Providence Health Care

Infection Prevention & Control

IPAC Biennial Report

April 1, 2020 to March 31, 2022

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Executive Message

From Camille Ciarniello, Executive Director, and Dr. Victor Leung, Medical Director

COVID-19 was the most significant issue facing Infection Prevention and Control (IPAC) and Providence Health Care (PHC) over the past 2.5 years. Each of the waves brought significant challenges to all acute care services, long term care homes, community clinics, and PHC as a whole. The pandemic challenged all of us in how we provide care to patients and residents and highlighted the infection risks that health care workers face on a daily basis.

Briefly highlighting the achievements of the IPAC team over the course of this unprecedented period is challenging – a synopsis of the diligence, the commitment, the compassion, and the humour that the team has demonstrated, paired with the angst of their experiences, does not lend itself to brevity.

We want to recognize the contributions of *everyone* at PHC who has continued to work throughout the pandemic. We are especially thankful to the IPAC team, who have had to adopt a "nimble" approach to their work:

- Continually adapting their practice and messaging
- Creating and updating guidance documents
- Stepping up to provide 7 days a week coverage with no notice, and
- Navigating the "jurisdictional differences" around COVID-19 transmission.

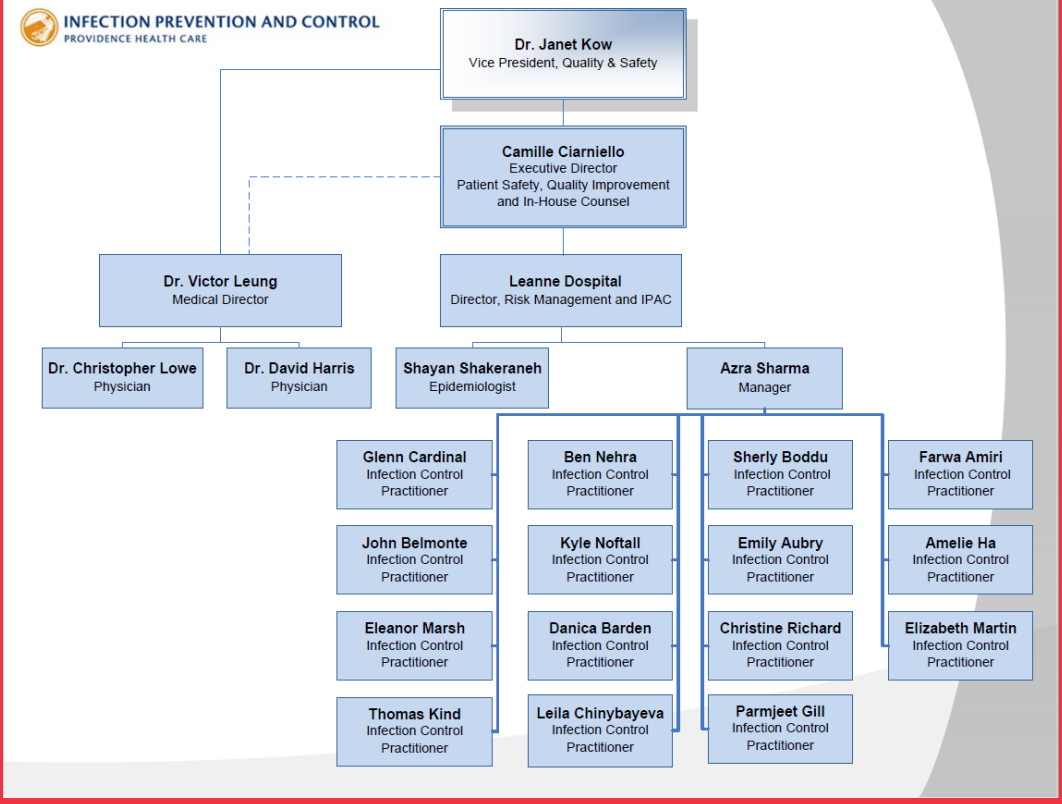
Early in the pandemic, we championed the importance of mitigating risk from airborne transmission of respiratory viruses. We have worked with our facilities management team to improve ventilation and filtration in our highest risk areas. These important learnings will guide our ongoing work in transforming how we think about cleaning shared air at PHC. Despite the intense focus on COVID-19, IPAC has continued our work alongside PHC staff to prevent other health care acquired infections.

Some members of the team chose to join in the midst of the pandemic's chaos and their learning was exponential. But we are strengthened by the experience. Partly strength in numbers – the pandemic highlighted the integral nature of the skill and expertise of the infection control practitioners (ICP), and the IPAC team has benefited from the addition of a manager and four new ICPs. But also strengthened by deepening the partnerships with our clinical counterparts, and developing a better understanding of how all the different parts of this amazing organization come together to create the best care possible.

We are in a good position to respond proactively to evolving epidemiological trends and emerging pathogens moving forward. IPAC's new leaders, Dr. Janet Kow (Vice President, Quality and Patient Safety), Leanne Dospital (Director), and Azra Sharma (Manager) will ensure that we continue to apply this learning moving forward.

Many thanks to the staff who came and went over these two years, and a special thank you to Dr. Ronald Carere (Vice President Medical Affairs, responsible for IPAC: 2017-2022), Bonnie Lantz (Director, 2016- 2020), and Sue Fuller-Blamey (Director, October 2020-July 2021) for their contributions and support of the IPAC team.

Who We Are – January 2023



IPAC is a team of 21 people primarily located at 1190 Hornby Street in Vancouver and serving all 17 PHC sites.

13.6 FTEs – Infection Control Practitioners (ICP)

1 FTE – Epidemiologist

1.2 FTEs – Physicians

1 FTE – Manager

0.5 FTE – Director

ICP Reflection: Mentorship

I joined the IPAC team in October 2021 but have worked in more than 5 departments over 15 years.

I very much appreciated IPAC's on-boarding process and orientation. It is well organized and supported by each member of the IPAC team – fellow ICPs, manager, director(s), IPAC physicians, and administrative support.

Most importantly, the mentorship program was the absolute best way to help prepare me to transition into my new job role as Infection Control Practitioner.

Every day I am grateful, continue to learn, and appreciate the talents and kindness of the IPAC team.

Vision, Mission, and Values

IPAC is in alignment with the Mission, Vision, and Values of Providence Health Care (PHC).

The vision of IPAC is to help stop preventable infections.

What We Do

Preventing infections is a shared goal of all who work in health care. Working collaboratively, IPAC is responsible for developing and implementing strategies to reduce or prevent the spread of healthcare-associated infections (HAIs) in patients, residents, visitors, and staff.

We help improve health outcomes in collaboration with our partners.

Our vision and mission are carried out using the initiatives below.

- Surveillance
- Hand hygiene audits
- Education and training
- Outbreak management
- Construction, renovation, maintenance and design (CRMD) consulting
- Policy and procedure development
- Case management
- Environmental monitoring
- Innovation and projects

"It is estimated that up to 70% of HAIs are preventable. An effective IPAC program can reduce the burden associated with HAIs, resulting in fewer HAIs, reduced length of hospital stay, less antimicrobial resistance, and lower costs related to treatment for infections."

IPAC Canada

Surveillance

Surveillance is the systematic and consistent ongoing collection, analysis, and interpretation of data with timely dissemination of results to those who require it in order to take action.

It helps to identify risks of infection and reinforces the need for good practices. Regular reporting of data collected is important for awareness and action by the front line staff and by organization leaders.

The main objectives of surveillance of hospital-associated infections/colonizations are:

- Early detection of clusters and outbreaks
- Identification of risks for infections and implementation and subsequent evaluation of risk-reducing interventions
- Monitoring of infection rates over time and evaluation of trends

PHC's current surveillance systems are:

- Antibiotic-resistant organisms (ARO) including Methicillin Resistant *Staphylococcus aureus* (MRSA), Vancomycin Resistant Enterococci (VRE), and Carbapenemase Producing Organisms (CPO)
- *Clostridioides difficile* infection (CDI)
- *Mycobacterium tuberculosis* (TB)
- Surgical Site Infections such as Cardiac and Renal Transplant surgery
- Central line-associated bloodstream infections (CLABSI)
- Healthcare associated *Staphylococcus aureus* bloodstream infections (HA-SAB).

Strategic Direction:

Quality Forward: Exceptional Quality, Safety & Value

Hospital Acquired Infections and Hand Hygiene Data is reported to the PHC Senior Leadership Team and Board

Methicillin Resistant *Staphylococcus aureus* (MRSA)

Background

- MRSA is an antibiotic-resistant bacteria that is transmissible in hospital, long-term care and community settings. MRSA has the potential to cause serious infection for which treatment options are limited.

- In hospital, MRSA infections are associated with increased length of stay, higher mortality and increased costs. Early identification of patients colonized[1] with MRSA through admission screening and prompt implementation of infection control measures can prevent transmission of MRSA. Admission screening at St. Paul's Hospital (SPH) and Mount Saint Joseph Hospital (MSJ) is risk-factor based. In the ICU, patients are screened on admission for MRSA and subsequently at weekly intervals.

Outcome

There were 581 new cases of MRSA identified at PHC in 2020/21, and 588 cases in 2021/22.

- In 2020/21, 68 (12%) and in 2021/22, 71 (12%) were classified as PHC-associated cases. Of these, 54 (79%) in 2020/21 and 61 (86%) in 2021/22 were from acute care facilities.
- The PHC-associated incidence rate in 2021/22 was 4.1 cases /10,000 patient days (95% CI: 3.1-5.3). The rate was similar to last fiscal year (4.0 cases/10,000 patient days (95% CI: 3.0-5.3, p=0.94).
- The MRSA incidence rate at St. Paul's Hospital in 2021/22 was 4.4 cases/10,000 patient days (95% CI: 3.3-5.7). This rate was the same as the last fiscal year (4.4 cases/10,000 patient days, 95% CI: 3.3-5.8, p=0.96).
- The MRSA incidence rate at Mount Saint Joseph Hospital in 2021/22 was 2.5 cases/10,000 patient days (95% CI: 0.92-5.5). This rate was similar to the last fiscal year (2.4 cases/10,000 patient days, 95% CI: 0.76-5.5, p=0.94).
- In 2020/21 63% and 49% in 2021/22 of PHC-associated cases were identified through hospital admission screening programs, while remaining cases were identified from clinical specimens.

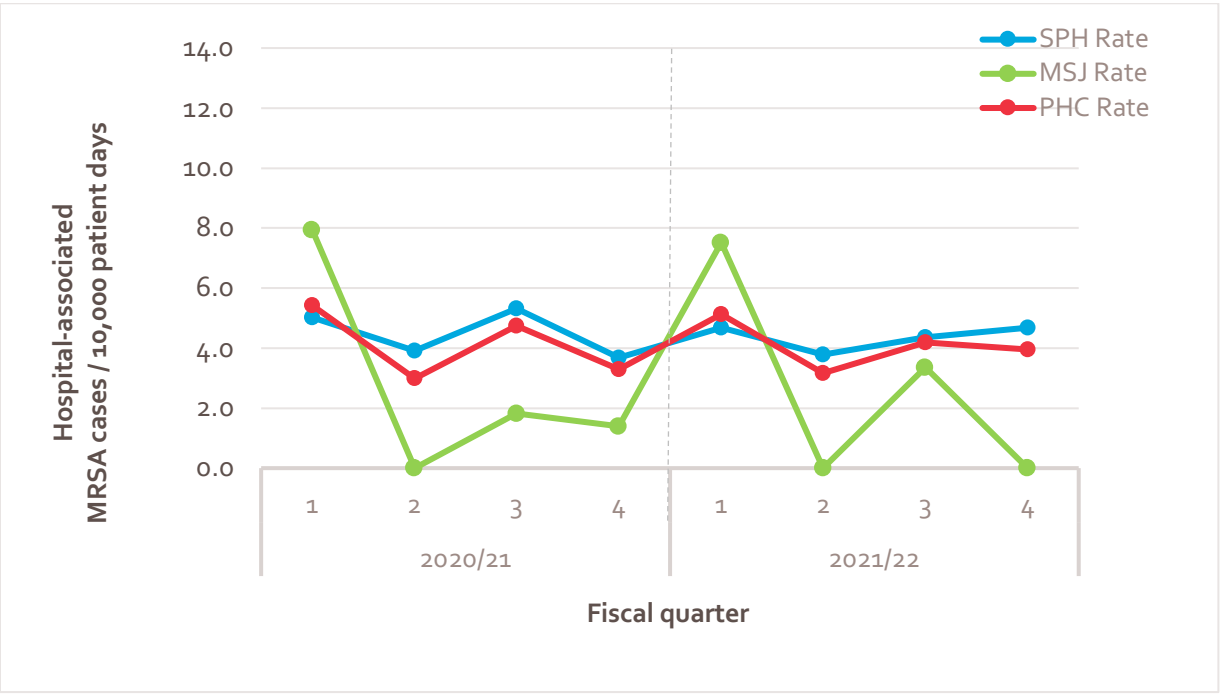
Working on

IPAC continues to work closely with leaders and frontline staff of the Emergency and Medicine Departments to ensure timely ordering and collection of the admission screens.

[1] Colonization is the presence of bacteria on a body surface (like on the skin, mouth, intestines, or airway) without causing diseases in the person.

Figure 1: PHC-associated MRSA incidence rate in acute care facilities, 2007/08 to 2021/22

Figure 2: PHC-associated MRSA incidence rate by acute care facility site and fiscal quarter, 2020/21 to 2021/22



Vancomycin Resistant *Enterococcus* (VRE)

Background

VRE are antibiotic-resistant bacteria that can be transmitted to patients in health care facilities. Colonization with VRE is more common than infection, and since colonization is the first step towards infection, prevention is crucial.

Outcome

There were 558 new cases of VRE identified at PHC in 2020/21, and 594 cases in 2021/22.

- In 2020/21, 341 (61%) and in 2021/22, 317 (53%) were classified as PHC-associated cases. Of these, 318 (93%) in 2020/21 and 298 (94%) in 2021/22 were from acute care facilities.
- The PHC-associated incidence rate in 2021/22 was 20.0 cases/10,000 patient days (95% CI: 17.8-22.4). The rate was statistically significantly lower than the last fiscal year (23.7 cases/10,000 patient days (95% CI: 21.2-26.5, $p<0.05$).
- The VRE incidence rate at St. Paul's Hospital in 2021/22 was 21.8 cases/10,000 patient days (95% CI: 19.3-24.5). This rate was statistically significantly lower than the last fiscal year (26.3 cases/10,000 patient days, 95% CI: 23.4-29.5, $p<0.05$).
- The VRE incidence rate at Mount Saint Joseph Hospital in 2021/22 was 10.4 cases/10,000 patient days (95% CI: 6.8-15.4). This rate was similar to the last fiscal year (10.0 cases/10,000 patient days, 95% CI: 6.2-15.2, $p=0.88$).
- In 2020/21 86% and 79% in 2021/22 of PHC-associated cases were identified through hospital admission screening, while remaining cases were identified through clinical specimens.

Working on

- IPAC continues to promote a risk-informed VRE control program to prevent transmission and protect our most vulnerable patients.

Figure 3: PHC-associated VRE incidence rate in acute care facilities, 2007/08 to 2021/22

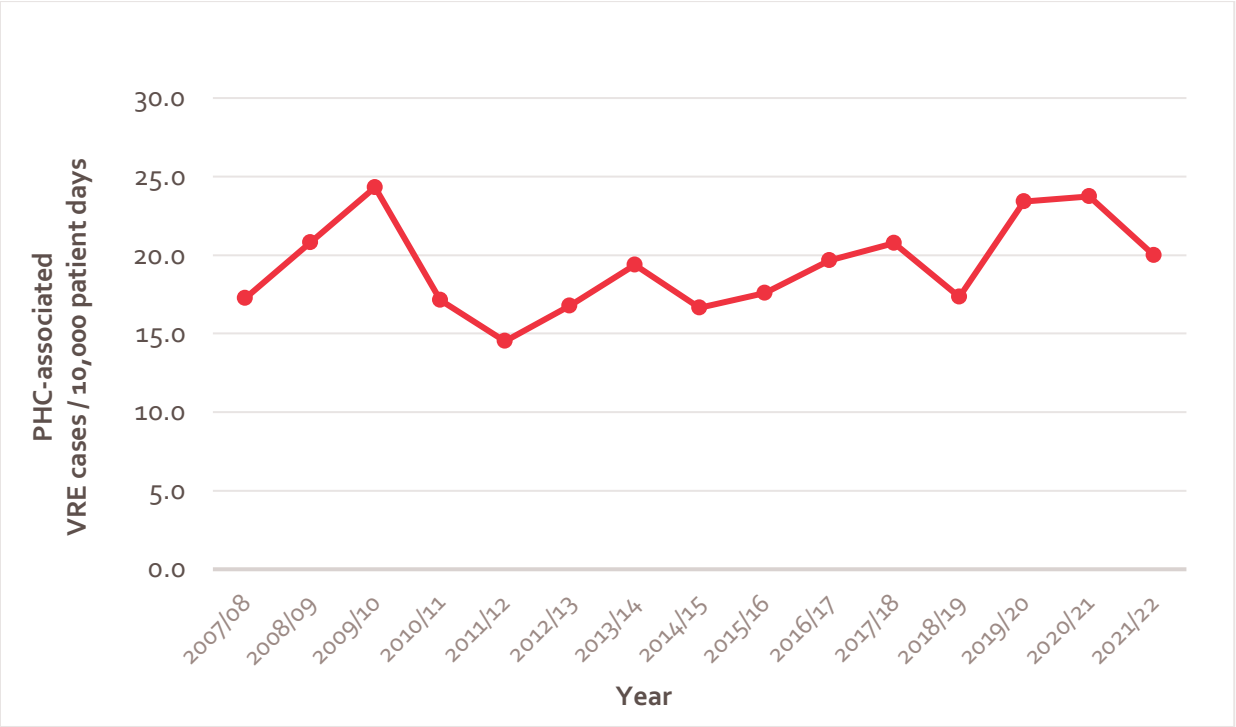


Figure 4: PHC-associated VRE incidence rate by acute care facility site and fiscal quarter, 2020/21 to 2021/22

Clostridioides difficile Infection (CDI)

Background

CDI is the most common cause of health care-associated infectious diarrhea. IPAC is actively involved in preventing transmission by engaging in the following activities:

- Providing regular education for staff and patients on units with respect to appropriate isolation precautions, cleaning and disinfection practices, and hand hygiene;
- Increasing the frequency of communication with environmental cleaning staff to inform them of patient rooms requiring enhanced bleach disinfection;
- Creating a process for environmental cleaning staff to inform unit staff upon completion of bleach disinfection; and
- Notifying the Antimicrobial Stewardship Program (ASP) of inpatient and outpatient cases to ensure our patients and residents receive timely, effective and optimal antimicrobial therapy and management.

Outcome

There were 116 new cases of CDI identified at PHC in 2021/22, and 132 cases in 2021/22.

- In 2020/21, 53 (46%) and in 2021/22, 83 (63%) were classified as PHC-associated cases. Of these, 47 (89%) in 2020/21 and 73 (88%) in 2021/22 were from acute care facilities.
- The incidence rate of PHC-associated CDI in acute care facilities in 2021/22 was 4.9 cases/10,000 patient days (95% CI: 3.9-6.2). This is higher than the previous fiscal year (3.5 cases/10,000 patient days, 95% CI: 2.6-4.7, p=0.07).
- The CDI incidence rate at St. Paul's Hospital in 2021/22 was 5.4 cases/10,000 patient days (95% CI: 4.2-6.8). This rate was higher than last fiscal year (3.6 cases/10,000 patient days, 95% CI: 2.5-4.9, p<0.05).
- The CDI incidence rate at Mount Saint Joseph Hospital in 2021/22 was 2.5 cases/10,000 patient days (95% CI: 0.92-5.5). This rate was similar to the last fiscal year (3.3 cases/10,000 patient days, 95% CI: 1.3-6.8, p=0.62).
- The unadjusted incidence, which includes patients colonized with CDI in 2021/22, was 8.7 per 10,000 patient days (95% CI: 7.3-10.3). This rate was higher than the unadjusted incidence from last fiscal year (6.8 cases/10,000 patient days, 95% CI: 5.4-8.3, p=0.06).

Outcome – CDI Rates by Test Results

- PHC transitioned to a 2-step test reporting algorithm with PCR testing followed by rapid antigen testing in quarter 4 of 2017/18.
- PHC-associated rates by testing results (positive, indeterminate, overall) are displayed in Figure 5.
- Over the last 4 years, although indeterminate results from the 2-step algorithm contributed to PHC-associated rates, positive test results continued to be the key driver. This indicates that we are seeing an increase in cases with true infection.
- Testing volume could have impacted CDI rates with higher volume of testing correlating with higher rates of CDI, which may have explained the increase in our rates over the last 4 years.

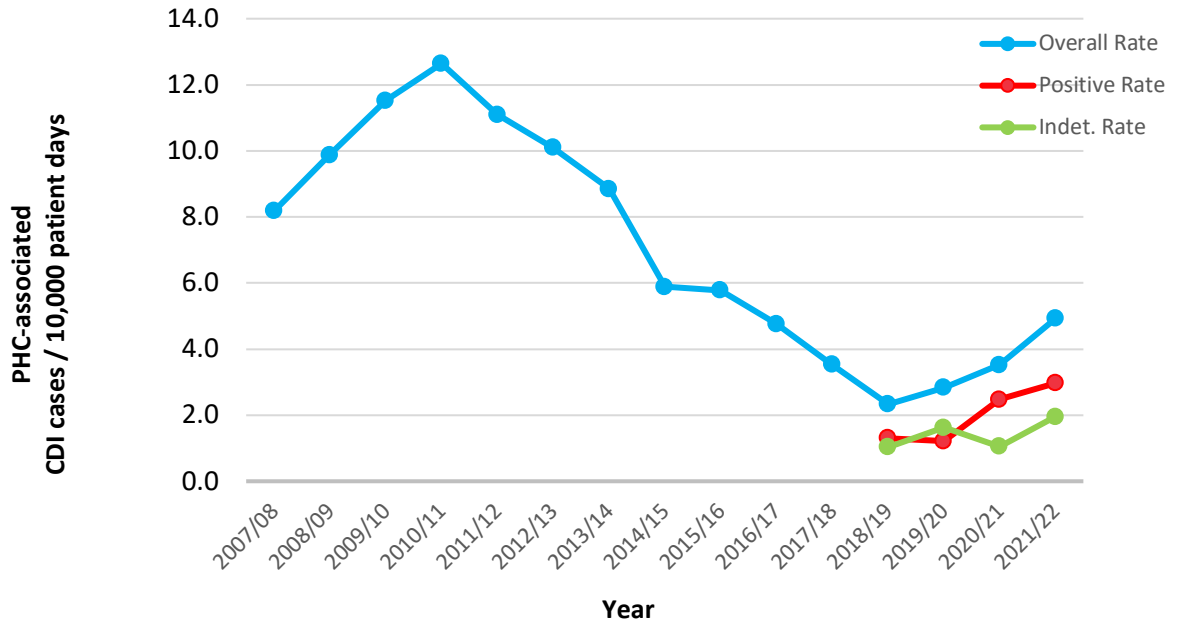
Issues

- Patients can be colonized with CDI prior to entering our hospitals and remain asymptomatic without clinical disease, only to develop CDI after receiving antibiotics in hospital. As a result, some CDI cases that are acquired in the community are misclassified as health care-associated CDI.
- 2021/22 was the fifth year that IPAC, along with the Antimicrobial Stewardship Program (ASP), clinically reviewed every case of CDI to determine whether the patient had a true infection, rather than colonization. This information is reflected in this year's rate.

Working on

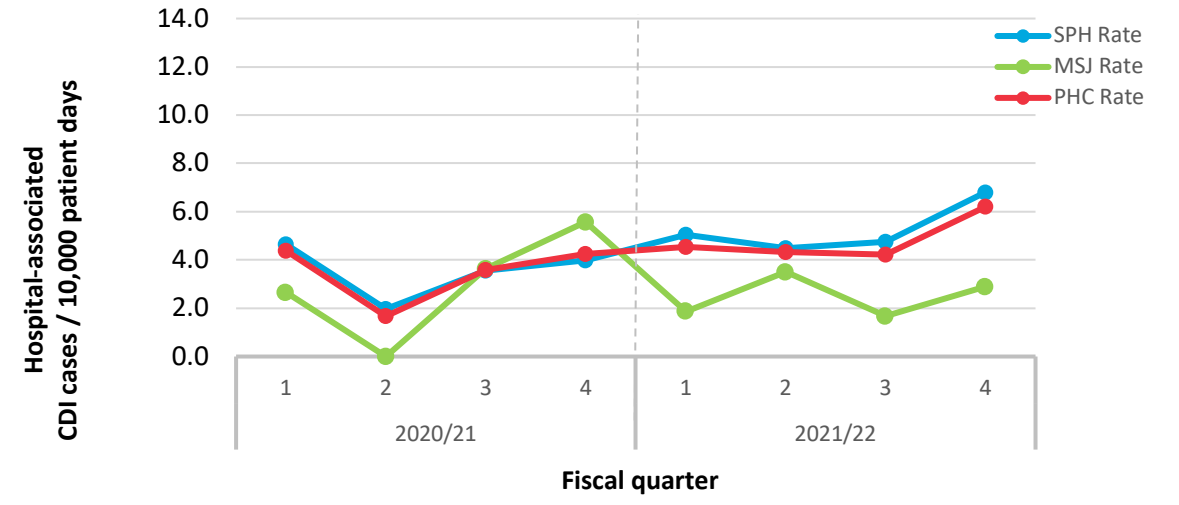
- IPAC continues to collaborate with the PHC ASP. This collaboration ensures that upon a patient's new positive or indeterminate CDI result, the ASP pharmacist and physician receive real-time alerts.
- Infection control practitioners continue to round on every CDI case, providing education on contact precautions and hand hygiene for both patients and staff.

Figure 5: PHC-associated CDI incidence rate by test results in acute care facilities, 2007/08 to 2021/22



CDI rates exclude colonization and relapse.
Positive & indeterminate test results started in 2017/18 Q4 P11 (Jan. 30th).
Switched from laboratory developed PCR to GeneXpert in Q2 2019/20.

Figure 6: PHC-associated CDI incidence rate by acute care facility site and fiscal quarter, 2020/21 to 2021/22



CDI rates exclude colonization and relapse.

IPAC Web Page

With the implementation of the new PHC Connect, the IPAC team wanted to take advantage of this opportunity to refresh and improve the IPAC web page. With a goal to create a digital resource that was full of relevant content yet easy to navigate (and nice to look at!), we wanted PHC staff to have all the IPAC related information they need right at their fingertips.

We hope that this will empower staff and encourage them to take an active role in preventing and controlling infections at PHC sites.

Carbapenemase Producing Organisms (CPO)

Background

- CPO are gram-negative bacteria that are resistant to carbapenems (considered antibiotics of last resort) and many other antibiotic classes. CPO infections are associated with high morbidity and mortality. Once established in a healthcare facility, CPO is difficult to control.
- In Canada, cases (infection or colonization) have primarily been identified in patients previously hospitalized in endemic countries (e.g., China, India, USA and Greece). Health care-associated transmission of CPO within British Columbia facilities has also been documented. In December 2016, CPO was added to the list of reportable communicable diseases in BC.
- At PHC, an Antibiotic Resistant Organism (ARO) Admission Risk Assessment Order was created and implemented in May 2014 in response to the BC CPO Working Group recommendations for identifying and screening high-risk patients on admission to acute care facilities. Further amendments to the Admission Risk Assessment Form were made in 2017 to create a more focused screening assessment.

Outcome

A total of 679 screening swabs were collected for CPO at PHC in 2020/21, and 853 in 2021/22.

- CPO screening was primarily conducted on inpatient units at St. Paul's Hospital and Mount Saint Joseph Hospital but also in the Emergency Department, Community Hemodialysis Units and Holy Family Hospital Rehab.
- 12 new CPO cases were identified at PHC in 2020/21, and 13 cases in 2021/22.
- KPC (50%) was the most prevalent carbapenemase gene identified in 2020/21 and NDM (46%) in 2021/22.
- In 2020/21, 4 (33%) and in 2021/22, 1 (8%) patients reported a healthcare encounter outside of Canada in the 12 months prior to detection. In 2020/21, 5 (42%) and in 2021/22, 6 (46%) patients were considered to have an infection, rather than colonization. None of the patients died due to CPO infection.

Table 1: Distribution of genes identified in CPO positive patients from 2012/13 to 2021/22

Fiscal year	KPC	NDM	OXA-48	VIM	IMP	Patients with multiple genes
2021/22 (n=13)	4 (31%)	6 (46%)	1 (8%)	0	0	2 (15%)
2020/21 (n=12)	6 (50%)	5 (42%)	0	0	1 (8%)	0
2019/20 (n=22)	8 (36%)	10 (45%)	1 (5%)	0	1 (1%)	2 (9%)
2018/19 (n=14)	6 (43%)	4 (29%)	2 (14%)	1 (7%)	0	1 (7%)
2017/18 (n=4)	0	2 (50%)	1 (25%)	0	0	1 (25%)
2016/17 (n=3)	0	2 (67%)	1 (33%)	0	0	0
2015/16 (n=2)	1 (50%)	0	0	0	0	1 (50%)
2014/15 (n=1)	0	1 (100%)	0	0	0	0
2013/14 (n=0)	0	0	0	0	0	0
2012/13 (n=3)	0	0	0	2 (67%)	1 (33%)	0

Mycobacterium tuberculosis (TB)

Background

St. Paul's Hospital and Mount Saint Joseph Hospital frequently manage patients with an active TB infection. As TB can be difficult to identify and diagnose, the most important contributor to health care-associated transmission is patients with unrecognized respiratory TB disease. Therefore, preventing in-hospital transmission of TB relies on a number of components including:

- Early identification of patients who are at high risk for active pulmonary disease
- Prompt implementation of airborne precautions when active pulmonary disease is a consideration
- Maintenance of appropriate precautions until either TB is ruled out and an alternate diagnosis is identified, or the patient is no longer considered infectious

Outcome

There were 27 cases in 2021/22 of active pulmonary TB diagnosed at PHC acute care facilities. Of these, 17 (63%) cases were inpatients. Seven (41%) inpatient cases required contact tracing which resulted in 14 patient follow-ups.

- This is higher than **in 2020/21 where there were 22 new cases identified** with 5 (23%) inpatient cases identified of which 2 (40%) required patient screening resulting in 5 exposed patients.
- On follow-up, Vancouver Coastal Health Authority (VCH) Public Health did not find evidence of TB transmission among any of these contacts.
- Prevention of in-hospital TB transmission is focused on promoting the appropriate transmission-based precautions for suspect or confirmed TB cases. Physicians and other frontline staff should maintain a high index of suspicion for TB among high risk groups and consult with IPAC before discontinuing airborne precautions.
- We continue to improve utilization of the Assessment, Communication and Education (ACE) tool to guide risk assessments and standardize Infection Control Practitioners' documentation and recommendations. We also work closely with VCH Public Health, Occupational Health & Safety and Workplace Health Call Centre to align our efforts in contact tracing.

Surgical Site Infection (SSI) – Renal Transplant Surgery

Background

Due to the identification of CPO cases among renal transplant patients, we have started working with the renal transplant pharmacist, urology, nephrology and BC Transplant Society to prevent CPO transmission within this patient population. We implemented a renal transplant surgical site surveillance system in August of 2020.

Outcome

Table 2: Summary of renal transplant surgical infections 2020/21 to 2021/22

	2020/21	2021/22
Renal transplant surgeries performed at PHC	175	195
Renal transplant SSI cases	8 (4.6 per 100 procedures)	2 (1.0 per 100 procedures)
Infection classification	8 (100%) organ space	2 (100%) organ space
Preoperative antibiotics used	8 (100%)	2 (100%)

Surgical Site Infection (SSI) – Cardiac Surgery

Background

In collaboration with the Division of Cardiac Surgery, IPAC has conducted SSI surveillance for coronary artery bypass graft (CABG) surgery and cardiac valve replacement surgery for the past seven years. Cases are identified by weekly review of the consults seen by the Infectious Diseases service and through cardiac nurse practitioners notifying IPAC of any suspected SSI via a dedicated phone line.

Working on

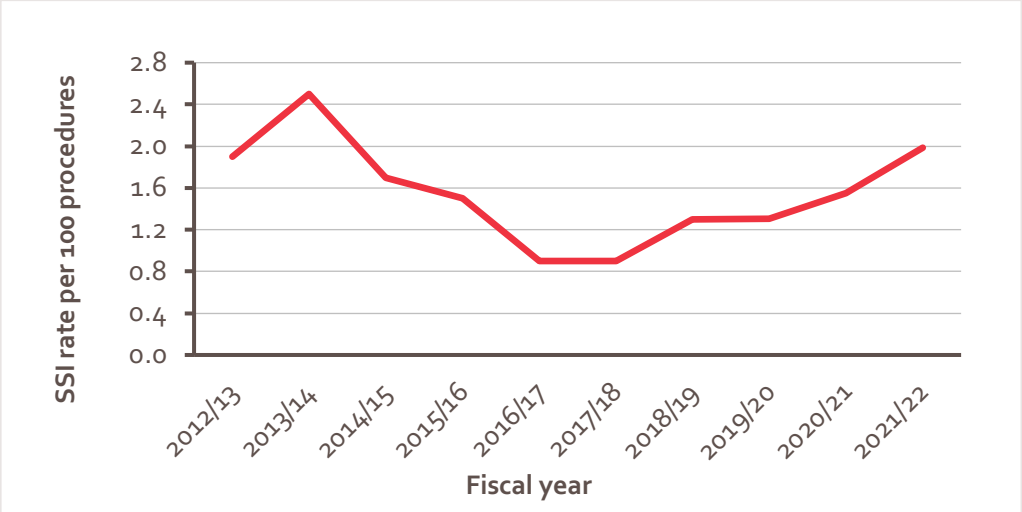
We are exploring ways to better ensure we have adequate case ascertainment. We will work with nurse practitioners and the cardiac surgeons to identify ways for more efficient and comprehensive case follow-up.

Outcome

Table 3: Summary of cardiac surgical infections 2020/21 to 2021/22

	2020/21	2021/22
Cardiac surgeries performed at PHC	581	654
Cardiac SSI cases	9 (1.6 per 100 procedures)	13 (2.0 per 100 procedures)
Infection classification	7 (78%) superficial 2 (22%) organ space	6 (46%) superficial 7 (54%) organ space
Location of infections	8 (89%) sternum 1 (11%) donor site	11 (85%) sternum 2 (15%) donor site
Preoperative antibiotics used	9 (100%)	13 (100%)

Figure 8: SSI rate per 100 procedures following CABG and valve surgery, 2012/13 to 2021/22



Central Line-Associated Bloodstream Infection (CLABSI)

Background

Central Line-Associated Bloodstream Infection (CLABSI) continues to be one of the most costly hospital-associated infection resulting in prolonged hospital stays and increased patient morbidity and mortality.

IPAC's CLABSI surveillance is focused on cases associated with the intensive care unit (ICU) at St. Paul's Hospital. Detection of CLABSI-related cases is based on ICP review of all ICU-associated positive blood cultures. We use standardized case definitions and methods from the Centers of Disease Control and Prevention's (CDC) National Healthcare Safety Network.

Cases are confirmed by an IPAC physician.

Outcome

Due to Cerner limitations in extracting data as well as dealing with numerous COVID-19 outbreaks, the IPAC team was not able to dedicate the resources to complete a retrospective review of cases from November 2019 to December 31, 2021. Instead, the team decided to do prospective review of cases starting January 1st, 2022.

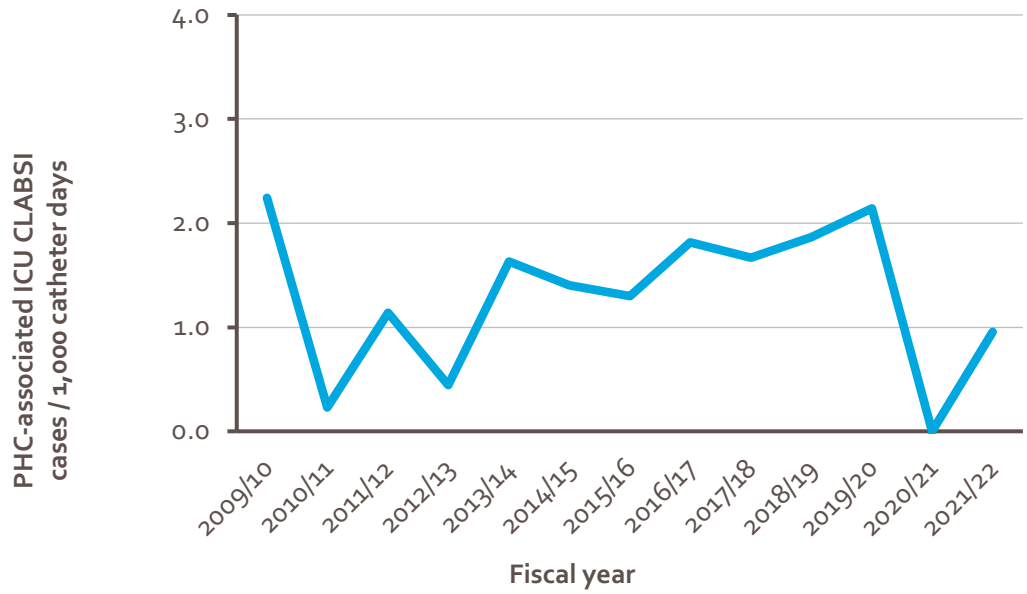
There were 5 cases from January 1st to March 31st, 2022

Five (100%) of the cases were clustered in the first quarter. Two (40%) patients died.

Working on

We are working with PHC Data Analytics teams to automate data collection and analysis process. This innovation would allow for more rapid data analysis and reporting of cases to ICU.

Figure 9: PHC-associated ICU CLABSI incidence rate by fiscal year, 2009/10 to 2021/22



*2020/21: No cases were reviewed due to Cerner limitations and lack of human resources.

Healthcare Associated *Staphylococcus aureus* Bloodstream Infections (HA-SAB)

Background

- HA-SAB are associated with significant morbidity and mortality.
- Surveillance for HA-SAB is required to identify probable sources for healthcare transmission, and to target infection control interventions to prevent HA-SAB in our facilities.
- In the 2020/21 and 2021/22 fiscal year, we worked in collaboration with PHC Data Analytics to develop a semi-automated system to identify possible HA-SAB cases at PHC acute care facilities. Each case will be reviewed by an ICP and IPAC Physician. Confirmed cases of HA-SAB will be reported to a dashboard to be utilized as an ongoing quality metric.
- We look forward to presenting the first year (2022/23) of HA-SAB surveillance data in the next IPAC annual report.

Urinary Tract Infections (UTI) and Asymptomatic Bacteriuria in Long-Term Care

Background

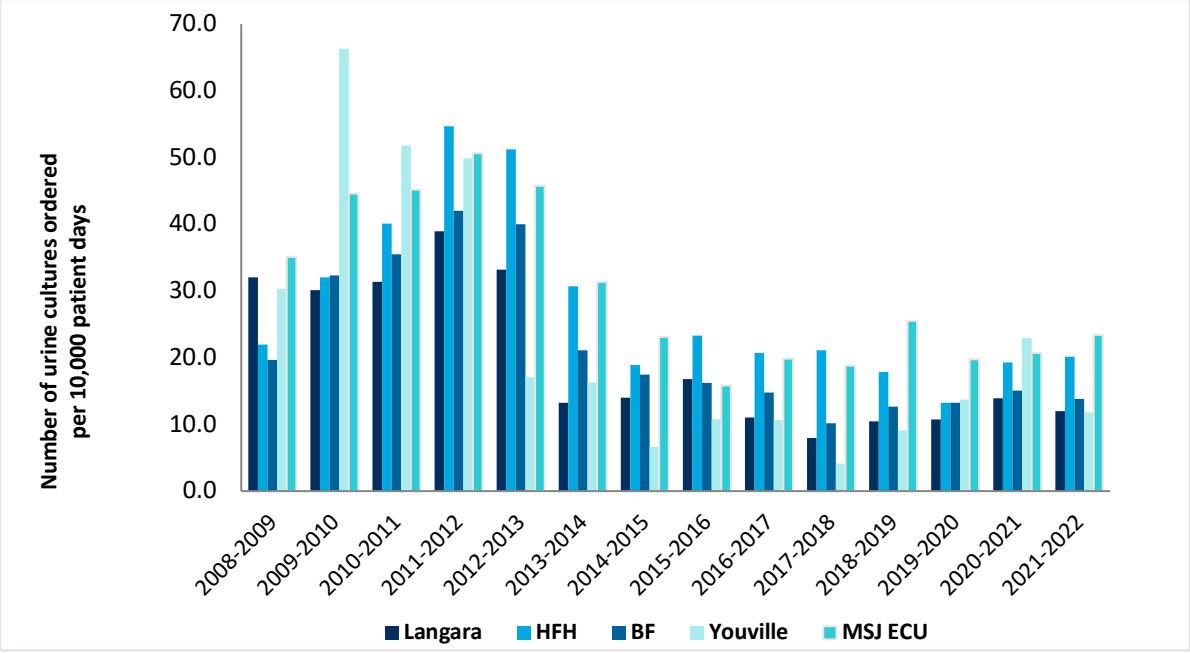
Urine culture collection is a primary driver of increased antimicrobial use. Our goal is to reduce the number of unnecessary urine cultures collected from residents in long-term care homes.

In 2013, IPAC focused on auditing and providing feedback to nurses and physicians for all urine cultures collected between January and December at St. Vincent residence. This project was in collaboration with the PHC Antimicrobial Stewardship Program.

Although the intense phase of review and feedback stopped at the end of 2013, we have continued to collect data on the total number of urine cultures ordered and collected at the residential care sites. We conduct annual follow-up to see if the initial intensive audit, feedback and education for the residential care facilities would be sustained without the need for intense phase interventions.

As of March 2022, we have continued to see a sustained significant decrease in urine cultures collected from all residential care sites. Antimicrobial use has also decreased for suspected UTIs. All sites have had a significantly lower rate of urine cultures collected since 2012. Antimicrobial use also decreased for suspected UTIs.

Figure 10: Number of urine cultures collected at PHC residential care homes, 2008/09 to 2021/22



Rapid Antigen Tests – RATs

PHC IPAC has been a pioneer in using Rapid Antigen Tests (RATs) for staff beginning as early as January 2021 when the Heart Centre experienced a COVID-19 outbreak involving 17 patients and 33 staff members. Given the ongoing transmission during the 34 days of the outbreak, asymptomatic staff were tested twice a week to identify new cases before onset of symptoms. Using this strategy, we were able to identify 3 staff members and mitigate further transmission within the hospital.

As the pandemic progressed and vaccines became readily available, the guidance around exposed contacts changed to no longer require mandatory quarantine for vaccinated individuals who were exposed to COVID-19. Knowing that RATs are a valuable tool in identifying COVID-19 prior to onset of symptoms, PHC IPAC offered staff with known positive household members a take home RAT kit. This allowed the exposed employee to do daily testing before coming for their shift. If an employee was positive, they would proceed to a testing site for a confirmatory PCR. This unique strategy prevented positive employees from coming to work infectious.

Hand Hygiene

Background

Hand hygiene [hand-washing with soap and water or using an alcohol-based hand rub (ABHR)] is the single most important strategy for preventing health care-associated infections. However, overall compliance with hand hygiene among health care professionals continues to be a challenge. At PHC, we encourage improvements in hand hygiene compliance and practices.

Our team continues to support the organization's improvement of hand hygiene compliance through:

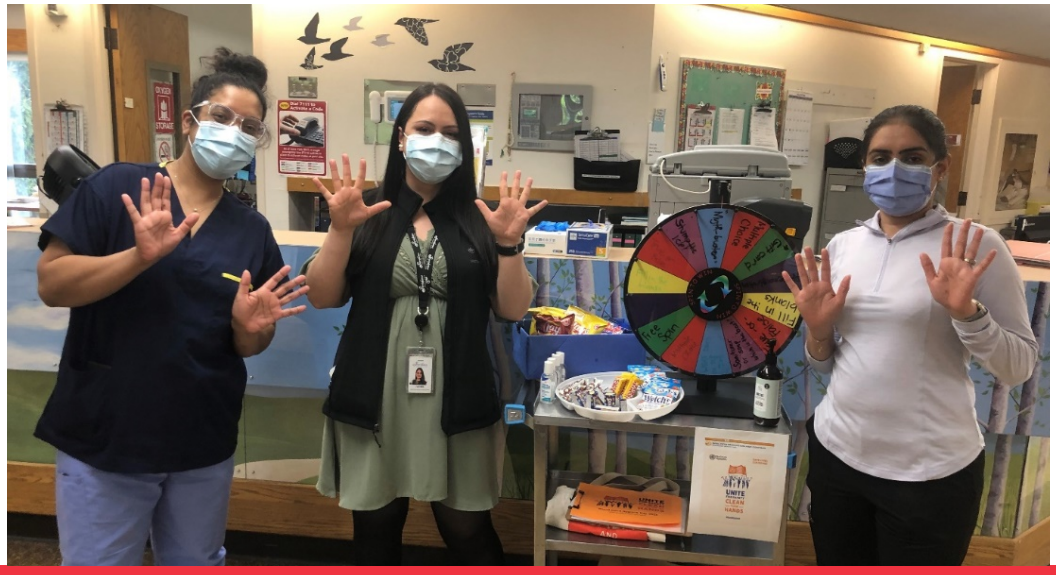
- Quarterly audits using World Health Organization's "gold standard" methodology of direct observation.
- Improving access to and customization of ABHR dispensers.
- Emphasising hand hygiene before patient contact.
- ICPs focusing on hand hygiene in unit huddles.
- Fostering a "bare below the elbows" culture.

Outcome

We continue to use the electronic capturing of hand hygiene observations and automation of data analysis and reporting. In addition, we expanded our observations from a 3 week period per quarter to auditing throughout the quarter in hopes of minimizing the Hawthorne Effect. Due to COVID-19, we did not complete audits in long term care sites in 2020/21 and in quarter one of 2021/22.

Working on

We will continue to emphasize just-in-time education, activities around improving compliance "before" patient contact and patient hand hygiene. Facility risk assessments will be completed to target staff engagement and hand hygiene infrastructure improvements.



Average hand hygiene compliance across all health care workers in acute care facilities:

76% in 2020/21

66% before patient contact

83% after patient contact

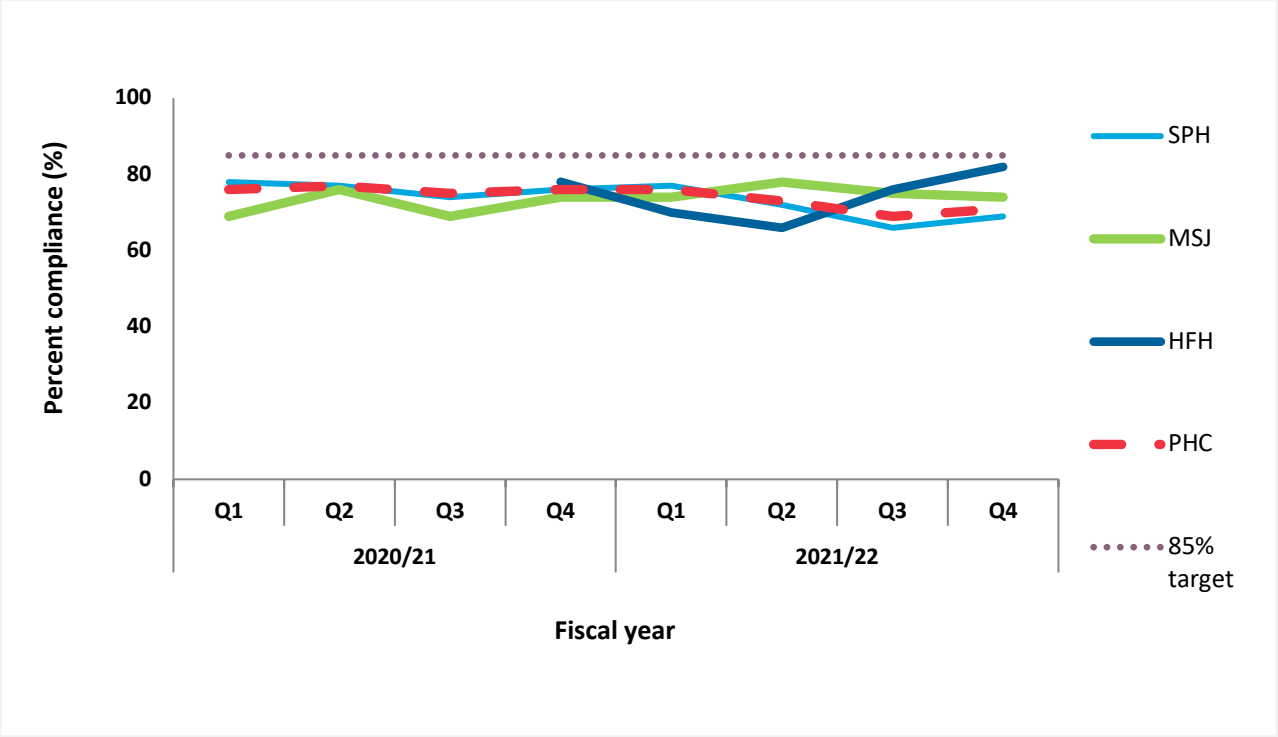
72% in 2021/22

61% before patient contact

80% after patient contact

Both "before" and "after" patient contact compliance were slightly lower in acute care compared to 2020/21.

Figure 11: Hand hygiene compliance % by acute care facility, 2020/21 to 2021/22



Education and Training

IPAC provides education to staff, physicians, patients and visitors in order to increase awareness of infection prevention and control measures. Education is provided during unit huddles, in presentations, while consulting, and on the IPAC website.

We:

- Provide updates and discuss "hot topics" at monthly leadership meetings and at the Acute Nursing Practice Council
- Present at the general nursing orientation (GNO) for new hires
- Provide an orientation for incoming residents in critical care, cardiology, and medicine and other disciplines as needed
- Deliver the mandatory Learning Hub *Hand Hygiene Module* for all staff
- Deliver *Personal Protective Equipment (PPE) Skills Lab* – a hands-on session for donning and doffing PPE
- Train PPE spotters and coaches in acute and long term care.
- Celebrate IPAC Week and Hand Hygiene Day with a travelling roadshow

Outbreak Management

ASSESS → CONTAIN → COMMUNICATE

IPAC has been at the forefront of the assessment, investigation, containment, prevention, education, and communication of outbreaks of communicable diseases at PHC facilities.

In collaboration with Vancouver Coastal Health Authority's (VCH) Communicable Disease Control, IPAC is responsible for investigating clusters of cases and determining whether there is an outbreak at a PHC facility.

Standardized control measures are promptly implemented when each outbreak is declared.

In the past two years, during the COVID-19 pandemic, we have created strong relationships with VCH's Medical Health Officers (MHO), Emergency Operations Centre (EOC), PHC's Pandemic Response Team (PRT) and our acute care and long-term care partners.

In Q2 of 2020/21, we had the first large COVID-19 outbreak at Holy Family Hospital. The outbreak lasted for 83 days and has been the longest outbreak to date → 53 residents and 35 staff tested positive with SARS –CoV-2.

In 2020/21, there were 28 outbreaks/clusters across acute and long-term care, and 100 patients/residents and 115 staff who tested positive (Table 4).

In 2021/22, there were 14 outbreaks/clusters which was significantly lower than the previous year. There were 162 patients/residents and 63 staff who tested positive for SARS- CoV-2 (Table 4). Most of the outbreaks/clusters and cases were from quarter 3 and 4 of 2021/22, during the Omicron wave.

Table 4: PHC-associated outbreaks and clusters, 2020/21 to 2021/22

Fiscal year	Site (Acute/LTC)	Number of outbreaks/ clusters	Outbreak duration (days)	Number of patients/ residents cases	Number of staff cases
2020/21	Acute	14	238	47	64
	LTC	14	248	53	51
2021/22	Acute	6	122	34	8
	LTC	8	176	128	55

Construction, Renovation, Maintenance and Design (CRMD)

IPAC is an active participant on the New St. Paul's Hospital project team and provides consultation during all phases of CRMD.

Our responsibilities include:

- Preventing construction related changes that could increase the risk of hospital-associated infections.
- Ensuring the proposed project is compliant with current Canadian Standards Association (CSA) standards.
- Performing an Infection Control Risk Assessment with project managers.
- Reviewing and approving technical drawings and plans.
- Touring the construction area and auditing compliance with IPAC measures.
- Raising IPAC gaps or issues to project lead/stakeholder team.
- Providing education to internal and external CRMD stakeholders.

IPAC regularly collaborates with the Facilities and Maintenance Office (FMO) to:

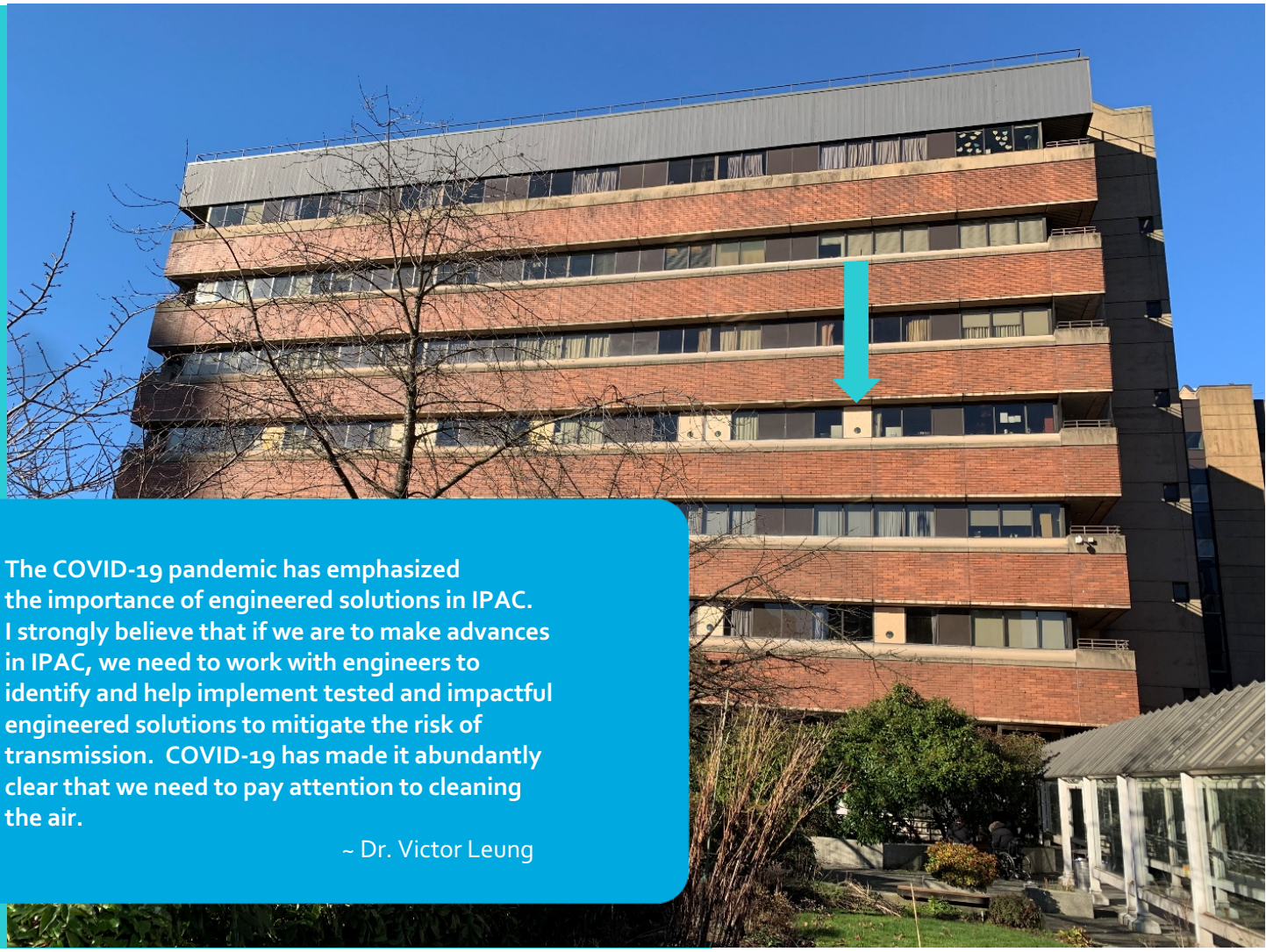
- Monitor heating, ventilation and air conditioning (HVAC) systems.
- Assess Co2, relative humidity, and temperature for indoor spaces.
- Place Portable Air Handling Units (AHU).
- Ensure appropriate placement of hand hygiene products.

COVID-19 Pandemic Reflections

- IPAC received more resources – we have a bigger and stronger team.
- COVID-19 highlighted IPAC's mandate at PHC.
- Applied learning throughout the pandemic – continually adapted practice based on evidence and operational requirements.
- Recognized the importance of airborne transmission of SARS-CoV-2 and applied measures to mitigate against airborne spread.
- Created guidance documents (e.g. Standard Operating Procedures) to reflect changing knowledge and practices.
- Increased and focused collaboration with key partners.
- Improved processes for communication, roles/responsibilities, and decision making.
- Remained patient and resident-centred while ensuring staff safety.
- Managed jurisdictional differences.

Everyone coming together in a period of uncertainty to mass test staff and patients was truly amazing. I may have swabbed half the employees at SPH – I notice that I am much less popular than I used to be.

~ ICP reflection



The COVID-19 pandemic has emphasized the importance of engineered solutions in IPAC. I strongly believe that if we are to make advances in IPAC, we need to work with engineers to identify and help implement tested and impactful engineered solutions to mitigate the risk of transmission. COVID-19 has made it abundantly clear that we need to pay attention to cleaning the air.

~ Dr. Victor Leung

New St. Paul's Hospital (NSPH) Project

IPAC has been involved with the NSPH project from the outset, bringing an environmental health perspective and providing advice and guidance to ensure the NSPH will be safe in terms of both the prevention of HAIs and the control of infectious diseases.

The built environment should support, facilitate, and encourage infection control practices and behaviours by all users, occupants, patients, visitors, and staff. The IPAC project lead has been focussing on these areas:

- Strategic use of space
- Purposeful separation of clean and dirty
- Effective capture, collection, transport and disposal of all waste and recyclables
- Intentional mitigation of evident or likely contamination
- Easily cleanable physical environment
- Dedicated unobstructed space to clean soiled equipment
- Enabled food safety and safe food handling practices
- Assured air quality and quantity (HVAC)
- Assured water quality, quantity, and access
- Due consideration of principles of integrated pest management.
- Coherent Hand Hygiene strategy incorporated into the design

PHC Mission Award

The PHC Mission Awards are presented in two categories – individual and team – and recognize those who truly represent how we continue to live the mission and values of the Sisters who founded our organization.

2021 Individual Recipient: Dr. Victor Leung

2021 Team Recipient: Infection Prevention and Control