

Infection Prevention and Control

Annual Report 2009-10



How you want to be treated.

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Executive Summary

Infection Prevention and Control (IPAC) plays a critical role in Providence Health Care's (PHC) commitment to patient safety.

Rates of hospital-associated infections reflect a multitude of factors, including patient population, hand hygiene compliance, laboratory practices, surveillance system refinements, and infection control awareness and practices among health care workers. In 2009/10, we saw a continued decrease in MRSA incidence, with a rate of 0.7 cases/1000 patient-days compared to 1.0 cases/1000 patient-days in 2008/09. VRE rates increased slightly from 2008/09 at 2.1 cases/1000 patient-days to a rate of 2.4 cases/1000 patient-days. Compared to the previous fiscal year, *Clostridium difficile* infection rates increased slightly from 1.0 case/1000 patient-days to 1.2 cases/1000 patient-days.

We are pleased to announce a number of new surveillance initiatives which were launched or enhanced in 2009/10. A central-line associated bloodstream infection (CLABSI) surveillance system in the intensive care unit (ICU) was launched this year, after being piloted during the last quarter of fiscal year 2008/09. In collaboration with the Department of Obstetrics and Gynecology, a surgical site infection (SSI) surveillance system to monitor Caesarean Section SSI rates was initiated. In addition, a surveillance system to monitor hip and knee arthroplasty SSI rates was enhanced.

We continually strive to improve our control strategies when responding to outbreaks of infections. In response to pandemic H1N1 influenza (pH1N1), we launched a surveillance system to track nosocomial transmission of influenza. Despite significant community transmission of pH1N1, there were no hospital outbreaks of influenza at PHC in 2009/10.

We look forward to the coming year with new initiatives underway to prevent and control infections at PHC. The success of infection prevention and control is dependent on the involvement of front-line health care professionals, physicians, hospital administrators, patients, residents and visitors. We thank everyone who has contributed to the IPAC initiatives and look forward to continuing our successful collaborations.

Sincerely,

The Infection Prevention and Control Team



2009 Team Winner – Oxoid Judges' Special Award for excellence in Infection Prevention and Control

Introduction to Infection Prevention and Control (IPAC)

Infection Prevention and Control (IPAC) is consistent with the Values and Mission of Providence Health Care (PHC).

The Vision of the IPAC team is to create and sustain a culture in which infection prevention and control is integrated into all aspects of care at all PHC facilities.

The Mission of the IPAC team is to be dedicated to the prevention and control of health care-associated infections in a supportive working environment. The practices of the IPAC team are grounded in evidence-based scientific principles. Infection control services are provided to PHC with structure and authority in collaboration with local, regional, and provincial partners.

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

Surveillance: Monitoring health care-associated infections using standardized case definitions is critical to the prevention and control of hospital-based transmission of infectious agents. At PHC, the objectives of surveillance for PHC-associated infections are to:

- Detect cases through enhanced screening so that appropriate precautions can be implemented
- Detect outbreaks of infectious diseases in order to implement control measures
- Monitor trends in PHC-associated transmission, and provide a means of determining when interventions are required
- Determine the burden of specific infectious diseases to PHC
- Evaluate and improve interventions.

Case management: Control measures for patients identified with a communicable disease are based on how infectious agents are transmitted, and include education and implementation of standard, contact, droplet, and airborne precautions. When other patients, residents, or staff may have been exposed before a case is identified, contact tracing is conducted to ensure that the disease was not transmitted to others.

Outbreak management: In collaboration with Vancouver Coastal Health Public Health, IPAC is responsible for investigating clusters of cases and determining whether there is an outbreak at a PHC facility. Control measures are promptly implemented when each outbreak is declared.

Environmental hygiene: IPAC works with multidisciplinary teams to implement environmental infection control strategies. These include planning for construction projects and advising on environmental decontamination and cleaning procedures.

Education: IPAC provides education to staff, patients and visitors in order to increase awareness around appropriate IPAC measures. Education is provided via classes, presentations, consultations, and the IPAC website.

Research: IPAC conducts research in order to support the integration of evidence-based practices into daily practice and evaluate the effectiveness of current strategies at PHC.

Policies and Procedures: IPAC continuously reviews, develops, and implements policies and procedures to guide evidence-based best practices.

Hand Hygiene

Hand hygiene (washing with soap and water or using an alcohol-based rub) is considered the most important measure for preventing the spread of bacteria and viruses in health care settings. However, overall compliance with hand hygiene among health care professionals is known to be suboptimal.¹

In October 2005, the *Clean Hands for Life*[™] campaign was launched in collaboration with Vancouver Coastal Health and Bayer HealthCare (Canada). The goal of the campaign was to improve hand hygiene compliance by promoting awareness through posters, promotional materials, and educational sessions.

The *Clean Hands for Life*[™] campaign was extended at PHC in 2009/10. Major activities included:

- the launch of unit feedback boards that display quarterly hand hygiene compliance results;
- the development of a “Clean Hand Zone” at the entrance of targeted units;
- the dissemination of “Ask Me if I have just cleaned my hands” buttons and “My 5 Moments for Hand Hygiene” posters; and
- the introduction of point of care alcohol-based hand rub with reminders in some acute care units.

In addition, a hand hygiene education module for nurses and allied health professionals was launched towards the end of *fiscal year 2009/10*. These compliment the existing hand hygiene module physicians complete as part of credentialing.

Monitoring hand hygiene is an essential component of programs aimed at improving compliance. PHC has monitored compliance using observational audits since 2005. Regular quarterly hand hygiene audits were started in the third fiscal quarter of 2008/09. We expanded to include the Emergency Department in the first fiscal quarter of 2009/10. Infection control practitioners measure compliance by direct observation of staff, and compliance was calculated using the following formula:

$$\% \text{ Compliance} = \frac{\# \text{ hand hygiene events}}{\# \text{ opportunities}} \times 100$$

Compliance varied by unit, health care worker type, and facility. An incremental increase was seen in hand hygiene compliance during fiscal year 2009/10. Compliance ranged from 40% in Quarter 1 to 49% in Quarter 2 and 4 (Figure 1), which is consistent with published North American rates.¹ Further efforts are currently underway to facilitate and improve local unit accountability of hand hygiene compliance.

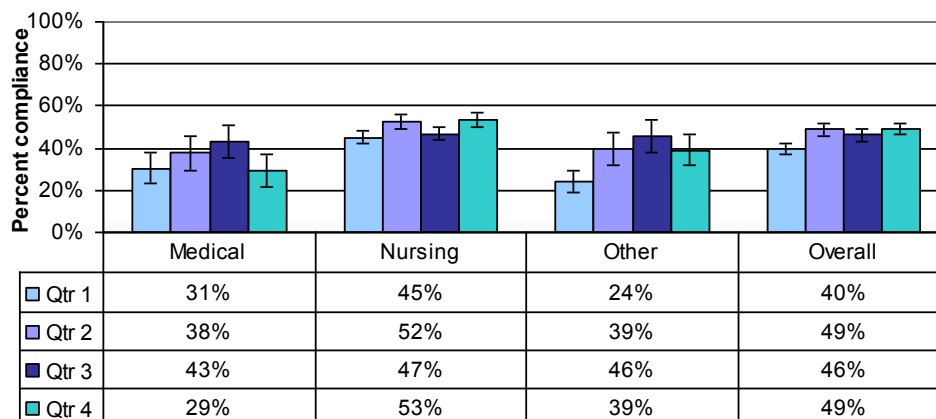


Figure 1. Hand hygiene compliance by health care worker type, 2009/10

Methicillin-Resistant *Staphylococcus aureus* (MRSA)

MRSA is an antibiotic resistant bacterium that can be transmitted in health care settings. Most patients are colonized with MRSA, rather than infected. MRSA has the potential to cause serious infections for which treatment options are limited.

In 2009/10, 641 new cases of MRSA were identified at PHC facilities. Over half (53%) of these cases were seen in outpatient clinics or emergency departments and were not admitted to PHC. 147/641 (23%) of cases were classified as PHC-associated cases. 126/147 (89%) of these cases were associated with transmission in acute care wards at St. Paul's Hospital or Mount Saint Joseph Hospital, corresponding to an overall incidence rate of 0.7 cases/1000 patient days (95% CI: 0.6, 0.8). The rate did not differ between the two acute care hospitals.

This corresponds to a 33% decrease in the rate of PHC-associated MRSA cases compared to last year, and a 68% decrease com-

pared to 2003/04 (Figure 2, $p < 0.01$). Rates have decreased despite ongoing community transmission of MRSA and the introduction of a highly transmissible community-associated MRSA strain ("CAMRSA-10" or "USA300") to the hospital setting. Continued declines are likely related to improved infection control awareness and practices among health care professionals. Additionally, improved molecular testing, laboratory detection and laboratory turn-around times have contributed to decreasing rates.

In 2009/10, 54% of the PHC-associated cases were identified through hospital screening programs. The remainder (46%) were identified by culturing a clinical specimen. 10/147 (7%) of PHC-associated cases developed an MRSA bloodstream infection.

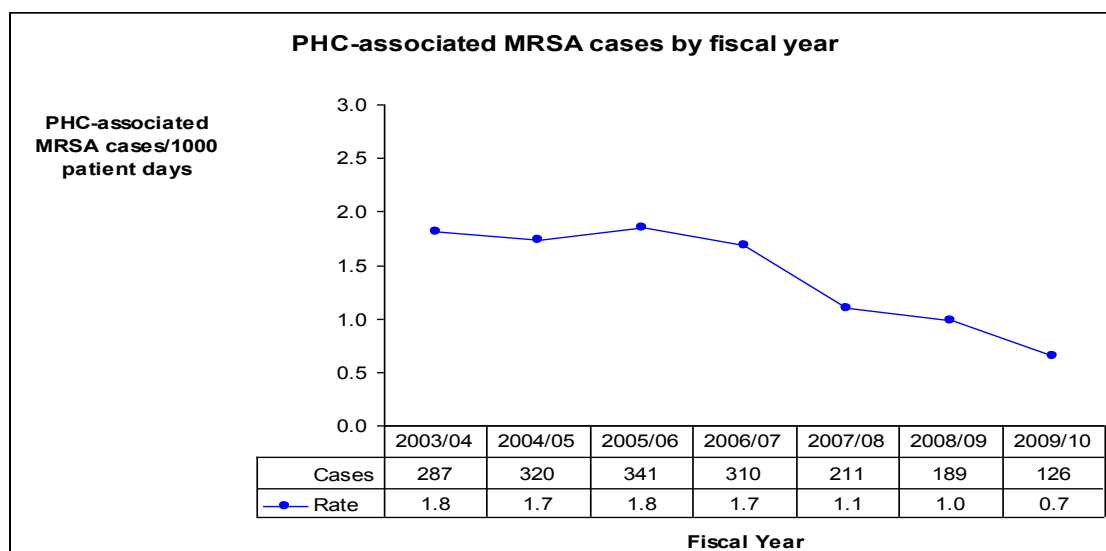


Figure 2. Incidence rate of PHC-associated MRSA cases in acute care facilities, 2003/04 to 2009/10.

Vancomycin-Resistant Enterococci (VRE)

VRE refers to certain strains of enterococci that are resistant to the antibiotic vancomycin, making infections more difficult to treat. As with MRSA, most patients are colonized with VRE rather than infected. VRE was first identified as being transmitted within PHC facilities in the fall of 2004.

In 2009/10, 566 new cases of VRE were identified at PHC. Nearly all of these cases (89%) were admitted to a PHC facility, as opposed to being seen as outpatients. 463/566 (82%) cases were classified as PHC-associated cases. Of these, 456 were associated with transmission in acute care wards at either Mount Saint Joseph Hospital or St. Paul's Hospital, corresponding to an incidence rate of 2.4 cases/1000 patient days (95% CI: 2.2, 2.6) (Figure 3). This is higher than the 2008/09 rate of 2.1, but is lower than 2006/07 (Figure 3).

At St. Paul's Hospital, the incidence rate increased significantly, from 2.1 (95% CI: 1.8,

2.2) in 2008/09 to 2.4 (95% CI: 2.1, 2.6, $p < 0.01$) in 2009/10. This may have been due to an increase in VRE transmission in critical care units during pH1N1 season. The increases were identified in a timely manner, and interventions were implemented to prevent further transmission of VRE.

At Mount Saint Joseph Hospital, the incidence rate in 2009/10 (2.3, 95% CI: 1.9, 2.9) was comparable to the 2008/09 incidence rate (2.5, 95% CI: 2.0, 3.0). Overall, VRE incidence rates have decreased at this site by 12% since 2006/07.

In 2009/10, the majority (78%) of PHC-associated cases were identified through hospital screening programs. The remainder (22%) were identified by culturing a clinical specimen. Two percent (7/463) of PHC-associated cases developed a VRE blood-stream infection.

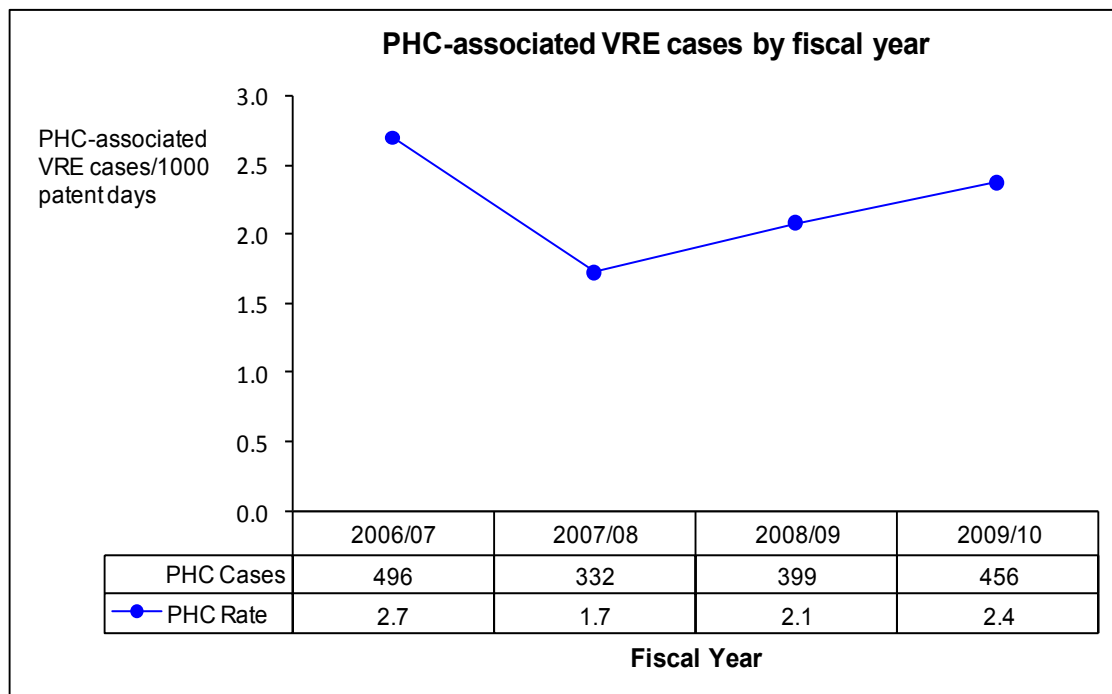


Figure 3. Incidence rate of PHC-associated VRE cases in acute care facilities, 2006/07 to 2009/10.

Clostridium difficile Infection (CDI)

Clostridium difficile is a bacterium known to cause diarrhea and has the potential to cause more serious intestinal complications. *Clostridium difficile* infection (CDI) is one of the most common infections acquired in health care settings as the physical environment plays a more important role in transmission of CDI than other HAIs.^{2,3} Enhanced surveillance for CDI began at PHC on January 1, 2007.

In 2009/10, 298 new cases of CDI were identified at PHC. 234 (72%) of these were classified as PHC-associated cases. Of these, 213 (91%) were associated with either St. Paul's Hospital or Mount Saint Joseph Hospital, corresponding to an incidence rate of 1.2 cases/1000 patient days (95% CI: 1.0, 1.3). This is a slight, but not statistically significant, increase from 2008/09.

In 2009/10, the incidence rate of CDI was significantly higher at Mount Saint Joseph Hospital (1.6, 95% CI: 1.3, 2.1) compared to St. Paul's Hospital (1.0, 95% CI: 0.9, 1.2, $p < 0.01$). This may be due to differences in patient population. For example, an older population is served at Mount Saint Joseph

Hospital.

Complications related to CDI in the 30 days following diagnosis are also closely monitored as an indicator of the severity of illness. In 2009/10, 1 case (2%) was admitted to the ICU; 3 (2%) underwent a colectomy; and 2 (1%) were diagnosed with toxic megacolon. In addition, CDI was determined to be a probable contributing factor in the death of 8 (4%) cases. This case fatality rate is consistent with rates reported from other facilities in Canada.⁴

In March 2008, approximately 45% of positive CDI stool samples were found to be the hypervirulent NAP1 strain of *C. difficile*. In March 2010, approximately 80% of *C. difficile* positive stool samples were also positive for the NAP1 strain. NAP1 is an epidemic strain of *C. difficile* known to have caused large hospital outbreaks of CDI in Quebec, the USA and the UK. **Importantly, despite the dramatic increased prevalence of the hypervirulent NAP1 strain of *C. difficile*, the incidence rate of CDI only slightly increased in 2009/10 (Figure 4).**

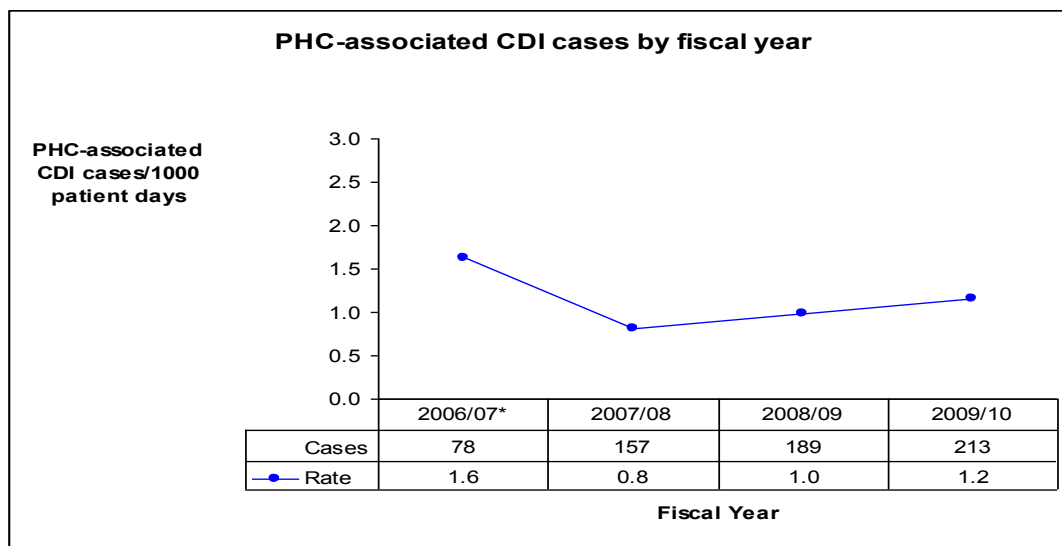


Figure 4. Incidence rate of PHC-associated *C. difficile* cases in acute care facilities, 2006/07 to 2009/10.

*Data available for fiscal periods 11-13 only (December 29, 2006-March 31, 2007)

Influenza

DESCRIPTIVE EPIDEMIOLOGY

A surveillance system for patients with pandemic influenza H1N1 (pH1N1) was initiated at PHC at the beginning of April 2009. In collaboration with Virology, Acute and Access Services and Information Management Information Systems (IMIS), IPAC developed and implemented a rapid reporting surveillance system to track suspected and laboratory confirmed cases. The objective of this surveillance system was to collect data on all admitted cases of pH1N1, to monitor nosocomial transmission of pH1N1, and to characterize admitted cases at acute healthcare settings according to demographic and clinical information.

A total of 76 cases were admitted to PHC with pH1N1. The median age was 46 and fifty-one percent were female. Twenty-four percent were born before 1957. Twenty-four percent were admitted to the intensive care unit (ICU). The majority (80%) of hospitalized cases with pH1N1 cases had known underlying co-morbidities. Twenty-six percent cases were HIV-infected. Four deaths occurred.

When interpreting these data, it is important to consider the high risk patient population served by PHC acute care facilities.

TRANSMISSION OF PANDEMIC H1N1

This summary explores the transmission of pH1N1 at PHC and describes PHC-associated cases between September 1, 2009 and December 18, 2009.

PATIENTS AT PHC

An individual was considered to have PHC-associated pH1N1 if he or she had laboratory confirmed pH1N1 admitted to PHC acute care sites and/or had been in close proximity in an appropriate time frame to another laboratory confirmed case of pH1N1.

Subsequent in-depth follow-up by IPAC was applied to determine whether transmission was PHC-associated or not. For example, a case of possible PHC-associated pH1N1 was excluded if the case was known to have had visitors with influenza-like illness (ILI).

There was one possible case of transmission of PHC-associated pH1N1 that was not confirmed.

STAFF AT PHC

Staff in the Emergency Department (ED) and Intensive Care Unit (ICU) at PHC were most involved with patients with pH1N1. Absenteeism (represented by % sick hours) among staff in ED and ICU was lower than or equal to historical rates during influenza season. This suggests that little or no PHC-associated pH1N1 transmission occurred among staff at PHC.

IMMUNIZATION COVERAGE

Typically, influenza infections result in a significant number of hospitalizations and deaths. The elderly and those with underlying medical conditions are at increased risk for influenza-related complications. **In both 2008/09 and 2009/10, nearly all of the residents at PHC residential care facilities were vaccinated against influenza (Figure 5).**

Health care professionals are also at increased risk of acquiring and spreading the influenza virus due to their close contact with patients and residents. Influenza immunization is the most effective way to protect health care professionals and the people they care for. Despite the benefits of the influenza vaccine, coverage rates among health care professionals remain low. In 2009/10, however, the level of coverage among staff is likely an underestimate, since they may have received the pH1N1 vaccine from the community and did not report vaccination to Workplace Wellness & Safety.

In 2009/10, the percent of acute care staff immunized against influenza increased to 48% for seasonal influenza (n = 2319). Addi-

tionally, 435 (58%) residential care staff at PHC facilities were immunized against seasonal influenza and 413 (55%) were immunized against pH1N1 influenza (Figure 5). This is significantly less than in 2008/09 ($p < 0.001$). There are several reasons that may have contributed to this declining trend. First there were limited supplies of vaccine during the beginning of the epidemic; second, distribution of vaccines were prioritized to high-risk populations. In addition, the availability of both pandemic and seasonal vaccines may have resulted in confusion over which vaccines were indicated. Although these coverage rates are less than ideal, they are consistent with those reported in other health care facilities in BC.

IPAC is working closely with Workplace Wellness & Safety and VCH Communicable Disease Control to implement evidence-based approaches to improve vaccination rates. In addition to receiving the influenza vaccine, health care professionals are encouraged to always practice good hand hygiene and to stay home from work if they have influenza-like symptoms.

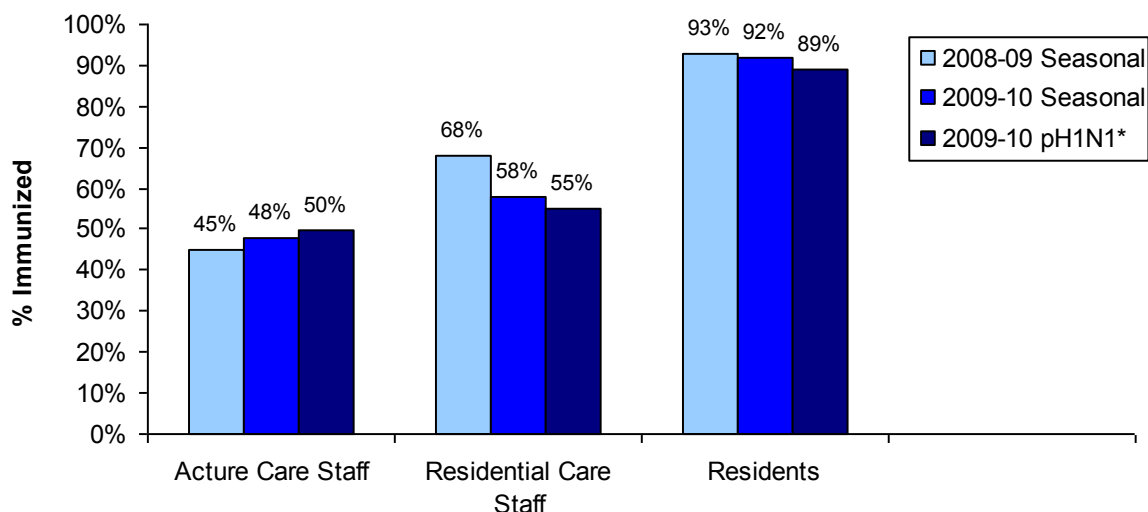


Figure 5. Influenza immunization coverage rates among PHC staff and residents, 2008/09 and 2009/10

Outbreaks

All PHC facilities are monitored for respiratory and gastrointestinal outbreaks. Surveillance allows for the early detection of clusters so that outbreak control measures can be implemented, and the risk of further transmission reduced. The frequency, duration and severity of outbreaks depend on the type of organisms circulating in the community, which varies each season.

In 2009/10, no [respiratory outbreaks](#) and 2 [gastrointestinal outbreaks](#) were identified at PHC facilities (Tables 1 and 2). On average, gastrointestinal outbreaks lasted 21 days (range: 19-23 days).

Outbreaks are declared in collaboration with Vancouver Coastal Health Communicable Disease Control. The following control measures were implemented for all outbreaks: closing the unit/facility to admissions or transfers; cohorting patient/resident cases together; excluding staff cases from work; restricting visitors; limiting group activities; and decontaminating the unit/facility. **Recently, improved laboratory detection of influenza and norovirus using molecular methods has allowed for rapid implementation of containment and control strategies.**

Despite extensive transmission of pH1N1 influenza in the community, no influenza outbreaks occurred at PHC facilities in 2009/10.

Table 1. Respiratory outbreaks at PHC facilities, 2006/07 – 2009/10.

Year	Number of Outbreaks			Number of Cases			Causative Organism	
	Total	Residential	Acute	Total	Residents /patients	Staff	Influenza	Other
2009/10	0	0 (0%)	0 (0%)	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2008/09	2	2 (100%)	0 (0%)	25	20 (80%)	5 (20%)	2 (100%)	0 (0%)
2007/08	4	4 (100%)	0 (0%)	116	107 (92%)	9 (8%)	2 (50%)	2 (50%)
2006/07	4	4 (100%)	0 (0%)	84	82 (98%)	2 (2%)	3 (75%)	1 (25%)

Table 2. Gastrointestinal outbreaks at PHC facilities, 2006/07—2009/10.

Year	Number of Outbreaks			Number of Cases			Causative Organism	
	Total	Residential	Acute	Total	Residents /patients	Staff	Norovirus	Other
2009/10	2	2 (100%)	0 (0%)	56	50 (89%)	6 (11%)	2 (100%)	0 (0%)
2008/09	6	2 (33%)	4 (67%)	103	80 (78%)	23 (22%)	6 (100%)	0 (0%)
2007/08	6	0 (0%)	6 (100%)	48	28 (58%)	20 (42%)	3 (50%)	3 (50%)
2006/07	10	5 (50%)	5 (50%)	214	124 (58%)	90 (42%)	5 (50%)	5 (50%)

Pulmonary Tuberculosis (TB)

Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis*. It is spread primarily via the airborne route when someone with active pulmonary TB coughs or sneezes.

The risk of TB transmission in health care settings is driven by the prevalence of disease in the community and the effectiveness of prevention and control measures. Patients suspected or known to have active pulmonary TB are placed on airborne precautions to reduce the risk of further transmission. A facility is considered to have a high risk of TB transmission to health care professionals if six or more individuals are seen with active TB annually.⁵

In 2009/10, 34 cases of pulmonary tuberculosis were managed at PHC acute care facilities (Table 1). No cases were identified in residential care facilities.

PHC cares for a relatively high number of TB cases. In this fiscal year, IPAC has been working with TB Control at BCCDC to develop screening protocols and to incorporate emerging diagnostic technology. We are currently investigating a small number of cases of TB that were diagnosed late into the hospital admission. Overall, the majority (71%) of cases were effectively screened and placed on airborne precautions upon admission and throughout their stay at PHC. The remaining cases (29%) required contact tracing either among other patients or among staff with whom they had been in contact (Table 3).

Table 3. Pulmonary tuberculosis (TB) cases identified in PHC acute care facilities, 2009/10.

Facility	TB cases		TB cases requiring contact tracing	
	N	%	N	%
St. Paul's Hospital	20	59	5	25
Mount Saint Joseph Hospital	14	41	5	36
Total	34	100	10	29

Education

The Infection Prevention and Control (IPAC) team continuously strives to provide PHC staff with relevant education, based on current evidence-based recommendations. Messages are communicated using various strategies with the goal to promote a culture in which infection prevention and control is integrated into all aspects of care.

Educational resources, such as the infection control manual, information brochures, results from current research, and links to online courses, are made readily accessible to all PHC staff via the IPAC intranet website.

In addition, the IPAC team provides consultations on a daily basis to address patient-, procedure- or unit-specific concerns. IPAC physicians deliver educational sessions to

medical staff, residents, and medical students. Physicians advise primarily through phone consultations, ward visits, and IPAC rounds.

Infection control practitioners (ICPs) deliver the bulk of infection control education sessions across PHC. **In the past year, the IPAC team delivered over 89 hours of didactic educational sessions, reaching over 3000 staff (Table 4).** Most of these educational sessions were given during orientation for new employees, or as part of an educational campaign on influenza. The percent of education time spent on influenza was substantially higher than in recent years. This was attributable to the concern over pH1N1 influenza.

Table 4. IPAC educational sessions by number of hours and participants reached, 2009/10.

Type of education	Hours / year		Participants / year	
	N	%	N	%
Infection Control Champions workshops	1	1	14	1
New employee orientation	17	19	888	34
Hand hygiene	8	9	223	9
General infection control	5	6	399	15
Transmission-based precautions	6	7	107	4
Influenza	28	31	790	30
Antibiotic resistant organisms	7	8	65	3
<i>Clostridium difficile</i> infection	4	4	39	1
Other	13	15	80	3
Total	89	100	2605	100

Infection Control Champions (ICC)

The Infection Control Champions (ICC) project was led by IPAC and funded through a grant from the Canadian Institutes of Health Research (CIHR). The ICC project goal was to evaluate the feasibility and cost-effectiveness of supporting local front-line nurses in infection control leadership initiatives.

Clinical units were supplied with their own local IPAC expert (an ICC), resulting in a greater sense of ownership of IPAC issues. The IPAC experts were front-line nurses given dedicated time to attend special training in order to promote, teach, monitor, and motivate other health care professionals in IPAC best practices.

The ICC project was designed with a randomized component, with seven wards receiving an ICC and seven wards receiving standard IPAC education.

The quantitative component of the grant indicated that a significant improvement in infection control knowledge was observed in the ICC group but not in the control group. An increase in hand hygiene compliance rates after patient contact from the end of intervention to 6-months post-intervention was significantly greater in the ICC group compared to controls.

Findings from the focus groups suggested that ICC were proactive educators, positive role models, and good resources for staff to answer infection control-related questions and procedures. Barriers to implementation of the ICC program included time commitment, poor promotion of ICCs leading to lack of awareness, and staff turnover.

The ICC model's cost-effectiveness was also evaluated. Before the study was implemented, the estimated cost per bed for the program was comparable to hiring an additional ICP. Following implementation, however, the cost per bed was substantially less than hiring a new ICP.

The project was considered a success by all stakeholders as well as the IPAC team. We are pleased to announce that at the end of fiscal year 2009/2010, the ICC project was renamed and re-launched as the Link Nurse program. The Link Nurse program has been adapted and implemented to all acute care hospital settings at PHC. A distributed model of infection control promotes local ownership of infection prevention and control issues.



Surgical Site Infection (SSI) Surveillance

Surgical site infections (SSI) can result in substantial post-operative morbidity, longer hospital stays, and increased health care costs. SSI surveillance has been identified as a key priority for IPAC and the PHC Surgical Program, and is a required organizational practice of Accreditation Canada.

In collaboration with the Department of Surgery, the IPAC team has developed an electronic and semi-automated SSI surveillance system. Rather than monitoring all procedures in a given hospital, it is generally accepted that SSI surveillance should target high-risk, high-volume, and potentially high-impact activities.⁶ At PHC, SSI surveillance currently focuses on joint replacement surgeries and Caesarean sections (C-section). IPAC will expand surveillance to other procedures in the coming years.

In 2008/09, Infection Prevention and Control worked with the Department of Obstetrics and Gynaecology to pilot surveillance for SSI following C-section at the time of hospital discharge. The pilot was completed March 31, 2009, and ongoing surveillance began April 1, 2009.

After one year of data collection, the C-section SSI rate was 0.79 per 100 procedures per year. This is well below the pooled mean from the National Health and Safety Network (NHSN)⁷, which ranges from 1.50 to 2.64 depending on risk index category.

Because a large percentage of SSI occur post-discharge, particularly with the recent trend toward shorter hospital stays, a complete SSI surveillance system should include a post-discharge component.⁸ PHC has been collaborating with BC Women's Hospital and other community partners on the development of a post-discharge surveillance system for SSI following C-section. We plan to pilot post-discharge surveillance in 2010/11.

We are collaborating with orthopaedic surgeons and the Department of Surgery to determine SSI for hip and knee replacement procedures. Data collection on joint replacement surgeries began in 2007. The system is currently being refined to increase data quality and improve case detection in the post-discharge period.

Central-Line Associated Bloodstream Infection (CLABSI) Surveillance

Central-line associated bloodstream infections (CLABSI) can result in longer hospital stays and increased health care costs. Intensive care unit (ICU) patients are particularly vulnerable to CLABSI.⁹ Surveillance for CLABSI is an important component of a nosocomial bloodstream infection control program.

On January 1, 2009, the IPAC team began

piloting a semi-electronic, semi-automated surveillance system that tracks the rates of CLABSI in the ICUs at St. Paul's Hospital and Mount Saint Joseph Hospital. In the ICU, the annual CLABSI rate was 2.6 per 1000 catheter days. This rate is comparable to the NHSN pooled mean rate of 2.4 per 1000 catheter days. We are interested in expanding beyond the ICU CLABSI surveillance by fiscal year 2011/12.

Oxoid Award

In 2009/10, PHC IPAC was awarded the Oxoid Judges' Special Award for excellence in hospital infection prevention. It is the first time such an award has been bestowed upon an infection control team in North America. Members of PHC's IPAC Team attended an awards ceremony in Birmingham, UK, on June 2, 2009.

The Oxoid Infection Control Team of the Year Awards is open to infection prevention and control teams worldwide. The infection control team at Providence Health Care re-

ceived the Judges' Special Award for the team's contribution to reducing levels of hospital acquired infections and reducing infections in injection drug users and homeless persons in the local community.

The IPAC Team would like to share the Judges' Special Award with all PHC staff, physicians and leaders who have helped reduce our rates of hospital-acquired infections over the previous years. A picture of IPAC team members receiving the award is below.



APPENDICES

APPENDIX A: 2009/10 INFECTION PREVENTION AND CONTROL TEAM

Name	Position
Marc Romney, MD	IPAC Medical Director / Medical Microbiologist
Howard Green, MBA	Leader, Infection Prevention and Control
Jim Curtin, RN CIC	Infection Control Practitioner
Mary McNaughton, RN MSA CIC	Infection Control Practitioner
Craig Pienkowski, RN	Infection Control Practitioner
Stuart Gray, RN MSc	Infection Control Practitioner
Wayne Gilbert, RN	Infection Control Practitioner
Azra Sharma, MLT MSc	Infection Control Practitioner
Mark Hull, MD	Infection Control Physician, Acute Care
Debbie Jacobson, MD	Infection Control Physician, Residential Care
Sylvie Champagne, MD	Medical Microbiologist
Christopher Sherlock, MD	Medical Microbiologist
Jeremy Etherington, MD	Vice President, Medical Affairs
Jayne Bradbury, MPH	Health Care Epidemiologist
Elisa Lloyd-Smith, PhD	Health Care Epidemiologist
Luz Vierende	Clerk

APPENDIX B: PROVIDENCE HEALTH CARE FACILITIES 2009/10

Name	Type of facility	Acute care beds	Residential Care Beds
St. Paul's Hospital	Acute care	557	0
Mount Saint Joseph Hospital	Acute care Residential care	119	100
St. Vincent's Hospitals			
Brock Fahrni Pavilion	Residential care	0	148
Langara	Residential care	0	221
Holy Family Hospital	Rehabilitation care Residential care	75	142
Youville Residence	Residential care	0	84
Marion Hospice	Hospice Care	0	12
Total		751	707

APPENDIX C: DEFINITIONS

Surveillance definitions

Colonization: The presence, growth, and multiplication of an organism without observable clinical symptoms or immune reaction.

Infection: Invasion by and multiplication of a microorganism in body tissue resulting in clinical manifestations of disease.

CDI case: Laboratory confirmation of *Clostridium difficile* in an diarrheal stool specimen or evidence of CDI on histopathology.

MRSA case: Laboratory confirmation of methicillin-resistant *Staphylococcus aureus* from specimens indicative of colonization or infection.

VRE case: Laboratory confirmation of vancomycin-resistant enterococci from specimens indicative of colonization or infection.

For MRSA, VRE and C. difficile cases, the following sub-classifications are made:

PHC-associated case: Admitted for ≥ 72 hours in a PHC facility **OR** admitted to a PHC facility within the preceding 4 weeks.

Non PHC-associated case: Admitted for < 72 hours in a PHC facility **AND** has not been admitted to a PHC facility within the preceding 4 weeks. The assumption is that these cases were acquired in the community or in another health care facility other than PHC.

Patient days: The number of patients currently admitted at a facility by day (counts are usually conducted at midnight) and multiplied by the number of days in a given time period. Patient days are used as denominators in the calculation of rates to adjust for length of stay. For MRSA and VRE rates, acute care (including newborns) patient days are used as the denominator. For *C. difficile* rates, acute care patient days exclude newborns.

Fiscal year/period: April 1 to March 31 of the following year, divided into 13 fiscal periods, and 4 fiscal quarters.

95% Confidence Interval (CI): An interval estimate of the rate with 95% degree of certainty.

Outbreak Definitions

Gastrointestinal outbreak: Three or more cases of suspected gastroenteritis among patients, residents, or staff, that cannot be explained by admitting diagnoses or by noninfectious causes of symptoms (i.e. recent use of laxatives or stool softeners, chronic diarrhea, etc.), within a four-day period in the same unit or patient care area.

Respiratory outbreak: Two or more cases of influenza-like illness (fever, chills, headache, myalgia, sore throat, cough, nasal congestion, etc.) among patients, residents, or staff within a one-week period in the same unit or patient care area.

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