in FY 2012 to 4.73 in FY 2013. This difference was statistically significant. (Appendix B)

Across IH statistically significant changes in MRSA rates from FY 2012 to FY 2013 were identified in 2 facilities. The MRSA rate in Royal Inland Hospital **increased** from 4.84 to 8.64. The rate in Shuswap Lake General Hospital **increased** from 6.70 to 15.38.

Long-term:

During FY 2013, a total of 232 cases of healthcare-associated MRSA were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of MRSA cases identified were 35, 272, 213 and141, respectively.

Overall, IH did not report a significant increasing or decreasing trend in MRSA over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 15). (Appendix B)

In facilities with greater than 100 beds, Royal Inland Hospital reported a significant **increasing** trend in MRSA over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 10). The likelihood or risk of acquiring MRSA in Royal Inland Hospital **increased** by 2.6% per period over the 5 years (95% confidence interval 1.6 – 3.7). This represents a slight but steady increase.

Figure 10: MRSA Infection Rate Trend Analysis by Fiscal Period

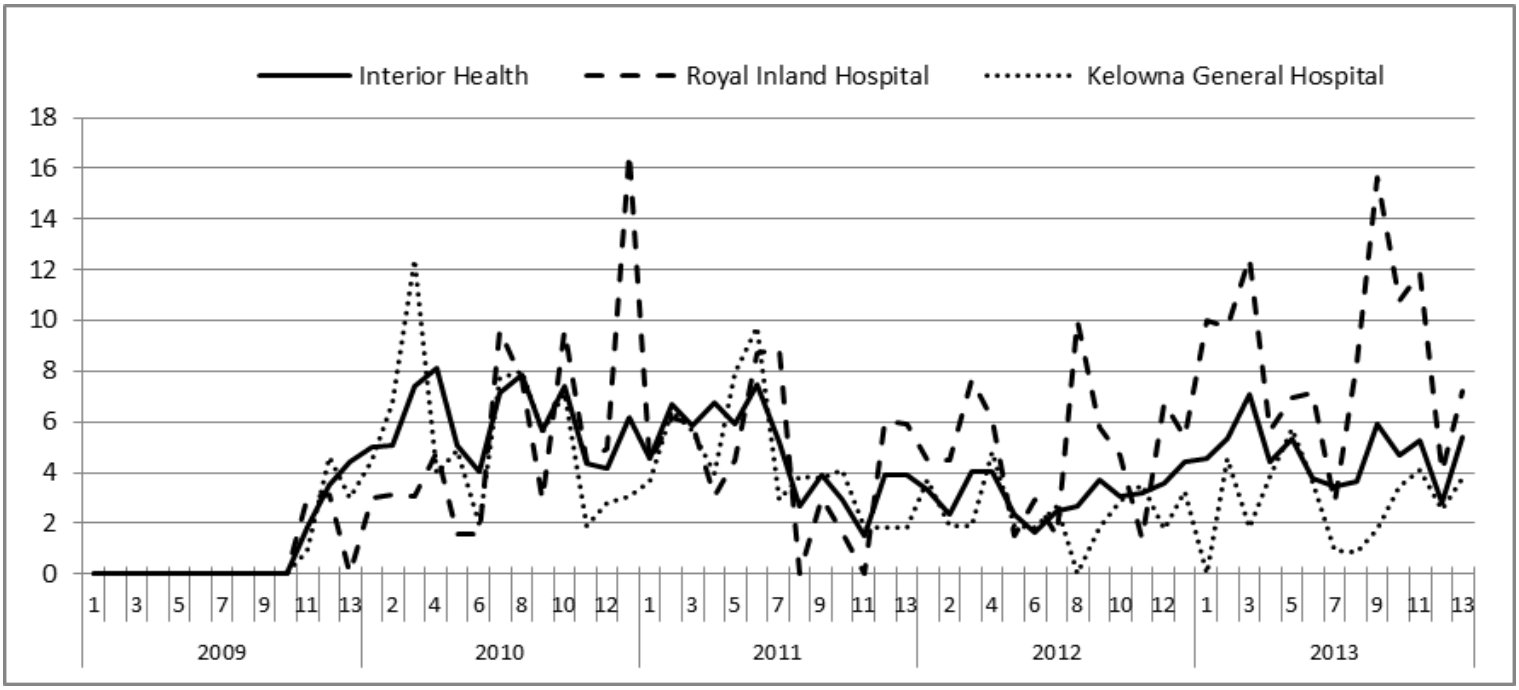


Figure 11: MRSA Infection Rate by Fiscal Quarter

Figure 12: MRSA Infection Rate by Fiscal Quarter

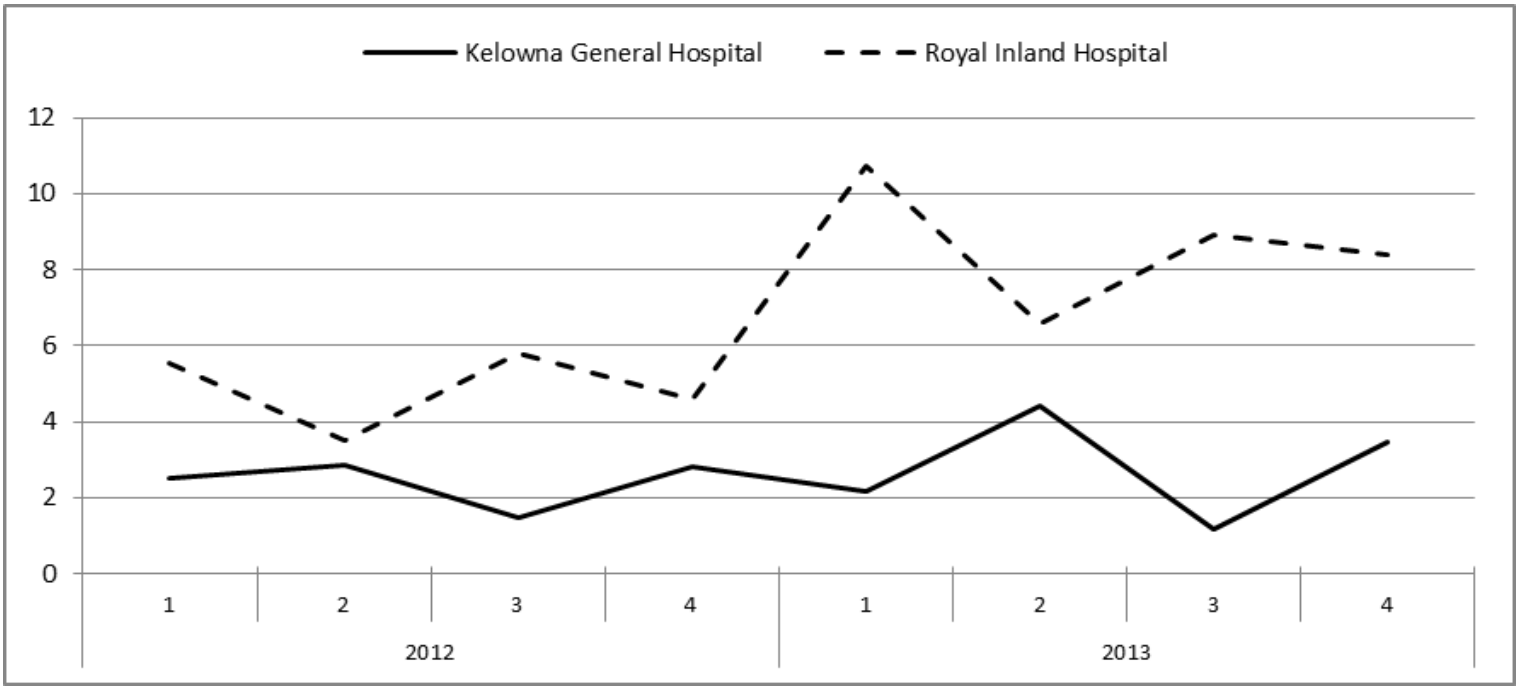


Figure 13: MRSA Infection Rate by Fiscal Quarter

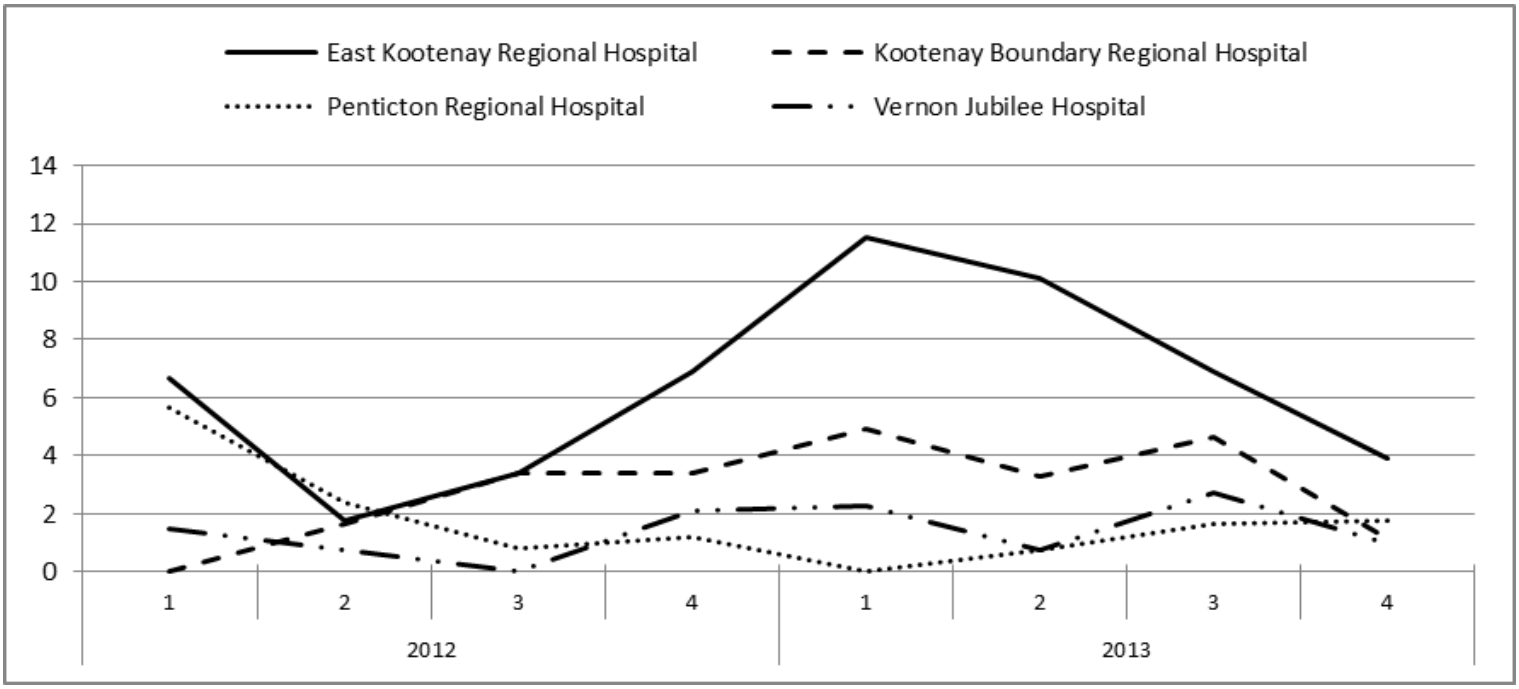
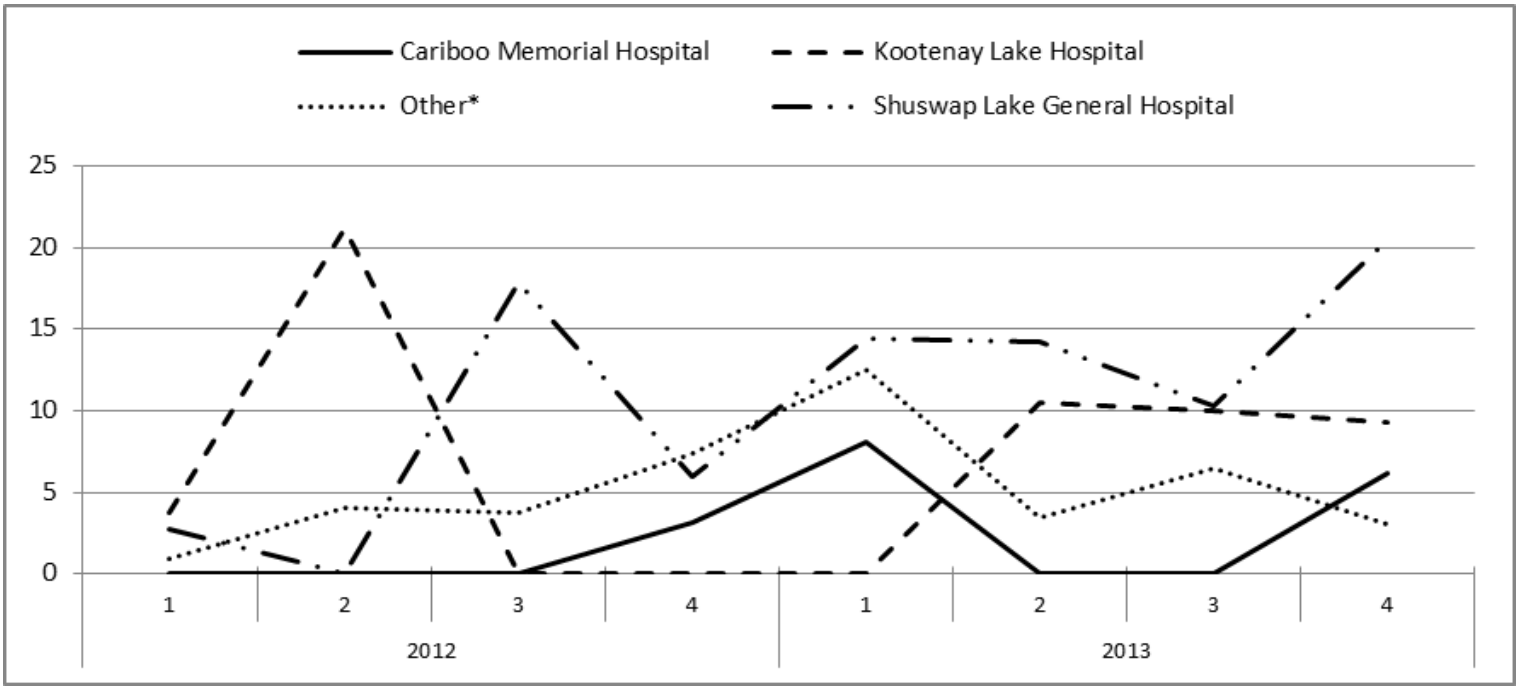


Figure 14: MRSA Infection Rate by Fiscal Quarter



Other* indicates rural acute care facilities with ≤20 beds: 100 Mile Hospital, Arrow Lakes Hospital, Boundary District Hospital, Creston Valley Hospital, Dr. Helmcken Memorial Hospital, Elk Valley Hospital, Golden District Hospital, Invermere and District Hospital, Lillooet Hospital, Nicola Valley Hospital, Princeton General Hospital, Queen Victoria Hospital, South Okanagan General Hospital.

VANCOMYCIN-RESISTANT ENTEROCOCCUS

Vancomycin-resistant enterococcus (VRE) is a type of bacterium that hase developed resistance to many antibiotics, especially vancomycin. Enterococci live in our intestines and on our skin, usually without causing problems; however, Enterococci can become a problem and cause infection. These infections can occur anywhere in the body. Some common sites include the intestines, the urinary tract, and skin 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.

Table 3: VRE

Interior Health Rate	Interior Health Trend	Interior Health Benchmark	Interior Health Status
9.69 Per 10,000 patient days		<1.1 Per 10,000 patient days	

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, expressed as a ratio per 10,000 days.

The population under VRE surveillance are inpatients admitted to IH acute care facilities. Patients excluded from the population are:

- Outpatient visits to an acute care facility
- Emergency room patients not admitted to an acute care inpatient unit
- Patients in extended care beds housed in the acute care facility

ACTIONS IMPLEMENTED

A number of actions continue to be implemented to address VRE infections within IH. An acute-care admission screening tool is completed as a part of the initial patient admission history and assessment, and then placed in the nursing demographics section in the Meditech system.

Where feasible, IH implements dedicated equipment for VRE patients and the placement of patients in private rooms. Cohorting of VRE patients has also taken place where private rooms are not available. Additionally, ongoing education is provided to HCWs as well as patients.

LIMITATIONS

VRE data reported here is subject to limitations due to a number of factors. 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 electronic surveillance system which can lead to misinterpretation of the data.

Furthermore, data for some facilities in IH were not available for certain periods due to information system upgrades. (Appendix A)

TREND

Short-term:

The overall VRE rate per 10,000 patient days **increased** from 4.26 in FY 2012 to 9.69 in FY 2013, this was statistically significant. (Appendix B)

Compared to FY 2012, the VRE rate in the current fiscal year was significantly higher in 4 individual facilities: Kootenay Boundary Regional Hospital, Kelowna General Hospital, Penticton Regional Hospital and Royal Inland Hospital. In addition, the aggregated VRE rate for the 13 rural facilities was higher in FY 2013. **Increases** in all of the above locations were similar in magnitude. For example, in Kelowna General Hospital the VRE rate **increased** from 5.68 to 10.59.

Long-term:

During FY 2013, a total of 475 cases of healthcare-associated VRE were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of VRE cases identified were 4, 22, 198 and 189, respectively.

IH reported a significant **increasing** trend in VRE over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 10). The likelihood or risk of acquiring VRE in IH **increased** by 5.8% per period over the 5 years (95% confidence interval 4.8 – 6.9). (Appendix B) This represents a slight but steady increase.

In IH facilities with greater than 100 beds, no significant trend in VRE over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 15) was reported.

Figure 15: VRE Infection Rate Trend Analysis by Fiscal Period

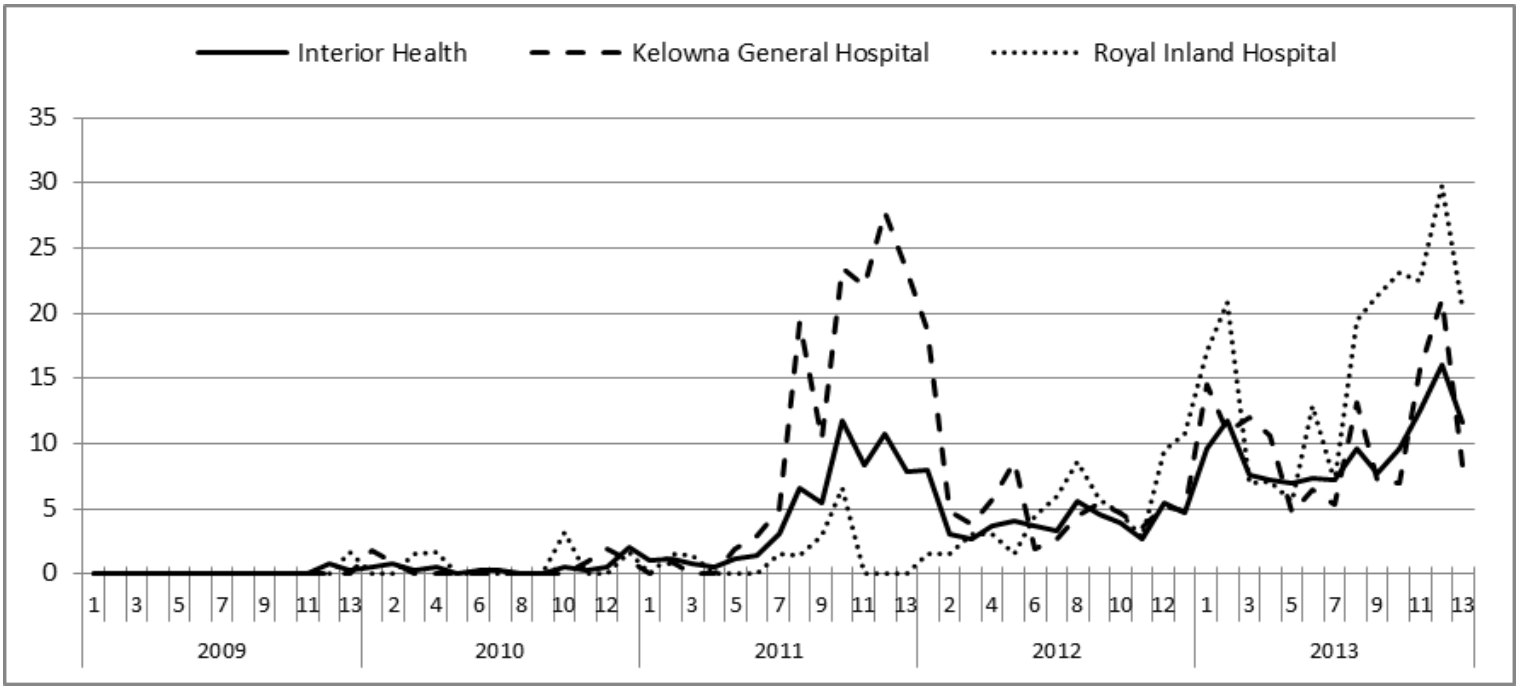


Figure 16: VRE Infection Rate by Fiscal Quarter

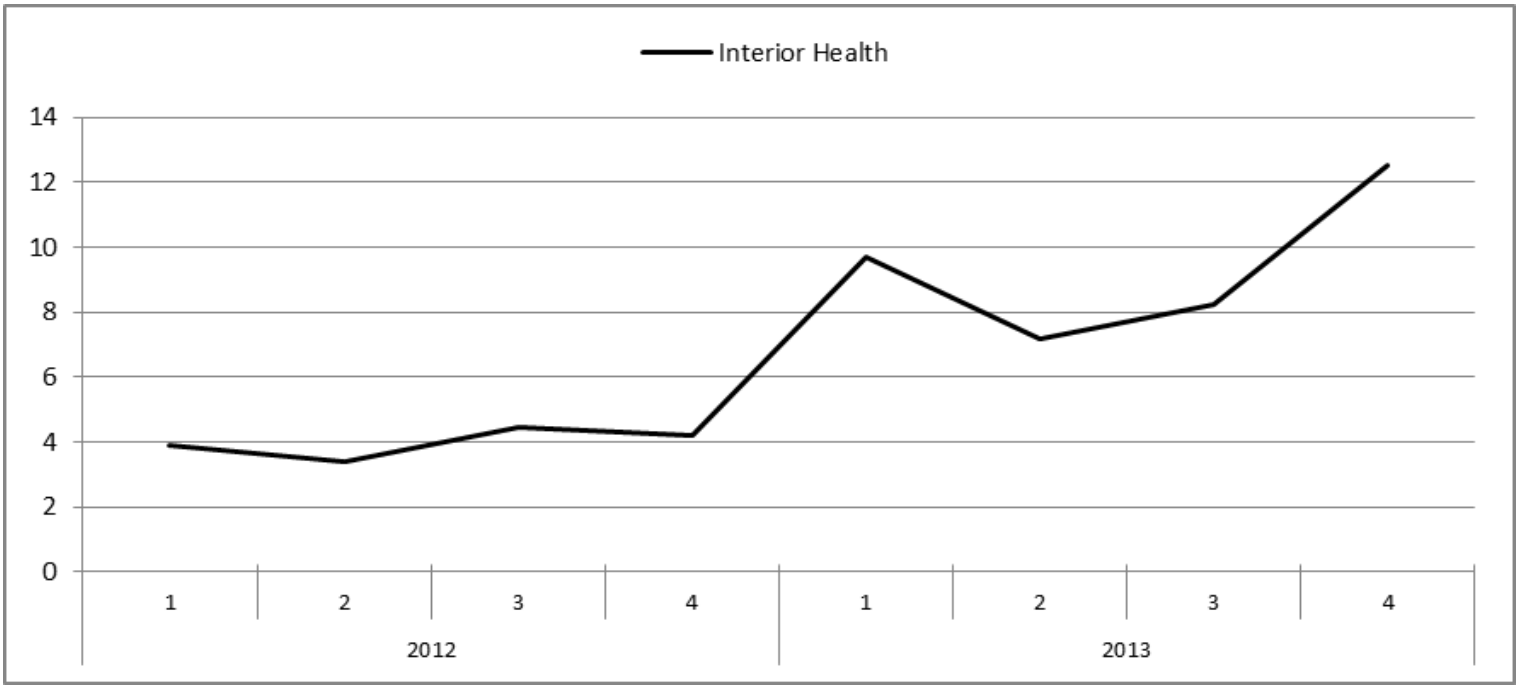


Figure 17: VRE Infection Rate by Fiscal Quarter

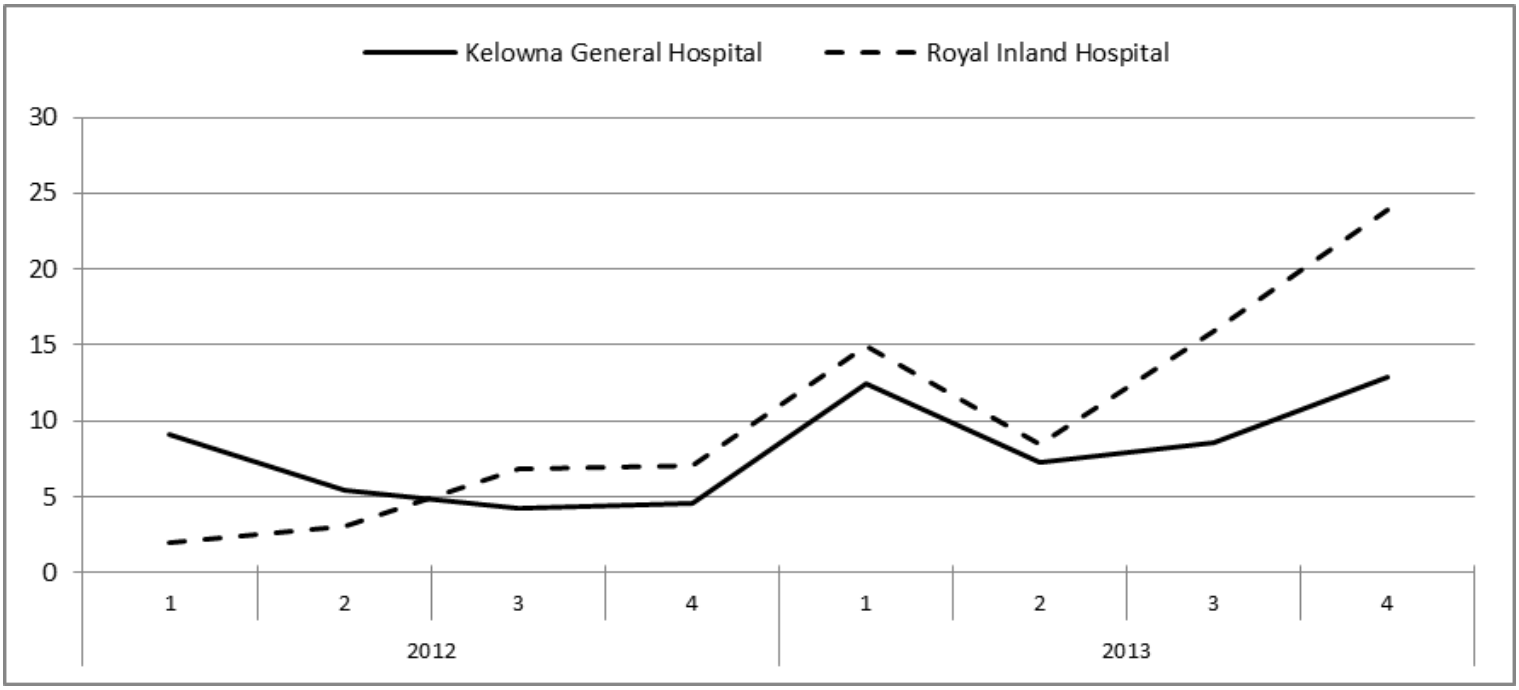


Figure 18: VRE Infection Rate by Fiscal Quarter

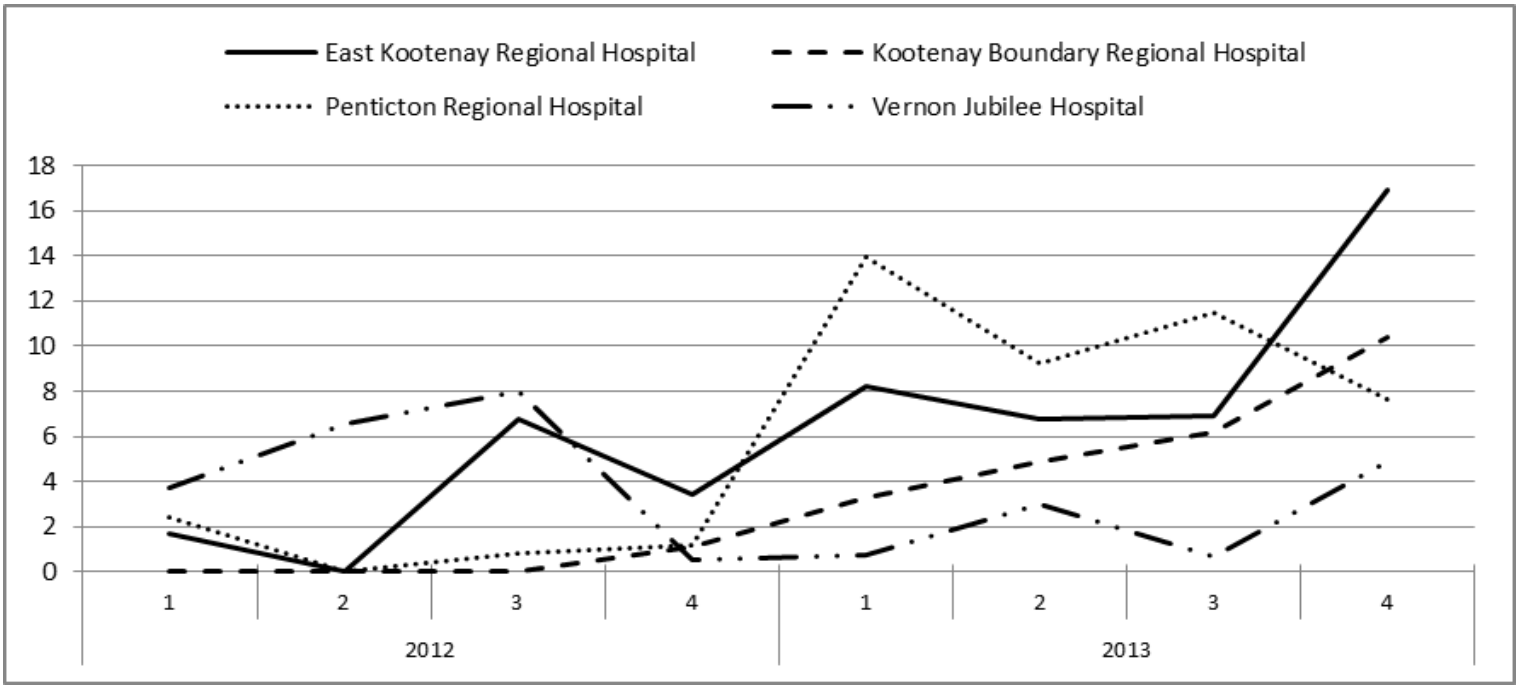
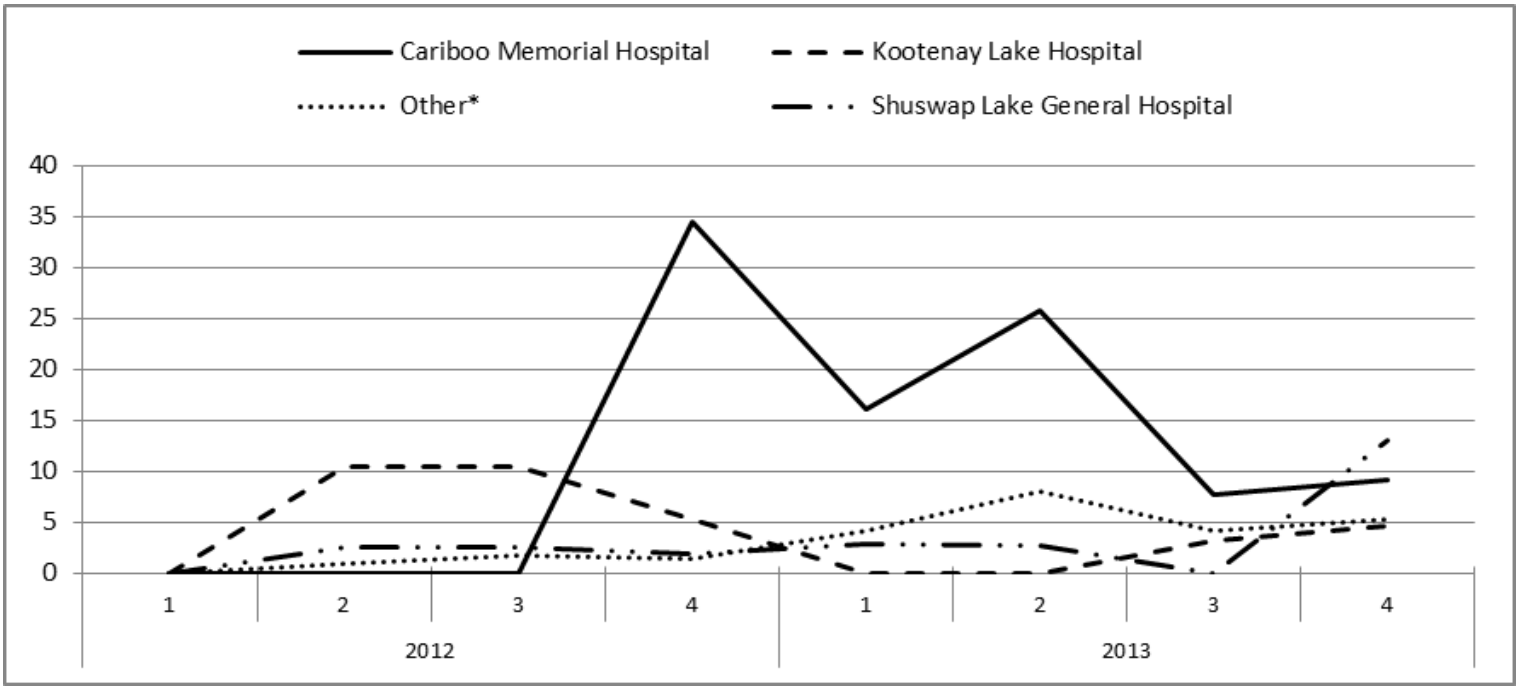


Figure 19: VRE Infection Rate by Fiscal Quarter



Other* indicates rural acute care facilities with ≤20 beds: 100 Mile Hospital, Arrow Lakes Hospital, Boundary District Hospital, Creston Valley Hospital, Dr. Helmcken Memorial Hospital, Elk Valley Hospital, Golden District Hospital, Invermere and District Hospital, Lillooet Hospital, Nicola Valley Hospital, Princeton General Hospital, Queen Victoria Hospital, South Okanagan General Hospital.

SURGICAL SITE INFECTIONS

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. A 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.

Table 4: SSI

Interior Health Rate	Interior Health Trend	Interior Health Benchmark	Interior Health Status
1.25% Clean		<1.00%	
1.09% Clean-contaminated			

WHAT IS BEING MEASURED?

The overall incidence rate of clean SSIs and clean-contaminated SSIs in acute care facilities that participate in Operating Room Manager (OR Manager) are measured.

As per CDC/ NHSN definitions, infection must take place in the area affected by a surgery within 30 days of the procedure, or within 365 days if an implant is in place, and the infection appears to be related to the operative procedure. Surgeries that are excluded from this surveillance are those surgeries without an incision or surgeries performed in ambulatory care.

ACTIONS IMPLEMENTED

A review of ambulatory care process and practices was undertaken by IPAC and recommendations were forwarded to the Surgical Services Network. Additionally, regular reviews and updates to the surgical prophylaxis document are performed by the IPAC Medical Director.

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

LIMITATIONS

Classification of surgical procedures is done by the operating room staff and to be done upon completion of the surgery in consultation with the surgeon. On occasion, an incorrect wound class is entered for a given surgery. These errors will impact the validity of both clean and clean contaminated SSI rates.

Since a SSI may be identified up to 365 days following surgery involving an implant, a reported SSI rate for a given period should not be considered final until fourteen full periods after its end date.

Surgeries performed in ambulatory care are not captured consistently across IH using the OR Manager. Additionally, there is no consistent approach to reporting infections by surgeons in IH.

Furthermore, data for some facilities in IH were not available for certain periods due to information system upgrades. (Appendix A)

TREND

Clean:

Short-term:

The overall IH clean SSI rate **increased** from 1.02% in FY 2012 to 1.25% in FY 2013, this was statistically significant. (Appendix B)

However, within individual facilities in IH, no statistically significant changes in clean SSI rates were reported from FY 2012 to FY 2013.

Long-term:

During FY 2013, a total of 293 cases of healthcare associated clean SSIs were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of clean SSIs identified were 268, 272, 241 and 217, respectively.

In IH and within individual facilities with greater than 100 beds, no significant trend in clean SSIs over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 20) were reported. (Appendix B)

Clean contaminated:

Short-term:

The clean contaminated SSI rate was 1.08% in FY 2013. This was not a statistically significant change from 1.00%, reported in FY 2012. (Appendix B)

Across IH statistically significant changes in clean contaminated SSI rates from FY 2012 to FY 2013 were identified in one facility. The clean contaminated SSI rate in Vernon Jubilee **decreased** from 0.88% to 0.28%.

Long-term:

During FY 2013, a total of 160 cases of healthcare-associated clean-contaminated SSIs were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of clean contaminated SSIs identified were 179, 186, 129 and 138, respectively.

Overall, IH did not report a significant increasing or decreasing trend in clean contaminated SSIs over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 21). (Appendix B)

In facilities with greater than 100 beds, Kelowna General Hospital and Royal Inland Hospital reported a significant trend in clean contaminated SSIs over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 21). Kelowna General Hospital reported a significant **increasing** trend over time, while Royal Inland Hospital reported a **decreasing** trend over time. The likelihood or risk of acquiring a clean contaminated SSI in Kelowna General Hospital **increased** by 0.6% per period over the 5 years (95% confidence interval 0.1 – 1.2). This represents a slight but steady increase. In Royal Inland Hospital, the likelihood or risk of acquiring a clean contaminated SSI **decreased** by 1.5% per period over the 5 years (95% confidence interval 0.2 – 2.7). This represents a slight but steady decrease.

Figure 20: Clean SSI Infection Rate Trend Analysis by Fiscal Period

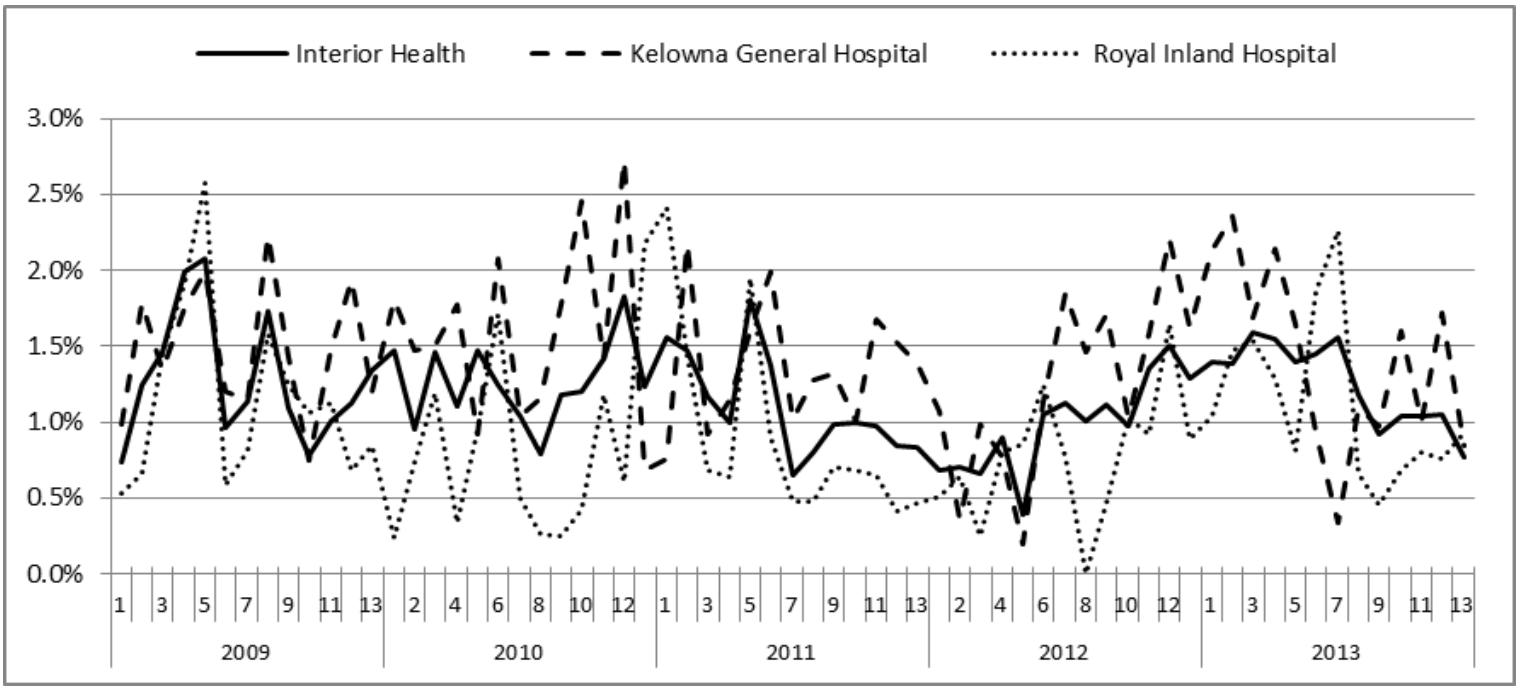


Figure 21: Clean Contaminated SSI Infection Rate Trend Analysis by Fiscal Period

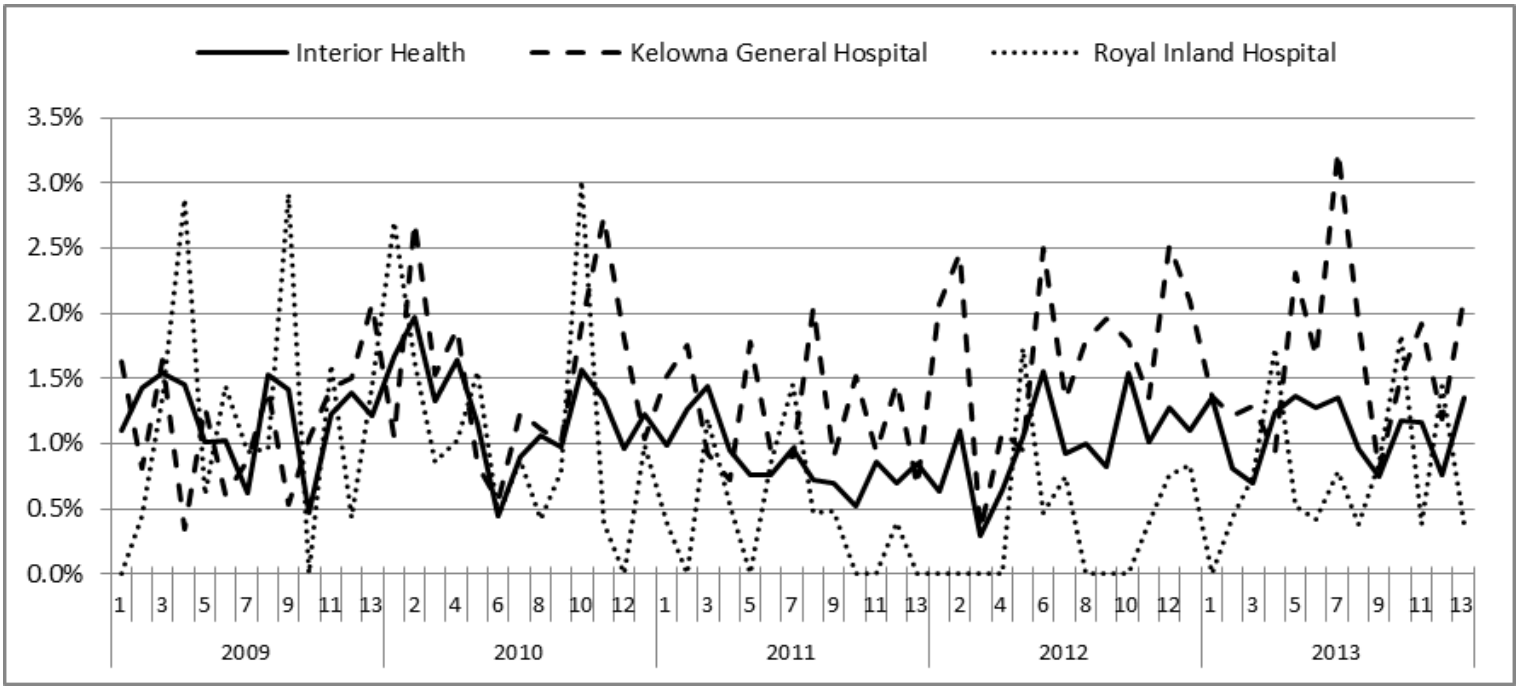


Figure 22: SSI Infection Rate by Fiscal Quarter

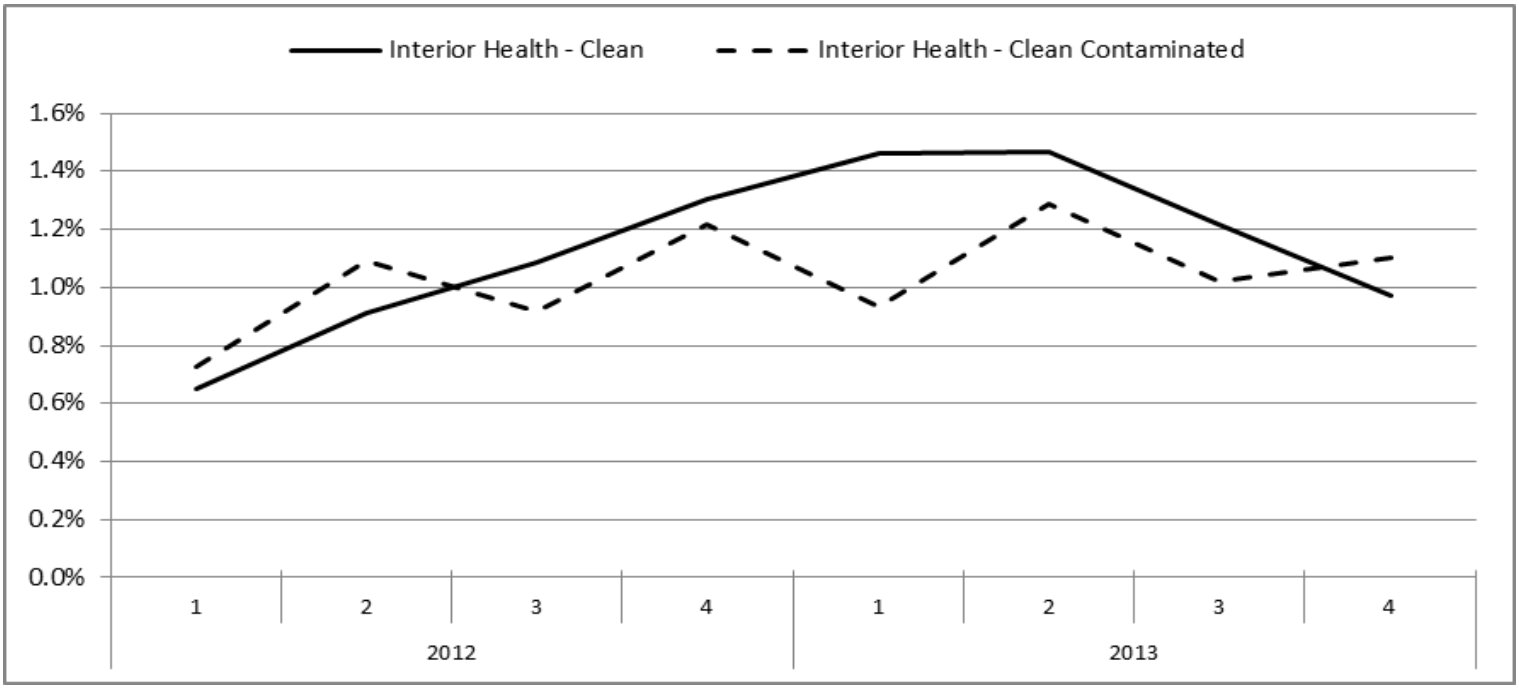


Figure 23: SSI Infection Rate by Fiscal Quarter

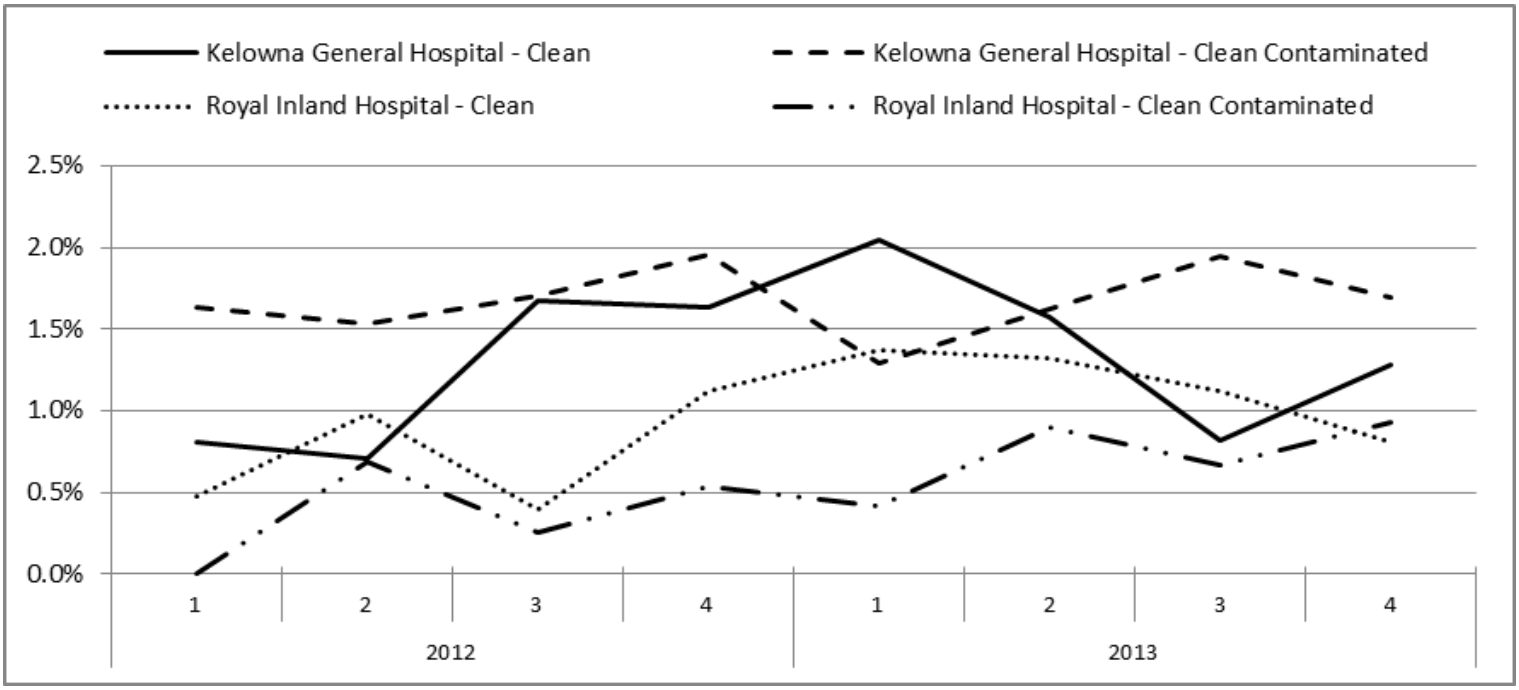


Figure 24: Clean SSI Infection Rate by Fiscal Quarter

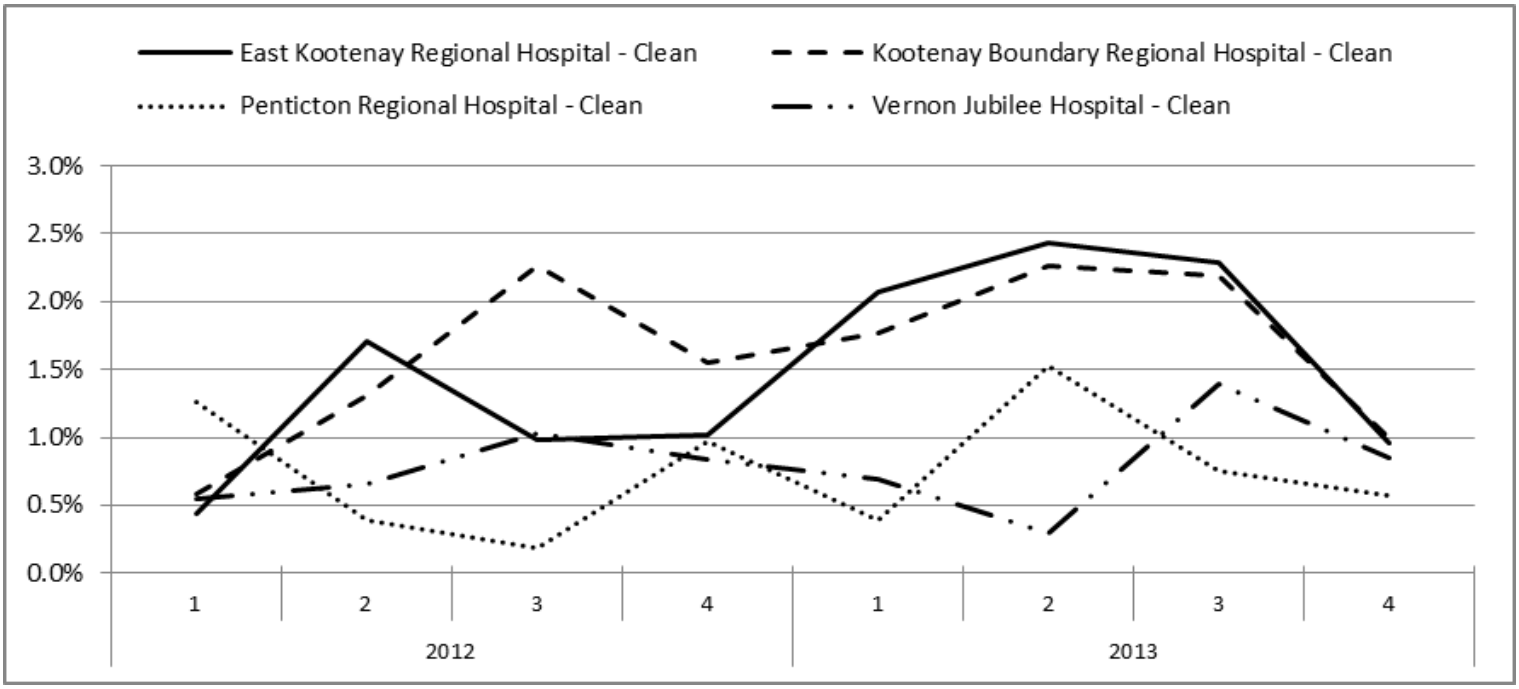


Figure 25: Clean Contaminated SSI Infection Rate by Fiscal Quarter

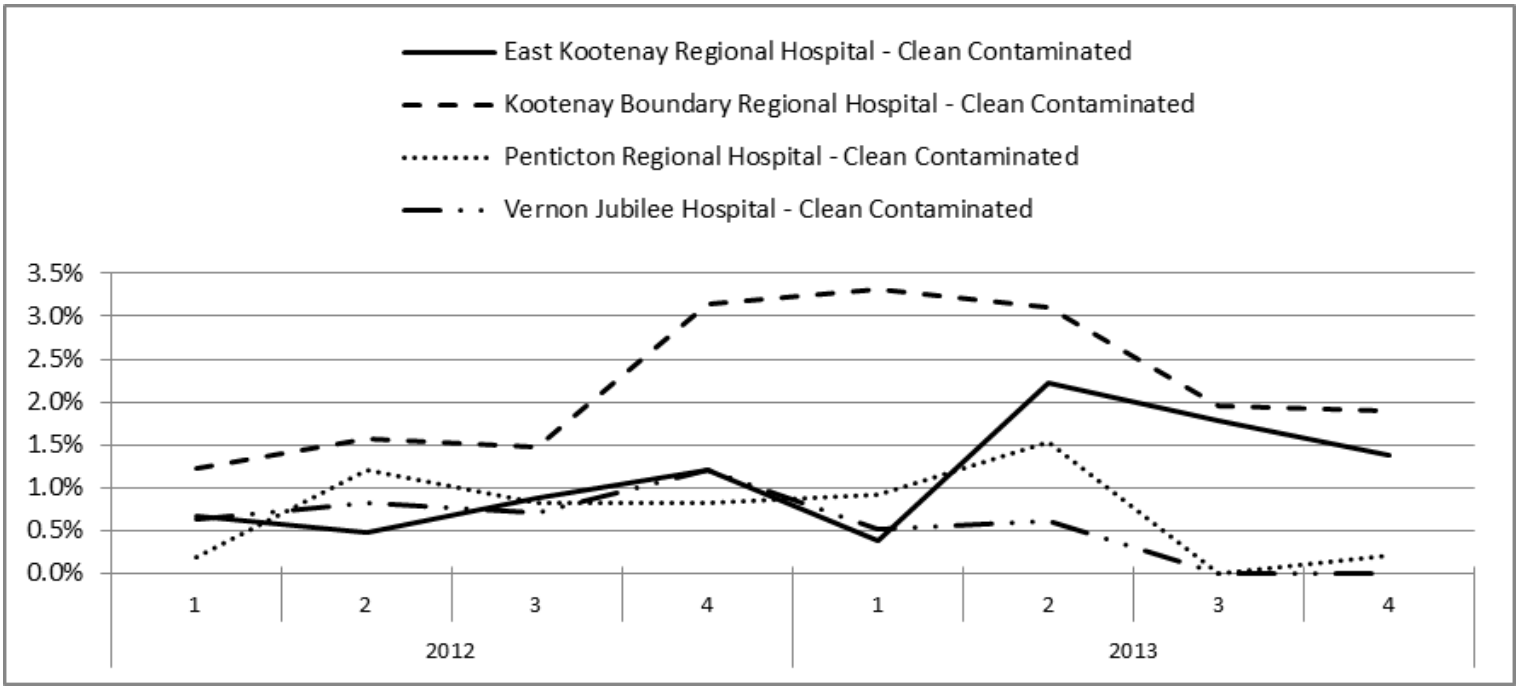


Figure 26: Clean SSI Infection Rate by Fiscal Quarter

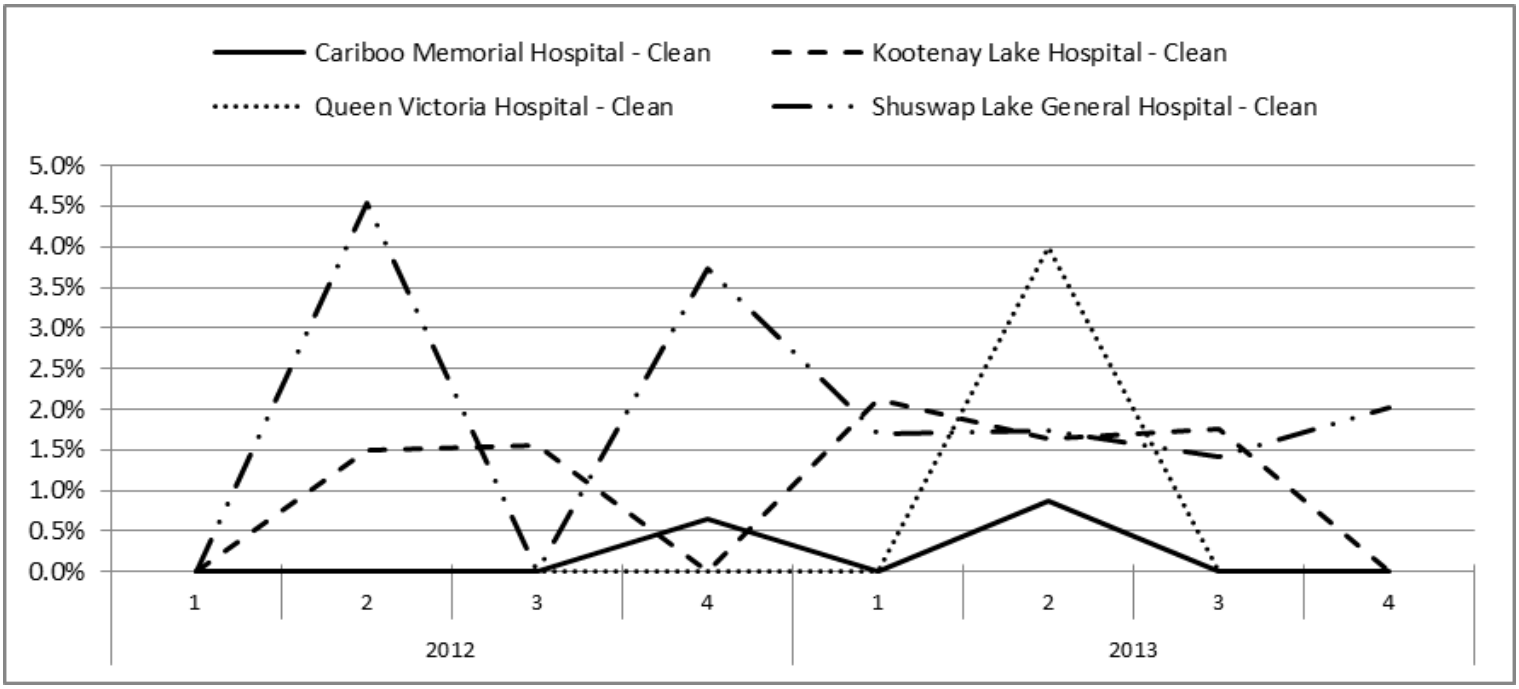
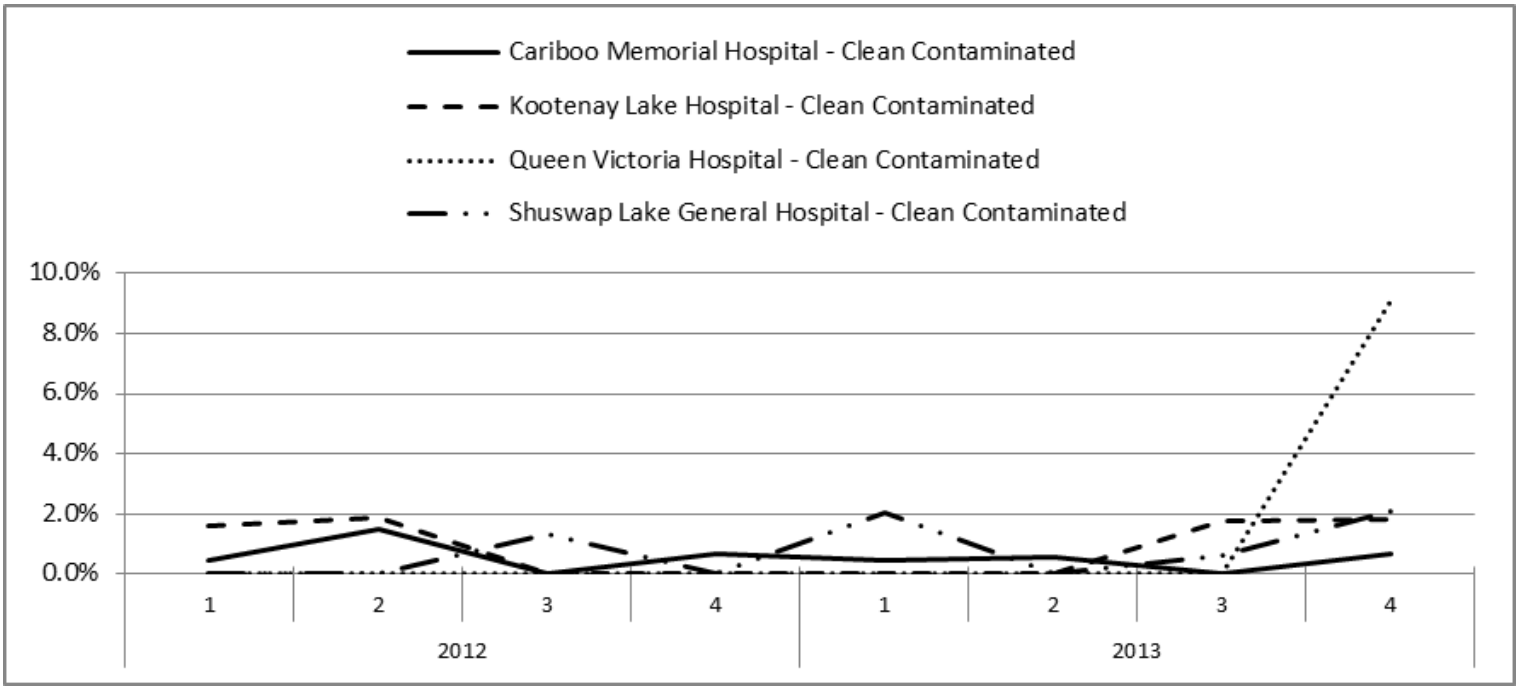


Figure 27: Clean Contaminated SSI Infection Rate by Fiscal Quarter



VENTILATOR ASSOCIATED PNEUMONIA

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

The most important signs of VAP are high fever, low body temperature in certain populations, new purulent sputum, and hypoxemia.

Table 5: VAP

Interior Health Rate	Interior Health Trend	Interior Health Benchmark	Interior Health Status
4.57 Per 1000 ventilator days	↑	<5 Per 1000 ventilator days	☑

WHAT IS BEING MEASURED?

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

VAP cases are only measured in ICU patients, although ventilators could be used in other areas.

ACTIONS IMPLEMENTED

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

LIMITATIONS

Ventilator days are currently manually collected and tallied by ICU HCWs. This process can pose reporting problems should this daily task be miscalculated or not submitted in a timely fashion to ICPs.

Furthermore, data for some facilities in IH were not available for certain periods due to information system upgrades. (Appendix A)

TREND

Short-term:

The IH VAP rate per 1000 ventilator days was 4.57 in FY 2013. This was not a statistically significant change from 3.45 in FY 2012. (Appendix B) Furthermore, no significant changes in VAP rates from FY 2012 to FY 2013 were reported in individual IH facilities.

Long-term:

During FY 2013, a total of 30 cases of healthcare associated VAP were identified in all IH acute care facilities. In FY 2009, 2010, 2011, 2012 the number of VAP cases identified were 8, 16, 16 and 22, respectively.

IH reported a significant **increasing** trend in VAP over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 28). The likelihood or risk of acquiring VAP in IH **increased** by 2.0% per period over the 5 years (95% confidence interval 0.7 – 3.4). (Appendix B) This represents a slight but steady increase.

In facilities with greater than 100 beds, Royal Inland Hospital reported a significant **increasing** trend in VAP over time from Period 1, FY 2009 through Period 13, FY 2013 (figure 28). The likelihood or risk of acquiring VAP in Royal Inland Hospital **increased** by 4.0% per period over the 5 years (95% confidence interval 1.8 – 6.1). This represents a slight but steady increase.

Figure 28: VAP Infection Rate Trend Analysis by Fiscal Period

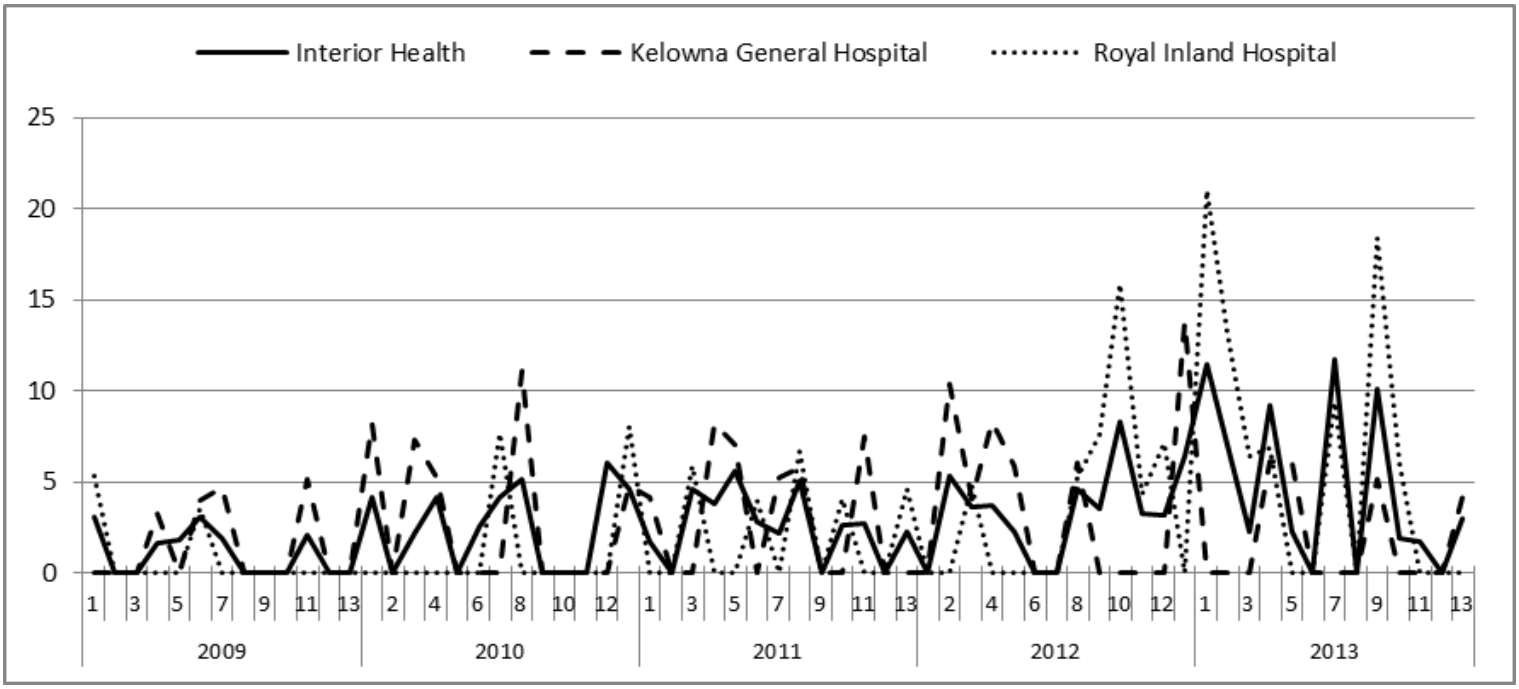


Figure 29 VAP Infection Rate by Fiscal Quarter

Figure 30 VAP Infection Rate by Fiscal Quarter

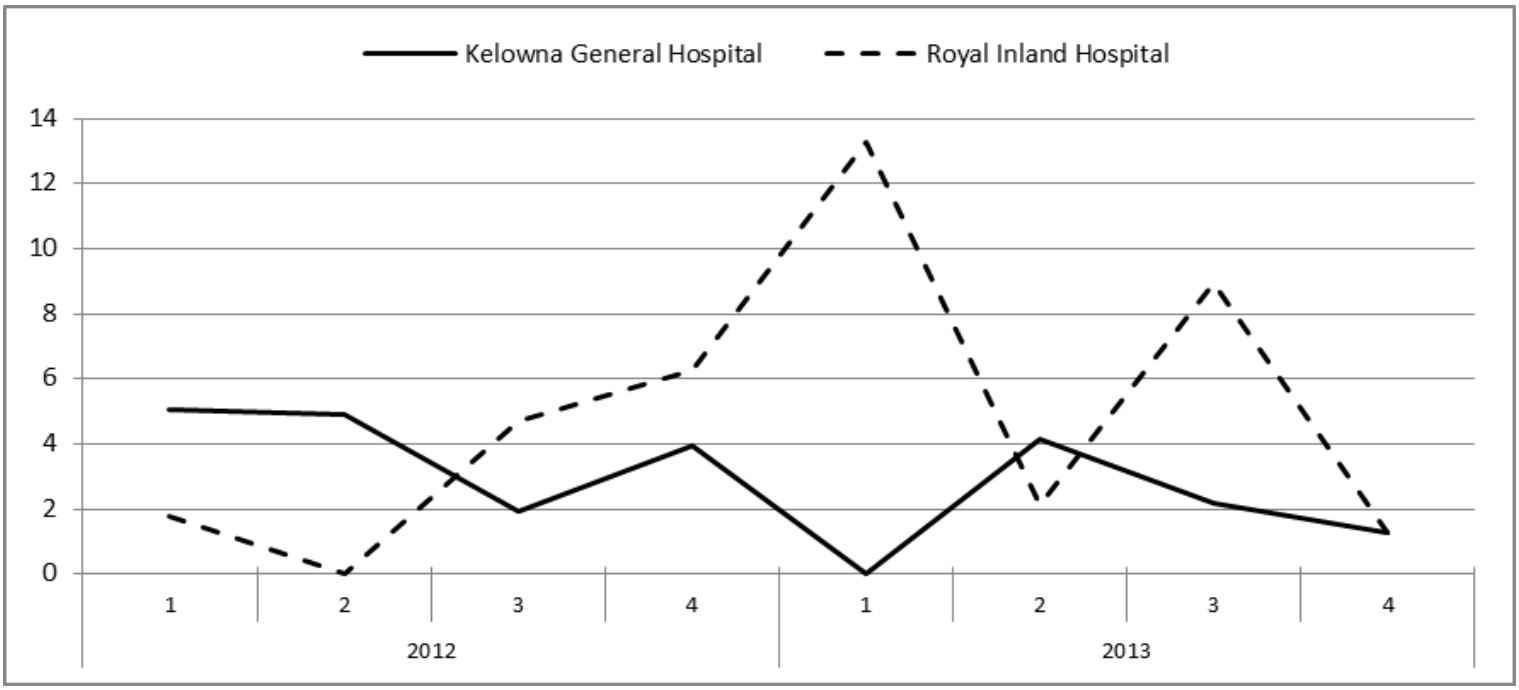
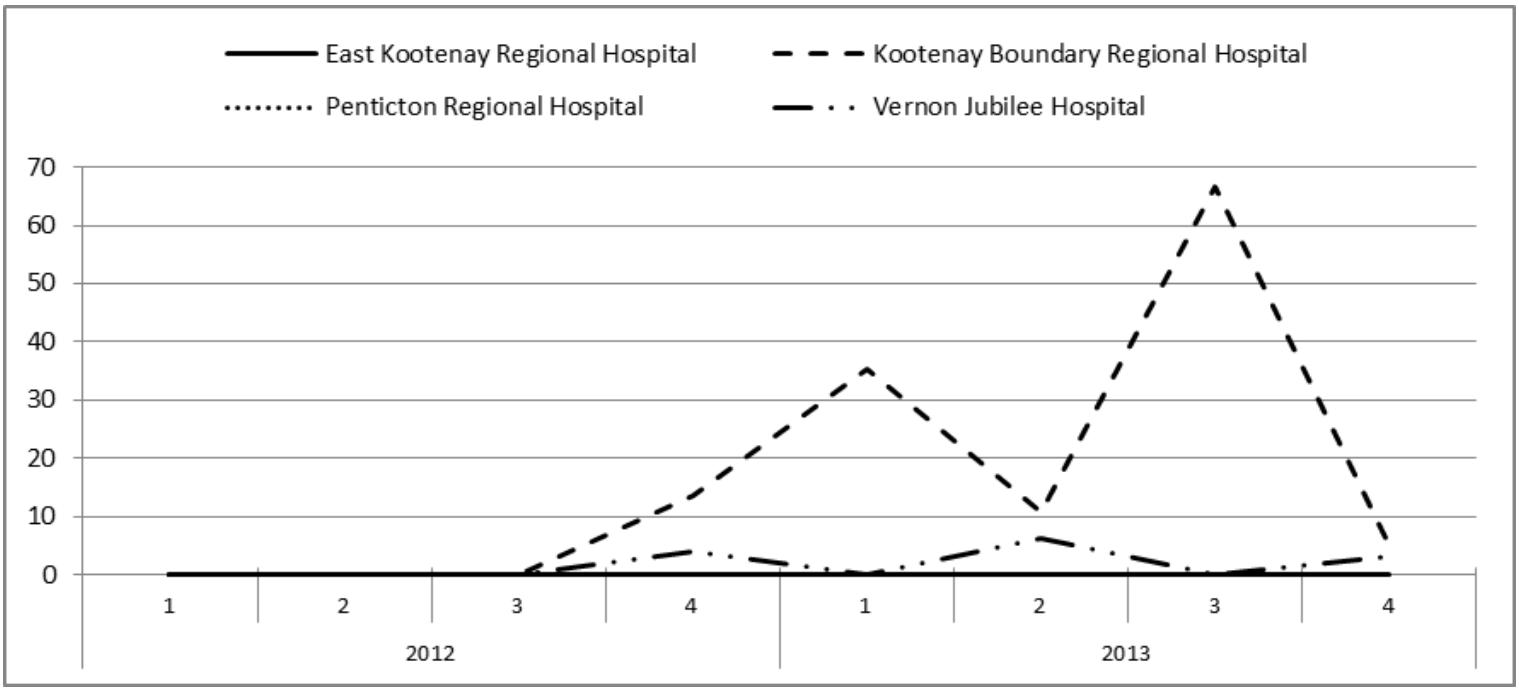


Figure 31 VAP Infection Rate by Fiscal Quarter



RESIDENTIAL CARE FACILITIES

The IH Residential Services IPAC Program collects, analyzes and disseminates HAI surveillance data based on clearly-defined indicators, and targets higher risk areas and infections that are associated with increased morbidity, mortality and acute care admissions. Residential care surveillance includes data on CDI; lower respiratory infections and pneumonia; skin and soft tissue infections; and catheter-associated urinary tract infections.

CDIs are tracked using the same definition as acute care, although fewer cases of CDIs 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 CDIs in residential care continues to be a priority; however, the electronic surveillance system requires improvements to enable the systematic reporting out of CDIs 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 are 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.

LIMITATIONS

The collection of surveillance data for residential facilities is a manual process performed by ICPs. Different sources of information are combined to identify potential infections. Further investigation and follow-up by ICPs is conducted to confirm infection through total chart review and/or consultation with physicians.

Due to ICPs having restricted access to private laboratory results and private pharmacies antibiotic-utilization records, identifying an infection can prove difficult and time consuming. Private laboratories and pharmacies that make use of electronic information systems allow for prompt investigation of potential HAIs.

Additionally, blood cultures are not always sent to laboratories to confirm a diagnosis. This could artificially inflate HAI rates in residential facilities.

OUTBREAK MANAGEMENT

IH uses Outbreak Management Teams to manage outbreaks; these are multidisciplinary teams that include 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 Outbreak Management Team includes: IPAC, Workplace Health & Safety, administration, nursing, medical staff, support services and external resources 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.

ICPs play a pivotal role in outbreak management and are liaisons to the Public Health Communicable Disease Unit.

EDUCATION

An integral part of the IPAC Program is the ongoing education, training and support by ICPs to all HCWs within IH. 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.

ACCOMPLISHMENTS

Education highpoints from FY 2013 for IPAC Program included:

- Two ICPs received recertification in Infection Control (CIC)
- All IPAC members attended two 2-day face-to-face team-building conferences in Kelowna
- Three ICPs attended the 2012 PICNet Conference in Vancouver
- Five ICPs attended the 2012 Community and Hospital Infection Control Association (CHICA) Conference in Saskatoon
- Two ICPs attended the 2012 College of Registered Nurses of British Columbia (CRNBC) Interagency Conference in Kamloops and Nelson
- One ICP completed the Quality Academy at various British Columbia locations

MOVING FORWARD

Future directions for the IPAC Program continues to be illustrated in the strategic map (figure 32) and is aimed at improving IPAC's 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 prevention and control across the health authority. This will also lay the groundwork for the vision of having Medical Health Officers and Public Health, Infectious Diseases, Medical Microbiology, Antimicrobial Stewardship and Infection Prevention and Control (MIAMI) together as one corporate program.

Six main strategies have been identified for the 2013-2014 fiscal year with plans extending to the 2015-2016 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. Furthermore, as per the PHHWG, implementation of hand-hygiene auditing in residential care facilities will be addressed.

The electronic surveillance system will continue to see improvements made to increase data reliability and eliminate system error, reducing ICP workload burden. Finally, feasibility plans for future surveillance activities will continue to be developed in an effort to prioritize surveillance activities over the next several years.

By collaborating with the IH Quality, Risk and Accreditation portfolio IPAC will address the recommendations made by auditors during the 2012 Accreditation Canada evaluation of IH.

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

The final strategic initiative that focuses on promoting a Zero Tolerance Program for all *C. difficile* cases in the Health Authority will continue into the next fiscal year. Stakeholders will continue to be engaged to increase collaboration within Interior Health to improve the management of CDI across departments and facilities.

Figure 32: Strategic Map

STRATEGY (FY 2014)	KEY PARTNERS	INITIATIVES	PERFORMANCE MEASURES	SHORT-TERM GOALS (1-2 years)	MEDIUM-TERM GOALS (2-3 years)	ULTIMATE OUTCOME
Clostridium *difficile* Infection	Physicians, Pharmacy, Nursing, Housekeeping, Site/Unit Managers	Zero Tolerance Strategy (ZTS)	Implementation of ZTS	Immediate reduction of CDI cases	Increase collaboration across IH to prevent/ manage CDI	**Zero cases of CDI in IH**
				Increase awareness & understanding of CDI		
		CDI Stakeholder Engagement	# Meetings/ Presentations	All facilities below benchmark	Lower benchmark	
Hand Hygiene	PHHWG, PICNet, Quality, Executive Medical Directors, Site/Unit Managers, HH Committee	Audits	Quarterly quotas met	Implement residential auditing as per PHHWG	HCWs receive consistent messaging & education	**100% HH compliance rate for all HCWs**
		Education	# of HCWs Educated	Standardized education & promotion materials		
Surveillance	IMIT, PICNet, Strategic Management, CNISP, HAMAC, SET, Lab, Site/Unit Managers, Site/ Unit Committees	IPAC Electronic Surveillance	Implemented Report Template	Increase data reliability & elimination of system error reducing ICP workload burden	Improved efficiency & reliability of electronic surveillance	**Comprehensive surveillance program to make informed decisions to improve patient outcomes**
		Public Reporting of Data	Quarterly Reporting to Stakeholders	Standardize surveillance/ public reporting and distribution to key stakeholders	Reports are used to inform decision makers to improve patient outcomes	
Collaboration with Quality	Quality, Executive Medical Director, Risk Management, clinical programs & networks	Accreditation	Targets met	Accreditation Requirement review completed	Work with key partners on future requirements	**Accreditation preparation kept up to date**
AROs	Med Micro, IMIT, Professional Practice, Pharmacy, Nursing, Physicians	ARO Screening	% of completed screening tools	Adoption of the revised screening tool, and consistent completion	Develop a report to monitor compliance of completing screening tool	**No transmission of AROs**
		Alert Process	Educational Toolkit Developed	Discontinue screening for VRE and Appropriate risk	Ongoing HCW education re existing and emerging	
		Antimicrobial Stewardship Program	Rate reduction of HAI AROs	Support the development of the program	Program developed	
Tuberculosis	BCCDC TB Control, Public Health, WH&S, Acute Care Site Administrators, Nursing, Physicians	TB Report Recommendations	# of Recommendations Implemented	Recommendations prioritized	Implement high priority recommendations	**Reduced risk of TB exposure and transmission**
		Education/ Awareness Campaign in Facilities	# Educated in TB prevention	Improve TB practices		
			% of ERs with Respiratory Stations			

APPENDICES

APPENDIX A: DATA AVAILABILITY

Facility (Acute Care)	FY 2011 (Q3)	FY 2011 (Q4)	FY 2012 (Q1)	FY 2012 (Q2)
Arrow Lakes	☒	☒	☒	☒
Boundary District	☒	☒	☒	☒
Creston Valley	☑	☑	☒	☒
East Kootenay Regional	☑	☑	☒	☒
Elk Valley	☑	☑	☒	☒
Golden District	☑	☑	☒	☒
Invermere District	☑	☑	☒	☒
Kootenay Boundary	☒	☒	☒	☒
Kootenay Lake	☒	☒	☒	☒

APPENDIX B: TREND

HAI	Long-term						Short-term		
	Rate by FY					% change per period	Rate by FY		% change between FY
	2009	2010	2011	2012	2013		2012	2013	
CDI	4.46	8.50	6.27	5.93	6.16	0.2%	5.93	6.16	3.9%
MRSA	0.75	5.93	4.77	3.18	4.73	1.0% *	3.18	4.73	48.7% ***
VRE	0.09	0.48	4.43	4.26	9.69	5.8% ***	4.26	9.69	127.7% ***
SSI clean	1.25%	1.27%	1.11%	1.02%	1.25%	-0.2%	1.02%	1.25%	22.5% *
SSI clean contaminated	1.20%	1.24%	0.90%	1.00%	1.08%	-0.4%	1.00%	1.08%	8.0%
VAP	1.07	2.44	2.55	3.45	4.57	2.0% **	3.45	4.57	32.5%

*p<0.05, **p<0.01, *** p< 0.001

APPENDIX C: ABBREVIATIONS/ TERMINOLOGY

Acute Care Facility	Care facilities in which patients are treated for brief but severe episodes of illness, for traumas and injuries, or recovery from surgery.
ARO	Antibiotic Resistant Organism
Benchmark	A point of reference for judging value, quality, change, or the like, standard to which others can be compared.
CDI	*Clostridium difficile* Infection
FY	Fiscal Year
HAI	Healthcare Associated Infection
HAMAC	Health Authority Medical Advisory Committee
HCW	Healthcare Worker
ICP	Infection Control Practitioner
ICU	Intensive Care Unit
IH	Interior Health
IMIT	Information Management Information Technology
IMPACT	Infection Monitoring Prevention and Control Team
IPAC	Infection Prevention and Control
Limitations	Limits or restrictions.
LTC	Long-term Care
PHHWG	Provincial Hand Hygiene Working Group
PICNet	Provincial Infection Control Network of British Columbia
RN	Registered Nurse
SET	Senior Executive Team
SSI	Surgical Site Infection
Trend	General movement or direction of change.
VAP	Ventilator Associated Pneumonia
VRE	Vancomycin Resistant Enterococci
ZTP	Zero Tolerance Program

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

Antibiotic Resistant Organism (ARO) for 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 healthcare 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

APPENDIX E: LEGEND

Interior Health Status	Interior Health Trend
☑ - Below benchmark ☒ - Above benchmark	↑ - Rate increase from previous year ↓ - Rate decrease from previous year

Report prepared by:
Jennifer Tchir, Surveillance Information Assistant
Julie Mori, Epidemiologist
Janice de Heer, Corporate Director