

The Canadian Journal of INFECTION CONTROL

Revue canadienne de PRÉVENTION DES INFECTIONS

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INSIDE:

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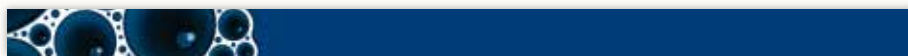
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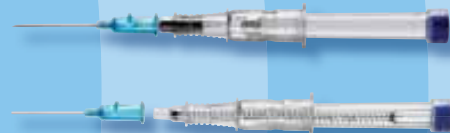
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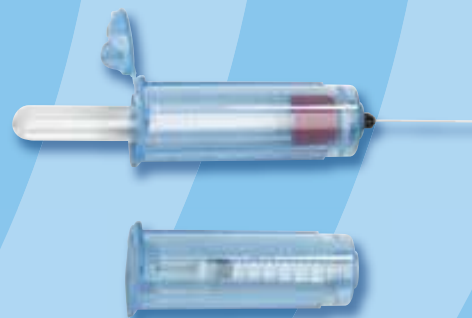


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A rose by any other name...

Congratulations to the board and members of Infection Prevention and Control Canada (IPAC Canada) for the January 1, 2014 change in name from the previous Community and Hospital Infection Control Association Canada (CHICA-Canada). The new logo is fresh and ties in clearly with the new name and a Canadian identity.

For those who have been familiar with the previous name, acronym and logo, this new name represents more than just a new letterhead or website banner. It represents a recognition of the importance of branding and name recognition for an organization. It also recognizes the impacts of a new name and logo which reach beyond the organization.

In the years prior to the Internet the reach and impact of names and branding was limited to hard copy print materials. These materials included letterhead, journal titles, posters and

brochures to name a few. Word of mouth also played a role in branding and allowed persons sharing messages to expand on and explain acronyms. Many members likely recall explaining the acronym CHICA-Canada to others in the healthcare field. Although the name and acronym of CHICA-Canada had brand recognition in the field, it was less familiar to others.

With the web- and social media-connected world that exists now, it is increasingly important to recognize that the reach of an organization is unlimited. Messaging and branding of an organization must be clear to all who encounter the organizations web and social media presence. Members and potential members should be able to identify with the new name and logo, and in the case of IPAC Canada, the linkage between members and the organization is very explicit.

Many organizations, facilities, and agencies have embraced of the

concept and practices of both infection prevention and infection control (IPAC). This grew out of the previous notion of infection control and includes the important concepts and practices that comprise infection prevention. In many cases, the term "infection control practitioner" has been discarded and replaced with the more apt "infection control professional." All of these changes reflect growth in our field and recognition of the not only the broad scope of IPAC practice but also the infection control professional (ICP) role.

The new name "Infection Prevention and Control Canada (IPAC Canada)" now clearly states the mandate of the organization and the role of the members in both preventing and controlling infections. ICPs can challenge their programs and organizations to ensure that program and role titles are in turn branded to truly reflect the nature and scope of the field of infection prevention and control.✳



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Epidemiology of gastroenteritis outbreaks in Ontario long-term care homes, 2007-2010

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ABSTRACT

Introduction

More than 76,000 persons resided in 625 Ontario long-term care homes as of April 2010. Gastroenteritis has been reported as an important cause of morbidity for institutionalized populations. The objective of this study was to describe gastroenteritis outbreaks (non-foodborne, non-waterborne) reported in Ontario long-term care homes from 2007 through April 2010.

Methods

This was a retrospective cohort study. The Ontario Ministry of Health and Long-Term Care provided gastroenteritis outbreak data and the long-term care home bed count data for the period of January 1, 2007 to April 31, 2010.

Results

There were 1402 non-foodborne and non-waterborne gastroenteritis outbreaks reported by 549 Ontario long-term care homes between January 1, 2007 and April 31, 2010. The annual incidence rate of gastroenteritis outbreaks ranged from 49.6 to 66.3 outbreaks per 100 long-term care homes affecting 0.27 to 1.10 residents per 1000 bed-days. The outbreak aetiologic agents included norovirus ($n = 610$; 43.5%), rotavirus ($n = 27$; 1.9%), calicivirus ($n = 4$; 0.3%), and unknown agent ($n = 761$; 54.3%). The median attack rate for residents and staff was 18.0% and 8.6%, respectively. The median outbreak duration was 12 days, and varied by aetiologic agent.

Conclusions

Gastroenteritis outbreaks were common in Ontario long-term care homes from 2007 to 2010. The incidence of resident cases per 1000 bed-days suggests that gastroenteritis outbreaks were a significant cause of morbidity and burden

of illness. Long-term care homes need more effective infection prevention and control programs to reduce morbidity. Improved identification of the aetiologic agent and mode of transmission would facilitate decision-making about outbreak control measures and surveillance for outbreak-related aetiologic agents.

KEY WORDS:

Epidemiology; gastroenteritis; infection control; long-term care; outbreak.

INTRODUCTION

In Ontario, there were 625 LTCHs as of April 31, 2010, home for over 76,000 residents (1). Long-term care homes (LTCHs) provide residential accommodation and care to persons aged 18 years and older who require assistance with activities of daily living and/or full-time nursing care (2). Ontario LTCHs were funded and licensed by the Ontario Ministry of Health and Long-Term Care (MOHLTC). Licensees include municipal governments, corporations, partnerships, or sole proprietors who operate for profit or not for profit (2). LTCHs are required to report all reportable diseases including gastroenteritis outbreaks (3) to the Medical Officer of Health (MOH) of the jurisdictional public health unit (PHU), as per the Health Protection and Promotion Act (Section 27(2)) (4). The case and outbreak investigation information collected by the PHU is entered into the integrated Public Health Information System (iPHIS) (5) which facilitates both provincial and national surveillance of reportable communicable diseases (4).

The frequent person-to-person contact amongst a vulnerable population increases the risk of gastroenteritis outbreaks in the semi-closed, LTCH population (i.e., few changes to the resident population

over time) (6). Gastroenteritis outbreaks are often associated with viral agents that are highly infectious, persist in the environment, and spread by fecal-oral route (7). Common viral outbreak-related agents include norovirus, other caliciviruses, rotavirus, adenovirus, and astrovirus (7).

Viral gastroenteritis is often characterized by an acute, self-limiting illness with sudden onset of vomiting and watery diarrhea lasting 1-10 days depending on the viral agent (8). However, evidence has shown that viral gastroenteritis is an important cause of prolonged diarrhea, dehydration, electrolyte imbalance (6, 7) and mortality amongst seniors (9) with an underlying medical condition(s), and/or suppressed immune function (7). Gastroenteritis outbreaks are also costly to residents in terms of disruption of services and activities and the psychological impact of isolation (10). LTCH owners may face increased operating costs related to personal protective equipment, additional staffing, staff sick time, staff replacement, and possibly legal or litigation costs (11).

The initial case(s) of viral gastroenteritis is often suspected to be acquired by consumption of contaminated food or water (16). However, outbreaks often involve secondary or tertiary viral transmission by multiple routes including person-to-person transmission (12, 13), airborne transmission of aerosolized infectious vomit (12), contact with contaminated surfaces (7), and sometimes ingestion of food contaminated by an infected food handler (13). Thus, the epidemiology and identification of the mode of transmission during a viral gastroenteritis outbreak can be complex.

The objective of this study was to describe the epidemiology of gastroenteritis outbreaks in LTCHs that occurred between January 1, 2007 and April 31, 2010.

METHODS

Study design

A retrospective cohort study design was used to identify and describe all gastroenteritis outbreaks in LTCHs. This study

was reviewed and had received ethics clearance by the University of Guelph Research Ethics Board (REB# 11MY038).

Gastroenteritis outbreak definition

The MOHLTC defined a case within a gastroenteritis outbreak as a person who experienced at least one of the following: 1) two or more episodes of loose/watery bowel movements within a 24-hour period, or two or more episodes of vomiting within a 24-hour period, or 2) one episode of loose/watery bowel movements and one episode of vomiting within a 24-hour period, or 3) laboratory confirmation of a known gastrointestinal pathogen and at least one symptom compatible with gastroenteritis (i.e. vomiting, diarrhea, abdominal pain or tenderness) (14).

The MOHLTC defined an institutional gastroenteritis outbreak as the occurrence of gastroenteritis amongst patients, residents, or staff, in a given area, at a given time, beyond the normal baseline distribution based on surveillance data for the facility (15). Effective April 28, 2009 (16), confirmed outbreaks were defined as the occurrence of three or more cases with signs and symptoms compatible with infectious gastroenteritis in a specific unit or floor within a four-day period, or three or more units/floors having a case of infectious gastroenteritis within 48 hours (14).

Data sources

The MOHLTC provided the outbreak description data (17). Some missing outbreak description data (i.e., key dates related to the outbreak, case counts, and aetiologic agent) were obtained with consent from the jurisdictional PHU.

The outbreak data included: iPHIS-generated outbreak number (unique outbreak identifier), outbreak name (i.e., LTCH name-date outbreak declared (18)), date outbreak was reported to PHU, date of symptom onset of the first case, date of symptom onset of the last case, date outbreak was declared over by the PHU, the jurisdictional PHU name and identification number, disease group (i.e., institutional gastroenteritis), aetiologic agent(s), exposure name (i.e., LTCH name – floor/unit – date of exposure (18)), exposure setting type

(i.e., hospital, LTCH, retirement home), mode of transmission (i.e., foodborne, item-to-person, person-to-person, waterborne, unknown), number of resident cases; number of residents at risk, number of staff cases, and number of staff at risk.

The MOHLTC provided the number of resident beds in operation by accommodation type for each LTCH in biannual format (March 31 and September 30) for each year from March 31, 2007 to March 31, 2010 (1). Given that the occupancy rate for LTCHs was 98.4% in 2007 (19) and was consistent at 99.8% in 2009 (20), the number of beds in operation prior to the symptom onset of the first case was used as both the number of residents at risk and the number of beds in operation for the summary statistics. For outbreaks that occurred between January 1, 2007 and March 30, 2007, the beds in operation on March 31, 2007 were used for summary statistics. For LTCHs that did not report an outbreak, the mean bed number for the study period was used for summary statistics.

The exposure setting type was verified to be a LTCH for each outbreak through cross-reference with the MOHLTC Master Numbering System (21) and MOHLTC Reports on Long-Term Care Homes website (2). LTCH ownership and funding type was obtained from publicly accessible websites, such as MOHLTC Reports on Long-Term Care Homes website (2), and individual LTCH websites.

Inclusion criteria

The study period was January 1, 2007 through April 31, 2010. Outbreaks were included in the study if the setting was a licensed long term care home in Ontario, the outbreak type was reported as enteric – institutional, the disease group was reported as institutional gastroenteritis, and the aetiologic agent(s) was reported as norovirus, rotavirus, calicivirus, gastroenteritis unspecified agent, unknown, or the agent was missing. Outbreaks were excluded from the study where the outbreak name or exposure name mentioned a food item or water; or the mode of transmission was reported as foodborne and/or waterborne.

Calculating incidence

Incidence rates were calculated for each year and aetiological agent.

The annual agent-specific incidence rate (I_{LTCHs}) of gastroenteritis outbreaks per 100 LTCHs was calculated as:

$$I_{LTCHs} = \frac{\text{number of LTCH outbreaks during the year for each agent}}{\text{mean number of Ontario LTCHs in operation during the year}} \times 100$$

The annual agent-specific incidence rate ($I_{bed-days}$) of LTCH resident cases of outbreak-associated gastroenteritis per 1000 bed-days was calculated as:

$$I_{bed-days} = \frac{\text{number of outbreak-related resident cases in the year for each agent}}{(\text{mean number of resident beds in Ontario LTCHs} \times \text{days in the year})} \times 1000$$

The resident attack rate (%) ($AR_{residents}$) per outbreak was calculated as:

$$AR_{residents} = \frac{\text{number of outbreak-related resident cases in the LTCH}}{\text{total number of resident beds in the LTCH}} \times 100$$

The staff attack rate (%) (AR_{staff}) per outbreak was calculated by:

$$AR_{staff} = \frac{\text{number of outbreak-related staff cases in the LTCH}}{\text{total number of staff at risk in the LTCH}} \times 100$$

Time periods

The date the outbreak was reported to the PHU was used as the date the outbreak was declared based on the assumption that the outbreak case definition was met when reported. The outbreak duration was the number of days from the date of symptom onset of the first case to the date of symptom onset of the last case. The time to report the outbreak to the PHU was the number of days from the date of symptom onset of the first case to the date the LTCH reported the outbreak to the PHU. For all periods, the first date was included in the count between the dates such that when the first and last date occurred on the same date, the number of days was recorded as one day.

Descriptive statistics

The gastroenteritis outbreaks were described by the number of beds in operation by accommodation type, funding type, year, month, season, aetiological agent(s), mode of transmission, resident attack rate, staff attack rate, outbreak duration and key outbreak-related dates.

The duration, resident and staff

attack rates, and numbers of beds in the LTCHs were not normally distributed, and non-parametric statistics were used. LTCHs that reported an outbreak and LTCHs that did not report an outbreak were compared by the number of beds in operation using the Mann-Whitney test (U) and the funding type using the chi-squared test goodness of fit test (2). The simple association between the duration and attack rates were individually assessed by the year and aetiological agent. For binary data, individual variables were compared with the Mann-Whitney test (U). For

categorical data, individual variables were compared with the Kruskal-Wallis test (H). The number of outbreaks were compared by year, season, and aetiological agent using the chi-squared test (2) of independence (two categories) and goodness of fit (more than two categories). For comparisons involving the number of outbreaks for the partial year, January through April, the number of outbreaks was weighted to represent 66% of the expected outbreaks for the year, which assumes the same monthly distribution of outbreaks from 2007 to 2009. The changes over time in proportion of outbreaks reported as norovirus or unknown were compared with an approximation of the Cochran-Armitage trend test (CA) (linear-by-linear association value multiplied by $N / (N - 1)$). For all analyses, the statistical significance level was set at = 0.05. Descriptive statistics were computed using SPSS® version 20 (22).

RESULTS

Demographics

The MOHLTC provided outbreak data for all reported gastroenteritis outbreaks and occupancy data for all 625 LTCHs in Ontario. Additionally, 25 ($n = 36$; 69.4%) PHUs returned information not found in the MOHLTC dataset. A total of 549 (87.8%) LTCHs reported an outbreak and 76 (12.2%) LTCHs did not report an outbreak during the study period.

LTCHs that reported an outbreak had a median of 120 beds (mean = 128.7), which was higher than LTCHs that did

“Outbreaks were excluded from the study where the outbreak name or exposure name mentioned a food item or water; or the mode of transmission was reported as foodborne and/or waterborne.”

not report an outbreak (median = 64; mean = 77.1) ($U_{(N=625)} = 11360$, $Z = -6.4$; $p < .05$). The types of LTCH beds included 35031 basic beds (bedroom has 1-2 beds (post-1998) or 3 or more beds (pre-1998) (2)), 14298 semi-private beds (bedroom has 2 beds (2)), 25393 private beds, 614 interim beds (beds in a hospital that are subject to the long-term care program requirements (2)), 427 short term stay (respite and supportive care for a definite number of days (2)), and 375 convalescent beds (short-term stay for recovery of strength, endurance, or functioning (2)) (1).

The frequency of outbreaks reported for LTCHs of each funding type was proportional to the funding type for

the population of LTCHs including 333 (91.2%) for profit, 119 (79.3%) non-profit, and 97 (88.2%) municipal LTCHs.

Missing data

Records with missing information included: date of symptom onset of the first case (n = 4; 0.03%); date of symptom onset of the last case (n = 140; 10.0%); date outbreak was declared over by the PHU (n = 22; 1.6%); number of resident cases (n = 53; 3.8%); number of staff cases (n = 87; 6.2%); number of staff at risk (n = 109; 7.8%).

Records with missing agent (n = 30; 2.1%), missing mode of transmission (n = 460; 31.1%) or the agent was reported as "gastroenteritis, unspecified"

(n = 729; 52.0%) were classified as "unknown." Records with inconsistent information were excluded from summary statistics including: residents attack rates that exceeded 100% (n = 6; 0.01%); staff attack rates that exceeded 100% (n = 9; 0.01%); the date the outbreak was reported to the PHU when earlier than date of symptom onset of the first case (n = 1; 0.01%), and when after the outbreak was declared over by the PHU (n = 1; 0.01%).

Incidence

The annual incidence ranged from 49.6 to 66.3 outbreaks per 100 long-term care homes with 0.27 to 1.10 resident cases per 1000 bed-days (Table 1). Of

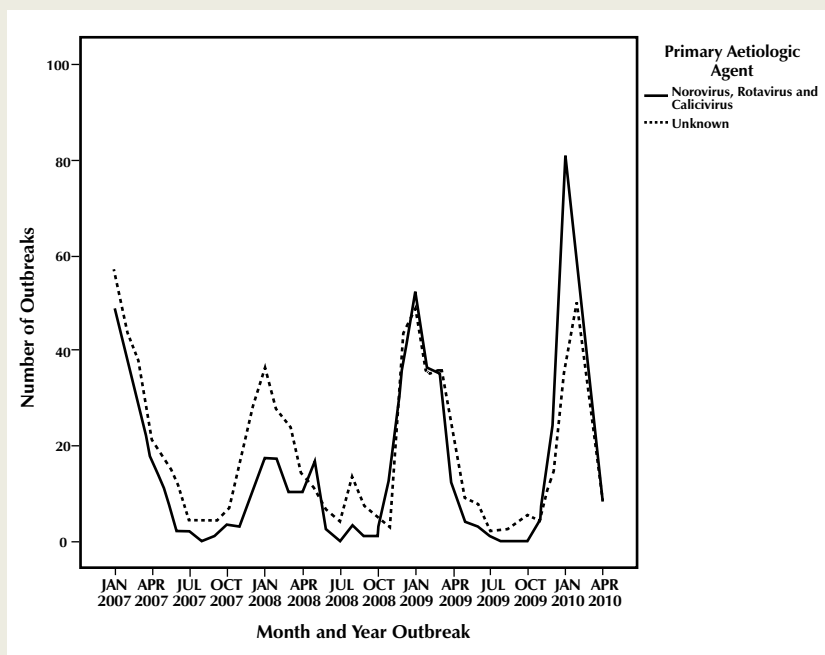
TABLE 1: Summary of the long-term care home population, gastroenteritis outbreaks reported, residents affected and incidence rates by year and primary aetiologic agent, January 1, 2007 through April 31, 2010, Ontario.

Year	Primary Aetiologic Agent	Outbreaks	Resident Cases	Mean no. of LTCHs	Mean no. of resident beds in all LTCHs	Outbreaks per 100 LTCHs	Resident cases per 1000 bed-days
2007	Total	412	11010	622	75901	66.3	0.40
	Unknown	249	5158			40.1	0.19
	Norovirus	152	5517			24.5	0.20
	Rotavirus	10	310			1.6	0.01
	Calicivirus	1	25			0.2	0.00
2008	Total	318	7610	622	75954	51.1	0.27
	Unknown	193	3904			31.0	0.14
	Norovirus	117	3582			18.8	0.13
	Rotavirus	6	89			1.0	0.00
	Calicivirus	2	35			0.2	0.00
2009	Total	362	9872	623	76237	58.2	0.35
	Unknown	191	3680			30.7	0.13
	Norovirus	160	5876			25.7	0.21
	Rotavirus	10	254			24.9	0.20
	Calicivirus	1	62			0.8	0.01
2010*	Total	310	10182	625	76790	49.6	1.10
	Unknown	128	3289			20.5	0.36
	Norovirus	181	6875			29.0	0.75
	Rotavirus	1	18			0.2	0.00
	Calicivirus	0	-			0	-
	Total	1402	38674	2491	76220	56.3	0.42

Note. LTCHs, long-term care homes.

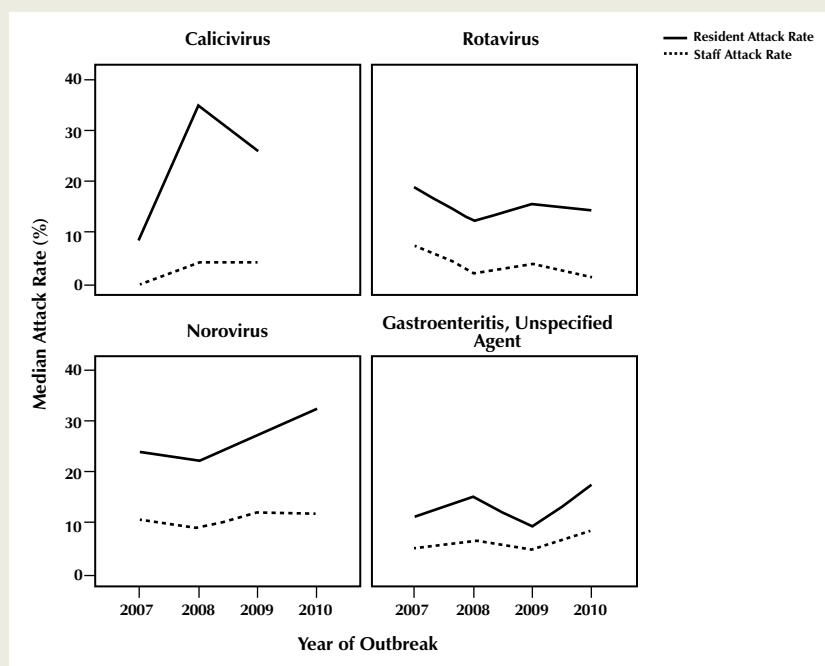
* Calculations based on the partial year (120 days), January 1, 2010 through April 31, 2010.

FIGURE A: Gastroenteritis outbreaks in long-term care homes by month and year the outbreak was reported to the Medical Officer of Health, January 1, 2007 through April 31, 2010 Ontario.



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [25/06/2010] for 2007-2009 and [08/09/2010] for 2010.

FIGURE B: Incidence of median resident and staff attack rates during gastroenteritis outbreaks in long-term care homes by year and primary aetiologic agent, January 1, 2007 through April 31, 2010, Ontario.



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [25/06/2010] for 2007-2009 and [08/09/2010] for 2010.

the 625 LTCHs in Ontario, 549 (87.8%) reported at least one gastroenteritis outbreak(s) during the period of January 1, 2007 to April 31, 2010, for a total of 1402 outbreaks. During this period, 76 (12.2%) LTCHs reported no outbreak, 146 (23.4%) LTCHs reported one outbreak, 171 (27.4%) LTCHs reported two outbreaks, and 232 (37.1%) LTCHs reported 3 to 11 outbreaks. Each LTCH reported a median of two outbreaks (mean = 2.1) during the study period. Outbreaks were reported in all 36 PHU jurisdictions.

A seasonal pattern was observed in the number of outbreaks, with 1187 (84.6%) outbreaks occurring from December through April and peaking in January each year ($n = 378$; 27.0%) (Figure A). The number of outbreaks reported varied between seasons ($\chi^2_{(3, N = 1187)} = 57.1$; $p < .05$). The number of outbreaks reported May 2008 through April 2009 compared to May 2009 through April 2010 were similar ($\chi^2_{(1, N = 834)} = 2.8$; $p = 0.10$), and the change in the outbreak definition effective April 28, 2009 did not appear to have an immediate impact on the number of outbreaks reported.

The aetiologic agent was identified in 641 (45.7%) outbreaks (Table 1). There were 610 norovirus outbreaks, and during 11 (1.8%) norovirus outbreaks, a second agent was identified as rotavirus ($n = 10$; 90.9%) or calicivirus ($n = 1$; 9.1%). There was evidence of an upward trend in the annual number of norovirus outbreaks proportionate to unknown agent outbreaks (mean $CACHIS_{(1, N = 1371)} = 32.2$; $p < .05$). This trend may be partially explained by the phased introduction of real time reverse transcriptase polymerase chain reaction (RT-PCR) for norovirus detection at Public Health Ontario Laboratories (PHOLs) starting in late 2006 (23).

The primary mode of transmission thought to explain the majority of the cases was reported for 661 (47.1%) outbreaks, and included person-to-person ($n = 541$; 38.6%), and item-to-person ($n = 120$; 8.6%). The mode of transmission was unknown for 761 (52.9%) outbreaks, and the agent was also unknown for 433 (56.9%) of these outbreaks.

TABLE 2: Description of attack rates and duration of gastroenteritis outbreaks in long-term care homes by aetiologic agent(s), January 1, 2007 through April 31, 2010, Ontario.

Primary Aetiologic Agent	Resident Attack Rate (%)			Staff Attack Rate (%)			Outbreak Duration (days)		
	Mean	Median	(IQR)	Mean	Median	(IQR)	Mean	Median	(IQR)
Unknown agent	20.0	12.5	(5.6 - 28.8)	11.9	6.3	(0.7 - 16.7)	10.8	10.0	(6 - 14)
Norovirus	29.6	26.3	(11.8 - 43.5)	16.0	11.4	(4.0 - 22.2)	15.3	14.0	(10 - 19)
Rotavirus	18.9	15.1	(9.0 - 25.4)	6.6	5.0	(0.9 - 10.4)	17.7	20.0	(14 - 24)
Calicivirus	25.8	23.4	(14.7 - 36.9)	3.0	2.1	(0.0 - 6.1)	21.3	23.0	(12 - 31)
Total	24.2	17.9	(7.8 - 36.4)	13.5	8.5	(1.9 - 20.0)	13.0	12.0	(7 - 17)

Note. IQR, interquartile range, 25th to 75th percentile.

The resident and staff attack rates both ranged from 0% to 100% with the highest attack rates occurring in norovirus outbreaks (Table 2). Resident attack rates varied by aetiologic agent ($H_{(3, N = 1343)} = 98.9$; $p < .05$) and year ($H_{(3, N = 1343)} = 18.5$; $p < .05$) (Figure B). Two outbreaks had a reported resident attack rate of 0%. Staff attack rates varied by aetiologic agent ($H_{(3, N = 1291)} = 50.2$; $p < .05$) but not year. The mode staff attack rate was 0%. There was a mean of 29 resident cases per outbreak (mean = 10,566 cases per year) and 12 staff cases per outbreak (mean = 4,216 cases per year).

The duration ranged from 1 to 52 days (Table 2). The duration varied by primary aetiologic agent ($H_{(3, N = 1265)} = 120.5$; $p < .05$) (Figure C). The median

duration was 10 days for outbreaks with an unknown aetiologic agent, which was shorter than outbreaks where the aetiologic agent was identified ($U_{(N = 1265)} = 128784$, $Z = -10.8$; $p < .05$). The outbreak duration was four days or longer (more than the average incubation period for norovirus, rotavirus, and calicivirus infections (8)) for 565 (96.7%) norovirus, rotavirus, and calicivirus outbreaks, and 590 (86.6%) outbreaks with an unknown aetiologic agent. The outbreak duration was three days or less for 110 (8.7%) outbreaks.

LTCHs reported their gastroenteritis outbreak to the PHU a median of 3 days (mean = 3.5; range = 1 - 34) after the symptom onset of the first case. The number of days from the

symptom onset of the first case and subsequent cases was not available to determine when the LTCH met the outbreak definition.

DISCUSSION

The incidence of gastroenteritis outbreaks in LTCHs from 2007 through April 2010 was similar to the 937 health care facility outbreaks reported to the MOHLTC from 2000 through 2002 (24). However, the population at risk had increased from approximately 60,000 residents in 558 LTCHs (March 2002) (25) to 76,690 residents in 625 LTCHs (April 2010) (1). The incidence was higher than the mean incidence of 16.8 outbreaks per 100 LTCHs and 0.19 residents cases per 1000 bed-days reported to the Australian government, 2002-2008 ($n = 2904$ outbreaks) (26). However, the incidence for 2007-2008 were more similar, as the Australian government reported 37.1 outbreaks per 100 LTCHs ($n = 1050$ outbreaks) (26). The incidence was lower than the 2.4 cases per 1000 patient-days reported in a cohort study of 22 LTCHs (3060 beds) and hospital emergency room visits in Ontario, 2006-2008 ($n = 9$ outbreaks) (27). Differences may reflect the populations studied, including the susceptibility of residents to illness, and

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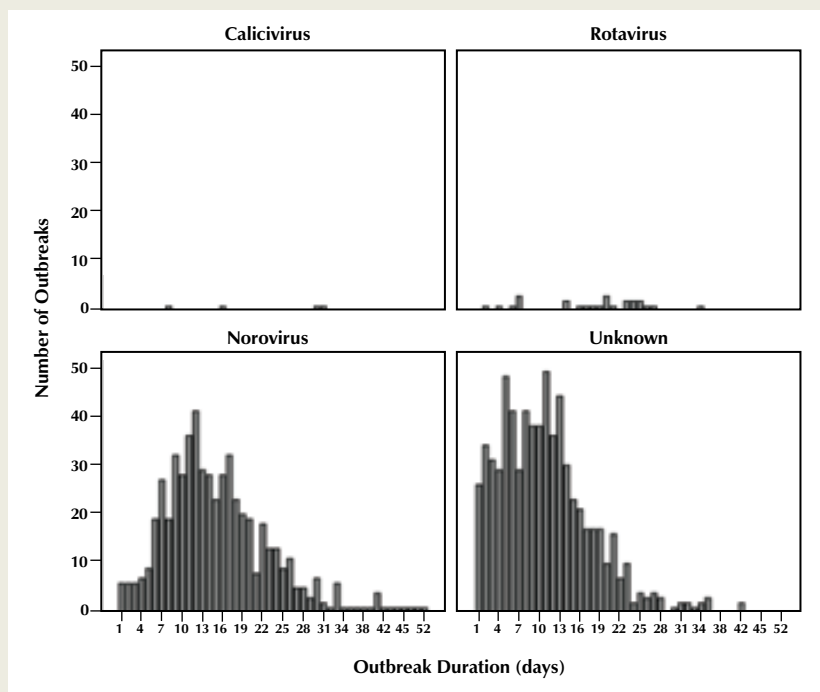
Norovirus was confirmed in 43.5% of the outbreaks with an agent identified, similar to norovirus in 35% of outbreaks reported by the Australian government, 2002-2008 (26). This similarity may be due to the laboratory diagnostic methods used by Australian laboratories which included electron microscopy (EM), and enzyme-linked immunosorbent assay (ELISA) and RT-PCR were used only where available (28). In contrast, norovirus was confirmed in 163 (70%) LTCH outbreaks investigated by Oregon Public Health Division, 2002-2009 (29), but Oregon State Public Health Laboratories introduced conventional RT-PCR in November 2005 (30) compared to late 2006 in Ontario (23).

The incidence of norovirus, and other viral agents, may have been under-reported due to misclassification as an unknown agent in 54.3% of outbreaks. Misclassification may have occurred due to no stool specimen collection, poor stool specimen quality (31), inadequate storage and transport of the stool specimen (31), and/or poor diagnostic test sensitivity (32). To improve viral agent detection, laboratory submission of at least three stool specimens per outbreak collected by the LTCH staff within 48 hours of diarrhea onset is recommended (30).

Identification of the outbreak-related agent and mode of transmission can facilitate customization of the outbreak control measures, and replace the generic outbreak measures, if they differ. For example, quaternary ammonia compounds, detergent, and ethanol (found in many commonly used disinfectants) are not universally effective against non-enveloped viruses such as norovirus and rotavirus (33).

Outbreak-related cases may result from a common or continuing exposure, and secondary cases may result through propagation by various modes of transmission (7, 15). Epidemic curves provide epidemiological clues to the mode(s) of transmission, but were not available in this study. However, 91.3% of outbreaks had a duration of four days or longer, suggesting secondary viral transmission may have occurred or there was a continuous source. The remaining outbreaks of

FIGURE C: Frequency and distribution of gastroenteritis outbreaks in long-term care homes by outbreak duration* and primary aetiologic agent, January 1, 2007 through April 31, 2010, Ontario.



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [25/06/2010] for 2007-2009 and [08/09/2010] for 2010.

* The outbreak duration was the time between the symptom onset of the first case and symptom onset of the last case.

less than four days duration were either rapidly brought under control or were point source outbreaks, and may have been misclassified as non-foodborne or non-waterborne outbreaks in this study.

The PHU designate (e.g., Public Health Inspector or Public Health Nurse) in conjunction with the LTCH staff determined the most likely mode(s) of transmission

from the outbreak investigation based on an observational study, an analytical study using evidence from samples (e.g., food, water, environmental), and/or weight of epidemiological evidence (34). The primary mode of transmission was provided for 47.1% of outbreaks, but inference about the type of transmission for individual cases may lead to ecologic

“Identification of the outbreak-related agent and mode of transmission can facilitate customization of the outbreak control measures, and replace the generic outbreak measures, if they differ.”

“Understanding the seasonal pattern may be useful to LTCHs and PHUs for strategic timing of outbreak prevention measures, such as education for LTCH residents, staff, and visitors about common outbreak aetiological agents, reporting illness, exclusion policies, and hand hygiene.”

bias. The mode of transmission may have been reported by the PHU as unknown when the evidence for person-to-person transmission, item-to-person transmission, and self-inoculation was indirect or circumstantial. The mode of transmission and aetiological agent were missing where PHUs failed to report this information in iPHIS. Provincial surveillance could be improved if PHUs adhere to MOHLTC reporting requirements (18, 35).

The numbers of gastroenteritis outbreaks reported were highest from December through April. This winter-spring outbreak pattern was also noted for viral gastroenteritis outbreaks in all settings ($n = 1615$) reported to Alberta Provincial Public Health Lab, 2002-2008 (36). The Public Health Laboratory Service Communicable Disease Surveillance Centre, England and Wales, 1992-2000, found that norovirus outbreaks in LTCHs ($n = 732$) exhibited a distinct winter peak, unlike other outbreak settings (37) and foodborne exposures (38). The Oregon Public Health Department, 2003-2006, also identified a winter-spring outbreak pattern ($n = 163$) related to norovirus, GII.4 strain (39). In a crossover study of 361 outbreaks of norovirus (38% in LTCHs) in Toronto, Ontario, 2005-2006, an association between local watershed conditions and norovirus outbreak risk suggested a water reservoir and the wintertime outbreak seasonality was due to enhanced viral persistence at low temperatures (40). Understanding the seasonal pattern may be useful to LTCHs and PHUs for strategic timing of outbreak prevention measures, such as education for LTCH residents, staff, and visitors about common outbreak aetiological agents, reporting illness, exclusion policies, and hand hygiene.

The attack rates in this study were rela-

tively high, and may be a function of the resident or staff susceptibility, infectious nature of the outbreak agent(s), mode(s) of transmission, and outbreak control practices which did not interrupt secondary transmission. A resident attack rate of 0% was rare and may have occurred when an outbreak amongst LTCH staff was declared by the PHU to ensure ill staff were excluded for a specific period of time to interrupt viral transmission and limit environmental contamination (41). A staff attack rate of 0% was common and may have occurred where prevention strategies were successful, and/or where staff had immunity (e.g., rotavirus) or temporary immunity for a few months (e.g., norovirus) to the outbreak agent (7). However, staff cases may have been underreported if staff failed to report their illness to the LTCH or the LTCH did not conduct active surveillance to identify staff cases.

The outbreak duration had a wide range but the median duration was similar to the 16 days (range = 3 to 44) in a review of 72 outbreaks, including 28 nursing homes, 1997-2007 (42), and the 10 days (range = 7 to 14) reported by the Australian government ($n = 1136$), 2002-2008 (26). The mean duration of norovirus outbreaks was similar to the 15.8 days reported to the Oregon Public Health Division ($n = 163$), 2003-2006 (39), but less than the 21.6 days reported in the cohort study ($n = 37$) of Dutch nursing homes, 2005-2007 (43).

As rotavirus is a common cause of severe diarrheal disease in young children globally (7), most of the literature investigates rotavirus outbreaks in pediatric populations. A few documented rotavirus outbreaks reported similar duration of outbreaks, such as the 12 days duration of a 469-bed psychiatric hospital outbreak in the United Kingdom, 1987 (44), and

the four-week duration in a 152-bed LTCH outbreak in France, 2007 (45). The similarity in outbreak duration involving norovirus and rotavirus across global regions suggests these two agents may present similar challenges to outbreak control and agent-specific outbreak control strategies may be needed to reduce outbreak duration.

CONCLUSIONS

Gastroenteritis outbreaks were common in Ontario LTCHs from 2007 to 2010 and the incidence of resident cases per 1000 bed-days suggests that gastroenteritis outbreaks were a significant cause of morbidity and burden of illness. Long-term care homes need effective infection prevention and control programs to improve outbreak control and reduce morbidity. The agent and mode of transmission were not identified and/or reported in the majority of outbreaks, and improved identification would facilitate both decision-making about outbreak control measures and surveillance for outbreak-related aetiological agents. Agent identification may be improved if LTCHs submit at least three quality stool specimens per outbreak collected within 48 hours of diarrhea onset. Mode(s) of transmission reporting may be improved if PHUs adhere to MOHLTC reporting requirements.

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Bruce Gamage, RN, BSN, CIC

President, IPAC Canada

The new bug on the block: CPO

Recently, we have all been hearing a lot about carbapenemase producing organisms (CPO). The media has been picking up on the term and some facilities in Canada have seen recent outbreaks. In BC we have had a lot of interest lately – even though CPO remains a rare occurrence in our healthcare facilities.

CPO are mainly bacteria of the family *Enterobacteriaceae*. These include *Klebsiella* species and *Escherichia coli* (*E. coli*). We have also seen this resistance popping up in *Pseudomonas* and *Acinetobacter* species. These bacteria have acquired genes on transposable plasmids that confer the ability to make carbapenemases – thus making them resistant to the carbapenem class of antibiotics. Some common examples of these genes are the New-Delhi Metallobetalactamase (NDM) and *Klebsiella pneumoniae* carbapenemase (KPC). The NDM genes originated in India and Pakistan while KPC originated in the US. The initial risk factor is healthcare exposures in countries where these bacteria are commonly found. This means individuals who have had surgery, dialysis or been admitted to healthcare facilities in CPO-affected facilities are at increased risk of acquiring the bacteria and developing infections.

The bacteria normally colonize the patient's intestines. They sometimes cause infections, such as urinary tract infections, bloodstream infections, wound infections, and pneumonia. These infections are difficult to treat because the bacteria have high levels of resistance to antibiotics including third generation cephalosporins and carbapenems.

These bugs can also be hard to track. Because the gene is carried on a transposable plasmid, it is readily shared between bacteria in the same patient's gut. The patient may have originally been identified as carrying a resistant *Klebsiella* and subsequently pass a resistant *E. coli* to the patient in the next bed. Different bug but same gene. This is different from what we would expect to see with spread of MRSA or VRE. This makes identifying an outbreak a challenge. Molecular testing to identify the actual gene may be needed to identify a cluster – because the bug's susceptibility pattern won't give you the whole story.

We are certainly seeing an increase in CPO. In BC last year 53 cases were identified compared to 29 in 2012 and 14 in 2011. These cases included both NDM and KPC carrying bacteria. The increase in numbers between 2011 and 2013 were mostly from returning overseas

travelers, although transmission within facilities has occurred. We have a fairly high population of immigrants in the Vancouver area that originated from south Asia and regularly visit their country of origin.

How concerned should we be? We have a high level of alert but a moderate level of concern. A combination of active surveillance, aggressive infection control screening protocols and laboratory testing measures are in place to help us identify cases and take appropriate actions. But who should we be screening? It is easy to ask a patient if they have been admitted to a hospital in a foreign country – but how would they know if the patient in the next bed was? CPO remains an emerging organism in Canada. Over the next few years we will continue to learn more about these intriguing bugs. Comprehensive surveillance will be important to ensure that we gain a full understanding of their nature. Stay tuned.... 🍁

NOTICE

Public Health Agency of Canada

Call for Nominees to the Agency's
Infection Prevention and Control Expert Working Group

Seeking to fill four voluntary Working Group members:

- 1 Occupational Health Registered Nurse or Physician
- 2 Infection Control Practitioners
- 1 expert in Healthcare Epidemiology (research methodology preferred)

Please see the IPAC website for details. Forward your CV and cover letter by May 31, 2014 to Ms. Kathy Dunn, Manager, Infection Prevention and Control section at kathleen.dunn@phac-aspc.gc.ca.

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Bruce Gamage, RN, BSN, CIC

Président, IPAC Canada

OPC : Chercher la petite bête

Le terme « organisme producteur de carbapénémases » (OPC) s'est immiscé récemment dans les conversations. Les médias l'ont largement diffusé, et quelques établissements hospitaliers du Canada ont déclaré avoir dû faire face à une flambée de la chose. La Colombie-Britannique ne fait pas exception à cette publicité, même si les OPC restent rares dans nos établissements de soins de santé.

Les OPC sont surtout des entérobactéries, appartenant notamment aux espèces *Klebsiella* et *Escherichia coli* (*E. coli*). Nous avons observé une résistance semblable parmi les espèces *Pseudomonas* et *Acinetobacter*. Ces bactéries ont acquis des transposons, qui sont portés par des plasmides et leur confèrent la capacité de produire des carbapénémases, ce qui les rend résistantes aux antibiotiques de la catégorie des carbapénèmes. La New-Delhi métallobêta-lactamase (NDM) et la carbapénémase *Klebsiella pneumoniae* (KP) figurent parmi les plus courants

de ces gènes. La NDM vient d'Inde et du Pakistan et la KP, des États-Unis. Le facteur de risque tient à l'exposition dans les services de soins de santé dans les pays où ces bactéries sont communes. C'est dire que c'est pour les individus qui ont subi une chirurgie ou une dialyse ou qui ont été admis dans des services touchés par les OPC que le risque est le plus grand de contracter la bactérie et de présenter une infection.

Ces bactéries colonisent habituellement les intestins. Elles peuvent infecter les voies urinaires, le courant sanguin ou une blessure, ou encore provoquer une pneumonie. Le traitement est très difficile parce que ces bactéries sont très résistantes aux antibiotiques, y compris aux céphalosporines et les carbapénèmes de troisième génération.

Les OPC sont également difficiles à repérer. Comme le gène est porté par un plasmide transposable, il se propage aisément entre les bactéries qui cohabitent dans les entrailles du patient. Un patient porteur d'une *Klebsiella*

résistante pourra transmettre à son voisin de chambre un *E. coli* résistant. Deux microbes mais un même gène. Un mode de propagation différent de celui du SARM ou de l'ERV, ce qui complique le dépistage d'une éventuelle flambée. Il faudra éventuellement recourir au dépistage moléculaire pour identifier d'abord le gène, puis l'agrégat, puisque le profil de sensibilité aux antibiotiques ne dit pas tout.

L'incidence des OPC est manifestement en hausse. En Colombie-Britannique, 53 nouveaux cas ont été recensés l'an dernier, contre 29 en 2012 et 14 en 2011, ce qui inclut les bactéries qui portent la NDM et celles qui portent la KP. L'augmentation constatée entre 2011 et 2013 concerne surtout des voyageurs revenus de l'étranger, mais il y a eu aussi transmission à l'intérieur de certains établissements. Vancouver compte de nombreux immigrants venus d'Asie du Sud, qui séjournent souvent dans leur pays d'origine.

Dans quelle mesure faut-il s'inquiéter? Le niveau d'alerte est assez élevé, mais le degré de préoccupation, modéré. Nous avons adopté des programmes de surveillance active, des protocoles de dépistage et de prévention énergiques et des mesures relatives aux essais de laboratoire qui nous aideront à découvrir les cas et à réagir de manière appropriée. Mais auprès de qui faire ce dépistage? Il est facile de demander à un patient s'il a été admis dans un hôpital en pays étranger, mais comment savoir si son voisin de lit l'a été lui aussi? Les OPC émergent tout juste au Canada. Nous allons en apprendre davantage sur ces microbes intrigants d'ici quelques années. La surveillance générale est de mise. Restez aux aguets! *

AVIS

Agence de la santé publique du Canada

Appel de candidatures pour le groupe d'experts sur la prévention et le contrôle des infections de l'Agence

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- 1 infirmière autorisée en santé du travail ou un médecin du travail
- 2 professionnels de la prévention des infections
- 1 spécialiste en épidémiologie de la santé (méthodologie de recherche préférée)

S'il vous plaît voir le site Web de l'IPAC pour plus de détails. Veuillez faire parvenir votre CV avec une lettre d'introduction au plus tard le 31 mai 2014 aux soins de Mme. Kathy Dunn, gestionnaire, Section de prévention et de contrôle des infections, à kathleen.dunn@phac-aspc.gc.ca



Gerry Hansen, BA

Executive Director, IPAC Canada

PROXY VOTES: Why they are important

In order to have a voice and vote at the Annual General Meeting (AGM), an IPAC Canada member must either appear at the AGM in person or must have entrusted another member with their vote via a proxy. Proxy voting is a form of voting whereby members may delegate their voting power to other members to vote in their absence, including direction on how to vote in elections. A person so designated is called a “proxy” and the person designating him or her is called a “principal.”

The bylaws of IPAC Canada allow for proxy voting (Article 27). A proxy form (IPAC Canada Form #15) is developed annually with motions that will be presented at that year’s AGM. The proxy form is posted and members so advised three months before the annual meeting. Completed proxy forms can be returned to IPAC Canada before the AGM or presented at the registration desk of the AGM. There is no limit to the number of principals that a proxy may represent.

Typically, the motions are:

1. Receipt and approval of the audited financial statements.
2. Approval of auditors for the next fiscal year.
3. Ratification of the acts of the board of directors and officers since the previous AGM.
4. Approval of published candidates for election where there are no additional nominations.

The principal indicates on the form if the proxy will vote yes, no, or abstain during each of the votes.

With the new election process prescribed by Corporations Canada, there are now two additional areas for principal input. The first is acceptance of any nominations that may come from the floor of the AGM. In this instance, the principal may give the proxy permission to vote in the best interests of the principal by accepting nominations. The form requires the principal to indicate “Yes” to accept nominations, or “No” to decline to accept nominations, or to “Abstain” from voting in the best interests of the principal.

In any election, it is important to have a secret ballot in order to protect the voter from public knowledge of their preference. In the case of an election at the AGM, the principal may give the proxy permission to vote in the best interests of the principal. The form requires the principal to indicate “Yes” for the proxy to vote for their choice in the best interests of the principal, or indicate “No” to decline to vote for any election candidates, or to “Abstain” from voting on behalf of the principal. It should be noted that it is usual for the secretary of the board to receive nominations and proxy forms. In 2014, the secretary position is up for election and the executive director has been delegated to receive proxy forms in advance of the AGM.✳

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NOTICE IS HEREBY SERVED that the Annual General Meeting of IPAC Canada will be held on Wednesday, May 28, 2014 at the World Trade and Convention Centre (Room TBA), Halifax, Nova Scotia (Breakfast 0630 hrs; AGM 0700 hrs). IPAC Canada members must register and pick up voting card before entering the AGM.

Members may vote on business arising at the AGM by proxy using Form #15 2014, which must be submitted to the IPAC Canada Secretary at the IPAC Canada office no later than Thursday, May 15, 2014. Proxy Form #15 2014 will be posted and circulated in March 2014. AGM Agenda notification was forwarded by email in April. Marilyn Weinmaster, Secretary, IPAC Canada PO Box 46125 RPO Westdale, Winnipeg MB R3R 3S3 Fax: 204-895-9595 Email: executivedirector@ipac-canada.org



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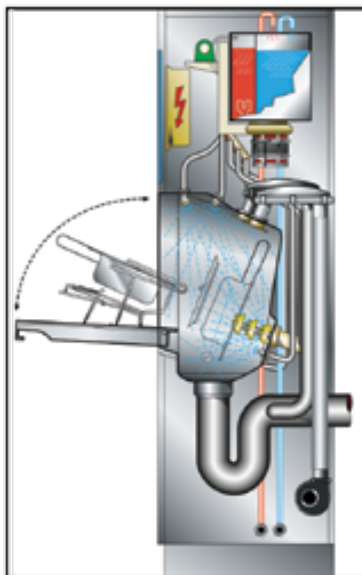
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AWARDS:

1. The Abstracts Committee will determine: One (1) of the abstracts submitted by a First Time Abstract Submitter to receive an award of \$250 at the Closing Ceremonies. (Award recipient must be a member of IPAC Canada). A First Time Submitter is a lead author who has never submitted an abstract to IPAC Canada.
2. Conference attendees will vote for: Their top 3 oral presentations which will be re-presented on Wednesday, May 28th (10:30 – 11:15 AM). In addition, attendees' choice of the Best Oral Presentation will receive an award of \$500 and the Best Poster will receive an award of \$500. Awards sponsored by 3M Canada. The awards will be presented at the Closing Ceremonies. (Award recipient must be a member of IPAC Canada).

MONDAY, MAY 26, 2014

1. BUGS AND DRUGS: TAKING THE HELM

2:00-2:15 PM

TRACKING THE IMPACT OF VANCOMYCIN-RESISTANT ENTEROCOCCUS (VRE) ISOLATION PRACTICE CHANGE IN ONTARIO

Gary Garber^{1,2}, Freda Lam¹, Chatura Prematunge¹, Kwaku Adomako¹, Giulio DiDiodato¹, Cathy Egan¹, Jennifer Robertson¹
¹Public Health Ontario, Toronto/Ottawa Ontario, Canada, ²Ottawa Hospital Research Institute, Ottawa Ontario, Canada

Background: The role of Vancomycin-resistant enterococcus (VRE) screening and isolation practices (SIP) has become controversial in Infection Prevention and Control (IPAC). There is a relative lack of objective scientific evidence to support the impact of VRE-SIP. This leaves expert opinion to inform the rationale regarding the role of VRE-SIP. As well, the value of VRE-SIP is being questioned due to issues of cost containment. In July 2012, several Ontario academic health centres elected to discontinue (d/c) their VRE-SIP. Public Health Ontario's (PHO) is following the impact of this practice change on VRE bacteremia rates using publically reported hospital-acquired infection (HAI) data.

Methods: All Ontario hospitals are required to report VRE bacteremias to the Ontario Ministry of Health and Long Term Care (MOH) Patient Safety and Public Reporting database (PSPR). PHO reviews the HAI quality metrics including VRE. The initial VRE evaluation study questions focused on bacteremia counts, rates, and 30-day all-cause mortality. We compared the bacteremia counts in PSPR reported quarterly pre and post VRE-SIP practice change.

Results: In the 4 quarters (July 2011-June 2012) prior to d/c VRE-SIP, bacteremias at the non-screening hospitals combined for 3.75 bacteremias / quarter (<1/mo). The counts remained unchanged for the next 3 quarters (July 2012-March 2013); but has increased to 9 bacteremias/quarter (3/mo) in the last 3 quarters (April 2013-Dec 2013). Reported bacteremiacounts at hospitals continuing VRE-SIP have not changed over the same period.

Conclusion: Although VRE bacteremia has increased, the rates are still low and the clinical relevance of this increase requires serious review. The plan is to collect data on the clinical factors associated with VRE bacteremia to determine the at-risk population and to identify the feasibility of a targeted screening and isolation policy.

2:15-2:30 PM

HOW TO IMPLEMENT AN ANTIMICROBIAL STEWARDSHIP PROGRAM (ASP) (OR ANY OTHER INFECTION PREVENTION AND CONTROL INTERVENTION) AND CONDUCT A PRAGMATIC RANDOMIZED CONTROLLED TRIAL (RCT) AT THE SAME TIME USING A STEPPED WEDGE PROGRAM DESIGN

Giulio DiDiodato^{1,2}, Leslie McArthur², Lehana Thabane¹
¹McMaster University, Hamilton, Ontario, Canada, ²Royal Victoria Regional Health Centre, Barrie, Ontario, Canada

Issue: ASPs reduce antimicrobial utilization, however, their impact on hospital length of stay (LOS) is less clear. Most of this uncertainty is due to poor study design, with most ASP effects analyzed as pre- and post-intervention models. Pragmatic RCT are increasingly being used to evaluate real world programs where individual randomization is not possible or inappropriate. Stepped wedge RCT is a variant of the cluster RCT; individuals within a 'cluster' are exposed to an intervention in a random and sequential fashion until all clusters are exposed. The intervention effect is determined by comparing the outcomes in individuals in the exposed versus the unexposed clusters.

Project: An ASP intervention to reduce LOS for hospitalized patients with a diagnosis of community-acquired pneumonia (CAP) started on April 1, 2013 with the collection of baseline data for a period of 3 months on all 4 medical wards in a large community-based hospital. At the end of the 3-month period, the medical wards were randomized to receive the intervention in a sequential manner, with each new ward receiving the ASP intervention every 2 months until all the wards were included.

Results: To date, all 4 wards are now exposed to the ASP intervention.

N=295 CAP patients have been enrolled with n=114 exposed to the ASP intervention. The ASP intervention and control patients are well matched for important covariates.

Lessons learned: Stepped wedge program design can be used to bridge the need for program implementation and robust programmatic evaluation in real world clinical settings.

2:30-3:00 PM – BY INVITATION

PREVALENCE OF MRSA, VRE AND C. DIFFICILE AMONG ADULTS HOSPITALIZED IN CANADIAN HOSPITALS – A FOLLOW-UP SURVEY, 2012

Andrew Simor¹, Oscar Larios², Karl Weiss³, Allison McGeer⁴, Guanhong Han⁵, Zahir Hirji⁶, Victoria Williams¹

¹Sunnybrook Health Sciences Centre, Toronto; ²Saskatoon Health Region;

³Hopital Maisonneuve-Rosemont, Montreal; ⁴Mount Sinai Hospital, Toronto;

⁵Provincial Infection Control Network of British Columbia; ⁶Scarborough General Hospital, Toronto

The ARO Prevalence Study is a study designed to assess the prevalence of antimicrobial resistant organisms in Canadian hospitals. A point-prevalence survey was conducted in Canadian hospitals in November 2010, under the collaborative efforts of CHICA-Canada (now IPAC Canada) and the ARO Prevalence Study team. Preliminary results were presented at scientific meetings (CHICA-Canada 2011 and 2012; IDSA 2011), and a report submitted to the Canadian Journal of Infection Control in 2012. A follow-up prevalence survey in Canadian hospitals was held in November 2012 in order to monitor changes and trends in prevalence rates that may have occurred. The objectives of this session are to describe the prevalence of MRSA, VRE and *C. difficile* in 2012 and compare with the results obtained in the 2010 survey; to describe demographic and select clinical/epidemiologic features of patients with prevalent MRSA, VRE, and *C. difficile* infection in Canadian hospitals; and to describe institutional characteristics, and infection prevention and control policies associated with MRSA, VRE, and *C. difficile* infection rates.

2. QUALITY AND PROCESS IMPROVEMENT #1 – CHARTING A COURSE

2:00-2:15 PM

POSITIVE DEVIANCE APPROACH IN THE CRITICAL CARE UNIT EQUALS DECREASED HEALTHCARE-ASSOCIATED INFECTIONS.

Joan Osbourne Townsend, Nataly Farshait, Yemi Adebayo, Shirley Goguen
Humber River Hospital, Toronto, ON, Canada

Issue: Over the years, our 14-bed intensive care unit (ICU) frequently experienced increased incidences of Hospital Associated Infections (HAIs) which often resulted in restriction of admissions to the unit. Traditional infection prevention and control measures achieved containment, but success was short lived. On reviewing the literature infection prevention and control (IPAC) team decided to implement the new Positive Deviance (PD) approach in the ICU.

Project: The PD approach was introduced December 2010 to prevent HAIs. PD huddles were facilitated by IPAC in collaboration with the unit manager and clinical practice leader. The huddles occurred daily with the interdisciplinary team. The "discovery and action dialogues" technique was used to guide the facilitation process. The staff embraced the fact that their actions impacted the spread of HAIs to their patients. They identified several ideas including commitment to daily huddles; pre-emptive Contact Precautions for all patients; hand hygiene and proper use of personal protective equipment education for visitors.

Results: Two years after the introduction of Positive Deviance approach in ICU, the rates of *Methicillin Resistant Staphylococcus aureus* (MRSA) colonization decreased from 7.26/1000 to 0.64/1000 patient days. MRSA bacteremia rates decreased from 0.64/1000 to 0/1000 patient days. Rates of Vancomycin Resistant Enterococcus (VRE) colonization rates decreased from 1.28/1000 to 0.21/1000 patient days.

Lesson learned: The introduction of the Positive Deviance Approach in the ICU resulted in significant reduction in VRE colonization rates and MRSA colonization and bacteremia rates. Facilitating the PD approach is resource intensive and it takes up to 12 months for changes to be realized.

2:15-2:30 PM – BEST FIRST TIME ABSTRACT AWARD

**WASTE NOT, WANT NOT: QUALITY IMPROVEMENT
IN INFECTION PREVENTION AND CONTROL**

Vydia Nankoosingh, Melisa Avanes, Alfred Ng, Mirza Ali, Danka Varda,
Ronny Leung, Murtuza Diwan, Zahir Hirji
The Scarborough Hospital, Scarborough, ON, Canada

Issue: Infection Prevention and Control departments are often busy “putting out fires” so there is often little opportunity to look at Quality Improvement (QI). IPAC departments often find themselves in a cycle of reactive management – responding to problems and issues without identifying and solving root causes. Applying lean management structures can ensure engage staff in QI and proactively problem solve.

Project: The Scarborough Hospital (TSH) began implementing a Lean Management System in February 2012. The focus is on engaging units, departments and leaders in processes and structures to sustain improvement establish routines for daily improvement, and to proactively plan and mentor staff. This work is aligned with TSH's key corporate strategies. IPAC began this journey in June of 2012.

Results: Improvement strategies are now part of IPAC's weekly routines. Weekly “Stat Sheets” and “Performance Huddles” began in June of 2013. Monday stat sheets are a problem-solving tool for recognizing challenges or issues, and for pro-active planning for the week and beyond. The Performance Huddle is part of our weekly staff meetings and is used to solve issues (improvement opportunities) by using the team's collective knowledge. We also update our “surveillance board”. This is a visual monthly tracking of all units and hospital-acquired cases over a two-month period. At a glance, it is easy to determine where clusters and/or outbreaks may be occurring. In addition to departmental work, IPAC routinely participates in improvement work external to our department on inpatient units and other departments.

Lessons learned: IPAC's integration of quality improvement strategies has helped us to streamline and standardize work, to improve team communication and to celebrate our successes. These successes have been reflected in responses obtained during our recent IPAC Client Survey and our Lean culture survey.

2:30-2:45 PM

**CREATING A CULTURE OF ACCOUNTABILITY AND ENHANCING FRONTLINE
OWNERSHIP FOR INFECTION PREVENTION AND CONTROL PRACTICES**

Patricia O'Connor, Anaick Briand, Sophie Baillargeon, Tina Kusaian,
Marjolaine Frenette, Jacynthe Sourdif, Alyson Turner, Charles Frenette,
Mathieu Jette, Joe Derocher, Alain Brion, Ramona Rodrigues,
Six CSI-TCAB Teams

The McGill University Health Centre, Montreal, Canada

Issue: Over the last 3 years high rates of Health Care Associated Clostridium difficile infection (HA-CDI) and Vancomycin Resistant Enterococci (VRE) colonization were observed. Implementation of prevention measures was difficult and consistently deficient. We report a novel approach to create a culture of accountability and enhance ownership for infection prevention and control.

Project: In 2010, the Nursing directorate introduced “Transforming Care at the Bedside” to empower frontline staff and patients in co-developing care processes using rapid cycle improvement to test for effective change. Using this approach, interdepartmental frontline teams were created on 6 units with the highest rates of HA-CDI and VRE. The objective was to decrease the rates by 50%. Leadership commitment at all levels was secured, teams were supported by facilitators and weekly protected release time for frontline staff was obtained. Respect for additional precautions, hand and environmental hygiene were targeted. The initiative began in November 2013 supported by a grant from the Corporation.

Results: The approach that included a review of HA-CDI, VRE and process audits helped front line staff understand the issues and target their strategies. By fostering frontline efforts, illuminating individual impact and embedding peer feedback in daily practice, the teams began to create a culture of shared responsibility and ownership.

Lessons learned: Building front-line staff skills in leading quality improvement empowers and engages in taking accountability. Many “aha” moments occurred, and teams realized that it would require a variety of strategies with constant commitment from all stakeholders, including ongoing leadership support to sustain successes.

2:45-3:00 PM

**HUMAN FACTORS AND INFECTION PREVENTION AND CONTROL:
PARTNERS IN THE PROCUREMENT PROCESS**

Allison Muniak, Sydney Scharf, Elizabeth Bryce
Vancouver Coastal Health, Vancouver, Canada

Issue: Inadequately functioning bedpan decontaminators led to a business case and subsequent regional request for proposal (RFP) for new equipment. Previous procurement processes focused on capital cost and did not have involvement from stakeholders such as Infection Prevention & Control (IPC) or Human Factors (HF).

Project: This RFP focused on a “double envelope process” which evaluated clinical effectiveness, functionality, and quality and safety prior to a financial analysis. IPC and HF were involved as part of a multidisciplinary team in the planning of the RFP which included definition of requirements, weighting of the components, and subsequent scoring. This same team was then involved in the evaluation process which included vendor presentations, requirement scoring, and final decisions. Rather than just considering the capital impact, the assessment also included operational impact over a five and ten year period. The latter included education, consumables, maintenance of the machine, and actual time required by users to operate the equipment.

Results: Four vendors responded to the RFP. Having the multidisciplinary group assess the products together enhanced the awareness of the overall system integration and how it would interact with a variety of stakeholders. A decision could be made quickly and comprehensively because all the stakeholders had participated in the RFP development and had agreed on the process to be followed.

Lessons learned: A fair and transparent RFP process that involves all key stakeholders at the onset results in a more streamlined, efficient and comprehensive decision-making process. A template from this procurement process has become the foundation for subsequent RFPs.

3. PROGRAM EVALUATION: ALL ABOVE BOARD

2:00-2:15 PM

**DEVELOPING THE ROLE OF THE LINK NURSE IN INFECTION CONTROL IN
NORTHERN IRELAND: REVIEW OF AN EDUCATIONAL PROGRAM**

Sandra Carruthers
*Clinical Education Centre, Altnagelvin Area Hospital, Londonderry,
Northern Ireland, United Kingdom*

Issue: The role of the link nurse for the prevention and control of infection has long been established in Northern Ireland. Their function is to act as a resource and role model for colleagues and to implement evidence-based practice under the supervision of Infection Control Nurses. The author will outline the reasons leading to a review of their educational program.

Project: For many years, nurses engaged in such a role, undertook a 12-week work-based module devised by nurse lecturers employed by the health trust and accredited by the local university. To develop their knowledge, the nurse was asked to identify an aspect of practice that required change. To enhance this, participants were expected to engage in the audit process, implement teaching to bring about change culminating in the submission of a written assignment based upon a «change management» model.

Results: On completion, participants evaluated their experiences of the course. Comments included: while they increased their knowledge of infection control, their enjoyment of the course was overshadowed by the amount of coursework they were expected to produce; securing time to meet with infection control mentors was difficult due to busy work environments; recent anecdotal evidence would suggest that many link nurses do not fulfil their role due to lack of motivation and busy work schedules accompanied by lack of role recognition

Lessons learned: With the development of the regional centre for the delivery of inservice education for registered nurses and midwives in Northern Ireland and the subsequent dissolution of the relationship with the university, this provided the opportunity to revise the existing course. The new course: embraces all that was good about the previous program; promotes additional practical-based learning; allocates protected time so that students can spend time with their infection control mentor; discontinuation of the written assignment; places greater emphasis on portfolio development based upon skills learning. It is the intention of the author to measure the impact of the revised program upon link nurses of the future.

ORAL PRESENTATIONS

2:15-2:30 PM

HOUSEHOLD INFECTION CONTROL PRACTICES AMONG PATIENTS WITH CLOSTRIDIUM DIFFICILE INFECTION

Vivian Loo^{1,3}, Paul Brassard^{2,3}, Mark Miller^{2,3}

¹McGill University Health Centre, Montreal, Quebec, Canada, ²Jewish General Hospital, Montreal, Quebec, Canada, ³McGill University, Montreal, Quebec, Canada

Background: *Clostridium difficile* (CD) is the leading cause of healthcare-associated infectious diarrhea. However, the observation of community-associated cases of CD and the source of their acquisition has remained an unanswered enigma and household infection control practices may influence transmission. The objective of this study was to evaluate the hand hygiene and disinfection practices at home among patients with CD infection (CDI) as well as the extent of household environmental contamination.

Methods: A prospective study was performed from 2011 to 2013 that included 3 hospitals in Montreal (Québec). For all patients with CDI and their household contacts, a standardized questionnaire at enrolment was used regarding hand hygiene practice as well as disinfectants used. Standardized environmental surface samples were cultured for CD.

Results: A total of 52 CDI patients agreed to participate in the study with at least one household contact. The hand hygiene practice was identical for both index and contact participants. 30 (57.7%) used plain soap, 10 (19.2%) used antimicrobial soap, 8 (15.4%) used both plain and antimicrobial soaps and 4 (7.7%) used both plain soap with antimicrobial handrub. 44 (84.6%), 36 (69.2%), and 34 (65.4%) used a chlorine containing disinfectant for the bathrooms, kitchens, and other household areas respectively. Approximately 1300 environment areas were sampled and 18 (1.4%) were positive for CD.

Conclusions: At home, most patients with CDI practised handwashing with plain soap and used a chlorine-based disinfectant. Environmental contamination was minimal.

2:30-2:45 PM

THE NUMBER OF HAND-HYGIENE OPPORTUNITIES AND COMPLIANCE RATES IN AN ICU: COMPARISON BETWEEN CANADA'S "4 MOMENTS" AND WHO'S "5 MOMENTS"

Debby Ben-David, Pearl Orenstein, Silvana Perna, Fernanda Cordeiro, Anne Desmarais, Lara Maalouf, Andre Dascal, Yves Longtin
 Jewish General Hospital, Montreal, Canada

Introduction: Indications for hand hygiene (HH) have been defined by the World Health Organization (WHO) and conceptualized into the "Five Moments" model (5MM), which has since been adopted by most countries around the world. Recently, Canadian guidelines have recommended the "4 Moments" model (4MM) adapted from WHO's 5MM. In contrast with the 5MM, the 4MM requires performing HH before touching the patient's environment in addition to direct contact with the patient. However, the impact of measuring HH compliance using 4MM vs. 5MM is unknown. The objective of this study was to compare HH opportunities and compliance rates measured according to the 4MM versus 5MM.

Methods: A prospective observational study of patient care activities in a 20-bed tertiary hospital ICU was conducted. A log was generated detailing all activities occurring over 2-hour periods. The activity log was used to identify HH opportunities and determine HH compliance according to 4MM and 5MM.

Results: Over a 1-month period, 203 patients' zone encounters (PZE) were observed for a total duration of 1372 minutes. The total number of HH opportunities was 574 according to 4MM versus 443 according to 5MM. The average number of HH opportunities per PZE was 2.82 (SD, 1.49) versus 2.18 (SD, 1.42) for 4MM and 5MM, respectively ($p < 0.001$). Of the 215 Canadian "1st Moments", 117 (54.4%) were not detected by 5MM due to exclusion of "before contact with patient environment". Global HH compliance according to 4MM was 33.8% versus 41.5% according to 5MM. ($p = 0.09$)

Conclusion: In a tertiary ICU, auditing HH using 4MM criteria was associated with a 25% increase in the number of opportunities compared with 5MM and with an 8% decrease in compliance rates. Discrepancy was due mainly to "before contact with patient environment" not being identified by 5MM. Implications of these discrepancies on clinical practice should be further studied.

2:45-3:00 PM

MULTI-SITE RELIABILITY ASSESSMENT OF THE 2013 PROVINCIAL HAND HYGIENE (HH) COMPLIANCE REVIEWS, ALBERTA HEALTH SERVICES (AHS)

Jenine Leal¹, Jian Sun¹, Raju Walia¹, Karen Hope¹, Janet Barclay¹, Debra Doe¹, Nancy Alfieri¹, Karin Fluet¹, Leanne Dekker¹, Mark Joffe^{1,2}, Elizabeth Henderson^{1,3}
¹Alberta Health Services, Alberta, Canada, ²University of Alberta, Edmonton, Alberta, Canada, ³University of Calgary, Calgary, Alberta, Canada

Background: This project investigates inter-rater reliability (IRR) of reviewers performing HH Compliance observations. The objective was to assess agreement between the two types of reviewers through a multi-site reliability project. The outcome measures were agreement in identifying HH opportunities and compliance.

Methods: In April 2013, all reviewers were trained through standardized education sessions. Two types of reviewers were used; experienced healthcare workers (EHCW) (return-to-work or infection control practitioners (ICP)) and trained student reviewers (TSR): undergraduate or nursing students. In August 2013, 5 pairs observed the same HCW for 30-minute sessions. The target was 200 observations. IRR was evaluated using a two-way mixed, intra-class correlation coefficient (ICC) which assesses the consistency in recording opportunities and compliance rates. ICC estimates are: <0.40 (Poor), 0.40-0.59 (Fair), 0.60-0.74 (Good), and 0.75-1.0 (Excellent).

Results: The EHCW were nurses (3/5=60%) or ICPs with microbiology background (2/5=40%); they worked in healthcare for 23.5 years (range 5-40 years). TSR had no prior exposure to healthcare. Agreement in the opportunities was 0.99 ($p < 0.001$). Overall agreement in compliance rate was 0.94 ($p < 0.001$) and by Moment was 0.71 ($p = 0.09$). TSR recorded a higher compliance rate (60%; 3/5). Differences were observed in the rate by Moment, despite similar number of observations recorded by each reviewer.

Conclusions: EHCW and STR showed excellent agreement. Both groups identified observations similarly and the 4 Moments for HH. The agreement in HH compliance and HH Moment was high. More work is needed to further understand the role of IRR in assessing HH compliance rates.

4. CLEAN, DISINFECT, STERILIZE: SWAB THE DECK

2:00-2:15 PM

WHAT LURKS BELOW: CARBAPENEMASE-PRODUCING ENTEROBACTERIAEAE CONTAMINATION OF SINKS AND DRAINS

Lorraine Maze dit Mieuxement¹, Natasha Salt², Sandra Callery², Mary Vearncombe², Mount Sinai Hospital Infection Control Team¹
¹Mount Sinai Hospital, Toronto, Canada, ²Sunnybrook Health Sciences Centre, Toronto, Canada

Issue: Transmission of carbapenemase-producing *Enterobacteriaceae* (CPE) is increasingly reported in Canadian hospitals. Risk factors for nosocomial acquisition include antibiotic receipt and exposure to CPE colonized/infected patients. Sinks located in patient rooms have been implicated in transmission of multidrug-resistant bacteria. We asked whether patient sinks become contaminated from CPE patients.

Project: Two Toronto teaching hospitals sampled sinks in rooms of CPE patients on discharge using independent swabbing strategies.

Results: Facility 1: Bathroom sinks in five patient rooms were swabbed. No CPE were isolated from three. Two sinks were contaminated with CPE after discharge of a colonized patient. After double cleaning with accelerated hydrogen peroxide (AHP), no CPE were isolated from the sink bowl, but were found in the drains. After replacing plumbing connecting the sink to the wall, no further CPE were isolated from the drain. Facility 2: Bathroom sink drains in 2 rooms were swabbed for CPE after double cleaning with AHP using a scrub brush. Preliminary swab results for CPE were negative. After two weeks, repeat swabs were positive for CPE, although no CPE positive patients were in the room during this timeframe. Previously uncolonized patients admitted to the affected room were subsequently found to be positive for the identical CPE, with no other exposure identified. After replacing plumbing connecting the sink to the wall, no further CPE were isolated from the drain.

Lessons learned: CPE sink contamination may result from inappropriate use of handwashing sinks for patient care activities, disposal of body fluids in bathroom sinks and/or rinsing body fluid-contaminated receptacles in sinks. These results highlight: 1) the need to consider contamination of sinks and drains with CPE as a potential source of transmission, 2) the potential importance of biofilm protecting CPE from complete eradication with cleaning/disinfection in drains and 3) the importance of sink design.

2:15-2:30 PM

PRESENTATION TO BE SCHEDULED

2:30-2:45 PM

MOBILE EQUIPMENT CLEANING PROCESS IN PREVENTING TRANSMISSION OF HOSPITAL-ACQUIRED INFECTIONS (HAIS)

Comella Levers, Nataly Farshait, Catherine Morris
 Humber River Hospital, Toronto, Ontario, Canada

Issue: There is a growing recognition of the relationship between the effective disinfection of clinical equipment and Hospital Acquired Infections (HAIs). Recently, in the U.S., an investigative report alleged that an estimated 103,000 patients' deaths were linked to preventable HAIs. Therefore meticulous attention to the use of disinfected equipment is an essential part of patient safety. In the absence of much needed storage space in older healthcare facilities, corridors are commonly overcrowded with IV poles, wheelchairs, walkers, just to name a few.

Project: A process called "Bag & Tag" helped foster a consistent identification of disinfected equipment. Healthcare providers took responsibility for disinfecting mobile patient equipment with using disinfecting wipes after every patient contact. The wipes were strategically placed in patient care areas to be easily accessible by clinicians. Subsequently, the Environmental Service Associate performed daily cleaning and placed a transparent plastic bag over the equipment or tagged to the handle. The Bag & Tag was removed immediately by clinicians before the intended use on patients and the cycle was repeated. Using the "Bag & Tag" process only clearly identify disinfected equipment touches patients.

Results: The "Bag & Tag" process was initiated in February-March 2012. The compliance was monitored using a simple audit tool. Since the implementation of the process, the rate of MRSA colonization decreased by 50%. The compliance with appropriate disinfection and identification of disinfected mobile equipment was increased immediately after the implementation (80%) but ongoing monitoring and feedback is essential for sustainability. It is our intention to continue monitoring of this process until it is 100% imbedded into the routine daily practice and sustained.

Lessons learned: Identifying and monitoring mobile equipment disinfection in healthcare facilities presents a challenge due to the ever-increasing numbers of mobile equipment. Healthcare providers must be accountable for the point-of-care disinfection by wiping down equipment before and after use. A simple "Bag & Tag" process provides a framework for monitoring of equipment disinfection by healthcare providers and by Environmental Service Associates. It is easy to follow by healthcare providers and simple to monitor as a part of an ongoing quality improvement cycle.

2:45-3:00 PM

IS A WIPE A WIPE? IMPLICATIONS OF VARIOUS WIPE SUBSTRATE MATERIALS ON PROPER DISINFECTION OF SURFACES USING COMMONLY USED DISINFECTANT CHEMISTRIES

Navid Omidbakhsh, Faraz Ahmadpour, Nicole Kenny
 Virox Technologies Inc, Oakville, Ontario, Canada

Objective: Cleaning and disinfection is an integral part of the infection prevention program for healthcare facilities. This study evaluated interactions between the wipe substrate and disinfectant chemistry for saturation load and drying contact time.

Methods: Three wipe substrates (melt blown Polypropylene, microfiber, and cotton) and five disinfectants (A: 0.5% hydrogen peroxide, B: 0.8% quat/ 20% alcohol, C: 0.08% phenol mix, D: 0.07% quat mixture, and E: 0.2% sodium hypochlorite) were used. The minimum and maximum load required to wet the substrate, drying time and volume of liquid released from each wipe were measured.

Results: The saturation level of the polypropylene wipes was 540% and 520% for products A & B. The remaining products did not wet this substrate completely. For Microfiber and reusable cotton, the saturation levels for the disinfectants ranged from 576% and 363% to 657% and 384% respectively. For product A & B, the drying time using fully saturated polypropylene wipes were 115 and 65 seconds and 70 and 45 seconds at the minimum wetting load. For Microfiber and reusable cotton, the drying time for fully saturated wipes ranged from 60 to 160 seconds and 50 to 90 seconds respectively. Drying times at the minimum wetting load were 45 to 70 seconds and 50 to 60 seconds respectively.

Conclusions: In summary, the wipe substrate type has significantly more impact on the saturation level than the chemistry itself and therefore one cannot change the wipe substrate type without first testing it for its saturation level as well as the drying time to ensure that adequate cleaning and disinfection will occur.

TUESDAY, MAY 27, 2014

1. OUTBREAK INVESTIGATION: MAYDAY!

2:00-2:15 PM

THE IMPORTANCE OF ACTIVE SCREENING AND INTENSIVE MEASURES TO CONTROL ONGOING TRANSMISSION OF AN EXTREMELY DRUG RESISTANT A. BAUMANNII

Lara Maalouf, Pearl Orenstein, Silvana Perna, Anne Desmarais,
 Fernanda Cordeiro, Debby Ben-David, Yves Longtin
 Jewish General Hospital, Montreal, QC, Canada

Background: Since 2011, prolonged transmission of an extremely multidrug resistant *A. baumannii* (XDR-AB) occurred in a 637-bed tertiary hospital. This led to the implementation of intensive control measures. The aim of this study is to report the methods used to control the outbreak.

Methods: Between December 2011 and November 2013, the institution implemented numerous measures including contact precautions, flagging of carriers, weekly rectal screening of patients on the units with XDR-AB patients, and screening all admissions, transfers and discharges to these units. As transmission was not interrupted, intensified measures were implemented in November 2013 in collaboration with the Public Health authorities. These included: (1) creating a cohort unit; (2) increasing the number of screening sites per patient; (3) admission screening for all patients hospitalized within the last 6 months; (4) hospital-wide point prevalence; (5) strain typing; (6) tracing and flagging of contacts; (7) use of daily chlorhexidine bathing for all patients on affected wards; (8) intensifying the environmental cleaning techniques.

Results: Between December 2011 and December 2013, 29 patients acquired a monoclonal strain of XDR-AB in 7 different units. Six (6) developed infections (3/5 bloodstream infections and 1 pneumonia occurred in November 2013). Direct patient-to-patient transmission was identified in 28/29 cases (96%). Intensification of the screening policy to include multiple sites (rectal, mouth, wounds and portals of entry {catheters and tubes}) was associated with an increase in case finding. Only 57% of XDR-AB were rectal carriers. No additional nosocomial acquisition was documented during the 14 weeks following intensification of measures.

Conclusions: The use of intensified screening, as part of a multifactorial intervention program, was effective in controlling a prolonged XDR-AB outbreak. Detection of additional positive sites, other than rectum, highlights the need to screen multiple areas to identify carriers of XDR-AB.

2:15-2:30 PM

NOSOCOMIAL CLOSTRIDIUM DIFFICILE INFECTION (CDI): THINGS ARE NOT ALWAYS AS THEY SEEM

Kathryn Suh¹, Natalie Bruce¹, Gary Garber², Angela Wigmore³, Chris Chambers¹, Liz van Horne², Vanessa Allen², Cathy Egan², Karen Stockton¹, Virginia Roth¹
¹The Ottawa Hospital, Ottawa Ontario, Canada, ²Public Health Ontario, Toronto Ontario, Canada

Issue: Healthcare-associated (HA)-CDI is frequent and of increasing severity. In hospitals participating in the Canadian Nosocomial Infection Surveillance Program, HA-CDI rates were stable between 1997 and 2007 (0.66 and 0.73 per 1000 patient days, respectively), and total CDI-attributable mortality increased from 1.5% in 1997 to 5.7% in 2005. Prevention of HA-CDI has traditionally focused on improving hand hygiene compliance and environmental cleaning, and only more recently on antimicrobial stewardship. At The Ottawa Hospital (TOH), a multisite 1200 bed tertiary care facility in Ottawa, Canada, we experienced several prolonged outbreaks on inpatient units in 2012-13 that could not be readily terminated despite reinforcement of routine infection control practices, prompt isolation of symptomatic patients, and enhanced environmental cleaning. Molecular typing of outbreak isolates was performed to better understand the epidemiology of CDI in our facility.

Project: HA-CDI was defined as onset of symptoms >72 hours after admission, or symptoms present on admission with a previous admission in the preceding 8 weeks. An outbreak was defined as 3 or more temporally and geographically clustered cases of laboratory-confirmed HA-CDI. Pulsed-field gel electrophoresis (PFGE) was used for typing isolates.

Results: 41 isolates from 9 outbreaks involving 48 patients (3-9 per outbreak) were typed; 16 different PFGE patterns were identified. A median of 3 (range 2-6) PFGE patterns was identified in each outbreak. NAP-1 accounted for 39% of all isolates but was the predominant strain in only one outbreak. Lessons learned: Basic infection prevention measures remain important for reducing transmission of *C. difficile*. However, our findings suggest that isolates from outbreaks at TOH are polyclonal. Multiple reservoirs may contribute to *C. difficile* transmission within a facility. Alternatively, *C. difficile* may be acquired outside of hospital with disease manifesting only after admission, once antibiotics are given. Prevention strategies need to shift to greater focus on appropriate antimicrobial use. The epidemiology of CDI in the community also deserves further study.

ORAL PRESENTATIONS

2:30-2:45 PM

**IT STARTED WITH SERRATIA MARCESCENS
IN A NEONATAL INTENSIVE CARE UNIT**

Bernadette DeMone

The Moncton Hospital-Horizon Health Network, Moncton, NB, Canada

Issue: *Serratia marcescens*, a gram-negative bacteria, was first identified in a 15 bed Level 3 neonatal intensive care unit (NNICU) in 2006-7. An outbreak followed. Infection prevention and control practices (IPC) were reviewed and reinforced and the outbreak stopped in 2007.

In 2009 *Serratia marcescens* was again identified and persisted, as colonizations and infections until summer 2011. An extensive literature review took place and contact was made with other Canadian neonatal intensive care units. Infection control practices were reviewed and revised, the neonatal environment was scrutinized, all services evaluated, and hand hygiene policies were examined and audited. An ICP/Neonatal Intensive Care Committee was formed and continues to meet monthly to review and assess any current infection control issues and audit current practices. There has been no further identification of *Serratia marcescens* in the neonates but attentiveness to infection prevention and control practices continues.

Project: Review and revision of infection prevention and control in NNICU and maintenance of an ICP/NNICU committee to provide guidance, supervision, and evaluation of infection prevention and control practices in NNICU.

Results: Improvement in hand hygiene practices, identification of "spaces"; Outbreak protocol for future *Serratia marcescens* identification; Formation of a NNICU/Infection control committee; monthly meeting; Review and evaluation of all processes and procedures in NNICU; Collaboration with environmental services and tertiary services; Evaluation of products entering NNICU.

Lessons learned: Outbreak management is an acute issue but developing and maintaining quality/process improvements to prevent and limit neonatal infections requires dedicated continuing vigilance.

2:45-3:00 PM

PRESENTATION TO BE SCHEDULED

2. QUALITY AND PROCESS IMPROVEMENT #2 – CHARTING A COURSE

2:00-2:15 PM

**DEVELOPMENT OF A TOOLKIT FOR MANAGEMENT
OF URINARY TRACT INFECTIONS IN LONG TERM CARE**

Susan Cooper, Anne Augustin, Brenda Smith, Nora Boyd, Risa Cashmore, Esther Chan, Karen Doran, Laura Fraser, Mabel Lim, Christopher Okeahialam, Ellen Otterbein, Francine Paquette, Eva Skiba, Debbie Valickis, Vicky Willet, Amy Wrobel, Liz Van Horne

Public Health Ontario, Ontario, Canada

Issue: Urinary tract infections (UTI) are the most common infection in long term care homes (LTCH) and the primary reason for antibiotic use in LTCH. Diagnosis of UTIs in the elderly, based on signs and symptoms can be difficult. Routine screening for UTIs in asymptomatic residents is not necessary and asymptomatic bacteriuria does not require treatment. LTC stakeholders identified a need for assistance in identifying, testing and managing these infections.

Project: The purpose of this project is to develop resources for LTCH including tools and educational materials. Development of the toolkit involved a stakeholder survey, extensive literature review, and creation of tools, based on survey results. This toolkit will provide recommendations and resources related to identification, testing and management of UTIs in elderly residents. Phase two of the project will continue into 2014 and include supporting documentation such as policy and procedure guidance, nutritional and alternative therapies for UTI management and will be supplemented with coaching opportunities to incorporate principles of behavioral science and organizational change theory.

Result: Priority was given to developing those tools identified as being the most important for current practice. These tools address clinical and fact sheet content for staff, residents and family, as well as laboratory testing procedures and protocols. Guidance from physicians, geriatric and education experts was incorporated. The tools will be available via the Public Health Ontario website.

Lessons learned: Published literature does not always provide consistent direction on this topic. Stakeholder review and consultation prior to and during the development of tools is vital in creating useful, practical, scientifically based tools. Attention to content, language and target audience is an important consideration.

2:15-2:30 PM

**THE OTTAWA HOSPITAL (TOH) SPECIAL WEAPONS AND TACTICS (SWAT)
TO COMBAT NOSOCOMIAL CLOSTRIDIUM DIFFICILE INFECTION (CDI)**

Natalie Bruce, Susan Batista, Michele Larocque-Levac, Virginia Roth, Karen Stockton, Kathryn Suh

The Ottawa Hospital, Ottawa, Ontario, Canada

Issue: In September 2012, the Ottawa Hospital (TOH) experienced a rise in nosocomial CDI rates. Despite several initiatives the rates continued to remain elevated. In January 2013 a multidisciplinary team was created made up of Housekeeping, Infection Prevention and Control (IPAC), and physicians, Logistical Services and Nursing, to respond within 48 hours to the immediate issues on a unit where the CDI case occurred.

Project: The objective of the SWAT team was to initiate a rapid response to any of the infection control related issues, and have heightened awareness of the prevention of CDI. The microbiology laboratory notified IPAC of all new *C-difficile* cases. In turn, IPAC would notify the unit Manager and the SWAT team lead of any new nosocomial case. The SWAT team was deployed to the unit within 48 hours of notification. With a standardized checklist, the SWAT Team walked the unit, reviewing the CDI case, and current practices, and identifying opportunities to prevent further transmission. Together, the team established the 3 top priorities to prevent further transmission. An action plan was created on the first visit, with the goal to address all issues within two weeks of the date of the SWAT. Results: 50 SWAT visits were completed between January 25th, and July 23rd, 2013 on 32 units. The priorities identified among all SWAT visits were hand hygiene, timely isolation, and clutter impeding environmental cleaning. These 3 issues made up 66% of all issues identified. Participants in the SWAT were interviewed. They felt the SWATs provided a forum to discuss issues related to *C-difficile*, and created a heightened awareness about *C-difficile*. CDI rates at TOH have continued to decline since initiating the SWATs.

Lessons learned: SWATs are effective in increasing awareness, and swiftly addressing issues related to *C-difficile* at the unit level. The priorities identified in a SWAT provide direction for interventions to prevent further *C-difficile* transmission.

2:30-2:45 PM

**ARE YOU IN THE "KNOW" ABOUT CONSTRUCTION
& RENOVATION WORK WITHIN YOUR FACILITY?**

Hajira Hafeez, Faye Baisley, Tony Martino, Janice Ward, Sheila Sarman, James Downey

Toronto East General Hospital, Toronto, Canada

Issue: In an aging Hospital infrastructure where renovations are a fact of life, healthcare acquired infections are a huge threat to safety for all. Unfortunately, Infection Control Practitioners (ICPs) are often not aware of work occurring within the facility. There are many approaches, but ultimately it is the right combination of personalization, accountability, collaboration and awareness of infection control practices that will significantly reduce the amount of confusion and increase general awareness.

Project: In May 2013, a working group facilitated by the ICP, came together to customize the Infection Control Risk Assessment (ICRA) Matrix to our Hospital's needs. This new version was then implemented to newly signed Contractors and incorporated in the Contractor's manual. Out of the working group it was decided that a mandatory educational session with the ICP is a prerequisite to any approval of construction work. In addition, a recommendation list and a permit with the ICP information on it, was then given out.

Results: In January 2014, a satisfaction survey of all hired contractors revealed that our interventions aided in an increased competency and efficient in assessment of projects. It was found that 80% of contractors hired were new to construction within the healthcare setting and valued the guidance by the ICP. The involvement of appropriate multi-disciplinary team created a sense of accountability across the Hospital and reinforced the need to uphold the correct level of hoarding. Subsequently these interventions have led to automatic involvement of the ICP in all construction and renovation projects.

Lessons learned: The involvement of key stakeholders along with the involvement of ICPs and a tool that fits the hospital's needs was found essential in creating a culture of transparency where everyone is in the "know" of major renovations within the hospital.

2:45-3:00 PM

INS & OUTS OF MDS: A HAND HYGIENE TELL-ALL

Jennifer Ellison¹, Edith Amend-Rinaldi², Vivien Suttorp¹, Teri Myhre¹
¹Chinook Regional Hospital, Lethbridge, Canada, ²Medicine Hat Regional Hospital, Medicine Hat, Canada

Issue: Physician compliance with hand hygiene (HH) practices has been historically low. In summer 2011, Alberta Health Services (AHS) physicians showed an average provincial HH compliance rate of 31.5%. The South Zone (SZ), compliance was 27.0% with compliance of 25.0% at Chinook Regional Hospital (CRH): a 270-bed acute care facility that serves a population of 150,000 people in SZ.
Project: A zone-wide HH 10-year strategic plan was implemented to promote the idea that HH is a value added activity, using the 4 Moments of Hand Hygiene. Targets: all health care workers, including physicians.
Method: perform direct observation of HH practices, provide feedback to healthcare workers, and educate. This project was initiated in May 2012 in SZ. Data follows for physicians at CRH between May-Dec 2012 and May-Dec 2013.
Results: At CRH, 42,418 HH opportunities were observed in the two time periods May-Dec 2012 and May-Dec 2013. Of these observations, 6.7% (n=2834) were of physicians, whose compliance rose significantly from 48.4% (n=725/1497) in 2012 to 72.7% (n=973/1337 p<0.001) in 2013. Additional follow-up reviews conducted on physicians between Oct-Dec 2013 showed that compliance continued to increase to 80.1% (n=436/544). Overall physician compliance increased for Moment 1 (39.0% to 69.3% p<0.001) and Moment 4 (53.2% to 76.4% p<0.001). However, compliance for Moments 2 and 3 remained relatively unchanged from 2012 to 2013.
Lessons learned: Efforts to introduce a multi-faceted approach to HH improvement in SZ have led to increased HH compliance by physicians when entering and leaving patient spaces. Further work is needed to improve compliance at the most critical moment of patient care (i.e. moment 2).

3. DEVELOPMENT AND IMPLEMENTATION OF PRACTICE: BATTEN DOWN THE HATCHES

2:00-2:15 PM

INCREASING HEALTHCARE WORKER INFLUENZA VACCINATION RATE BY DEVELOPING & IMPLEMENTING AN INFLUENZA PROTECTION POLICY FOR PATIENT AND HEALTHCARE WORKERS

Helen Shaw, Janet DeActis, Mark Taylor, Colleen Cook, Meaghan Lawrence-Kreeft
Bluelwater Health, Sarnia, Ontario, Canada

Issue: Influenza is a vaccine preventable, serious illness especially in vulnerable groups such as hospitalized patients. Evidence reveals that overall patient mortality decreases when healthcare workers receive influenza vaccine. Therefore influenza vaccination of healthcare workers is an important patient safety initiative. Despite efforts to improve influenza vaccination rates of healthcare workers at our facilities, the best rate achieved was 52%.
Project: Develop and implement a policy inclusive of all healthcare workers at our facilities to improve protection of patients and staff from acquiring influenza. The policy would give healthcare workers the choice to be vaccinated against influenza by December 1 of every year or wear a procedural mask while in any patient care area for the duration of the influenza season. Healthcare worker influenza vaccination rates, number of influenza outbreaks and staff absenteeism rates throughout the influenza season would be compared to another hospital under the same Occupational Health and Safety Director, with similar influenza vaccination programs, with the primary exception being an *Influenza Protection Policy for Patients and Healthcare Workers*.
Results: 1. As of January 30, 2014 influenza vaccination rates for 2013/2014 compared to 2012/2013 were: Staff increased from 52% to 84%; Professional Staff increased from 40% to 85%; Comparator staff increased from 58% to 65%; Comparator Professional Staff increased from 38% to 62%. 2. Data comparing number of outbreaks and staff absenteeism will be available by April 30, 2014.
Lessons learned: 1. Implementing a comprehensive policy specifying a clear choice of how a healthcare worker can protect patients, themselves and co-workers from influenza is more effective at achieving a higher healthcare worker vaccination rate than education or incentives.
2. Imperative to have collaborative support from Executive, Human Resources, Occupational Health and Safety, and Infection Control. 3. Implementation requires inclusion of union leadership and a strong communications plan.

2:15-2:30 PM

DIALYSIS POLICY CHANGE: IT'S TIME FOR ACTION

Marion Yetman¹, Donna Moralejo², Donna Ronayne³, Lola Gushue⁴, Paula Stagg⁵, Paula March⁶

¹Department of Health & Community Services, St. John's, NL, Canada, ²Memorial University of Newfoundland, St. John's, NL, Canada, ³Eastern Health, St. John's, NL, Canada, ⁴Central Health, St. John's, NL, Canada, ⁵Western Health, St. John's, NL, Canada, ⁶Labrador-Grenfell Health, St. John's, NL, Canada

Issue: The high risk for transmission of infection in dialysis units has led to very strict infection prevention and control (IPAC) recommendations which have been unchallenged for a number of years. The recommendation that healthcare workers (HCWs) not care simultaneously for hepatitis B positive patients and hepatitis susceptible patients is contrary to IPAC principles of Routine Practices.
Project: The provincial kidney program requested help from Provincial Infection Control-Newfoundland Labrador (PIC-NL) in reviewing this recommendation as concerns about the ability to adhere to this practice were raised by practitioners in dialysis units. PIC-NL conducted a comprehensive review including: cross-country survey of practice, extensive literature review, assessment of epidemiology of hepatitis B in dialysis units in the province, evaluation of hepatitis B immunization recommendations and discussion with the medical officers of health.
Results: A change was made to the practice allowing HCWs to care for hepatitis B positive and susceptible patients simultaneously. An education session was developed and piloted at one dialysis unit and subsequently provided to all Infection Control Practitioners in the province to use within their regions.
Lessons learned: National recommendations need to be reviewed and updated on a regular basis. Policy changes should be based on best evidence, current IPAC recommendations and local epidemiology. It was also interesting to discover that some dialysis units had not adhered to national recommendations without having documented their reason for lack of adherence. IPAC professionals are in key positions to identify recommendations that may not be current and require updating.

2:30-2:45 PM

CONSTRUCTION RENOVATION MAINTENANCE AND FACILITY DESIGN (CRMD) TOOLKIT: INFORMING CONTENT THROUGH STAKEHOLDER SURVEY AND FOCUS GROUP PARTICIPATION

Barbara Shea, Susan Cooper, Patricia Piaskowski, Mabel Lim, Anne Augustin, Vicky Willet, Brandy Kirchen, Karen Clinker, Naideen Bailey
Public Health Ontario, Toronto, Canada

Issue: Currently Public Health Ontario's (PHO) Regional Infection Control Networks (RICNs) and IPAC-Canada's Construction Renovation and Health Care Facility Design Interest group receive numerous stakeholder inquiries from Infection Prevention and Control Professionals (IPAC) in acute care, long-term care and community settings for resources to assist them in decision making and or education of staff related to CRMD issues. Existing PIDAC best practice guidelines outline and identify the importance of IPAC input into facility design and construction and identify it as an important IPAC program element for the reduction of healthcare associated infections. There is no current PIDAC document that specifically addresses construction/maintenance/design (CRMD) subject matter and other CRMD publications can be cost and/or copyright prohibitive.
Project: The objectives of this ongoing project are to provide free online key resources and tools to: assist IPAC professionals in the evaluation, revision and implementation of processes for CRMD, align with elements of the existing relevant PIDAC documents and CSA standards addressing CRMD, and develop a provincial plan for the roll-out of the resources and tools and determine stakeholder needs for additional support beyond this project plan.
Result: A project charter was created to outline the objectives and key deliverables for the project. A CRMD needs assessment survey was distributed to a sampling of key stakeholders /potential users. Focus group sessions were held in east and central-west regions of Ontario to obtain stakeholder input and provide feedback of survey results to participants. Focus group sessions were utilised to inform key content and format of the specific tools identified by survey.
Lessons learned: Survey results provided insight into the knowledge of and use of existing standards and guidelines and confirmed the need for tools. Focus group sessions were a valuable way to gain insight into stakeholder needs and gather information to inform both content and types of tools needed in the current setting in Ontario.

ORAL PRESENTATIONS

2:45-3:00 PM

**INFECTION PREVENTION AND CONTROL IN NUNAVUT:
 DEVELOPING A PROGRAM IN THE COMMUNITY HEALTH CENTRES**

Roger Pulver, Pat Huntly

Department of Health, Iqaluit, Nunavut, Canada

Nunavut comprises 20% of the land mass of Canada with a population of approximately 39,000. Healthcare services are delivered through health facilities in 25 communities across the territory. Challenges in health care program development and delivery include factors such as the remoteness of the communities, limited transportation options (air year round and sealift in the short shipping season). This is complicated by transient staffing in the professional jobs. Nunavut has not had an IPAC program. Standards for reprocessing/sterilizing, additional precautions, housekeeping and related products and supplies have typically been established based on the past knowledge and experience of staff. In June 2013, the Department of Health invested in the beginnings of an IPAC program. Initial tasks taken on by the ICP was to conduct an environmental scan of the community health centres. The gaps identified included the lack of standardized processes and products, limited IPAC orientation for all health care staff, as well as ongoing education and audits with quality assurance. Another identified gap was the lack of common approach to acquiring supplies and products. Education challenges included support staff where English is often a second language with sometimes limited written skills in Inuktitut. An IPAC program has now been developed with an advisory committee established. The program includes a IPAC manual, housekeeping procedure manual, a pilot education training program with a quality assurance framework. Subject matter in the presentation would encompass the initial investigation and development of the program and its associated products.

4. EDUCATION: KNOW THE ROPES

2:00-2:15 PM

HOME HEALTH CARE WASTE: NOT AS SCARY AS IT SEEMS

Eva Hatzis, BSc, CPHI(C) CIC¹, Kim Allain, BScN, RN, MHS, CIC¹, Dianne Jay, MSc, P.Eng, CIH², Shelley Gray, P.Eng, CIH, ROH², Valda Walsh, BSc, TME, EP³, Nicole Warren⁴

¹Nova Scotia Department of Health and Wellness, Halifax, NS, Canada, ²Nova Scotia Department of Labour and Advanced Education, Halifax, NS, Canada, ³Region 6 Solid Waste Management, Mahone Bay, NS, Canada, ⁴Nova Scotia Department of the Environment, Halifax, NS, Canada

Issue: In early 2013, concerns about risks related to infectious disease transmission from home health care waste, particularly from home dialysis waste, prompted the municipal solid waste sector to seek provincial intervention and guidance. Clear-bag waste policies in many jurisdictions allowed the public and waste workers to see what was being disposed of from private homes at the curbside. Perceived risks and gaps in knowledge resulted in work refusals and confusion. Media attention and ministerial briefings prompted action to address the issue.

Project: A multi-disciplinary, multi-agency working group was assembled to support the educational needs of the municipal solid waste sector. The working group created and delivered an educational train the trainer program with a focus on infection prevention and control (IPAC) and occupational health and safety (OHS). The goal of the program was to use evidence-based information to educate and empower waste sector staff to recognize hazards in their work environment, assess infectious disease and OHS risks and to make informed decisions to prevent exposure. This collaboration marked the first time our provincial centre targeted a non-healthcare audience and environment for IPAC education.

Results: Increased ability to distinguish between biomedical waste and general waste in the solid waste sector. Increased understanding of actual versus perceived risks posed in handling home care waste in the solid waste sector. Better understanding of the roles of the respective government departments, facilitating future collaborations.

Lessons learned: Jurisdictional responsibility for the waste sector is not clearly delineated. Local by-laws can create confusion about waste streams and may contradict best practice and evidence. There is a need for ongoing discussion about wastes generated from home health care. Collaboration amongst different government agencies will lead to more effective provincial responses. There is opportunity and need for science-based IPAC education to non-healthcare settings.

2:15-2:30 PM

IPAC DRIVES THE CASH CART (OVERCOMING DIFFICULTIES IN SCHEDULING EDUCATION SESSIONS)

Latha Jacob, Jane E.Van Toen, Heather Candon, Chingiz Amirov
 Baycrest, Toronto, Canada

Issue: Baycrest is a 1000 bed Geriatric health centre. Like Infection Prevention and Control practitioners at other healthcare facilities, practitioners at Baycrest encountered difficulties and challenges in scheduling educational sessions and also making these sessions enjoyable and engaging. We took up the challenge to brainstorm ideas for innovative ways to provide education sessions.

Project: Education on routine practices and additional precautions was planned to be delivered to care providers as part of quarterly deliverables in September 2013. Brainstorming for novel ideas, brought us to the TV program, 'Cash Cab'; which led us to 'IPAC Cash cart'. Practitioners showed up unannounced on the units with IPAC cash cart which carried short questions on the subject and prizes. Questions were scenario based. Sessions were informal. Staff (individual or in groups) were met at the nursing stations or hallways. Routine activities of staff were not interrupted. Staff received prizes as they participated

Results: Sessions were well received, effective, enjoyable and involved multi-disciplinary groups; we also received great feedback from staff.

Lessons learned: Impromptu sessions are feasible. Staff had no problem finding time for educational sessions, when sessions were engaging, interesting and attractive (prizes)

2:30-2:45 PM

ENGAGING PATIENTS' FAMILY AND VISITORS IN PATIENT SAFETY BY PROVIDING EDUCATION ABOUT ADDITIONAL PRECAUTIONS (ISOLATION) & ROUTINE PRACTICES (STANDARD PRECAUTIONS)

Comella Levers, Nataly Farshait, Joan Osbourne-Townsend
 Humber River Hospital, Toronto, Ontario, Canada

Issues: A successful Infection Prevention program requires partnership with healthcare providers, patients, families/visitors. We identified that patient's safety was compromised when patient's families/visitors complained of not being promptly and properly informed of the reason for Isolation, not complying with visible isolation sign posted at the patient's room/bedspace and difficulties donning and doffing Personal Protective Equipment (PPE). These conditions were not in line with the top strategic priority of the hospital for the patient-family-centered-care.

Project: Infection Prevention team saw the need for patient and visitors education regarding isolation precautions and proper use of PPE as a priority for quality improvement initiative. The program's service goal was to focus on welcoming patients and families/visitors to the hospital by implementing a three prong approach: communication tool for staff to utilize with patient on isolation precautions, initiating Infection Preventionists unit rounds- monitoring consistency between Isolation sign on the door with recommended isolation precautions documented in the patient's electronic chart and development of a pictorial "Visitor's Guide to Additional Precaution and Personal Protective Equipment."

Results: A study was done by providing surveys to family, visitors and healthcare providers using the communication tool for staff and "The Visitor's Guide to Additional Precautions and Personal Protective Equipment". The patients, families, visitor's and staff surveyed verbalized the usefulness of the educational material. The staff was satisfied with the quick communication reference guide that was conveniently attached to the lanyard. The daily IPAC unit rounds demonstrated increased compliance with correct documentation and use of appropriate isolation signs. Finally, since the implementation of the project there were no documented patients, families, visitors complaints related to isolation precautions.

Lessons learned: A clear and consistent communication between healthcare providers and patients, families and visitors in conjunction with education about Isolation Precaution and proper use of PPE improves patient safety, instills patients trust in the healthcare system and increases patient satisfaction. Also, an active involvement of staff and physicians is essential for the program to sustain success.

2:45-3:00 PM

LET'S GO VIRAL! PICNET'S INFECTION CONTROL WORKSHOP IN-A-BOX

Helen Evans, Bruce Gamage, Joanne Archer, Susan Brauer
Provincial Infection Control Network of BC, BC, Canada

Issue: The Provincial Infection Control Network of BC (PICNet) educates health-care workers in infection prevention and control (IPAC). We are limited by staff time and geography as to how many facilities we can provide in-services to, and needed a way of reaching more healthcare workers across BC.

Project: In 2012, PICNet developed an educational game to make its in-services more interactive, engaging, and fun. The «Lets Go Viral!» game included buzzer questions; activities such as a Cover Your Cough contest, donning and doffing PPE correctly, and Germ CSI; and teaching moments generated by each question. The game was a hit when it was presented to 9 facilities for Infection Control Week. In order to increase our 'reach', in 2013 PICNet packaged up the game and made it available as a kit that facilities could purchase or download. Using a train the trainer model, the kit came with instructions and a demonstration video so that managers/ICPs could run the workshop themselves. The kit was promoted for Infection Control Week.

Results: The first production run of 50 kits sold out in a month. PICNet visited 13 facilities (300+staff) with the game, and feedback from kit purchasers was extremely positive (data have yet to be gathered on how many total staff were reached).

Lessons learned: Basing the game on questions that PICNet regularly receives made the workshop extremely relevant to current IPAC issues, concerns, and myths. Making the game interactive worked well for staff interest in, and uptake of, IPAC information.

POSTER PRESENTATIONS

POSTER PRESENTATIONS WILL BE HELD ON
MONDAY AND TUESDAY (12:30-1:30 PM).
POSTERS ARE IN THE EXHIBIT HALL (METRO CENTRE) AT THE
WORLD TRADE AND CONVENTION CENTRE, HALIFAX

MONDAY, MAY 26, 2014

POSTER BOARD #1

A FAMILY OUTBREAK CAUSED BY STREPTOCOCCUS PNEUMONIAE

Zoran Pikula, Linda Davis, Esther Rupnarain, Doreen Alexander, Diane White, Kevin Katz

North York General Hospital, Toronto, Canada

Issue: S.pneumoniae is common in nasopharyngeal flora of healthy persons. In some environments the carriage is up to 90% of individuals. Colonization with S.pneumoniae provides a basis for horizontal spread of the bacteria. Small children, the elderly and immunocompromised persons are at higher risk for this infection which usually presents as pneumonia, otitis, conjunctivitis, meningitis or sepsis. Outbreaks have been described in hospitals, nursing homes, child-care centers, military camps, homeless shelters and jails. Clusters within families have rarely been reported.

Project: We report a family cluster where 4 of 5 household members developed pneumococcal infection and were admitted to our hospital within two days. One member (father) had pneumonia with septic shock and was treated in ICU. Three members (two sons and grandmother) presented with pneumonia and were successfully treated with beta-lactams. The whole family did not have vaccination against S.pneumoniae. There were no known sick contacts, comorbidities nor recent travel.

Results: NP swabs of the four patients were tested by culture, PCR and a 12-Mplex viral panel. PCR was positive for S.pneumoniae in all four patients, culture was positive only for the patient with the invasive infection. Blood culture was positive for the same patient but negative for the remaining three. The 12- Mplex virus panel was negative in all four patients. CXR revealed pneumonia for all four.

Lessons learned: Household transmission of S.pneumoniae may happen within noncompromised persons with a high clinical attack rate. The role of chemoprophylaxis of household contacts and post-exposure pneumococcal vaccination remains unclear.

POSTER BOARD #3

THE NATURAL HISTORY OF VRE COLONIZATION: A RETROSPECTIVE YEAR ANALYSIS

Jenny Scoging, Sharon Carella

Thunder Bay Regional Health Science Centre, Thunder Bay, Ontario, Canada

Objective: To determine the natural history of colonization with Vancomycin Resistant Enterococci (VRE) after an initial positive sample

Method: Electronic record review of all positive VRE microbiology reports on admitted patients over a 24- month period. Inclusion criteria used included: patients over 18 years old who had at least three subsequent VRE swabs one week apart.

Results: 84 patients met criteria to be included in this 24-month study. 58% (.52-.63 95% CI) had cleared colonization, while 42% (.36-.48 95% CI) remained colonized. 33% met definition for clearance at 6 months or less, six cleared at 12 months or less, 7 cleared at 18 months or less, 3 cleared at 24 months or less. Five categorical variables were analyzed using 2-tailed fisher's exact test. These variables showed one statistical effect on VRE carriage. There was a relationship between immunocompromised status and a higher than expected clearance (P<.05). A Kaplan-Meier survivability curve showed that the likelihood of clearance decreases, the longer colonization persists.

Conclusion: The variables we reviewed had no impact on length of colonization, only patients who were classified as immunosuppressed had a statistically higher rate of clearance. Future research should confirm the relationship between immunosuppressed patients and shorter VRE colonization clearance. This finding could attest to the use of more stringent infection control practices related to patients in a more vulnerable state, or the increased use of antibiotics in this patient population.

POSTER PRESENTATIONS

POSTER BOARD #4

REDUCING TRANSMISSION OF ANTIBIOTIC-RESISTANT ORGANISMS (AROS) THROUGH DAILY ANTISEPTIC PATIENT BATHING

Paula Raggiunti, Sumana Vinod

Rouge Valley Health System, Toronto, Canada

A quality improvement intervention was initiated February 2012 to reduce facility-acquired antibiotic-resistant organisms (AROs) targeting MRSA, VRE and ESBL. As part of this effort, the team introduced an antiseptic patient bathing protocol across five medical units which were experiencing higher rates of ARO transmission. This effort was initiated when a root cause analysis documented inconsistent practice and poor compliance with the application of a bottled form of Chlorhexidine Gluconate which was being diluted in the patients' bath water and at times was unable to be tolerated on patients' skin. A non-rinse topical 2% Chlorhexidine Gluconate (CHG) antiseptic skin cleanser applied through pre-saturated cloths was introduced for daily patient bathing. Prior to initiating this quality improvement effort on a given medical unit, staff received education and training on the new bathing protocol with at least 80% of staff trained as one control measure. The aim of this initiative was to reduce ARO transmission by 40% over an 18-month period across five medical units. A non-rinse application was substituted for the existing antiseptic to ensure consistency in the bathing protocol thus enabling a reduction of ARO transmission. Baseline data indicates an average of 136 ARO transmissions across the five medical units over the 18-month period preceding this quality improvement effort. In the 18-month period post project implementation there were 65 ARO transmissions across the five medical units representing a reduction of 52%.

POSTER BOARD #6

BEST PRACTICES IN COLLECTING URINE SPECIMEN: A SURVEY OF NURSES' PERCEIVED IMPORTANCE

Juliana Barry¹, Angela Gunn (BN Student)¹, Gail Barwise², Debbie Steele¹
¹University of PEI, Charlottetown, Canada, ²Queen Elizabeth Hospital, Charlottetown, Canada

Issue: Urine specimen collection for culture is a common process, as urinary tract infections are frequent reasons for seeking healthcare. However, issues with specimen collection can result in false positives or specimen contamination. This can result in antibiotics overuse, and potential development of antibiotic resistant organisms. Appropriate use of urine culture results by healthcare providers and meaningful lab results are important for patient care.

Project: In the fall of 2013, the Infection Prevention and Control team at an acute care facility in Charlottetown, PE, evaluated nurses' perceptions of best practice in collecting urine specimen cultures. A survey using a likert-type scale was developed and passed to nursing staff on two inpatient units to obtain feedback on the use of best practices.

Results: Of the 200 surveys distributed, 40% of the surveys were returned to the Infection Control team for analysis. Results indicated that nursing staff perceive adhering to aseptic technique and routine practices are important. However, further guidance was required for collecting midstream urine specimens.

Lessons learned: The initial flow of urine before collecting a midstream urine specimen is important in order to wash away bacteria in the urethra. Routine cleaning of the urethra is not recommended for midstream urine collection but is recommended if the client has poor hygiene or if fecal contamination is known. It is important that nursing staff are aware of best practice guidelines and education initiatives should be developed to assist nursing staff with these changes.

POSTER BOARD #8

VALUE OF AN ACTIVE SURVEILLANCE POLICY TO DOCUMENT CLEARANCE OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS AND VANCOMYCIN-RESISTANT ENTEROCOCCUS AMONGST IN-PATIENTS WITH PROLONGED ADMISSIONS

Ananda Ghosh², Cindy O'Neill¹, Lei Jiao³, Fatimah Al-Mutawa³, Dominik Mertz¹
¹Hamilton Health Sciences, Hamilton, ON, Canada, ²Department of Medicine, McMaster University, Hamilton, ON, Canada, ³Department of Pathology and Molecular Medicine, McMaster University, Hamilton, ON, Canada

Objectives: In-patients with methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE) are kept in Contact Precautions (CP) as part of infection prevention and control measures. Discontinuing CP once patients have cleared MRSA or VRE carriage can improve patient care and reduce costs. However, data to guide optimal means of screening for clearance is lacking. We evaluated the impact of an active surveillance policy to identify carriage of MRSA or VRE in known carriers with prolonged admissions.

Methods: We reviewed all consecutive in-patients with MRSA or VRE and a length of stay of 30 or more days at three acute care hospitals in Hamilton, Ontario over one year. Until clearance (defined as three negative consecutive

swabs at least one week apart) or discharge, our policy requests that carriers are weekly screened for clearance for the first two months, then monthly for 3 months and thereafter every 6 months.

Results: A total of 365 admissions were included, 132 (36.2%) patients carrying MRSA, 196 (53.7%) carrying VRE, and 37 (10.1%) carrying both. We found 11.2% of MRSA carriers cleared during their hospital stay after a median of 23 days (IQR 14-39 days), and 18.0% of VRE carriers cleared after a median of 26.5 days (IQR 13-45.5 days). We estimated 2,151 patient-days in CP saved compared to the alternative of continuing CP indefinitely for carriers. Cost calculations estimated overall savings of \$289,112.00 over the study period.

Conclusions: Active surveillance of known MRSA and VRE carriers to detect clearance during prolonged hospital stays reduced isolation days and costs.

POSTER BOARD #10

OUTBREAK OF NON-TYPEABLE HAEMOPHILUS INFLUENZAE IN A COMPLEX CONTINUING CARE SETTING

Heather Candon, Jane Van Toen, Chingiz Amirov

Baycrest Health Sciences, Toronto, Canada

Issue: To describe the investigation and management of an outbreak of a non-typeable *Haemophilus influenzae* (*H. influenzae*) among patients on a geriatric complex continuing care unit.

Project: Outbreak investigation involved additional case finding, implementation of outbreak control measures, and molecular typing of isolated strains with pulsed-field gel electrophoresis.

Results: The *H. influenzae* outbreak occurred from June 25 to July 5, 2013 and involved 7/33 patients who developed conjunctivitis or lower respiratory tract infection. Three biotype III isolates were deemed indistinguishable via molecular typing using *Sma*I digest and Pulsed-field Gel Electrophoresis. The outbreak ceased following implementation of the following interventions: isolation and strict droplet/contact precautions of case patients; treating infected patients; ward closed to new admissions; group activity restricted; removing ill staff; enhanced environmental cleaning of common areas. Patient and staff screening for *H. influenzae* carriage was not completed. All patients recovered. No further *H. influenzae* cases have occurred to date anywhere in the facility since termination of the outbreak.

Lessons learned: The role *H. influenzae* as a nosocomial pathogen in elderly is not clearly defined. Few studies of *H. influenzae* nosocomial outbreaks have been described, and there is a general lack of consensus regarding control measures in the literature. This outbreak was brought under control by instituting routine outbreak control measures and promptly identifying and treating symptomatic cases.

POSTER BOARD #12

USE OF MULTI-FACETED STRATEGIES IN REDUCING METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) ISOLATION BURDEN AND NOSOCOMIAL TRANSMISSION: A QUALITY IMPROVEMENT PILOT PROJECT AT PARKWOOD HOSPITAL, ST. JOSEPH'S HEALTH CARE LONDON

Yasmine Chagla^{1,2}, Deb Wiltshire¹, Michael John^{2,3}, William Payne¹
¹Parkwood Hospital ST. JOSEPH'S HEALTH CARE LONDON, London, Canada, ²London Health Sciences Centre, London, Canada, ³University of Western Ontario, London, Canada

Issue: St. Joseph's 2012-13 Quality Improvement Plan set a target to reduce nosocomial MRSA at Parkwood Hospital by 50%.

Project: Parkwood Hospital is a 428-bed inpatient/outpatient facility with Complex Care, Rehabilitation, Specialized Geriatric Services and Veterans Care. A multidisciplinary team implemented a project between March and September 2013 to reduce nosocomial MRSA transmission and isolation burden on three units: Complex Care (32 beds), Transitional Care (20 beds) and Geriatric Rehabilitation (30 beds). Units were selected based on patient population, length of stay, and endemic burden. Early identification of MRSA through admission screening and application of a standardized treatment protocol on positive patients for 5 days was implemented. This protocol included: whole body wash with 2% chlorhexidine impregnated washcloths, topical administration of mupirocin antibiotic cream twice daily to nares and colonized wounds, daily clothing and bed linen changes, systematic disinfection of the environment and equipment and post treatment MRSA screens once a week for three weeks. Patients were removed from precautions following three negative screens. Patients who failed a repeat protocol were referred to infectious diseases for further management which could include systemic antibiotics. Nosocomial transmission was monitored by monthly prevalence screens.

Results: 71 patients underwent 124 treatment protocols, 35 (49%) received more than one treatment. 25 patients (35%) were deflagged for MRSA, 9 deflagged patients (36%) were positive (deflag failure) in subsequent monthly prevalence screening. MRSA rates before the project (March- September 2012), without

monthly prevalence screening was 1.6/1000 patient days, at completion with monthly prevalence screening was 1.3/1000 patient days. Overall MRSA isolation burden on pilot units at initiation of the project was 40%, at completion 17.3%.

Lessons learned: Multifaceted MRSA reduction strategies were helpful adjuncts in decreasing isolation burden and nosocomial MRSA transmission. Sustained decolonization was less successful. As a result, this protocol is being incorporated throughout all inpatient areas of Parkwood.

POSTER BOARD #14

PUBLIC HEALTH'S CHALLENGE: USING PUBLICLY REPORTED INFECTION RATES FOR A VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE) EVALUATION PROJECT IN ONTARIO

Cary Garber^{1,2}, Kwaku Adomako¹, Chatura Prematunge¹, Freda Lam¹, Giulio DiDiodato^{1,3}, Jennifer Robertson¹, Cathy Egan¹

¹Public Health Ontario, Toronto, ON, Canada, ²Ottawa Hospital Research Institute, Ottawa, ON, Canada, ³Royal Victoria Regional Health Centre, Barrie, ON, Canada

Background: Limited scientific evidence surrounding the effectiveness of screening and isolation practices (SIP) for patients colonized with Vancomycin-resistant Enterococci (VRE) has led to much debate among infection control professionals. To better inform VRE-SIP guidelines, Public Health Ontario (PHO) initiated a project examining the impact of VRE SIP changes on VRE bacteremia (VRE-B) trends. A key objective was to validate VRE-B data submitted to the Patient Safety Public Reporting program (PSPR), the only data source for hospital-acquired infections in Ontario.

Methods: Hospital infection control staff submitted VRE-B information to PSPR on a quarterly basis. Using PSPR data, PHO identified all Ontario hospitals reporting ≥ 1 VRE-B(s) between 2009 and 2013, and then requested monthly VRE-B data from each identified site. Through this process PSPR VRE-B data was actively validated with reporting hospitals.

Results: From 2009-2013, 69/235 Ontario hospital sites reported ≥ 1 VRE-B(s). To date, 52 hospital sites (75%) with ≥ 1 VRE-B(s) participated in the data validation process, and 17 (15%) sites identified incorrectly reported cases. Of the 361 VRE-B(s) reported, 45 (12%) were incorrectly reported (median number of errors: 1, range: 1-27). False negative VRE-B reporting has yet to be validated, thus PSPR sensitivity and specificity is currently unknown.

Conclusions: Ontario's PSPR program provides valuable information to support evidence-based healthcare infection control improvements. However, this work highlights the importance of incorporating quality control processes when using PSPR data. Additional information on VRE-B case severity and mortality, in addition to PSPR data, are needed to determine VRE SIP effectiveness and inform guidelines.

POSTER BOARD #16

A RECIPE FOR SUCCESS: THE IMPACT OF A STANDARD OPERATING PROCEDURE AND ONGOING AUDITS ON NEONATE FEED PREPARATION

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Issue: The use of human expressed breast milk (EBM) for premature and high risk infants conveys benefits in this vulnerable population in whom infections can be fatal. Customized feeds combine EBM or donor milk (DM) with powder formula (PF), human milk fortifier (HMF), and microlipids. Improper preparation techniques and the order of introduction of EBM and additives into the laminar flow hood (LFH) can pose a risk for cross contamination, compromising product quality and safety. Preparing feeds using combinations of EBM or DM and additives from multi-dose containers requires specialized training, standard operating procedure (SOP), and knowledge of aseptic technique, operation of a LFH and environmental hygiene. Sunnybrook Health Sciences Centre's level three NICU has seven feed preparation staff comprised of pharmacists, dietitians, and technicians. External training is not available due to the uniqueness of feed preparation.

Project: Interdisciplinary collaboration between Infection Prevention & Control, dietician and feed preparation technicians designed the training model, developed a SOP and an audit tool (AT) based on the SOP. Didactic and practicum training incorporated: food preparation and safety; aseptic techniques applied in the LFH; spill and materials management during preparation; and operating, cleaning and disinfection of LFH. Calculation sheets ensure correct amounts of EBM, additives, and supplies which are identified prior to feed preparation. Audits are conducted regularly; immediate feedback is provided to staff and management. Re-certification consists of a written test and practicum every 3 months.

Results: Practice changes have been successfully implemented and sustained.

Lessons learned: Complex feed preparation requires specialized on-the-job training to ensure product quality and safety. SOP and AT are objective tools that are reliable, improvable and reproducible ensuring practices are consistent

and measurable. SOP is useful to determine skills and competencies for hiring, training, certification and performance appraisals.

POSTER BOARD #18

POINT OF CARE COMMUNICATION: A KEY STRATEGY FOR PATIENT IMPROVEMENT

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Issue: Desired improvements in patient safety require a change in the culture of healthcare. The Modified Stanford Patient Safety Cultural Tool completed May 2011 identified a number of areas for improvement. Baseline data for healthcare acquired infections (Clostridium Difficile infections- CDI) and hand hygiene compliance also illustrated the need for required improvement and were identified as priorities in the organization's Quality Improvement Plan.

Project: The aim for this project was to use point of care communication to improve patient safety culture and to illustrate improvements in patient safety culture correspond with improvements in patient safety, as measured by decreased healthcare acquired infection rates (CDI) and improved hand hygiene compliance. The study design was a before and after study. A multipronged approach that included a unit-based strategy was employed. The approach concentrated on teams, at the unit level, and strategies were implemented to improve point of care communication to create a culture of patient safety.

Results: This project highlighted that success in patient safety cultural improvement can be achieved in a short time frame, with intensive unit level strategies, aimed at targeting point of care communication. Patient safety cultural improvements drive improvements in patient safety as evidenced by improved hand hygiene compliance rates (2011-64%, 2012-83.14%, 2013 (Jan-May)-89.72%) and decreased adverse outcomes like CDI rates (2011-0.31/1000 patient days, 2012-0.23/1000 patient days, 2013(Jan-May)-0.20/1000 patient days).

POSTER BOARD #20

THE AUDITOR GENERAL SAYS ACTION REQUIRED!

Tammy MacDonald

Capital Health, Halifax, Nova Scotia, Canada

Issue: The Auditor General's audit of Infection Prevention and Control highlighted some important recommendations to enhance patient safety with respect to endoscope reprocessing at Capital Health.

Project: A Flexible Endoscope Reprocessing Quality Improvement multidisciplinary team was established across 9 departments to respond to these recommendations. The goal of the initiative was to reduce the risk to patients of exposure to improperly reprocessed scopes with 100% compliance with the new processes involved in the documentation and verification of completed scope reprocessing. A GAP Analysis was completed by benchmarking our scope reprocessing program with Best Practice Guidelines for Reprocessing Flexible Endoscopes. Various process improvement mechanisms were used throughout the improvement process including The PSDA as well as Auditing with Feedback and Goal-directed Check Lists. Old processes were amended to mistake-proof our system with addition of the following: self-auditing by the individual departments, revised documentation processes, and formal auditing of procedural changes to verify the completion of disinfection of each scope.

Results: Unit based audit results from Infection Control audits have showed 100% compliance with the new processes. The new and improved processes provide improved personal accountability and responsibility of individuals and units involved with scope reprocessing and "peace of mind" for clients, staff, physicians and leaders.

Lessons learned: Errors in reprocessing can occur, even with an established comprehensive Quality Assurance Program in place. The use of a blameless and educational approach with a focus on system-thinking was imperative to obtain the necessary buy-in of all participants. A multi-disciplinary Quality Improvement Team is essential in establishing accountability for endoscope reprocessing in a decentralized clinic model.

POSTER BOARD #22

ANTIMICROBIAL COPPER: A SCOPING REVIEW

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Background: Metallic Copper has potent antimicrobial properties and is approved by the US Environmental Protection Agency for the claim: "kills 99.9% of bacteria within 2 hours". Knowledge of copper's antimicrobial properties is increasing rapidly. We conducted a scoping review to identify the range of topics being researched.

Methods: A search of Medline, Google Scholar and experts in the field

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identified 127 articles published, most in the last 10 years.

Results: Topics identified: 1) Efficacy of copper in a variety of settings (ICU, medical wards, etc.); 2) Mechanism of antimicrobial activity; 3) Issues with use in hospital settings (cost, difficulty in manufacturing, tarnishing, etc.); 4) Available forms of copper and their various applications (e.g., solid, infused, sprayed); 5) Cost-benefit studies; 6) Antimicrobial resistance and other factors which may reduce antimicrobial efficacy; 7) Infection audit practices (will we still need to clean?); 8) Role in managing superbugs and difficult pathogens; 9) Role in preventing medical device infections; 10) Environmental and economic benefits and challenges of increased copper use. Copper kills a wide range of gram negative and gram positive bacteria by disrupting the cell membrane and allowing DNA to be exposed and degraded. Copper continues to be costly, difficult to manufacture and tarnishes easily. Copper has been found to be cost-effective if HAI reductions identified can be verified through additional studies. **Conclusions:** Copper is a promising new antimicrobial with an excellent safety profile. As with any new application, potential drawbacks have to be identified and addressed to ensure that patients get access to the best infection prevention tools.

POSTER BOARD #24

GOT A UTI? THIS MIGHT BE WHY!

Betty Anne Elford, Paula Stagg
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Issue: Urinary tract infection (UTI) ranks with pneumonia as the second most common type of healthcare-associated infection, second only to surgical site infections (SSIs). An analysis of our infection control data indicated that 65-75% of the hospital-associated infections were related to catheter-associated urinary tract infections (CAUTIs). This prompted an infection prevention and control improvement project.

Project: In collaboration with the care team a "CAUTI bundle approach" was implemented on a medical unit. The bundle included: i) education on best practices, ii) quick reference pocket cards, iii) posting of best practice flyers, iv) physician engagement, v) collection of catheter days from April 01, to June 30, 2011.

Results: As a result of this project, we developed standard definitions for CAUTI; new guidelines for catheter indication; improved documentation based on best practices for CAUTI prevention; and a revised policy related to CAUTI. Nursing staff are empowered to remind physicians of appropriate reasons for catheter use and are knowledgeable about alternate choices for patients. They have improved skills related to catheter maintenance and early removal. These improvements have resulted in a significant reduction of CAUTI.

Lessons learned: Implementing best practices for the prevention of CAUTI worked effectively in my facility. Significant LCP time was necessary during this project to provide education to staff on the best practices, to answer questions, and to provide encouragement for compliance with the recommendations. Being creative with reminders and empowering nursing staff to be involved is vital for a successful sustained change in practice. Our CAUTI bundle approach is now integrated into the documentation system with reminders to staff to ensure the patient still requires the catheter. Electronic documentation has significantly improved timeliness and accuracy of data collection, evaluation, dissemination of information, and implementation to other units and facilities.

POSTER BOARD #26

EFFECTS OF DISINFECTANT WIPES ON SENSITIVE HEALTHCARE SURFACES

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Background: Studies have shown that shared surfaces and devices can serve as a route for transmission of pathogens; however, proper disinfection protocols are lacking to address sensitive surfaces and equipment that can be permanently damaged by disinfectants used in healthcare environments. We tested commercial disinfectant wipes on various surfaces to examine antimicrobial efficacy and any damaging effects.

Methods: Samples were taken before and after use of a disinfectant wipe from touch screens, keyboards, computer mice and waiting area chairs at 4 Long Term Care (LTC) facilities across the Greater Toronto Area. Pieces of mattress coverlet material and touch screens were wiped approximately every hour for two months with various disinfectant wipes and examined for any damage.

Results: All surfaces sampled at LTC facilities showed marked contamination with bacteria and fungi prior to disinfection. After wiping with Product T, samples were cleared of contamination. Touch screens and mattress coverlets showed no damage after repeated wiping with Products S and T. Discoloration and damage were observed with Products C, V, and P. Some surfaces showed contamination

with *S. aureus* and *E. coli*. Variable results were observed for antimicrobial effectiveness; some wipes showed complete removal of organisms while others showed some to no reduction.

Conclusions: This study further illustrates that shared surfaces and devices can be contaminated with microorganisms, stressing the importance of disinfection of these surfaces. Sensitive surfaces present a challenge to disinfection; however, we have demonstrated that products are available to effectively disinfect sensitive surfaces without causing harmful and costly damage.

POSTER BOARD #28

BUGS, DRUGS AND URINARY TRACT INFECTIONS: THE BATTLE CONTINUES IN LONG-TERM CARE

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Central Health, Gander, NL, Canada

Issue: Urinary Tract Infections (UTIs) are the most common diagnosed infection in the Long Term Care (LTC) population. It was identified through routine surveillance that inappropriate utilization, specimen collection and misdiagnosis of UTIs in LTC are a concern. Infection Prevention and Control in collaboration with the antibiotic stewardship committee initiated a retrospective review of the UTI cases to determine the extent of the problem.

Project: Data was collected from April 01 to June 30, 2013 on the following issues: Clinical findings, investigations and treatments.

Results: Clinical findings: Inconsistent clinical documentation (symptoms of infection); Deficiency in the electronic reporting (microbiology lab); 54.5% had no documentation indicating why a urine sample was collected or why treatment was ordered; Increased antibiotic utilization for the treatment of UTIs. Investigations: Inappropriate urine collection methods; Cost analysis of first line vs. second line antibiotics from a sample size of 23/88 female residents showed a cost savings of \$1,085.12 (extrapolated over one year); A urine culture is only performed if initial microscopic sampling meets criteria. Treatments: Inadequate utilization of published guidelines for appropriate diagnosing and treatment of UTIs; 6.8% received treatment with an antibiotic that was ineffective against the bacteria and treatment was not changed; 15.9% of reports showed no growth or no urines were sent but yet the residents received treatment.

Lessons learned: Lack of knowledge, education and adherence to best practices and documentation lead to inappropriate diagnosing and treatment of UTIs. Inconsistent electronic reporting leads to misinterpretation of lab results. Continued surveillance and reporting be ongoing. A short review can lead to identification of significant problems. Collaboration between IPAC and ASC leads to enhanced resident care.

POSTER BOARD #30

USING DAILY CHLORHEXIDINE BATHING OF ALL PATIENTS ON A MEDICINE UNIT TO REDUCE INCIDENCE AND COSTS RELATED TO HOSPITAL ACQUIRED MRSA

Helen Shaw, Danielle Huston, Sandy Maxfield
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Background: In Q4 of 2012/13 fiscal year, surveillance indicated that MRSA transmission on the Medicine Unit was increasing from a rate of 0.25 transmissions per 1,000 patient days in Q3 to as high as 2.3 in Q4 of 2012/13 and Q1 of 2013/14, despite daily CHG bathing for all MRSA positive patients. Estimated costs of the 17 MRSA transmissions from January through May 2013 are \$150,297.00.

Purpose: Create a sustainable solution to improve patient safety by reducing incidence of Hospital Acquired (HA) MRSA on the Medicine Unit.

Method: In mid-Q4 of 2012/13, an interdisciplinary team was formed to investigate and reduce HA MRSA transmission on the Medicine Unit. The team included members from environmental services, management, frontline staff and Infection Prevention and Control (IPAC). A review of current practices regarding; environmental cleaning, appropriate use of personal protective equipment (PPE), screening for MRSA, appropriate accommodation of patients, and patient bathing was undertaken. Subsequently, it was decided to begin bathing all patients using a CHG bath on a daily basis, monitor data and patient reaction for 6 months, at which time the team would decide whether to make this routine bathing practice.

Results: 1. Within 1 month of requiring a daily CHG bath to all patients on the Medicine Unit, a decline in HA MRSA transmission was evident. 2. After 5 months of providing daily CHG baths to all patients on the Medicine Unit, the rate of HA MRSA transmission was reduced to 0.78. 3. An overall cost avoidance of \$109,733.00 was achieved.

Conclusions: Providing daily CHG baths to all patients on a hospital unit with a heavy bioburden of MRSA reduces HA MRSA transmission. An interdisciplinary approach is essential to effectively make changes in practice. Staff is open to practice change if involved and are provided the evidence for doing so.

POSTER BOARD #31

GET INTO THE ACT: IPAC EDUCATION FOR RETIREMENT HOMES

Susan Cooper, Barbara Shea, Denise Kearsy, David Ryding, Jean-Louis Pitre, Sam McFarlane, Lise Blanchard, Marianne Walker, Allison Rabess
Public Health Ontario, Ontario, Canada

Issue: Ontario regulation 166/11, under the 2010 Ontario Retirement Homes Act, requires all licensed retirement homes in the province to establish an infection prevention and control (IPAC) program as of 2013. This regulation defined specific IPAC activities that these facilities must develop. Historically, these facilities were not required to have IPAC programs. Feedback from inquiries received by the regional infection control networks (RICNs) indicated retirement homes were struggling to understand the legislated requirements and where to access needed IPAC resources.

Project: Three RICNs located in eastern Ontario joined forces to present a one-day, theatre-style, videoconference education session for retirement home staff. Joining the three RICN sites remotely via videoconference eliminated the need for extensive travel and allowed for increased numbers of staff attendance. Speakers, divided among the three linked RICN sites, provided education on basic IPAC topics such as; hand hygiene, routine practices and outbreak management. Representatives from the Retirement Home Regulatory Authority also attended and outlined IPAC expectations under the Act for the attendees. Where to find and how to access existing resources, such as Public Health Ontario's *IPAC Core Competencies online learning course*, were also reviewed. Representatives from the Public Health Units attended to highlight their role in retirement home IPAC programs.

Result: Evaluations showed attendees acquired information that would help inform the IPAC programs at their facilities and enjoyed the session. Networking and discussion among attendees was valuable in sharing of actions already taken and ideas for moving forward. Several attendees indicated interest in developing an ongoing community of practice specific to the IPAC needs for the retirement home setting.

Lessons learned: Bringing this group together to address needs specific to their setting provided valuable information sharing which will, in time, allow retirement homes to meet the legislated requirements.

POSTER BOARD #32

AN OUTBREAK TABLETOP EXERCISE FOR LONG-TERM CARE AND RETIREMENT HOMES

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Issue: The 2012-2013 influenza season saw an increase in the number of respiratory outbreaks at long-term care facilities (LTC) and retirement homes throughout eastern Ontario. Feedback to the public health unit (PHU) indicated that not all facilities fully understood or felt comfortable with the steps necessary in managing an outbreak in their facility.

Project: PHU approached the regional infection control network (RICN) about partnering on a tabletop exercise. The exercise would simulate a respiratory outbreak in a healthcare facility. Health unit staff would develop a scenario and expected outcomes. The RICN would refine the process and facilitate the actual exercise. Attendees of the session would work, step by step, through six phases of the outbreak in groups, taking the opportunity to discuss actions among themselves. Each phase was followed by a facilitated discussion period indicating anticipated actions and review of resources available to assist the facility.

Results: Participants used available resources to identify the steps necessary for successful management of the outbreak. With some guidance they were able to work through the six phases: identify they had an outbreak, assemble an outbreak management team, develop a case definition, interpret lab results, identify appropriate infection prevention and control measures and ultimately declare the outbreak over. The importance of communication and outbreak management teams was emphasized. Attendees also shared ideas, experiences, challenges and successes from their own facilities. On conclusion of the session, all present said they felt much more confident in managing the next outbreak season.

Lessons learned: Not all facilities were making resources available to all staff all the time. Open communication was identified as a vital component of managing an outbreak. The networking and discussion that occurred were as important as the actual exercise in developing confidence in managing future outbreaks.

POSTER BOARD #34

EVALUATION OF THE ACCESSIBILITY, CONTENT, RELIABILITY AND QUALITY OF CONSUMER HEALTH INFORMATION ABOUT INFLUENZA FROM FIVE PUBLIC HEALTH UNIT WEBSITES

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Issue: Internet-based health information on influenza can be an important source of information for the public. Inconsistent messaging may contribute to vaccine refusal, confusion about when to seek medical attention and increased demand for health care services. The Regional Infection Control Network received a request from the Emergency Services Steering Committee to determine the consistency in communication about seasonal influenza. A scan of web-based information from five Public Health Unit (PHU) websites within the Central South region of Ontario was conducted to evaluate the accessibility, content, reliability and quality of health information.

Project: Five websites' consumer health information about seasonal influenza and vaccinations was reviewed independently by three reviewers. Accessibility was assessed by the number of mouse-clicks required and whether there was a search field on the home page. Content characteristics were compared. Reliability and quality were assessed using the DISCERN tool and rated the 5-star system.

Results: Accessibility and content of health information related to seasonal influenza on the websites varied. One website had limited information about vaccination and nothing about the illness. Only one website presented the differences in signs and symptoms between the common cold and influenza. The scores using the DISCERN tool for reliability and quality ranged from 29 to 51, out of a maximum score of 80 and translated to a range of 1 to 3 stars, out of a maximum rating of 5 stars.

Lessons learned: There is a wide range of accessibility, content, reliability and quality of web-based information about seasonal influenza. Clear and consistent messaging could contribute to more appropriate use of health care services. Communication strategies may benefit with collaboration between the PHUs.

POSTER BOARD #35

HEADS UP! HANDS UP! A NEW DIRECTION IN PATIENT CENTERED HAND HYGIENE

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Issue: At our 2-site, 86 bed large community hospital much time and energy is spent educating, observing and auditing good hand hygiene behaviour among healthcare providers, but little attention has been paid to hand hygiene for patients, particularly those with challenging behaviours or limited mobility. To further enhance our existing hand hygiene program, the Infection Prevention & Control Program (IPAC) team recognized the need to educate and empower patients to take an active role in their care.

Project: Phase 1 of this pilot was commenced during Infection Prevention and Control Week in 2013. The IPAC team distributed a patient hygiene package to a subset of new admissions. The package consisted of a personal sized bottle of alcohol hand sanitizer, instructions on the importance of hand hygiene and a survey tool. The initiative was explained to the patient by the Infection Control Professional and the patient was asked to complete a short survey.

Results: A total of 58 patient hand hygiene surveys were distributed and returned; 100% (58/58) of patients surveyed felt it was important for the hospital to continue to support hand hygiene efforts by offering personal sized bottles of alcohol sanitizer.

Lessons learned: Previous attempts with distribution of individual hand sanitizing wipes on patient meal trays was a failure primarily due to difficulties opening the packages or cognitive impairment regarding its use. Based on our initial work, we came to understand that in order for a patient-centered hand hygiene program to be successful and sustainable we need to further develop the tools, concentrate on standardizing the distribution process, ensure clinical and non-clinical staff are engaged in the process and provide patients with a clear, non-punitive mechanism for feedback. Phase 2, set to start in April 2014, is focused on accomplishing these goals.

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POSTER BOARD #37

HAND HYGIENE ADHERENCE RATES IN THE EMERGENCY DEPARTMENT: OPPORTUNITY FOR IMPROVEMENT

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Issue: Hand hygiene is a well-documented strategy for prevention of infections in healthcare. Adherence to hand hygiene in the Emergency Department (ED) is critical due to the interface between the public and patients in an overcrowded holding and intake area. Reducing the time patients spend in the ED is the Ontario government's top healthcare priority and among other concerns, long wait-times put patient at increased risk of acquiring infections during their visits. Dynamic and fast paced ED environment makes it challenging for healthcare providers to follow best hand hygiene practices.

Project: In 2008, the Ministry of Health and Long Term Care (MOHLTC) multifaceted approach to improving hand hygiene was rolled out across the organization. Over the subsequent years, the overall hospital rates improved to 85 to 90%, while the ED department trailed behind. A series of meetings with the departmental leaders, staff, physicians and Infection Prevention and Control (IPAC) professionals identified ED driven opportunities and strategies for improvement. These included; clear definition of patient environment, unit champions, daily huddles, daily ED rounds by IPAC team, and alcohol-based hand sanitizer to hallways and mobile equipment.

Results: The collaboration of the ED and IPAC program resulted in improved adherence rates of hand hygiene in the emergency department. Between 2011 and 2013 hand hygiene adherence rate in ED increased from 67% to 91%.

Lesson learned: Tailoring the four moments of hand hygiene education to unique needs of the ED and training ED staff in collaboration with unit based champions contributed to improved adherence rates in the ED.

POSTER BOARD #39

INFECTION CONTROL PRACTICES: IMPROVEMENTS AND INNOVATIVE CHANGES IN THE HEMODIALYSIS UNIT AT WILLIAM OSLER HEALTH SYSTEM

Rajni Pantelidis, Adenike Rowaiye, Christine Robinson, Rachael Sawicki, Kimberly Presta, Catharine Baker, Janine Domingos, Ellie Clarke, Maria Hollands
William Osler Health System, Brampton, Ontario, Canada

Issue: The Infection Prevention and Control CHICA audit tools for Hemodialysis were used to review processes and practices. The audit revealed that some infection control practices were not implemented appropriately such as: identification and communication of new dialysis patients and travelers, hepatitis B segregation/buffering, testing schedules for Hepatitis B/C, tracking/cleaning of the dialysis machines and not sharing single use items between patients.

Project: An ICP was seconded to the Hemodialysis program to improve the various issues identified in the audit. The first step was to create an algorithm identifying new patients/return travelers using communication tools. All patient assignments are authorized by the resource nurse and ICP to ensure geographical segregation and buffering. Recommended testing schedules for Hepatitis B/C were incorporated into an order set, ensuring the serology would be done automatically as part of the units established schedule. These results are recorded in a newly developed spreadsheet to maintain testing compliance. The reprocessing of clamps within the unit was discontinued. Tapes and clamps are dedicated for each patient.

Results: The communication process of identifying new patients/return travelers, compliance with hepatitis B protocol and tracking of the results has improved. The dedicated use of clamps and tapes is better. The tracking/cleaning methods of the machines are undergoing approval.

Lesson learned: Having a dedicated ICP for a large outpatient Hemodialysis program is important to maintain consistent monitoring and improvement. Increasing the auditing frequency will assist in ensuring that processes are being followed to protect this high risk dialysis population.

POSTER BOARD #41

BREAK THE CHAIN OF TRANSMISSION BEFORE IT BREAKS YOU!

Lindsay Dracz, Manish Patel
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Recognizing through screening at triage breaks the chain of transmission also helps with accommodating a patient properly. With MERS-CoV or/and H7N9 on the rise in 2013, this was opportunity for the organization to revise their acute respiratory illness (ARI) screening questionnaire to enhance patient safety. In 2013 the organization introduced a new screening tool to provide quality patient care, and improve our current process for ARI, gastrointestinal illness (GI), and antibiotic resistant organisms (ARO) screening. Asking the recent travel questions and quick access to the online travel health notices link, identifying countries of concern was valuable for HCP. The improvement to the previous "fibrile

respiratory illness" screening tool and new prompts identifying the type of additional precautions for the triage staff improves both HCP and patient safety. The inclusion of the GI questions on the screening tool allows the health care providers (HCP) to capture unusual vomiting or loose stool. The key messaging of "unusual" leads the HCP to review the BSC with the patient allowing the health care provider to make an informed risk assessment and promptly initiate additional precautions. The addition of the ARO questions in the tool leads the HCP in their decision making to collect samples on the high-risk patients. The new screening tool empowers the HCP to evaluate and determine the need for additional precautions. The tool was introduced in paper form in all of the Emergency Departments and has evolved into an electronic form that links to an electronic visual aid for the identification of patients in additional precautions at a glance. The utilization of this tool has exposed missed opportunities and areas for improvement. Through education and real time feedback IPAC continues to work with staff to improve assessments. A process to evaluate the tool for effectiveness and compliance has been created.

POSTER BOARD #42

ROCK THE BOAT WITH CHANGING MEDICAL DEVICE STANDARDS

Merlee Steele-Rodway
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A high level review of the recently published CSA Standard Z314.0 General Requirements for Medical Device Reprocessing and requirements for medical device reprocessing and infection prevention and control in functional areas. Attendees will gain a clear understanding of the impact of the implementation of a Quality Management System in healthcare facilities and how these tools can help with compliance and monitoring. These essential elements will provide the Infection Control Practitioner with the background knowledge to investigate, provide corrective action and prevent recurrence. Our presenter(s) will share some of the challenges and impacts of meetings these requirements as they relate to infection prevention and control practices. MDR staff qualifications. Timely reprocessing. MDR issues in satellite areas, e.g., Dx Imaging, off-site clinics. Quality Management Systems.

POSTER BOARD #45

INFECTION CONTROL DURING CONSTRUCTION, RENOVATION AND MAINTENANCE OF HEALTHCARE FACILITIES: WHAT'S NEW IN Z317.13?

Gordon D. Burrill
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Learn what's new in the 2012 edition of CSA Z317.13 and how to apply those changes to your projects. Since it was first published in 2003, this standard has revolutionized work practices in and around health care facilities and has continued to evolve as the construction industry has embraced the concepts. This latest edition has a number of improvements, including an expanded section on new construction, special requirements for minor repairs and maintenance, and enhanced guidance on HEPA-filtered construction air-handling units. Many of the changes have come about through real life experiences in working with the previous editions of the standard. All of the changes are aimed at making sure that construction, renovation, and maintenance activities are managed in a way that protects patients, staff and visitors from harm. Construction of healthcare facilities bring specific risks associated with potentially fatal infection and illness. Preventing and controlling infections while these activities take place requires a committed and dedicated team of professionals and the implementation and support of preventive measures.

POSTER BOARD #47

INFECTION PREVENTION IMPACT ON PATIENT FLOW AND BED UTILIZATION: AN ORGANIZATION'S COMPREHENSIVE APPROACH TO IMPROVE FLOW

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Issues: The quality of care is affected when patients are placed in holding patterns. Infection Preventionists' (IP) involvement in patient flow is essential for safety and efficiency. The Infection Prevention team in collaboration with leaders of clinical and support areas developed a multifaceted approach to manage patients requiring Isolation Precautions. This enabled us to improve the overall patient flow in the hospital through effective daily planning.

Project: In an acute care multisite community hospital IPs active involvement to enhance the bed-flow included following the interventions: (1) reviewing all patients requiring admission to the hospital; (2) using electronic documentation for appropriate isolation precautions and additional cleaning requirements (3) using IPAC on-call smartphone notification for all new lab results to provide 24/7 quality IPAC coverage. The indicators measured that influence the patient

flow are: the daily number of patients on isolation precautions, rate of hospital acquired AROs, and number of transfers within the hospitals related to cohorting of patients on Isolation Precautions.

Results: As a result of this project, the amount of transfers related to cohorting patients on isolation precautions decreased by 30% (from 12 per day to the maximum of 4 per day) at all sites. The Hospital Acquired MRSA colonization rates at all sites indicated a significant decrease from 1.15 per 1000 patient days to 0.40 per 1000 patient days at one of the sites and 2.04 to 0.30 per 1000 patient days at another site. There were also, a significant number of patients on additional isolation precautions which decreased by 20% (40-60 patients per site to 30-50 patients per site).

Lessons learned: Overcoming barriers such achieving buy-in from the senior management, physicians and staff was one of the biggest milestones of the program as IP were encouraged to get involved in all aspects of the hospital flow while providing comprehensive 24/7 coverage. The plan to improve patient flow should be based on the enhanced communication between multidisciplinary team and IPs which improved patient flow, reduced isolation delays and ultimately increased patient's safety and effectiveness within the organization.

POSTER BOARD #49

IMPLEMENTATION OF A RESOURCE NURSE TO IMPROVE MONITORING AND OUTCOMES OF PATIENTS WITH C.DIFFICILE INFECTION

Christine Lee, Anne Bialachowski, Kate Hoogenboom
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Problem: Delay in diagnosis and management of CDI can lead to significant morbidity and mortality.

Project: In May of 2012, a C.difficile Resource Nurse (CRN) was established within Infection Prevention and Control (IPAC) to monitor patients from the time of diagnosis until 1-2 weeks post-discharge. The purpose of this position was to provide education to patients, families, regularly monitor patient's clinical status and rapidly notify as needed to physician, facilitate communication with the patient's care team and assist the patient with their transition to home. During patient's discharge, the CRN provided additional education with regard to importance of medicine and hand hygiene adherence, when to return for urgent medical assessment and obtained verbal consent to contact the patient at home to follow-up within 1 week. A letter was issued to family physician to inform the clinical course, treatment and follow-up plans.

Results: Between May and December of 2012, 118 patients with CDI were contacted by the CRN. During this period, 175 phone calls to discharged patients were made. Based on the key issues, which were identified from the calls, a patient tracking tool was created to facilitate seamless communication within the IPAC team to minimize duplication of efforts and maintain close monitoring of patient's status.

Lessons learned: The establishment of a dedicated CRN led to development and testing of a new surveillance tool which the Infection Prevention and Control Professionals could use to monitor patient's status, communicate within the IPAC group and with the care teams. The tool assisted in timely follow-up and appropriate management of patients who experienced recurrent CDI while at home. This averted negative patient outcomes.

POSTER BOARD #51

IS IT A COLD, INFLUENZA, PNEUMONIA OR COPD?

Christine Franic
 Island Health, Vancouver Island BC, Canada

Issue: The problem identified is nursing staff not using a syndromic approach to differentiate between the signs and symptoms of a cold, influenza, pneumonia or COPD.

Background: In rural acute and residential care facilities it is often a nursing assessment that is verbalized to the MRP to determine a diagnosis and treatment for the client. The following gaps were identified: a) Reports from nursing that clients were placed on antibiotics for cold symptoms; b) Influenza swabs not taken for patients that met the case definition; c) Known COPD patients were automatically assumed to have an exacerbation of COPD with little investigation to rule out other causes; d) Patients presented with new or worsening cough had pneumonia.

Importance of issue: a) Patients and residents place on antibiotics when not clinically warranted; b) Patients on antibiotics not reassess; c) Potential to create antibiotic resistance for client; d) Demonstrated a lack of understanding of antimicrobial stewardship; e) Patients and residents with influenza not increase risk of transmission.

Project: Educational tool created in collaboration with nursing, clinical co-ordinators and infection prevention and control. The tools consisted of a table and information sheet for nursing.

Results: Collaborative approach to increasing patient quality of care while addressing the nursing educational gaps in clinical settings.

Learning: Pre-Influenza season review with all nursing staff to ensure a thorough understanding of case definitions, signs and symptoms and how to communicate that information to the MRP to ensure quality patient care.

POSTER BOARD #53

HANDWASHING INITIATIVE FOR PAEDIATRIC PATIENTS AND FAMILIES

Lisa Kroesbergen
 London Health Sciences Centre, London, Ontario, Canada

Issue: A gap in knowledge regarding proper hand washing in pediatric patients and their families was identified. An educational hand washing program with the aim of educating patients and their families was developed with the goal of influencing behaviour in the hospital and patient's home environment.

Project: A first of its kind hand washing education program was developed using educational resources from a non-profit organization. The program was funded by Children's Health Foundation. The take home package consists of an instructional story/colouring book, crayons and a washable information sheet. The blacklight technology was used as an interactive tool to stimulate interest and teach the aspects of hand washing. Multidisciplinary staff education was provided to ensure a uniform distribution of information. Short surveys to determine the learner's pre and post knowledge and opinions of the program were included in the package. Growth of this program continues with multimedia and alternate language components being added at present.

Results: Early tallies from surveys show a marked success of increasing participant's knowledge concerning hand washing. Responses from participants have been consistently positive and patients and families are engaged in learning how to help prevent the spread of infections.

Lessons learned: Providing an effective and innovative handwashing program that is appropriate for young learners requires research, time and perseverance. The program must be engaging and continue to evolve in order to adapt to meet the needs of the patients. Diligent motivation and encouragement of staff to participate and utilize the education program and its tools, is key for the program's effectiveness. When a successful program is delivered, you are able to influence change in a young at risk population.

POSTER BOARD #54

LEVEL EFFICACIES ACTIONS ON PREVENTION OF RESPIRATORY INFECTIONS FOR CHILDREN 10 TO 12

Tuani Teixeira Sachetti, Vera Lúcia Neves
 University of Cuiabá, Rondonópolis, Mato Grosso, Brazil

Objective: Measure the acceptance of children as the different types of actions of preventive measures for respiratory infections in a primary school, because of the high rate of contagion. Method: Descriptive study, using interactive presentation with information about means of prevention, a lung made with recycled objects, puzzles with themes of prevention and flyers with games.

Results: The project was implemented with 123 children between 10 and 12 years, a public school in a neighborhood of low socioeconomic, divided in 4 days, the first 3 days interactive presentation were held on the reporting that respiratory infection, forms of contagion, preventions, music videos, and a lung of recycling toy was also used after a game with puzzles, questions about the topic and delivered flyers. On the fourth day the acceptance of the children was assessed with 100% understood and managed to make the correct hand hygiene, but only 48% reported having acquired the habit of washing hands constantly in addition to teaching for family and friends, 62% reported having no healthy eating habits owed low socioeconomic or dislike, 38% eats healthily and about 70% said sharing objects with classmates.

Conclusion: The level of effectiveness was satisfactory because the children have learned, understood, but due to low socioeconomic failed to follow many recommendations about healthy eating, others only for reporting forget to wash their hands and not sharing objects did not practice the orientations, but were aware, another measure was applied as posters with reminders.

POSTER BOARD #56

CONSTRUCTION: MORE THAN BRICKS AND MORTAR!

Daphne Murray, Kelli Mansfield, Dorian Sablone, Wendy Hutchison, Oscar Landry, Margaret Merlin, Tammy MacDonald
 Capital District Health Authority, Halifax, Nova Scotia, Canada

Issue: The majority of the bed spaces at Cobequid Community Health Center's Emergency Department (CCHC ED) are separated by privacy curtains. Providing care in an open venue has challenges when applying additional precautions, let alone privacy, and confidentiality. The dream was to have solid walls. The insurmountable challenge was how to accomplish this task without causing

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major interruptions in the care processes, let alone the Infection Control risks associated to such activities.

Project: Funding was approved for the creation of nine solid walls. The driving inspiration was not to think about daily bricks, and mortar construction processes that are all too familiar, but to come together putting aside personal agendas and thinking outside of the traditional boundaries for an improved process. The fundamental process was as follows: 1. Infection Prevention & Control, and Engineering Services undertook breaking down the project into manageable components. 2. The expectation was for the stakeholders to: collaborate, problem solve together, and share the workload. 3. We expected all players in this project to demonstrate leadership, from their respective professional obligations. 4. The patient was front and centre for all decisions made, when derailed, we would refocus on the patient. 5. We were responsible stewards of the public purse.

Results: Construction took a total of nine days instead of a traditional four-week period, no infections identified, no disruption to any patient services, full cooperation from all staff, and a leadership team fully committed. Categorically our results were positive across the continuum.

Lessons learned: Capital Health has subsequently changed its processes around construction/renovation by, looking at our work thru a different lens, embracing change as a positive outcome, and most importantly understanding that by being creative doesn't necessarily mean an increased workload or compromising patient safety.

POSTER BOARD #58

COMPARISON OF TERMINAL CLEANING OF A MEDICAL SURFACE REPAIR PATCH ON HOSPITAL MATTRESSES

Holly Wong^{2,1}, Jill de Groot^{2,1}, Robyn Louie^{1,3}, Linda Ward^{1,3}, Thomas Louie¹, John Conly¹

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Background: As a preventive strategy, a patch is available to repair a damaged mattress surface to an intact state. This study was undertaken to evaluate whether the patch was as cleanable as the adjacent intact mattress surface.

Methods: A total of 120 patches were applied to the top and side of 60 Hill-Rom VersaCare® mattresses in October 2012. The surface and edge of the patch, and the adjacent mattress surface were swabbed before and after terminal cleaning, with each clean resulting in 12 samples, for a total of 720 samples over 60 terminal cleans. Each swab was placed in 1 ml TSB, vortexed and 0.1 ml was plated onto whole plate media for semi-quantitative enumeration of normal skin flora, coagulase-negative staphylococci, methicillin-sensitive *S. aureus* (MSSA), MRSA, *Enterococcus* spp., VRE, Gram negative bacilli and *C. difficile*. The quantification of microbes ranged (score in parentheses) from no growth in broth or agar media (0); broth only (1); trace-10-15 cfu (2); 16-50 cfu (3); 51-250 cfu (4); 251-1000 cfu (5); >1000 (6). An arbitrary score of > 4 was deemed unacceptable.

Results: Cultures were positive in 352/360 (98%) of sites prior to cleaning, with 123/360 (34%) showing microbial density scores > 4; 169/360 (47%) showed any pathogen growth, and 25/360 (7%) showed a pathogen score > 4. After terminal cleaning 308/360 (85%) sites remained culture positive but microbial density > 4 was reduced to 24/360 (7%); 71/360 (20%) showed any pathogen growth and 2/360 (0.5%) showed a pathogen score of > 4. A comparison of differences prior to and after cleaning showed that the patch was as cleanable as the mattress surface. Fifteen months since application all patches remain firmly attached.

Conclusions: The patch appears to be durable and cleanable and may be an application to extend the life of mattresses in healthcare settings.

POSTER BOARD #60

EFFECTS OF A PUBLIC HEALTH ACT FOR UNVACCINATED STAFF AND VISITORS DURING INFLUENZA SEASON IN LONG TERM CARE FACILITIES

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 Fraser Health, New Westminster, BC, Canada

In 2012 an Influenza Control Policy requiring health care workers to be vaccinated with the current season's influenza vaccine or mask while attending a patient care area during influenza season was implemented. The Influenza Control Policy was met with resistance and confusion as the government pulled the employer ability to apply the enforcement components of the policy one day prior to the implementation. Staff vaccination rates were 79.9% and residents 91%. By early January 2013 there was a threefold increase of both respiratory outbreaks, predominantly A/H3N2, and deaths in residential care from the previous three years. The chief Medical Health Officer declared a health hazard and a *Public Health Act* was ordered that outlined employees, physicians,

contractors, service providers and visitors to be vaccinated or wear a mask while in the LTC facility. Prior to the implementation of the Order the policy, though still in effect, was not followed or was misunderstood as some unvaccinated staff were non-compliant to masking. The Order came into effect Jan 12, 2013 and now mandated either vaccine or masking for the unvaccinated. In the week following the implementation of the Order the number of outbreaks declared went from 7 to 3. The number of facilities declaring outbreaks prior to the Order went from 4-9 in the 4 previous weeks to 1-2 new per week. The combination employees, physicians, contractors, service providers and visitors to have vaccine or wear a mask showed a reduction in the number of outbreaks. Having the ability to ensure compliance with the policy or Order is crucial for ensuring resident and staff safety.

POSTER BOARD #64

POSITIVE IMPACTS OF A NEW OZONE AND HYDROGEN PEROXIDE VAPOUR SYSTEM TO DISINFECT PATIENT ROOMS DURING AN MRSA OUTBREAK

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At Issue: The effectiveness and impacts of a new commercial ozone + hydrogen peroxide vapour system to eliminate transmission of MRSA on a busy 20 bed in-patient unit. Despite using hydrogen peroxide based liquid cleaners and microfiber MRSA incidence rate was 0.37/1,000 patient days. In June 2013 we experienced spread of MRSA with 6 new cases (incidence rate 7.59/1,000 patient days) on a 20-bed inpatient unit.

Project: In June 2013 we introduced a new ozone + hydrogen peroxide vapour system for disinfecting 6 rooms linked to this MRSA outbreak. Each room was terminally cleaned with hydrogen peroxide liquid cleaner. 10 surfaces of each room were cultured using touch plates after the cleaning. We then treated each room with the ozone + hydrogen peroxide vapour system and repeated the cultures.

Results: Manual cleaning took 90 minutes while the ozone + hydrogen peroxide vapour system cycle was 60 minutes per room. Residual levels of ozone and hydrogen peroxide were undetectable. Mean viable colony count after manual cleaning was 18 colonies/25 cm² and dropped to 0 colonies/25 cm² after treatment with the ozone + hydrogen peroxide vapour system. No further cases of MRSA were detected for 6 months.

Lessons learned: Despite good cleaning practices endemic and epidemic MRSA occurred and high touch surfaces remained contaminated. The commercial ozone + hydrogen peroxide vapour system achieved high level disinfection with zero residual viable colonies in less time than manual cleaning, and was straightforward to use. Our lengthy manual cleaning procedure with expensive liquid disinfectants can be amended to a shorter protocol with lower cost products to achieve a hotel clean followed by application of the ozone + hydrogen peroxide vapour system. A higher level of disinfection is achieved with lower cost providing a safer patient care environment.

POSTER BOARD #66

MOVING FORWARD WITH JUST CLEAN YOUR HANDS (JCYH) FOR SMALL RURAL HOSPITALS AFTER FIVE YEARS

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In 2008, the Ministry of Health and Long Term Care launched the Just Clean Your Hands (JCYH) Program, a multifaceted, evidence-based program providing focused education and tools for promotion, evaluation and auditing. Hospitals in Ontario adopted the program, followed its implementation strategies, and reached the five-year assessment milestone. Some rural facilities within the Champlain region of Ontario recognized the need for networking and strategizing to assist in moving their programs forward. Feeling isolated, they lacked the opportunity to discuss their JCYH challenges. On October 17, 2013, Public Health Ontario (PHO) Champlain Regional Infection Control Network (RICN) offered a one-day JCYH symposium to encourage interaction between Infection Control Professionals (ICPs) and JCYH champions from six select rural hospitals. PHO presented a historical and prospective synopsis of the JCYH program. Guest speakers from a large acute care facility shared their innovative approach and subsequent solutions to implementing their JCYH program. Next, participants identified and shared challenges and devised unique approaches to overcome obstacles. Finally, participants wrote a personal goal-setting letter to themselves, reflecting upon the day, which PHO would mail to them in three months' time. Permitting participants to share their challenges allowed for

unconventional problem solving. Although differences in size, culture, and JCYH implementation strategies between facilities surfaced during the event, common themes were still identified: need for additional training and support for JCYH champions, physician engagement, and program revitalization. Participants' feedback on the symposium included these comments: "renewed strength", "rejuvenated", "great networking", and "ideas generated". The participants voiced less isolation and a desire to continue dialogue. Rural hospitals share common challenges with the implementation and sustainability of the JCYH program. Engaging front line champions at each facility to discuss common challenges and solutions enables similar hospitals to network and support each other. Future formal engagement of this group is desired.

POSTER BOARD #68

THE MEANING OF FEELING ISOLATED: A QUALITATIVE-DESCRIPTIVE STUDY

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Background: Individuals endure a multitude of emotional, physical and social stressors related to hospitalization. These stressors may be heightened when patients are cared for under isolation precautions. The purpose of this study is to explore the experiences of patients who are isolated during their hospital stay in a large urban acute care setting.

Method: A qualitative-descriptive study design grounded in the philosophy of patient-centered-care and guided by Parse's humanbecoming theory, was used to investigate the phenomena of feeling isolated. The theory of humanbecoming proposes that the quality of life experienced by each individual is based on their own perspectives and their ability to freely choose ways of being within their experiences. 20-25 English-speaking, hospitalized patients who have been cared for in an isolation room were invited to participate in one face-to-face, audio-taped interview and share their experiences about feeling isolated. Transcribed text data were subjected to a qualitative-descriptive analysis.

Results: Participants' responses were grouped in themes and reported as Varied emotional responses to being isolated, Restrictions, Change in interaction with others and Hope.

Conclusions: The participants' responses are of interest to all members of the inter-professional health care team. Best practices in teaching, research, theory and professional practice should be developed with the intent to improve the patient experience. Enhanced understanding of feeling isolated will increase professional awareness and sensitivity to patients' perspectives while increasing the quality of care they provide to this patient population.

POSTER BOARD #70

ARE EQUIPMENT DEPOTS THE ANSWER TO QUALITY CONTROL IN CLEANING NON-CRITICAL EQUIPMENT?

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Island Health, Victoria, BC, Canada

The role of the environment is increasingly recognized as an important source of patient-to-patient transmission of pathogens. Often the case exists in hospitals today that reusable patient equipment is not managed safely and effectively. An Equipment Depot allows for a process to be in place to ensure quality assurance for reprocessing of non-critical equipment to meet provincial and national guidelines and standards. Assigning and implementing procedures and responsibility for cleaning and disinfecting noncritical care items as requested by the Public Health Agency of Canada was a challenge for the Infection Prevention and Control Practitioners within Island Health. In addition, hoarding of equipment and insufficient storage has contributed to clutter increasing the risk of transmission. A reform in the approach was required and the new equipment depot provided an opportunity for quality improvement. Each equipment depot was designed with space dedicated for the storage of clean equipment with an adjacent decontamination room. A clean tag system was implemented providing a number of quality checks in the process. The equipment is tagged on the unit by housekeeping once reprocessed and is signed and retagged by depot staff upon storage at the depot ensuring it is clean and safe for reuse. It is possible to have a quality process built into the organization for cleaning of non-critical equipment and de-cluttering of units in older hospitals. Education alone does not result in change of behaviour, however, providing the infrastructure and developing a processes in a collaborative approach, will result in positive change.

POSTER BOARD #72

CLEANING OF ENVIRONMENTAL SURFACES IN OUTPATIENT CLINICS IS LESS THAN PERFECT!

Salah Qutaishat

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Introduction: Transmission of infections caused by multi-drug resistant organisms is a serious threat to patient safety. Programs to improve cleanliness of environmental surfaces are being implemented at acute care hospitals; however there are no similar programs in outpatient settings. We implemented an initiative to both evaluate and also improve cleaning practice at a large multi-specialty outpatient clinic in the US.

Methods: 23 patient examination rooms (15 surfaces each) and 3 bathrooms (12 surfaces each) were evaluated during the study period. High-touch surfaces were covertly marked using a fluorescent marking spray at the end of each day. A cleanliness baseline (5 days) was established. The intervention included training staff on the significance of cleaning and disinfection in addition to sharing the baseline validation results. Cleanliness was then validated for 5 days (intervention period) by visualizing the fluorescent markings using an ultraviolet light. The results were recorded for each surface tested as "removed/cleaned" when the marker was not visible on the surface. The presence of the marker on the surface was recorded as "not removed/not cleaned".

Results: The fluorescent marker was fully removed from 549 out of 1392 surfaces at baseline (39.44%) as compared to 920 out of 1184 surfaces (77.70%) after the intervention ($p < 0.0001$). No significant differences were detected in the cleanliness of bathrooms vs. patient examination rooms.

Conclusion: This study demonstrates that measuring and sharing results of environmental surfaces cleanliness with staff significantly improves cleanliness in outpatient clinics.

POSTER BOARD #74

STAR OF HEALTH, STAR OF HAND HYGIENE

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Issue: Despite various approaches to support hand hygiene compliance among healthcare workers (HCW) in an acute care setting, sustaining compliance remains a challenge. An identified gap in our organization is behavioural change of HCWs. Evidence supports hand hygiene as one of the most effective ways to reduce hospital acquired infections.

Project: The Hand Hygiene Star program was developed as a result of a series of positive deviance (PD) education sessions that were held, focusing on novel approaches to addressing hand hygiene compliance. This project was an engagement opportunity, where the whole process of identifying problems and solutions was driven by the staff on the units. The program focused on hand hygiene peer recognition. The program was piloted on two units who had high representation in the PD sessions. A toolkit has been created as a result of the pilot evaluation.

Results: A comprehensive toolkit allows individual hospital units to implement the Hand Hygiene Star Program. This program directly rewards employees based on peer-to-peer nominations and complements existing organizational initiatives and recognition programs. The toolkit can be tailored to meet the needs and resource availabilities of the units. The toolkit components include the program outline, implementation checklist, nomination forms, communication samples for electronic and print materials, and 'super star' certificate. The implementation of this toolkit to two of our medicine units demonstrated creative solutions to perform hand hygiene, engages the HCW, and produced an overall effect on real change.

Lessons learned: The staff was motivated knowing that a positive part of their daily work was being recognized and their pictures of performance excellence were posted on the unit for all to see. The commitment of unit leadership was essential to the sustainability of this project. The innovation of this toolkit allows any unit to use it with minimal effort.

POSTER BOARD #76

DEVELOPMENT OF AN OUTBREAK MANAGEMENT TOOLKIT FOLLOWING A PROLONGED NOROVIRUS OUTBREAK

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Issue: An outbreak of norovirus on an acute mental health unit resulted in 20 confirmed patient cases and 10 staff related illnesses. Despite concerted efforts and interventions to contain the outbreak, it lasted 18 days. This posed a significant strain on the staff and patients on the unit.

Project: Development of a toolkit and checklist to assist with early implemen-

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tation of interventions to prevent further transmission of norovirus and to avoid prolonged outbreaks in the future. The toolkit contains action plans for the Infection Prevention and Control (IPAC) team and other key stakeholders. The kit also states the case definition, outbreak threshold and the parameters for declaring the end of an outbreak.

Results: A toolkit was developed using information obtained from key national and international guidelines for control of norovirus/gastrointestinal outbreaks and from the lessons learned from previous outbreaks. The toolkit has been reviewed and refined during subsequent gastrointestinal outbreaks and has proven to be an invaluable resource for the IPAC team and other hospital stakeholders.

Lessons learned: Controlling norovirus outbreaks in a mental health setting can be extremely challenging due to the physical environment and on occasion the patients' inability to comply with outbreak interventions. In order to halt the transmission it is important to review the physical environment and examine all possible factors that could contribute to prolonged outbreak. The containment of the transmission was challenging due to multiple and ongoing outpatient programs in adjoining areas which share space and staff with the inpatient unit. Patients had access to shared foods in the dining room after hours, which was against the outbreak management recommendations.

POSTER BOARD #78

EVALUATING HAND HYGIENE SINKS IN AN ACUTE CARE FACILITY: DO WE MEASURE UP?

Maja McGuire, Sandra Callery

Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Issue: The Canadian Standards Association (CSA) standard Z8000-11, Canadian Healthcare Facilities, outlines the design specifications for hand hygiene sinks within healthcare facilities. As part of our preparations for Accreditation 2013 an audit was performed to assess the state of our inpatient unit hand hygiene (HH) sinks as related to the standard. Issues and recommendations were collated and shared with our inpatient units, Plant Operations and Maintenance (POM) and Corporate Planning and Development.

Project: An audit was performed by Infection Prevention and Control (IP&C) to identify design and space deficiencies of hand hygiene sinks in acute care inpatient units within our facility. Each unit and hand hygiene sink station was evaluated using the following criteria: Presence and number of HH sinks; Location of sink with respect to adjacent equipment/supplies; Design of HH sink station; Presence of impermeable backsplash; Presence of aerator.

Results: Audits were completed on 17 inpatient units, and included 46 HH sink stations. The most common issues identified were the presence of an aerator, missing backsplash and location of supplies beside a sink. There were also a small number of clinical units lacking any appropriate hand hygiene sink.

Lessons learned: Annual audits of hand hygiene sink stations is recommended to identify new issues with design and space. An ongoing working relationship between IP&C and POM is needed to ensure standard elements around HH sinks remain consistent over time. IP&C needs to work with inpatient unit staff to ensure that patient equipment and/or supplies are placed at least 1 metre away from a HH sink to prevent contamination. IP&C shall have input on the design specifications of all sinks that will be installed to ensure sinks meet minimum dimensions and specifications as per CSA Standard.

POSTER BOARD #80

EVALUATION OF A PROVINCIAL CLOSTRIDIUM DIFFICILE INFECTION SURVEILLANCE SYSTEM IN NEW BRUNSWICK, 2013: USING DATA TO INFORM PUBLIC HEALTH PROGRAMMING

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Issue: The incidence of healthcare-associated *Clostridium difficile* infection (HA-CDI) in Canada has increased. In 2010, CDI became a reportable disease in New Brunswick (NB). A surveillance system was implemented, but ceased due to low participation and limited stakeholder engagement. In 2012, there was increased interest in publicly reporting HA-CDI. However, there was limited data on the incidence and distribution of CDI in NB in healthcare facilities. [65]

Project: A hospital-based surveillance system was developed in partnership with infection prevention and control professionals (ICPs) in acute care hospitals from both regional health authorities. Prospective surveillance of CDI commenced

on 1 April 2013. Incidence rates were reported in a monthly report. An online survey was administered to ICPs to assess the acceptability of the surveillance system and reliability of the case classification algorithm. The survey included 20 standardized case scenarios that ICPs classified using the algorithm. An intraclass correlation (ICC) coefficient was calculated to measure the reliability between raters. [89]

Results: From 1 April-31 December, 463 cases of CDI were reported; 33% were hospital-associated. The incidence of hospital-associated CDI was 0.24/1000 patient days (95% confidence interval 0.21-0.28). Over half of cases (57%) were attributed to an unknown source. Nine of 13 (69%) invited ICPs participated in the survey. A majority of survey respondents (71%) indicated that their participation adds value to their day-to-day work. 50% of respondents found the monthly reports inform their practice. The intraclass correlation coefficient was 0.49 (95% confidence interval 0.08-0.77). [87]

Lesson learned: The incidence of hospital-associated CDI in NB is less than the Canadian rate. The high acceptability of this surveillance system illustrates the importance of collaborating with frontline staff to develop tools early in the process. The reliability among raters was fair and follow-up interventions may reduce variability and improve the utility and value of existing tools. [56]

POSTER BOARD #82

REPORTABLE DISEASES TOOLKIT FOR HEALTH CARE PROFESSIONALS: AN ONLINE DISEASE SPECIFIC RESOURCE

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 Leeds, Grenville & Lanark District Health Unit, Brockville, Ontario, Canada

Issue: Every year many people become ill with communicable diseases such as: Influenza, Hepatitis C, and Measles. Healthcare professionals (HCPs) also have reporting requirements for these 67 diseases as specified in the *Health Protection and Promotion Act*. Quick access to a disease specific resource can support health care providers to provide the best possible care, meet reporting requirements and prevent the spread of communicable disease in the community.

Project: The toolkit was developed to address these issues and improve accessibility to credible information on reportable diseases in a quick and easy to use format. One click on any disease will take the user to an information page that includes reporting requirements, clinical presentation, lab testing, patient management and additional resources. A Quick Recognition (QR) code allows the user to scan the Toolkit to a Smartphone or tablet.

Results: A draft version of the toolkit was piloted with select HCPs. Feedback was collected via an electronic survey to help ensure that the toolkit would meet their needs. The comments were favourable and indicated that it was a resource that HCPs would find useful and easy to navigate. The final Reportable Diseases Toolkit was launched on November 4, 2013 to HCPs. Ongoing marketing is planned for 2014.

Lessons learned: Delays occurred in completing the project due to staff changes and workload. A template provided a framework and specific criteria. One editor for the project ensured consistency. A plan for continued maintenance and updating of the toolkit is essential.

POSTER BOARD #84

E-TRIAGE TOOL: GATEKEEPER FOR SAFER HOSPITAL ENVIRONMENT

Melisa Awaness, Mirza Zahed Ali, Varda Slobodanka, Vydia Nankoosingh
 The Scarborough Hospital, Toronto, Canada

Issue: For many patients, the Emergency Department (ED) is the first point of entry into hospitals. The purpose of triage from Infection Prevention and Control (IPAC) perspective in an ED is to identify patients harbouring potential communicable diseases and to isolate them appropriately, which ensures safety of staff, visitors and patients. The triage tool facilitates appropriate screening and isolation of patients.

Project: IPAC at The Scarborough Hospital (TSH) designed screening questions pertaining to respiratory and enteric symptoms that are incorporated in the electronic-triage (e-triage) tool. This tool was implemented in Jun 2011.

Results: Specific algorithms are incorporated into e-triage allows appropriate additional precautions (AP) to be initiated in a timely manner, based on the answers to the screening questions. If a patient has both cough/shortness of breath and fever, droplet/contact precaution is automatically triggered. Travel history question is included given the emergence of novel pathogens such as MERs-CoV and H7N9. Flags for antibiotic resistant organisms (eg: MRSA, VRE) automatically trigger AP in e-triage. Clinical staff may disagree with the triggered AP and are able to communicate discrepancies to IPAC through the e-triage assessment. E-triage improves interdepartmental communication regarding isolation status of patients. E-triage reduces number of staff exposures to communicable diseases; there were 8 influenza staff exposures in 2009 prior to implementation of e-triage and none in 2011.

Lessons learned: A comprehensive e-triage tool ensures timely isolation of potentially infectious patients. It reduces the number of staff exposures to communicable diseases. An additional benefit of the e-triage tool is that it reinforces IPAC principles regarding initiating AP and empowers staff to initiate them as the clinical status of patients change.

POSTER BOARD #86

SEEK AND YOU SHALL FIND...

Natasha Salt, Sandra Gallery, Mary Vearncombe

Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Issue: Centralization of equipment reprocessing to our Medical Device Reprocessing Centre (MDRC) is strongly endorsed by Sunnybrook Health Sciences Centre (Sunnybrook). Reprocessing at point-of-care requires ongoing monitoring, training and certification of staff. Sunnybrook has 154 ambulatory clinics on 3 campuses. 103 receive hospital funding and others are privately funded by the physicians within the clinic. Targeted clinics with point-of-care reprocessing are visited biannually by managers from Infection Prevention and Control (IP&C) and MDRC, however, the last review of all ambulatory clinics for their reprocessing practices was 4 years ago.

Project: The Infection Prevention and Control department conducted a review of all 154 clinics regarding their reprocessing practices. Over 5 days, 8 IP&C Coordinators inspected all clinics using a checklist to guide their review.

Results: 16 clinics use critical or semicritical equipment that are either centrally reprocessed through MDRC or use single-use disposable items. Nine clinics performed high-level disinfection of semi-critical devices at point-of-care. Two of the nine clinics required immediate correction of their practices.

Lessons learned: Although periodic visits to the clinics occurred, staff turnover and introduction of new equipment can lead to miscommunication or breaches in practices. Education was cited in those clinics where practices needed to be corrected. In addition to our immediate concerns regarding reprocessing, our team identified several incidental findings related to IP&C that required further investigation and correction. These findings emphasize the need to categorize clinics based on risk and to have an IP&C liaison that can provide ongoing education and routine monitoring of practices. An IP&C liaison has been established with the ambulatory clinics.

POSTER BOARD #88

A COLLABORATIVE APPROACH TO DIAGNOSING VENTILATOR-ASSOCIATED PNEUMONIA IN THE NEONATAL INTENSIVE CARE UNIT

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¹The Hospital for Sick Children, Toronto, Canada, ²University of Toronto, Toronto, Canada

Issue: A review of ventilator-associated pneumonia (VAP) rates in our Neonatal Intensive Care Unit (NICU) prompted evaluation of the current method of diagnosis. After a review of published definitions for VAP, it was decided that adaptation to the neonatal context was necessary.

Project: An interdisciplinary team including physicians (neonatologists and infectious disease), Respiratory Therapists and Infection Prevention & Control was created to develop an NICU consensus definition for VAP. A literature review was conducted and other level 3 NICUs in Canada were contacted. VAP definitions were evaluated and compared and a consensus definition was established through panel discussion.

Results: A consensus definition was created by adapting available VAP definitions to our local NICU context. This definition was presented to the key stakeholders, including medical staff and respiratory therapists. The possible methods of identification of patients with VAP were reviewed and assessed for feasibility. It was decided that the Infection Control Practitioner (ICP) would identify patients with suspected VAP through chart review and confirm with the responsible Neonatologist that the consensus VAP criteria was met. In addition, any patient identified by the responsible Neonatologist as meeting the criteria would be reported to the ICP.

Lessons learned: Both a collaborative approach to developing a VAP definition, in addition to buy-in from key stakeholders to support the need for more refined VAP definition was essential. By having a definition that works for our patient population, we are now able to better target improvement strategies related to VAP.

POSTER BOARD #90

RESULTS OF AN IPAC-CANADA MEMBERSHIP ENVIRONMENTAL HYGIENE NEEDS ASSESSMENT

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Background: In order to determine what IPAC-Canada members identified to be their needs related to environmental hygiene (EH), the Environmental Hygiene Interest Group conducted a needs assessment.

Method: A survey tool was developed which was sent electronically to all 1370 IPAC-Canada members. The survey included 17 questions that covered several aspects of EH in healthcare.

Results: Response rate was 10% (138 members). Of these, 45% were CIC certified and 51% had more than 5 years of experience. The majority worked in an acute care setting (58%) followed by long-term care (29%), while 18% worked in public health. Members used resources including PIDAC, CDC, and APIC guidelines and recommendations. Environmental services (ES) staff training related to environmental cleaning was conducted by ES (77%) and/or infection prevention and control (IPAC) (63%), while general infection prevention and control education was provided by IPAC (68%) and departments (61%). EH products and technologies were assessed by IPAC (72%) and/or ES (71%) using literature and guidelines (75%), colleague opinions (64%), and industry opinions (60%). Visual inspection was the predominant quality assurance method used (75%) followed by observation of performance (60%), fluorescent marker (40%), and patient surveys (30%). Members expressed the need for guidance related to product selection, practice, cleaning non-critical equipment, cleaning for specific pathogens, education, training tools, and quality assurance programs.

Discussion: The results of the survey show variations in practice in EH and highlight the needs of our members in this field.

POSTER BOARD #92

RESTARTING THE JOURNEY TO IMPROVED CENTRAL LINE INFECTION RATES

Margaret Cameron

Peterborough Regional Health Centre, Peterborough, Canada

Issue: An acute care community hospital with a twenty bed Intensive Care Unit and an eight bed Surgical Constant Care Unit experienced an increased number of central line infections. Safer Health Care Now Central Line insertion and maintenance bundles were implemented in 2007. Since then, turn over in Infection Prevention and Control, Intensive Care Unit leadership and staff, in conjunction with other fiscal constraints created a climate where initial gains became unsustainable. During 2013, a total of 7 central line infections were observed between February and November 2013. The second quarterly central line infection rate was 3.19 per 1000 patient days.

Project: A multidisciplinary team was formed to develop action plans to reduce central line infections. The initial focus was in the Intensive Care Unit where 6 of the 7 central line infections originated.

Results: Insertion checklist revised to include justification for insertion site. Soap and water bath prior to chlorhexidine antiseptic preparation introduced. Increased communication about issue.

Key maintenance tips posted for staff. Chlorhexidine impregnated sponge dressings introduced at time of insertion and during regular dressing changes. Re-education /in-service for all staff on line maintenance. Line necessity incorporated into daily rounds and charge nurse duties. 95 days since last central line infection.

Lessons learned: Sustainability of Safer Healthcare Now Insertion and Maintenance bundles to ensure central line infections are prevented requires planning and resources. Building a competency assessment program for central line maintenance has been recommended to achieve this goal.

POSTER BOARD #94

PROTOCOL STANDARDS FOR ANIMAL CROSSOVER RESEARCH: IPC CONSIDERATIONS FOR INSTRUMENTS USED IN RESEARCH STUDIES INVOLVING ANIMAL MODELS

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Issue: Are new sterilization/decontamination processes acceptable for research instrument s used in animal experiments and humans? Due to expense, many diagnostic/research instruments are often shared between studies in animals and humans. We examined whether decontamination/sterilization using vaporized hydrogen peroxide is an acceptable technology in this setting?

POSTER PRESENTATIONS

Project: We considered the following: 1) How is the equipment being used in the study i.e., is the equipment is considered non-critical, semi-critical, critical or having no contact with the study subject (s)? 2) Is the technology approved by Health Canada? 3) Is the sterilization technology approved by the provincial or local health authority? 4) Is the technology approved for use in Canada consistent with what is outlined in the study protocol and the manufacturer's instructions? 5) Are there standards or guidelines already in place? 6) Are there other issues in using the same instrument between humans and animals?

Results: The ultrasound probe, used to study skin integrity in an animal burn model was determined to be a non-critical device (touching intact skin in both subjects). Vaporized hydrogen peroxide technology at the time of this investigation is not approved for use in Canada for decontamination/sterilization. It has been approved for use in the United States for decontamination of patient rooms and portable non-critical equipment but not for medical devices. Canadian Standards association (CSA) prohibit the use of any medical device in humans that have been used on animals.

Lessons learned: Due diligence and researching multiple sources is vital prior to adoption of any new sterilization technology involving animal-human crossover.

POSTER BOARD #97

A CLUSTER OF HEPATITIS A AND THE PREVENTION OF SECONDARY TRANSMISSION IN A JUNIOR KINDERGARDEN SETTING

Nancy Todd-Giordana, Donna Perron
 Ottawa Public Health, Ottawa Ontario, Canada

Background: Ottawa Public Health was made aware of a cluster of hepatitis A cases within a family that occurred over a 2-month period of time. Although some of the cases were exposed through travel to an endemic country, transmission

still occurred and three additional cases were identified. As a result of additional testing of close contacts, a four-year-old asymptomatic child was confirmed by serological testing. Since 70% of children less than 5 are asymptomatic

virus shedders and may have poor hand hygiene practices, OPH initiated a follow-up of 385 people that resulted in the prophylaxis of 250 individuals.

Methods: An investigation was launched, individual case interviews were conducted to identify potential exposures and contacts. Subsequently a site visit to the local junior kindergarten of the asymptomatic cases was also carried out to establish the risk of transmission within this setting, and to educate staff about infection prevention and control strategies. A plan to provide prophylaxis to close contacts was established. Several options were offered, including on-site clinics, family physicians and appointments at the health unit.

Results: Prophylaxis was offered to 144 primary and 232 secondary contacts. OPH immunized 97 primary and 133 secondary contacts. In total 31 individuals previously immune. The cost of the investigation was estimated to be just over \$43,000.

Conclusions: Prophylaxis vaccination should always be considered an appropriate public health measure for controlling the spread of hepatitis A in child care settings or settings where children under five group together.

TUESDAY, MAY 27, 2014

POSTER BOARD #2

BROAD SPECTRUM EFFICACY OF A 70% ETHANOL GEL AND FOAM HAND RUB WHEN TESTED ACCORDING TO HEALTH CANADA RECOMMENDATIONS

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¹GOJO Industries, Akron, OH, ²BioScience Laboratories, Bozeman, MT

Background: In 2009 Health Canada issued a guidance describing efficacy requirements to market an alcohol-based hand rub (ABHR) in healthcare including requirements for reducing bacteria, fungi and viruses on hands (*in vivo*). This guidance raises the bar for efficacy since previously many of these organisms were only tested *in vitro*. The objective of this study was to evaluate two ABHRs for broad spectrum antimicrobial efficacy using *in vivo* efficacy standards recommended by Health Canada.

Methods: A 70% ethanol ABHR gel and foam were evaluated for bactericidal efficacy using ASTM E 1174 and EN 1500 at a dose of 2.0 ml and 3.0 ml for 30 seconds, respectively. Fungicidal efficacy was evaluated using the fingerpad method (ASTM E2613) for 30 seconds. Virucidal efficacy was evaluated using the whole hand method (ASTM E 2011) with a dose of 3 ml.

Results: The gel and foam reduced *Escherichia coli* by >4 log and *Serratia marcescens* by >3 log, respectively. The gel and foam reduced *Candida albicans* by >3.5 log, and *Aspergillus brasiliensis* by >4 log, respectively. The gel and foam reduced Murine Norovirus by 3.20 and 2.80 log, respectively, and the gel reduced Rotavirus

by 4.30 log, Adenovirus by 4.10 log, and Rhinovirus by 3.55 log.

Conclusions: Both ABHR exceeded the minimum Health Canada efficacy requirements for the organisms tested. A well-formulated gel and foam ABHR can be highly efficacious with broad-spectrum antimicrobial activity.

POSTER BOARD #5

IMPLEMENTATION OF A CARBAPENEMASE PRODUCING ENTEROBACTERIACEAE (CPE) CONTROL POLICY IN AN ACUTE CARE HOSPITAL

Kasey Gambeta, Matthew Muller
 St. Michael's Hospital, Toronto ON Canada

Introduction: Carbapenemase-producing Enterobacteriaceae (CPE) are multi-drug resistant organisms associated with significant mortality. We address challenges in implementing and evaluating a control policy for CPE at our hospital.

Methods: We developed a CPE management policy based on the local epidemiology of CPE and provincial recommendations that addressed issues related to screening and precautions for patients potentially infected or colonized with CPE. Implementation involved direct communication to all physicians and staff through email communications and in-services, on-the-spot training, as well as the development of educational materials, an electronic admission checklist and a flagging system. Implementation was evaluated by monitoring the number of screening specimens performed, reviewing completion rates for the admission checklist, conducting quarterly prevalence studies to identify missed CPE screens in recently admitted patients with risk factors and through tracking our incidence of CPE.

Results: Over the 12 months following implementation, 10 CPE cases were identified. Of those with risk factors, 4/7 (57%) were screened. Quarterly admission screening specimens increased from 8 to 44 over six months. Prevalence audits identified risk factors in 4/95 (4.2%) patients at the time of admission, with 1 being appropriately screened. Hospital wide compliance with the admission screening checklist was 51% and did not change over time.

Conclusion: Implementing surveillance for a new ARO is challenging. Targeted and repeated education and the use of an electronic admission checklist helped raise staff awareness and increase the number of appropriate specimens collected. However, despite 1 year of efforts, admission screening is only documented for half of patients, and 3 patients with CPE were admitted without appropriate screening. We believe that the metrics we used have helped us recognize gaps in our implementation sooner than reviews focused only on positive patients. Ongoing feedback of these results and repeated education will hopefully allow us to improve our performance going forward.

POSTER BOARD #7

POST-OPERATIVE SURGICAL SITE INFECTIONS: MEASURE, MANAGE & PREVENT!

Sheila Lee¹
¹Accreditation Canada, Ottawa, Canada, ²National Healthcare Safety Network case definitions (CDC/APIC), Atlanta, United States, ³Safer Healthcare Now, Edmonton, Canada

Background: 2006 South Shore Health (SSH) worked toward adopting the recommended Safer Healthcare Now (SHN) Prevent Surgical Site Infection (SSI) Bundle for all class one and two surgeries. The aggregate post operative SSI rates for all class one & two surgeries remained at or within benchmark from 2006-2008.

Research and Best Practises: 2008 Accreditation Canada established a new structure to reflect the latest research and best practises in the field of infection prevention and control (IP&C). To meet the recommended standards the IP&C team made changes to the data collection methods. The aggregate data of all class one and two surgeries was separated and calculated by specific surgery types as recommended in the patient safety performance measures protocol.

Project: Post-Operative SSIs: During the 2009-2010 fiscal reporting year the rates for post operative SSI for all class one and two colorectal surgeries were well above the National Healthcare Safety Network (NHSN) benchmark. The IP&C team collaborated with the surgical services team, areas for improvement were identified and changes were implemented to comply with the SHN Bundle. A comprehensive data collection process was also put in place, every post op colorectal surgical patient receives a follow up phone call 30 days post op and the documentation is included in the patients' records. Patients' records are also audited for compliance with SHN's four components of care.

Results: The trend in colorectal SSI rates are at a steady decline. The last fiscal year 2012-2103 rates fell below the national benchmark! Accreditation Canada has recognized South Shore Health's Post-Operative Infection Surveillance Data Collection Process as a Leading Practise!

POSTER BOARD #9

ESTABLISHING A SUCCESSFUL INFECTION PREVENTION
AND CONTROL IN A COMMUNITY HEALTHCARE ORGANIZATION

Catherine Richard

Champlain CCAC, Ottawa ON, Canada

Issue: The Champlain Community Care Access Centre (CCAC) is one of the largest health service providers in Eastern Ontario, connecting people to care and delivering healthcare services in homes, clinics and schools. Recognizing the link between excellent client care outcomes and a healthy workforce, the organization developed a comprehensive and integrated approach to health and safety, which includes infection prevention and control (IPAC). While undertaking the Accreditation process for the first time, the Champlain CCAC identified that the IPAC program needed significant improvements to meet current standards and guidelines. Unfortunately, most program models are acute-based and have not been as well-established in the community and home care sector due to differences in resources and the nature and the setting of the client care delivery process.

Project: The organization met the challenge through the development of a multi-faceted program led by a certified infection control practitioner, which includes a comprehensive policy manual, an IPAC committee, and a surveillance dashboard of community care-related IPAC indicators. Occupational health and immunization policies mirror established communicable disease protocols in acute care. Over 700 employees received targeted and relevant education. Risk codes communicate precautions to staff and service providers.

Results: The Champlain CCAC's efforts were acknowledged with an Exemplary Accreditation Award with the new IPAC Program achieving 100% compliance. In addition, the organization received a Gold Quality Healthcare Workplace Award from the Ontario Hospital Association.

Lessons learned: More work needs to be done to develop consistent IPAC programs and standards in the community care sector.

POSTER BOARD #11

CONTROL TO THE CRISIS:
A GERIATRIC FACILITIES APPROACH TO OUTBREAK MANAGEMENT

Jane Van Toen, Heather Candon, Latha Jacobs, Chnigiz Amirov

Baycrest, Toronto, ON, Canada

Issue: Baycrest is a large geriatric facility in Toronto comprising of a long term care home, a complex continuing care hospital and a senior's apartment complex.

With approximately 1000 beds and a frail elderly population, outbreaks, although expected, tended to bring stress and a sense of crisis. Miscommunications were commonly identified with the outbreak management process. The IPAC team felt the outbreak management program needed to be reviewed and redesigned to bring control to the crisis.

Project: The IPAC team, with the assistance of the other stakeholders, conducted a complete a review the outbreak management policies and procedures. The review was designed to identify strengths in the current management protocol as well as areas for improvement. It was determined our outbreak management needed revisions to: Be standardized and efficient; Ensure timely and appropriate level of communication to all stakeholders; Include a process for auditing and ongoing review and improvement.

Results: Through the initial and subsequent reviews of our outbreak management, the process has evolved such that outbreaks are handled in a standardized and efficient manner yet with the flexibility to change and improve. An outbreak, by definition, denotes somewhat of a crisis situation but we are now able to handle outbreaks in a much more controlled fashion.

Lessons learned: The needs of all stakeholders need to be considered and incorporated into the outbreak management process. A multidisciplinary approach and clearly defined roles is essential. Well-documented and regularly reviewed checklists are helpful in assuring a standardized and complete management process.

POSTER BOARD #13

URINARY TRACT INFECTION (UTI) PREVENTION IN CONTINUING CARE:
PADDLING THROUGH UNCHARTED WATERS

Gwen Cerkowniak

Patient Safety Unit- Ministry of Health, Saskatchewan, Canada

Issue: UTIs in Continuing Care settings are the leading cause of bacteremia and the most common reason for hospitalization and antibiotic prescriptions. Most current guidelines and tools for UTI prevention focus on acute care facilities only. The fledgling Saskatchewan Infection Prevention and Control Technical Advisory Group identified UTI prevention and management as a priority and developed a guideline that was intended to provide criteria to assist healthcare workers to accurately identify urinary tract infections (UTIs) and catheter-associated urinary

tract infections (CA-UTIs), provide recommendations to reduce the risk of UTIs/CA-UTIs, and discuss management and treatment options for adult individuals with UTIs/CA-UTIs.

Project: Guidelines for the Prevention and Treatment of UTIs in Continuing Care Settings was developed and released in April 2013.

Results: Recommendations for best practice will not be followed without support and good local evidence. A study was conducted in 6 LTC facilities to determine current practices regarding UTI diagnosis and management. Educational tools were developed to address the discrepancies between current, as identified in the study, and best practices recommended in the guideline. These tools will soon be available to all Continuing Care facilities in Saskatchewan.

Lessons learned: A guideline on its own is not enough to alter current practices in Continuing Care facilities that have limited resources and staff who often work in isolation. Tools that are accessible and focused on front line staff are essential to compliment the guideline and reinforce the message that improved resident outcomes and antibiotic stewardship are possible when we follow evidence based best practice guidelines.

POSTER BOARD #15

THE "ISOLATION BOARD":
A TOOL FOR ENHANCING HEALTHCARE TEAM COMMUNICATION

Megan Clarke, Lee-Anne Williams, Don Clark

The Hospital for Sick Children, Toronto, Canada

Issue: A review of the types of infection prevention and control (IPAC) issues that IPAC is asked to respond to prompted an investigation focusing on improving the continuity of information that health care teams provide to each other in relation to patient isolation requirements. Historically, after hours, the IPAC team would often be consulted on the same issues that had been discussed during regular work hours.

Project: An "isolation board" was created in three inpatient units that have high volumes of isolated patients. The goal of the isolation board was to provide consistent messaging on isolation plans for patients from shift to shift. A magnetic white board was installed, magnets created in the image of our isolation signs, and the magnets placed beside any patient name requiring isolation precautions. A comment section allows for information regarding positive or pending lab results, and any plans related to discontinuing isolation precautions. "Isolation rounds" take place on a daily basis at the board to ensure every isolated patient is reviewed with the unit charge nurses.

Results: The implementation of these boards resulted in a 50% reduction in after-hours calls related to isolation by the areas utilizing the isolation boards. There has been improved autonomy for the charge nurses utilizing the boards related to patient flow decisions.

Lessons learned: Engagement of the unit charge nurses to participate in reviewing and updating the isolation board was essential. Having up-to-date plans in place for these patients in a visual format is valued by staff.

POSTER BOARD #17

IF IT'S GREEN, IT'S CLEAN

Cara Sudoma, Kathy Maxwell

Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada

Issue: The literature tells us that failure to clean and disinfect non-critical items between patients can be a significant source for the transmission of HAI's.

Often patient care items such as commode chairs and shower carts/chairs are placed in hall ways or equipment rooms due to lack of space in our pediatric patient rooms. There is no visible way to determine if the items have been cleaned are safe to use on other patients. Covering items with plastic wrap is a safety risk in a pediatric environment. IPAC were determined to find a way to alert staff if items were cleaned.

Project: A survey was done asking staff if the items in the hall were cleaned. A majority indicated they did not know. Most staff did not clean the items and felt it was someone else's role. IPAC developed two sided colour cards that were attached to the items. The tag line: If it's Green, it's Clean was introduced. All staff were informed of the project and their role in its success. The staff all felt that this was a good idea and could support the project. Disinfectant wipes were placed strategically in the hallways for accessibility.

Results: An environmental scan was completed to make sure all items had red/green cards attached. Audits were carried out and the results were shared with staff. It is still early in the project so we haven't met our target of 80%. Audits are ongoing.

Lessons learned: There were initial problems with the attachment of the cards and water in the pouches but this has been resolved. Also involving the parents/guardians in the project can make the project successful.

POSTER PRESENTATIONS

POSTER BOARD #19

AN IMPLEMENTATION OF A BEST PRACTICES BUNDLE THAT LEAD TO 100% REDUCTION IN NEONATAL INTENSIVE CARE BLOOD STREAM INFECTIONS

Doreen Alexander, Shaheen Doctor, Wil Ng, Diane White, Kevin Katz
 North York General, Toronto, Ontario, Canada

Background: Nosocomial infections, particularly catheter-related blood stream infections (BSI) in the neonatal intensive care unit (NICU), contribute to both short-term and long-term morbidity in neonatal patients. A community hospital Level 2C NICU that cares for infants born at \geq 30 weeks gestational age, participated in the Ontario NICU Infection Control Initiative, along with six other Ontario NICUs, to reduce nosocomial BSI rates. A bundle of best practices were developed, implemented and audited to decrease the nosocomial BSI rate in each participated hospital.

Objective: To decrease nosocomial BSI rates in North York General (NYG) Level 2 NICU.

Method: BSI baseline 2010 data was collected retrospectively, followed by a full-day workshop on quality improvement techniques and practice change management in May 2011. In June 2011, a best practice bundle was reviewed by NICU health care providers. The best practice bundle included evidence-based recommendations in the following categories: hand hygiene, feeding, line insertion, line maintenance and line removal. 95% of the recommendations were implemented. A critical review of all BSI infections was investigated within 48 hours of occurrence using a standardized template.

Results: NYG NICU catheter-related BSI decreased over one year from 6.3/1000 catheter days to 0/1000 catheter days, resulting in a 100% rate reduction. Among the other six participating NICUs, the overall BSI rate decreased from 9.8/1000 to 4.7/1000 catheter days, resulting in a 52% reduction.

Conclusion: The best practices bundle led to a significant reduction in the rate of nosocomial BSI in our NICU population, which was maintained over a one-year period.

POSTER BOARD #21

DEVELOPING CHECKLISTS TO SUPPORT INFECTION PREVENTION AND CONTROL PRACTICE AT A COMPLEX CARE/REHABILITATION HOSPITAL

Jane Tooze, Linda Shi, Barbara Paul, Sharon O'Grady
 Bridgepoint Hospital, Toronto Ontario, Canada

Issue: Our Infection Control Practitioners (ICPs) identified the need for standardized management approach for certain infection control issues: bed bug cases, respiratory illness outbreaks, proper placement of patients requiring additional precautions, and terminal cleaning.

Project: Development of simple, sensitive, and specific checklists designed to standardize infection control practices quickly and easily by most responsible staff member.

Results: Four checklists were implemented. **Bed bug Case Checklist** With an increase of cases with bed bugs, nursing and environmental service (ES) staffs faced expanding responsibilities and challenges to eliminate and prevent incidents of bed bugs. This checklist serves as a guide for staff, especially when ICP is not on site. The collaborative approach assists with implementation of time-controlled measures. **Unit Respiratory Outbreak Prevention and Control Checklist** Checklist developed with stakeholders in order to reflect their needs. It is designed to assist Nursing Staff implement respiratory outbreak prevention and control measures in a timely manner. The list is also designed to improve the ICP's efficiency and enhance surveillance. **IPAC Considerations for Capacity Management on Admission** It was identified that existing checklist should be more comprehensive to improve patient flow and communication. Checklist redeveloped to meet current needs and provide prompt screening for infection control bed placement. **Environmental Service Terminal Cleaning Checklist** Comprehensive terminal cleaning is an important step in the prevention of hospital-acquired infections. In collaboration with ES a checklist to ensure consistent terminal cleaning based on Provincial Infectious Disease Guidelines was developed. The tool also improves communication and quality checks between ES and Infection Prevention and Control departments.

Lessons learned: Checklists were found to be useful tools by helping to reduce potential errors and omissions in practice caused by lapses in human memory and attention.

POSTER BOARD #23

ALGORITHM FOR INFECTION CONTROL MANAGEMENT OF PATIENTS WITH AN ANTIBIOTIC RESISTANT ORGANISM HISTORY

*Cindy O'Neill*¹, Jocelyn Srigley^{1,2}, Khuloud Nuri², Gail Fisher¹, Jessa Craig¹, Patricia Peltsch¹, Cheryl Bertrand¹, Patricia Perry¹, Edwige DeSouza¹, Dominik Mertz^{1,2}

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Background: Hospitalized patients with history of antibiotic resistant organisms (ARO) are empirically isolated until admission ARO screening results are negative. Hospitals, with high occupancy and limited single rooms, struggle with this practice. We identified risk factors for persisting ARO colonization and created an algorithm to determine isolation requirements while awaiting screening results.

Methods: The study was conducted at two tertiary acute care hospitals. An algorithm was created following a review of risk factors and screening results from a derivation population admitted from February through May 2012 and was tested on an independent population admitted from May through July 2012. Data collection for intravenous drug users continued until December 2013 to further assess reliability.

Results: In total, 502 patients with ARO history were evaluated. Screening results were positive in 191 patients (38.0%). The majority of ARO were methicillin-resistant *Staphylococcus aureus* (291/502, 58.0%) or vancomycin-resistant enterococci (125/502, 24.9%). In the derivation population, a history of < 2 years since last ARO detection was the most significant risk factor (OR 32.8, 95% CI, 7.8-138.7; P< .001). The algorithm included three risk factors and reduced isolations by 53.7%. Only seven patients with positive admission results were not isolated (sensitivity 96.3%, specificity 53.7%). Overall, management was accurate in 69.9% of admissions.

Conclusion: The algorithm is an effective and highly sensitive tool to determine persistent colonization in patients with an ARO history. Unnecessary isolations decreased by >50% to help improve patient flow and single room utilization.

POSTER BOARD #25

REDUCING THE RISK OF CATHETER-RELATED BLOODSTREAM INFECTIONS IN HEMODIALYSIS PATIENTS

Nancy Peddle, Norma McBride, Kelly Sutherland, Euan Carlisle
 St. Joseph's Healthcare, Hamilton, Canada

Issue: Catheter-related bloodstream infections (CR-BSI's) are an important quality indicator for our Hemodialysis Program. Although the CR-BSI rate had been consistently low, in the summer of 2012 there was a noticeable increase in the number of bloodstream infections resulting in poor outcomes for patients. We began to review some of the existing guidelines from the Association for Professionals in Infection Control and Epidemiology (APIC) and Centers for Disease Control (CDC) for strategies to reduce CR-BSI's in patients with chronic renal disease.

Project: APIC and the CDC guidelines include application of an antibiotic ointment at the catheter exit site as an infection risk reduction strategy. In June 2013 the Hemodialysis Program implemented a change of practice with their central venous catheter exit site dressing protocol adding the application of a triple antibiotic ointment. A multidisciplinary team considered project details such as the ordering and storage of the ointment, review of the existing policy, how the ointment would be applied, staff education, and continued monitoring of CR-BSI rates.

Results: After implementing this practice change, CR-BSI rates were further reduced in the latter half of 2013 and continue to remain low. There was a cluster of patients that developed skin irritation and redness at their exit site and cultures subsequently grew yeast. A care plan was created to ensure patients with skin irritation were not treated with antibiotics if the exit site did not actually look infected.

Lessons learned: The quality improvement initiative allowed for the opportunity to review current guidelines and practices. Staff education and training regarding the amount of ointment to be applied at the exit site was important as excess ointment caused dressings to fall off prematurely. More critical assessment of exit sites was needed to ensure antibiotics were not ordered unnecessarily.

POSTER BOARD #27

HAND HYGIENE IN THE EMERGENCY DEPARTMENT: A SURVEY OF AUDITING PRACTICES ACROSS CANADIAN HOSPITALS

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Background: Emergency departments (EDs) usually report the lowest hand hygiene (HH) adherence among hospital areas. Data exploring the causes of low adherence, or reporting means to improve it, are sparse. We aimed to elucidate HH auditing and reporting practices in Canadian EDs.

Methods: Using modified Dillman methodology, we electronically distributed a 25-question survey to infection control staff at Canadian acute care hospitals with at least 50 inpatient beds.

Results: 136 completed surveys were received (77.2% response rate). All EDs surveyed have soap and water and wall-mounted alcohol-based product available for HH; only 37% of EDs have product mounted on equipment. HH audits are performed in 93% of EDs. Most institutions audited weekly (29.8%) or monthly (36.2%), and generally only during weekdays (35% reported auditing on weekends

or weeknights). One-quarter of respondents do not audit all areas of the ED; triage, ambulatory care, rapid assessment zones and resuscitation areas were most frequently excluded. Two-thirds of institutions surveyed (69.2%, n=88) report ED adherence data to a provincial body, and the data reported provincially varies widely. Facilities that report ED adherence data to a provincial body tend to have higher ED adherence rates than those that do not, although this pattern failed to reach statistical significance ($p = .092$). Hospital senior management was rated as placing the most importance on HH in the ED, followed by ED management, and then front-line ED staff ($p < .001$). The majority of respondents (71.4%) reported that adherence rates are generally lower in their ED compared to other hospital areas. Mean reported adherence rates for the ED and for the overall hospital were 67.9% and 80.0%, respectively ($p < .001$).

Conclusions: Practices related to auditing and reporting HH in Canadian EDs vary widely. Sharing information across EDs may assist hospitals in understanding and improving HH in EDs.

POSTER BOARD #29

A MULTICOMPONENT INFECTION CONTROL (IC) PROGRAM IN RESIDENTIAL CARE HOME FOR THE ELDERLY (RCHE)

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Infection Control Branch, Centre for Health Protection/Infectious Disease Control Training Centre, Hospital Authority, HKSAR, Hong Kong

Nowadays, more elderly are resided in RCHE due to personal, health or social problems. Promote and maintain IC practices are not easy in these home-like environments. Frequent socialization and shared facilities increase exposure and promotes transmission of infectious diseases. A multicomponent IC program was developed to enhance IC in RCHE.

Project: The multicomponent program consists of six interactive educational modules with knowledge test covering basic IC, environmental hygiene (EH), hand hygiene (HH), Multi-drug resistant organism, medical devices and influenza vaccination; outreach visit and assessment; provisions of alcohol-based hand rub, training kit, posters and reminders emphasizing IC. At end of program, participated RCHEs received training materials in DVD and web format for establishment of structured IC training program in RCHE. Focus group discussions were conducted to collect feedbacks for evaluation.

Results: 32 RCHEs participated in the 2-year program. Improvement is indicated by an overall improvement in knowledge score after educational modules. Assessment of IC practices also showed improvement; EH assessment score from baseline 81.7 to 87.8 at follow-up and HH from 70.2 to 80.2 (both p -values < 0.05). Feedbacks from participants in focus groups were positive and valued the launch of program had heightened staff awareness on IC measures.

Lessons learned: Attitude and belief of participants varied greatly, which were influenced by organization holders and staff background. Change in behaviour and strengthen IC practices in this setting was not easy. It provided opportunity to work with RCHEs to improve staff's IC knowledge and practices. Participants' recommendations nourish the program content and facilitate rolling out to other RCHEs in Hong Kong.

POSTER BOARD #33

ADHERENCE TO PIDAC BEST PRACTICES AT HOSPITALS IN SOUTHERN ONTARIO

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Issue: To determine the adherence to Provincial Infectious Diseases Advisory Committee (PIDAC) recommendations with respect to admission screening for Antimicrobial Resistant Organisms (AROs), and laboratory testing methods to help standardize Infection Prevention and Control (IPAC) practices at 16 hospitals within Southern Ontario.

Project: An electronic survey was developed and distributed to the IPAC leads for 16 hospitals within our region. Questions were asked about admission screening practices for Methicillin-Resistant *Staphylococcus aureus* (MRSA), Vancomycin-Resistant Enterococcus (VRE) and Carbapenemase-Producing Enterobacteriaceae (CPE) including turnaround times for laboratory results, flagging health records of ARO contacts, and criteria used to discontinue contact precautions.

Results: Response rate was 75% (12/16). Admission screening for MRSA and VRE was done at all 12 facilities responding to the survey, however admission screening for CPE was reported by only 2 facilities. There was a wide range of turnaround times (24 to 96 hours) for laboratory results of VRE. In the event a patient is considered a contact of an ARO case, less than one quarter of facilities reported that the chart would be flagged. Criteria to discontinue contact precau-

tions for VRE and CPE were less stringent than recommended by PIDAC.

Lessons learned: This study showed consistent practices for admission screening for MRSA and VRE across 12 hospitals, but few facilities have incorporated CPE into admission screening according to risk factors. All respondents reported that the charts for ARO cases are flagged, but few flag for contacts. It is not known whether this represents a lack of awareness of the most recent PIDAC guidelines, delays in updating policies and procedures and screening tools, or deliberate non-adherence to the PIDAC recommendations. Next steps would be to identify barriers to adhering to the PIDAC recommendations to help inform future versions of the guidelines.

POSTER BOARD #36

CARBAPENEMASE-PRODUCING ENTEROBACTERIACEAE TRACKING THROUGH A VOLUNTARY SURVEILLANCE PROGRAM IN ONTARIO, 2012-2013

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Background: To respond to the growing concern of carbapenemase-producing Enterobacteriaceae (CPE) in Ontario hospitals, a provincial voluntary surveillance program was implemented by Public Health Ontario in December 2011 to monitor its magnitude in the province. This surveillance program collected data on both the laboratory testing and patient demographic information. This project describes the laboratory results two years after its implementation.

Methods: Hospitals were asked to submit suspected CPE positive isolates to the Public Health Ontario Laboratory (PHOL) for confirmatory testing. Laboratory data on all confirmed CPE isolates were collected and analyzed, and descriptive analyses were performed.

Results: Between January 1, 2012 and December 31, 2013, 962 isolates were submitted to PHOL for testing and 166 (17%) were confirmed positive. Among the confirmed isolates, the greatest number was submitted by large community hospitals (61%) and acute teaching hospitals (20%). The highest number of positive isolates originated from the Greater Toronto Area, particularly in the Central West Health Integration Network area (33%). The most common CPE were New Delhi metallo- β -lactamase (NDM-1) producers (43%) and the most common species associated with CPE were *Klebsiella pneumoniae* (43%) and *Escherichia coli* (36%).

Conclusions: Provincial surveillance for CPE remains important, as the data indicates geographic differences in Ontario, although the overall presence of CPE remains low. When this laboratory data is coupled with patient epidemiological data, results from this surveillance program will be essential in informing infection prevention and control activities to prevent CPE becoming endemic in Ontario.

POSTER BOARD #38

THE IPAC REVIEW PROGRAM FOR LONG-TERM CARE HOMES

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Issue: Infection Control Professionals (ICPs) in Long-Term Care Homes (LTCHs) must stay current with Infection Prevention and Control (IPAC) best practices and often struggle with tight budgets and priority-setting. The IPAC Review Program (IRP) is a voluntary process that provides LTCHs with a review of their IPAC processes and provides reports that prioritize IPAC program deficiencies. These reports can be used as a roadmap for planning.

Project: Public Health Ontario (PHO) South Western Ontario Infection Control Network staff developed a detailed survey tool to document observations during visits to participating LTCHs. A tablet is used to input data into the survey tool; other tablet features are utilized to capture data (e.g., camera). The IRP takes a unique approach to improving IPAC practice by providing in-person consultation, prioritized reports, and a follow-up plan to help keep improvements on track. IPAC recommendations are ranked according to their risk. The reports help the ICP identify IPAC issues requiring urgent attention and those that can form part of future IPAC operational planning. Used appropriately, the report should flag areas of concern in time for deficiencies to be corrected, before adverse outcomes occur.

Results: 100% of homes that received a 6-month follow-up visit indicated they found the IRP program helpful in IPAC planning. 93% of homes made changes to their IPAC program based on reviewer recommendations. The presenter will describe the IRP process, share trends from the first two years of the pilot and share stakeholder feedback. Information collected is used to help inform local initiatives and identify areas where improvements can be made in IPAC practices.

Lessons learned: The success of this local project has led PHO to launch a provincial pilot in certain areas throughout Ontario.

POSTER PRESENTATIONS

POSTER BOARD #40

SYNDROMIC SURVEILLANCE AND PROMPT IMPLEMENTATION OF ADDITIONAL PRECAUTIONS FOR DIARRHEA

Fatema Jinnah, Barbara Catt, Victoria Williams, Sandra Callery, Mary Vearncombe
Sunnybrook Health Sciences Centre, Toronto, ON, Canada

Issue: Prompt initiation of Contact Precautions for patients with new onset of diarrhea is important to prevent transmission of *C. difficile*. From April 2011 to June 2012, only 60% of oncology patients positive for *C. difficile* were placed on Contact Precautions at onset of symptoms.

Project: A "Don't Delay" project started in October 2012 in collaboration with nursing leadership, included a poster campaign and feedback of compliance rates to all inpatient units. Education with case studies was provided reminding staff to consider *C. difficile* infection (CDI) for new onset of diarrhea in at risk patients and providing direction on initiating Contact Precautions in the patient's bed-space using a commode chair in multi-bed rooms if a single room was not available.

Results: From November 2012 to January 2014, compliance with the initiation of Contact Precautions at onset of diarrhea increased on the oncology units to 98%. A total of 243 patients developed new onset of diarrhea after admission: 46 patients (19%) were moved to a single room and placed on Contact Precautions, 39 (16%) were already in a single room and Contact Precautions were initiated; the remaining 151 (62%) patients had Contact Precautions initiated within the bed space. Initiation of precautions was delayed by 12-24 hours in 7 (3%) cases. A total of 41 (17%) of the 243 cases with diarrheal illness tested positive for the *C. difficile* toxin gene by PCR; 22 of these cases (54%) were nosocomial.

Lesson learned: Introduction of a "Don't Delay" campaign facilitated prompt implementation of contact precautions until CDI could be ruled out.

POSTER BOARD #43

SMOOTHING THE WAVES WITH MEDICAL DEVICE REPROCESSING STANDARDS

Merlee Steele-Rodway
Eastern Health, Newfoundland, Canada

The presentation will provide a general overview of the CSA Z314 series of medical device reprocessing standards. The CSA Standards help to guide the policies and procedures used in everyday practice and provide health care facilities ICP/MDR staff with a guide on standardized approach to traceability, reporting, education and documentation for routine practices. The Standards provide essential background knowledge and resource information for the infection prevention and control practitioner. Topics will include: Standards development process; General requirements; Standards application.

POSTER BOARD #44

CERTIFICATION: A LICENSE TO SAVE LIVES

Cathy Esposito
CSA Group, Toronto, Canada

The role and expertise of the medical device reprocessing personnel have become crucial in the prevention and spread of infection and disease through skills and knowledge needed in the task of instrument and equipment reprocessing. CSA's Certified Medical Device Reprocessing Technician (CMDRT) is the only national certification program based on Canadian standards and best practices with a goal of promoting a safer and more effective practice. Presentation highlights include: Purpose of the Certification; Benefits of certification; Program structure; Case study.

POSTER BOARD #46

COMPARISON OF THE RESULTS OF THREE POINT PREVALENCE SURVEYS OF CARE AND MAINTENANCE OF PERIPHERAL INTRAVENOUS CATHETERS (PIVC)

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Sunnybrook Health Sciences Centre, Ontario, Canada

Background: CDC-HICPAC (2011) recommends periodic assessment of knowledge and adherence to guidelines for all personnel involved in the insertion and maintenance of intravenous catheters. A point prevalence survey conducted in 2011 identified a high proportion of PIVCs that were left in situ >72 hours, not dated, lacking documentation and found local site complications (LSC).

Objective: To determine the impact of feedback of the initial point prevalence survey results by follow-up surveys on care and maintenance of PIVCs.

Methods: Results from the 2011 survey were shared with stakeholders. As a follow up, two point prevalence studies were conducted by nursing students in March and October 2013 using a standardized audit tool in five inpatient care units. Chart review and visual inspections, including site and administration line assessment, were performed to determine the date of PIVC insertion, site condition, proper labeling and documentation.

Results: A total of 276 PIVCs were audited in five inpatient care units in 2011 and 2013. The proportion of PIVCs labeled at the insertion site improved from 54.5% (2011) to 58.2% and 61.1% (March and October 2013). PIVCs in situ >72 hours has significantly decreased from 38.6% (2011) to 15.4% and 20.6% (March and October 2013) (p value= <0.001) (average of 3.22 days in 2011; 2.05 days in March 2013; and 2.52 days in October 2013). LSCs decreased from two local site infections (LSI) and two phlebitis in 2011 to 1 LSI (1%) and no phlebitis in 2013.

Conclusion: Periodic assessment of compliance with best practices with feedback to stakeholders is critical for practice improvement. Improvement in documentation, labeling of site and decreased incidence of local site complication were evident in the 2013 survey results.

POSTER BOARD #48

AUTOMATED MICROBIOLOGY LAB NOTIFICATIONS OF MTB ORDERS; RESULTING IN TIMELY IMPLEMENTATION OF AIRBORNE PRECAUTIONS

Baljinder Sidhu, Danielle Richards, Thomas Kind, Azra Sharma
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Issue: TB is a complex disease and patients with active pulmonary disease can pose a significant infection risk. Improving the practitioner's ability to identify these patients, assess their infectivity, and implement appropriate precautions in a timely manner reduces the risk potential for TB transmission.

Project: We implemented an automated process to improve identification of patients that may pose an airborne TB risk. By using available information technology we developed a process which alerts us to microbiology orders requesting "Sputum for AFB". Using adjustable report parameters to target specific time periods, we employed a four-week look-back period for retrospective review of our current patient population. This allowed us to identify at risk patients in our Emergency Department and on our inpatient units.

Results: This knowledge has facilitated quick communication with front-line staff, collaborative investigation of infection risk, and evaluation of the need for airborne precautions. The process has helped us close the time gap between the recognition of symptoms suspicious for pulmonary TB and the implementation of appropriate airborne precautions. This has raised front-line clinical staff awareness of TB risk. In 2012/2013- 33% of roommates needed TB exposure follow up compared to 43% in 2011/2012.

Lessons learned: Our work has raised awareness among all clinical teams of the need to implement and maintain appropriate precautions until the diagnosis of active pulmonary TB is either confirmed or ruled out. We can also confidently say we now follow PHAC recommendations "procedure should be in place for rapid identification, isolation and treatment of patients."

POSTER BOARD #50

EXTERNAL CUES TO ACTION AND INFLUENZA VACCINATION AMONG RESIDENT PHYSICIANS IN TORONTO, CANADA

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Background: Understanding factors affecting trainee physician choices about vaccination may permit the design of more effective vaccination programs.

Methods: An online questionnaire based on the Health Belief Model was sent to trainee physicians registered at the post-graduate medical education office at the University of Toronto.

Results: 935 complete responses were received from 1884 residents (52%). Reported seasonal influenza vaccination rates in 2008, 2009 and 2010 were 69% (648/935), 75% (708/935) and 76% in 2010 (703/935), respectively; 788 (84%) reported receiving the A(H1N1)pdm09 vaccine. In multivariable analysis, number of years of post-graduate training (OR for post-graduate year 4+ vs, 1-3 2.2 (95% CL 1.3, 3.8) and 4 of 5 components of the Health Belief Model were associated with vaccination with the 2009 pandemic vaccine: odds ratios were 4.7 (95% CL 3.0, 7.5) for perceived severity, 1.9 (95% CL 1.2, 2.9) for perceived benefits, 0.35 (95% CL 0.21, 0.59) for perceived barriers, and 5.8 (95% CL 3.6, 9.1) for external cues to action. Both vaccinated and unvaccinated residents reported that their decisions were significantly influenced by encouragement from their colleagues, families and employers.

Conclusion: Self-reported vaccination coverage among resident physicians was high. External cues to action appear to be particularly important in trainee physician vaccination decisions: active institutional promotion may increase influenza vaccination rates in trainees.

POSTER BOARD #52

DO YOU HAVE ANYTHING TO DECLARE? YES- MEASLES!

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SCARBOROUGH HOSPITAL, TORONTO/ON, Canada

Issue: Measles is a rare disease in Canada due to high vaccination rates. A family with a 1-year-old child returning from the Philippines came to the emergency

department (ER) on two occasions. Initiation of airborne precautions was delayed. The infection prevention and control (IPAC) department collaborated with Public Health to do a tracing of individuals who were potentially exposed to the index case and at risk of developing measles.

Investigation: IPAC completed contact tracing at the hospital while Toronto Public Health (TPH) followed those in the community and Public Health Agency of Canada followed passengers on the flight from Philippines. The hospital investigation included identification of all potential hospital contacts as well as a review of the ER ventilation, review of location of the patient in the ER and whether or not the door to the patient's room was closed.

Results: TPH investigation identified that the child was exposed to measles in the Philippines. The child had been vaccinated for measles in the Philippines two days prior arrival in Canada. After arrival in Toronto, the child developed signs and symptoms of measles. Over 80 potentially exposed individuals were identified by Public Health. The investigation outlined the need for a follow-up clinic to be held at the hospital where five patients under the age of one year were given Gamastan immunoglobulin.

Lessons learned: It is important to consider vaccine preventable disease in our patient population (new immigrants and frequent travelers to places where such diseases are endemic). Staff should be aware of their immune status and Occupational Health should regularly follow-up with staff working in high-risk areas, like ER. Communication and collaboration with stakeholders is key in managing these types of incidents with efficiency and effectiveness.

POSTER BOARD #59

TRUE GRIME: OPERATING ROOM CLEANLINESS: BUSTING THE DUST

Duane McOnie, Daphne Murray, Karen Strickland, Cindy Fulmore, Sean Feeney, Jason James

Capital Health, Halifax, Nova Scotia, Canada

Issue: Capital Health annually performs quality auditing, using the existing Infection Prevention and Control audit tools, from Infection Prevention and Control Canada. The audit process is conducted in collaboration with Environmental Services (ES). In June 2013, we discovered there were inconsistencies in the environmental cleaning and disinfection (ECD) practices, in our Operating Room settings. It was discovered there were different health care workers (housekeepers, patient attendants), performing the housekeeping tasks, and thus outcomes varied. Upon assessment of our findings, a multidisciplinary team was created to develop a plan of action. Members included: Director of Perioperative, Director of Managed Services, Health Services Managers (HSM) OR's, Infection Prevention and Control, Environmental services, Peri-operative Clinical Nurse Educators (CNE), Infection Control Practitioner (ICP). In addition, leadership of Environmental Services seconded a Housekeeping supervisor to work with the above team.

Project: The primary goal was to ensure all patients who receive care in the Perioperative setting all receive the same quality of environmental cleaning and disinfection regardless of medical service, or facility. This group had the vision, and experience to coordinate, collaborate, and deliver a program in which the components of best practice, quality assurance, and superior patient outcomes were delivered.

Results: Upon evaluation of the existing program, changes needed to be made for superior patient care. The working group decided there would be six components: Preceptorship, mentorship, online learning, evaluation of learning, auditing for compliance, and policy development. The workloads for the components were divided amongst the working group, and thus this project was completed from start to finish within 6 months.

Lessons Learned: Environmental Cleaning and Disinfection practices are now consistent throughout the district, ensuring that our patients receive world-leading care, which is based upon best practices.

POSTER BOARD #57

DETERMINING THE SCOPE OF ESBL'S IN PATIENT POPULATION AT WILLIAM OSLER HEALTH SYSTEM

Christine Robinson, Adenike Rowaiye, Rajni Pantelidis, Rachael Sawacki, Catherine Baker, Janine Domingos, Ellie Clarke, Kimberly Presta, Maria Hollands
 William Osler Health System, Brampton, Ontario, Canada

Background: Osler is an acute care hospital located in a culturally diverse community. The Infection Prevention and Control (IPAC) team noticed an increase in patients colonized with Extended Spectrum Beta Lactamase (ESBL). To determine the scope of ESBL's in Osler's patient population a comprehensive ESBL screening program was initiated.

Methods: A retrospective review was done from the fiscal year April 2012-March 2013 to determine travel and hospitalization history of all positive ESBLs. All patients registering with the hospital were screened for travel history and hospitalization within the last year. Patients, who were admitted to hospitals

outside Canada, traveled to countries identified as having Carbapenemase-Producing *Enterobacteriaceae* (CPE) and all patients admitted to critical care units were swabbed for ESBL on admission. This data was compiled and analyzed.

Results: There were 933 patients identified with antibiotic resistant organisms (ARO) (excluding methicillin resistant *Staphylococcus aureus* and vancomycin resistant *Enterococcus*) during April 2012- March 2013. Of those, 29% were either travelers or in hospitals outside Canada. The majority of those travelled to, or were hospitalized in India. CPE accounted for 2% of the total AROs, and the majority had spent time in hospitals while in India. ESBL *Escherichia coli* was the most commonly identified ARO, however, some patients had two or more organisms identified.

Conclusions: The majority of patients positive for ESBL and CPE were identified as visiting or being hospitalized in India. Further investigation is warranted to determine the usefulness of screening given the prevalence of ESBL in our community.

POSTER BOARD #59

UNIVERSAL BATHING WITH CHLORHEXIDINE GLUCONATE (CHG) ON A MEDICAL UNIT: AN INITIATIVE TO DECREASE METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) TRANSMISSION

Yvonne Richardson, Paul Ferner, Terri Benwell
 Middlesex Hospital Alliance, Strathroy, Ontario, Canada

Background: MRSA transmission on our 27 bed medical unit had increased over the past three years despite various initiatives including the practice of using 2% CHG impregnated cloths for bathing MRSA positive patients. To reduce the increasing transmission, a six-month trial of extending CHG bathing to all patients on the unit was initiated from May 2013 until October 2013.

Method: A trial date was set (posters circulated) and education for the staff on the daily use of the CHG cloths was initiated. Inventory of the traditional bathing materials being used was completed and minimal supplies left on the unit for those patients with CHG sensitivities. Compliance with CHG cloth use was tracked through supply distribution to the floor. Surveillance of nosocomial spread was monitored using criteria based on Ontario Provincial Infectious Disease Advisory Committee (PIDAC) best practice documents.

Results: Nosocomial spread of MRSA was decreased from 12 cases in the period from May to Oct 2012 to 3 cases in May to Oct. 2013- a reduction of 75%. Average bathing protocol compliance was 85%. Calculating the cost for MRSA transmission using treatment costs from PIDAC and factoring the cost of product, the return on the investment for the trial period was estimated at approximately \$59,000.

Conclusion: Expanding the use of 2% CHG impregnated cloths from bathing only MRSA positive patients to include all patients on the unit resulted in a significant reduction in the transmission of MRSA.

POSTER BOARD #61

AUTOMATED WHEELCHAIR WASHERS: ARE THEY EFFECTIVE FOR CLEANING/SANITIZING COMMODES? INVESTIGATION AND LESSONS LEARNED

Roberta McCombie¹, Linda Ward¹, Lorraine Harrison¹, Joanne Leavitt¹, John Conly^{1,2}, Thomas Louie^{1,2}

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Background: An automated wheelchair washer (AWW) was evaluated as potentially contributing to transmission of vancomycin-resistant *Enterococcus* (VRE) and *Clostridium difficile* (CD) on an acute care blood and marrow transplant-hematology-oncology ward.

Methods: Swabs of the AWW interior and washed commodes were cultured using standard methods. AWW efficacy was challenged pre/post-wash following manufacturer's instructions using ultraviolet (UV) reactive lotion with UV visualization and semi-quantitative stool seeding experiments. Stool seeded with 1.2x10⁶CFU/mL CD (NAP-1), 1.7x10⁷CFU/mL VRE (Harder) and 3.5x10⁸CFU/mL *E. coli* (ATCC25922) was applied to commode armrests, seat topsides and undersides. Microbial load reduction pre/post-wash was evaluated.

Results: The AWW was poorly maintained with internal scaling and soiling/debris. Washed commodes were visibly soiled. The interior, water, and washed commodes cultured positive for mixed microorganisms including *E. faecalis* and VRE. Post-challenge, UV-reactive lotion and stool remained on commode surfaces while seat undersides and armrests cultured positive for *E. coli* and VRE. CD was cultured from all seeded sites. The spray nozzle configuration was insufficient for commode contact and armrests retained heavy contamination. Carry-over of microorganisms between washes was demonstrated. Only two-step manual cleaning/disinfection was effective for removal of UV lotion, stool and seeded microorganisms applied to commodes.

Conclusions: The presence of microorganisms on washed commodes, suboptimal design, post-wash UV lotion and seeding challenge experiments suggest that the AWW is not effective at removing soiling and microorganisms from commodes

POSTER PRESENTATIONS

using manufacturer's instructions. Prior to purchase of AWWs, end users must carefully evaluate design, intended use and ensure mechanisms are in place for monitoring and maintenance.

POSTER BOARD #62

SHINING A LIGHT ON IMPLEMENTATION: A COLLABORATIVE APPROACH TO A SUCCESSFUL IMPLEMENTATION OF ULTRAVIOLET LIGHT TECHNOLOGY

Amanda Stagg, Janice Ward, Stephen Cook, Betty Best, Jeff Powis
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Issue: Hospital acquired infections (HAIs) contribute significantly to patient morbidity and mortality. A major factor in the prevention of HAIs is improvement to disinfection practices at healthcare facilities. Novel technologies, such as Ultraviolet light (UV), are exciting tools to improve hospital disinfection, yet the appropriate process for implementation is uncertain. We introduced UV technology at our hospital through a collaborative approach by Infection Prevention and Control (IPAC) and Environmental Services (EVS) facilitated by a Process Improvement Working Group (PIWG).

Project: A large urban community hospital introduced UV technology into its Intensive Care and Respiratory Unit as an additional step to the organization's multifaceted *Clostridium difficile* (*C.diff*) prevention program. The UV system was used for all single occupancy rooms, specifically targeting the discharge rooms of *C.diff* positive patients in an effort to decrease the bioburden of *C.diff* spores. A PIWG was developed to establish communication and served as a platform for discovery. Continuous reevaluation based on end-user feedback and surveys led to regular system improvements.

Results: The implementation of the UV technology was assessed over a number of intervals to control barriers and determine interventions. The interventions of the PIWG led to the matching of EVS resources to timing of hospital discharges, and a 33% ($p < 0.001$) reduction in the time required to disinfect a room with the UV device. The machine has been successfully integrated into both units as part of their cleaning practice and further deployment within the organization is scheduled.

Lessons learned: UV technology can be used to improve hospital disinfecting; the process for implementation requires fostering relationships between IPAC and EVS. The continuous reevaluation with PIWG end-users to explore barriers and develop interventions will allow for innovative solutions. Organizations seeking new and advanced standards in environmental disinfection should consider a collaborative approach to attain success during implementation of novel technologies.

POSTER BOARD #63

A COMPARISON OF THE NNIS AND COLA RISK INDICES FOR PREDICTING SURGICAL SITE INFECTION IN PATIENTS UNDERGOING GASTROINTESTINAL SURGERY

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Mount Sinai Hospital, Toronto, Canada

Background: The National Nosocomial Infections Surveillance (NNIS) risk index, has been criticized for use in colorectal surgery as it does not account for aspects of surgery at the site of greatest bacterial colonization in the human body. The COLA (contamination class, obesity, laparoscopic surgery, ASA score) risk index was developed for SSI risk after colorectal surgery. We asked which index would perform better in surveillance of SSIs at a Toronto teaching hospital, and if the COLA index also applies to patients undergoing small bowel surgery.

Methods: Patients undergoing small bowel, colon and/or rectal surgery between November 1, 2012 and January 31, 2013 were followed for 30 days for development of an SSI. A total of 189 patients were eligible for inclusion and SSIs were identified through a variety of means, including surgeon self-report and contact with patients after discharge.

Results: NNIS risk-adjusted SSI rates for all gastrointestinal (GI) procedures: 0 (9/57, 16%), 1 (18/74, 24%), 2 (18/57, 33%), 3 (1/1, 100%). NNIS risk-adjusted SSI rates for colorectal procedures: 0 (1/14, 7%), 1 (13/49, 27%), 2 (16/45, 36%), 3 (1/1, 100%). COLA risk-adjusted SSI rates for all GI procedures: 0 (1/15, 7%), 1 (14/67, 21%), 2 (18/67, 27%), 3 (4/15, 27%), 4 (1/1, 100%). COLA risk-adjusted SSI rates for colorectal procedures: 0 (1/12, 8%), 1 (8/33, 24%), 2 (14/45, 31%), 3 (1/8, 13%), 4 (1/1, 100%).

Conclusions: While the small sample size may have affected the outcome, the COLA index was not superior to the NNIS in predicting SSIs. At this time it is recommended that the latter continue to be the risk stratification method of choice for GI procedures at our facility.

POSTER BOARD #65

DEVELOPMENT OF INFECTION CONTROL POLICIES AND PROCEDURES FOR A NEW BRACHYTHERAPY PROGRAM IN CANCER CARE

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Issue: Brachytherapy involves the implantation of radiation sources directly into or around a malignant tumor. Its efficacy in treating localized prostate, uterine and cervical cancer has been established. Newer sites include breast, thyroid, lungs and head and neck cancers. High-dose radiation (HDR) brachytherapy treatment uses hollow needles to guide catheters into and around the tumors and allow delivery of radiation sources directly to the tissue. The use of the catheters and needles put patients at increased risk of infection.

Project: In collaboration with our provincial Sterile Processes Manager and Medical Microbiologist, Infection Control practitioners reviewed brachytherapy procedures involving needle and catheter insertion and removal, the reprocessing of re-usable equipment, and equipment manufactured in-house. Finally, an audit was developed and implemented for quality assurance purposes.

Results: New technologies, equipment and procedures provided an opportunity to re-evaluate current Infection Control Practices. Challenges to procedure implementation included costs of disposable needles, development of validated reprocessing instructions for locally manufactured devices, identification of patient risk factors and ensuring effective communication among the interdisciplinary team. Despite these challenges, specific strategies directed at preventing the transmission of pathogens in the unique setting of brachytherapy were successfully achieved through teamwork.

Lessons learned: Infection Control policies and practices and quality patient care may be impacted by restricted financial resources. However, adequate risk assessment can impact decisions to ensure the delivery of a safe, patient-centered program.

POSTER BOARD #67

PROVINCIAL INFECTION PREVENTION AND CONTROL RESOURCES FOR CONTINUING CARE

Christine Knaus, Maureen Kano, Karen Cargill, Betty Soanes, Linda Siminoski, Brenda Jenkins, Yvette Gable, Sara Gallinger, Nicole Henderson, Lori Pohl, Joy Scott, Heather MacLaurin, Janice Stoesz, Pamela Armstrong, Karen Hope, Sue Lafferty, Reta Wheeler
Alberta Health Services, Alberta, Canada

Issue: At the beginning of this project, Alberta Health Services (AHS) was responsible for supporting infection prevention and control (IPC) practice for 23,246 Continuing Care (CC) beds in the province. There was no provincial IPC resource manual for Alberta CC which resulted in disparity in infection control practices province wide. A common issue in CC facilities is finding the balance between resident safety and providing a "home-like" environment while understanding the psychosocial risks that may accompany isolation.

Project: AHS IPC program formed a working group of infection control professionals responsible for continuing care across Alberta. The guiding principle was to acknowledge a continuing care facility is the residents' home and any additional precautions must be balanced with quality of life. The resource manual focuses attention on routine practices emphasizing point-of-care risk assessments. It includes: a disease and condition table, information sheets, signs for additional precautions, Antibiotic Resistant Organism management guide and an overall emphasis on routine practices. A formal evaluation is planned at the six month and one year anniversary.

Results: The AHS IPC Continuing Care Resource Manual was launched in November 2013. Published on-line, it allows easy access by all CC sites. Early feedback has been positive. The practice change is expected to improve the use of routine practices and when to implement additional precautions in CC.

Lessons learned: Collaboration of Infection Control Practitioners, ensuring stakeholder involvement and a coordinated education plan was essential to the successful launch of this resource manual.

POSTER BOARD #69

PARADISE BY THE DASHBOARD SITE: A JOURNEY THROUGH THE DEVELOPMENT OF AN ELECTRONIC SURVEILLANCE SYSTEM

Nicki Gill, Andrea Neil, Janice DeHeer
Interior Health, British Columbia, Canada

Issue: The Interior Health (IH) Authority had no standardized Healthcare Associated Infection (HAI) surveillance system. An electronic surveillance program was purchased in 2006 and implemented in 22 acute sites. In 2010, the product was discontinued as the company was no longer providing support for the

program. With the support of the IH senior executive team, Infection Prevention and Control (IPAC) and Information Technology (IT) collaborated to build an 'in house' (Infection Control Dashboard) HAI surveillance system using an electronic application already hosted on the health authority computer platform.

Project: A review of national references and legislative mandates formed the basis for development of surveillance parameters. Process mapping was used to develop standardized HAI definitions and worksheets were created to determine if the case meets the definition criteria. Consistent data sources (microbiology results, admission/discharge information, surgical data) are obtained from the patient electronic medical record. Standardized report templates were developed for data dissemination.

Results: Reliable, valid data presented in a consistent format to stakeholders has been useful for implementing performance improvement processes to reduce HAI rates and improve patient outcomes in IH.

Lessons learned: The introduction of active, prospective, electronic HAI surveillance has allowed for identification of infection rate increases, recognition of adverse trends and assessment of performance improvement initiatives. Standardized HAI definitions prevent variability in surveillance techniques and ensure valid data is provided. IPAC quality initiatives are essential for decreasing HAIs and improving patient outcomes. It takes teamwork to build and maintain an efficient HAI electronic surveillance program.

POSTER BOARD #71

UNDERGRADUATE NURSING STUDENT SATISFACTION AND INTENT TO COMPLY WITH THE ONLINE INFECTION PREVENTION AND CONTROL EDUCATION ORIENTATION

Shaunattonie Hudson-Henry

University Health Network, Toronto, Ontario, Canada

Background: Nurses and nursing students are primarily among the frontline healthcare professionals, who provide continuous patient care in healthcare settings and are exposed to various potentially infectious body fluids as an occupational risk. Studies have indicated that healthcare organizations struggle with meeting the levels of infection prevention and control compliance that minimizes hospital-associated-infections and healthcare exposures. As such, studies have explored factors that prevent compliance with infection control practices and the majority of the recommendations identify lack of education/training as one of the primary underlying and enabling factors. The purpose of the quantitative study is to assess undergraduate nursing students' satisfaction and intent to comply with the current online infection prevention and control education at a major academic facility in the Toronto area.

Method: A voluntary convenience sample of 64 undergraduate nursing students, currently practicing in a large quaternary healthcare facility for the semester. An anonymous online tool was used to administer the inclusion criteria and the survey on a 6-point Likert Scale.

Results: Descriptive statistics were used to summarize the study results as levels of satisfaction with information provided on routine practice, additional precautions, and the training material/delivery methods used. Compliance intent was reported as levels of agreement to follow infection control summary and routine practices.

Conclusions: Respondents reported their levels of satisfaction and intent to comply with the infection control education information provided. Respondents provided feedback to assist improvement of the on-line learning material and experience. The findings also provide an opportunity to conduct further research into on-line education program development.

POSTER BOARD #73

URINARY CATHETER DRAINAGE BAG MANAGEMENT IN LONG TERM CARE

Susan McKinley¹, Melissa Jenkins², Patsy Rawding²

¹Shannex, New Brunswick, Canada, ²Shannex, Nova Scotia, Canada

Issue: Care of leg/night bags for urinary drainage catheters varies among long term care facilities (LTCF). Some facilities have implemented procedures similar to home care where the client cleans and reuses the drainage bag. Some facilities disconnect the leg bag directly from the catheter to change to a night drainage bag, others use different solutions to cleanse the bag. These procedures increase the risk of a urinary tract infection (UTI). A literature review was conducted finding no evidence supporting re-using or cleaning drainage bags. An environmental scan was unsuccessful in finding standards that scientifically support/validate best practices related to drainage bags in LTC settings.

Project: Develop a policy/procedure to maintain a closed drainage system for clients in LTC allowing clients to use a leg bag. Reviewed other LTC facilities in Canada and the United Kingdom. Implemented a closed system using sterile connection tubing between the leg bag and night bag. Leg/night bags are stored in a Ziploc bag and changed monthly or when the catheter is replaced.

Results: The procedure maintains a closed system allowing the client to use a leg

bag. It is being implemented in all Shannex facilities. A power point presentation and e-learning course was developed. Catheter associated UTI rates for Shannex are based on McGeer criteria for surveillance definitions in LTCF, ongoing surveillance will identify infections triggering a change in process.

Lessons learned: Creative solutions achieved a closed catheter system; additionally eliminating old practices of cleaning with vinegar/bleach (which are not evidence based) achieved a process that maintained our client's dignity and independence.

POSTER BOARD #75

TEACHING TRANSMISSION TO THE TROOPS

Catherine Harlton-Strezov, Charmaine D'Souza, Kornelija Delibasic, Michael Rotstein

Mackenzie Health, Richmond Hill, ON, Canada

Issue: Challenges exist when teaching front line staff the Chain of Transmission. These challenges include ensuring staff understand and apply the importance of hand hygiene, cleaning of shared equipment, use of signage, and routine practices at the appropriate care juncture. Staff are familiar with the chain of transmission, but this interactive tool facilitates connecting the link to the 'why' of infection prevention principles.

Project: Reviewing literature on the art of teaching reflects on the fact that adult learners comprehend the information when engaged in the learning task. A simple tool incorporating a poster board and a selection of images as an interactive piece was used for this project. The goal of this project was to engage staff through active participation to enhance communication of concepts and facilitate knowledge translation which then can be applied to their work environment. The Infection Control Practitioner acts as a facilitator for this activity where the healthcare worker (HCW) places a card on the poster board. In this safe and encouraging environment filled with positive feedback motivates others who may be hesitant to participate. Cards were added to include strategies to implement in order to break the chain of transmission to advance the learner's experience.

Results: Participants enjoyed the session and articulated understanding of the content in this method as opposed to a didactic format. HCWs became engaged in the exercise as a group through discussion of why a card placed on one link may or may not be better placed on another link.

Lessons learned: Connecting established 'basic' information with an active participation session proved to be a useful tool for education. Time is required to be allocated to allow for the participants to consider the scenario presented to them. Existing relationships with participants facilitated the development of a safe learning environment.

POSTER BOARD #77

SKIN ANTISEPTIC APPLICATION METHOD THAT MEETS HEALTH CANADA REQUIREMENTS FOR A PROFESSIONAL USE DRUG PRODUCT

Kathy McChie, Stephane Levesque

3M Canada, London, Canada

Background: According to the Health Canada Guidance Document, *Human-Use Antiseptic Drugs*, antiseptics used in healthcare facilities must meet rigorous efficacy standards to be designated *professional use* products. This enhanced rigor provides optimum protection for patients exposed to high-risk environments and organisms, and for whom the safety risk is highest. The objective of this study was to demonstrate that applying chlorhexidine antiseptics using a back and forth cross-hatch method meets Health Canada efficacy requirements for a professional use DIN and does not result in contamination of the treatment area.

Methods: Using ASTM E1173, manufacturer recommended application times and volume of antiseptic; 0.5% chlorhexidine gluconate/70% isopropyl alcohol, 2% chlorhexidine gluconate/70% isopropyl alcohol and 2% aqueous chlorhexidine gluconate solutions were applied to 20cm X 20cm areas on the abdomens of test subjects using repeated back and forth strokes. Samples were obtained at baseline and post application of the antiseptic and neutralizing agent from the centre, mid-way, and periphery of the treatment areas. Bacterial log₁₀ reductions from baseline were calculated.

Results: Mean bacterial log₁₀ reductions measured at each sampling site; centre, mid-way and periphery, met the Health Canada requirement (≥ 2 log₁₀ reduction) and were determined to be clinically equivalent throughout the treatment area.

Conclusions: Despite the lack of data to support efficacy, the traditional concentric circle method for applying skin antiseptics is still widely used. Required bacterial log₁₀ reductions were achieved with all three chlorhexidine solutions using repeated back and forth strokes that passed multiple times from the periphery over the centre of the test area while adhering to manufacturer recommended application time, volume and treatment area without any increase in bacterial counts at the centre. This method demonstrates efficacy of a non-traditional application method with no recontamination of the area prepped.

POSTER PRESENTATIONS

POSTER BOARD #79

50 SHADES OF SAFETY!

Chantal Bellerose, Cynthia Certosini, Silvana Perna, Jocelyne Pepin, Pearl Orenstein, Julie Valiquette, Lianne Dzygala, Markirit Armutlu
Jewish General Hospital, Montréal, QC, Canada

Issue: Healthcare requires vigilance towards the alignment of all patient safety initiatives and the encouragement of opportunities for education, evaluation, implementation and spread of best practices. At the Jewish General Hospital (JGH), we value collaborative efforts towards continuous quality improvement in the domain of infection prevention and control (IPAC). The Quality Program, team leaders, patient representatives and the IPAC team members worked collaboratively towards creating this innovative educational activity representing a real life mock room simulation.

Project: This unique initiative aims at reinforcing interdisciplinarity, teamwork & communication towards identifying, reporting and preventing high-risk situations. Teams identify as many breaches to safety they can within 10 minutes. It helps set the tone for increased accountability in a climate that helps to recognize their top safety risk areas for improvement, best practices reviews, allowing for innovations and successful implementations.

Results: During Patient Safety Week, 30 units were visited during the evening shifts. In addition, active participation of staff was encouraged during the day shift's JGH safety fair kiosk. Over 500 professionals, staff and physicians participated and positively evaluated this activity. Competition amongst team members and between teams added to a sense of pride in identifying high-risk situations and shared accountability towards success of patient safety initiatives implemented and their outcomes. Teams were encouraged to evaluate: What are they doing well? What can they do better?

Lessons learned: Most teams were able to spot over 80% of preventable errors and high-risk situations. Interdisciplinary participation in this activity increased the variety of risks identified. This exercise fosters a speaking-up & listening-up climate when complex situations and breaches arise, leading to better outcomes. Teams reflected on their safety culture: top 10 risks and the many aligned initiatives they are involved in. This activity further highlights the importance of involving patients and families as partners in safety improvements.

POSTER BOARD #81

EFFECTS OF USING SIMULATION ON STAFF HAND HYGIENE EDUCATION

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Background: Staff hand hygiene education is multi-modal (i.e., lecture, demonstration, and e-learning). The challenge is to find the right blend of learning mode(s), meeting staff needs while increasing and sustaining compliance. A long-term care facility and an academic institution collaborated to explore the effects of two low-cost hand hygiene simulations on staff education. Audits explored the effects of the simulation education on staff hand hygiene compliance.

Methods: Recruited from a population of N = 248, a convenience sample of regulated and unregulated care providers were randomized to one of three project arms: No intervention, Group A (n = 16); Group B (n = 20) rubbed their hands with fluorescent powder, performed hand hygiene, assessed their hands for powder residue under ultraviolet light, and received no feedback. Group C (n = 13) watched a hand hygiene video, rubbed their hands with fluorescent powder, performed hand hygiene, touched 3 objects, and assessed their hands and the objects for powder residue under ultraviolet light. The feedback mechanism was repeating hand hygiene and visualizing their hands for powder residue under ultraviolet light. Planned were two post-intervention hand hygiene compliance audits.

Results: Kruskal-Wallis test shows no statistical significance in percent compliance between the 3 groups (p = 0.86). Comparing the groups 2 by 2 using the Wilcoxon Rank Sum Test shows no statistical significance: A and B (p = 0.72), A and C (p = 0.86); B and C (p = 0.63). Logistic regression indicates that unregulated workers were 5.13 times more likely to show high compliance than regulated workers (95% CI = 0.39, 66.7, p = 0.41).

Conclusions: Small sample size led to inconclusive results, though compliance trends are noted. This study should be repeated with a larger population to determine the effects of simulation on initial and on-going staff hand hygiene education.

POSTER BOARD #83

POSITIVE FEEDBACK FOR POSITIVE DEVIANCE: EDUCATIONAL INTERVENTION IN A LARGE EMERGENCY DEPARTMENT TRIAGE

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Issue: In spring 2013, the emergency department (ED) at Foothills Medical Center in Calgary, Alberta switched their electronic health record system. The new system includes questions regarding influenza like illness (ILI) that are to be asked of the patient at triage. Depending on the patient's response, a message may appear that instructs the triage nurse to isolate the patient and give them a mask.

Project: Infection prevention and control decided to monitor the adherence to the triage protocol and recognize the nurses that appropriately triaged patients with ILI. Recognition accomplished by emailing the nurse and the nursing manager. The email thanks the nurse for appropriately triaging the patient and explains why this is important. The goal of this intervention is to improve adherence to triage protocol and hopefully reduce the transmission of respiratory viruses within the ED. Nurses that do not appropriately triage a patient are not contacted; this intervention focuses solely on rewarding positive deviant behaviour. To evaluate this intervention, all nurses (n=28) that received a recognition have been sent a short survey. The survey queries the nurse about whether receiving the recognition email made them more aware of the importance of appropriately triaging ILI patients and whether they believe the emails made them appropriately triage ILI patients more often.

Results: Ongoing qualitative feedback from nursing staff and nursing management is that this intervention has been successful. Staff appreciate being recognized for positive actions rather than negative. A short survey has been sent to the nursing to evaluate the intervention which will be available in the coming weeks.

Lessons learned: The intervention was built into existing daily activities of an infection control professional and therefore did not substantially increase the workload. Depending on the results, this may be a worthwhile activity for other hospitals to undertake.

POSTER BOARD #85

CREATING A 'TEMPORARY' MEDICAL SHORT-STAY UNIT (MSSU): INFECTION PREVENTION & CONTROL (IP&C) CHALLENGES

Bronwen Edgar, Sandra Callery, Mary Vearncombe
Sunnybrook Health Sciences Centre, Toronto, ON, Canada

Issue: Sunnybrook Health Sciences Centre is challenged with occupancy levels greater than 100%. The 'Drive to 95' was instituted in 2010/11 to manage increasing Emergency Department (ED) volumes, wait times and ensure timely inpatient discharges from hospital. As part of the strategy, a temporary MSSU was established.

Project: An 11-bed MSSU (length of stay < 72 hours) was created in an outpatient physiotherapy space, presenting several challenges to integration of IP&C best practices.

Results: The unit opened in July 2011. There have been a total of 2692 admissions since opening to end of December 2013; 91% of which were admitted from ED and the remainder direct admits. In 2013 the monthly average admissions was 86; an average of 22 (26%) of admissions were patients on Additional Precautions (AP). The average length of stay for 2013 was 3.2 days. A number of IP&C recommendations were adopted in the unit including: exclusion criteria for admissions (medical and IP&C), washable portable folding walls between beds, macerator waste disposal system and point-of-care mounted hand hygiene product. IP&C exclusion criteria include: patients with active diarrheal illness or enteric infection, patients requiring Airborne Precautions. Other restrictions/limitations include: number of patients requiring AP and their placement within the unit and restrictions for some antibiotic resistant organisms (ARO). To date there have been 3 nosocomial ARO cases, 2 nosocomial *Clostridium difficile* cases and a norovirus outbreak attributed to the unit.

Lessons learned: 'Temporary' can last a long time! The unit has been functioning moderately well since initiation and has managed patients on AP safely. Rates of ARO transmission have been low; there has been one outbreak. The design and implementation of IP&C recommendations could be applied to other scenarios such as emergency planning or temporary displacement of patients during construction/renovation.

POSTER BOARD #87

FECES AND COFFEE DON'T GO TOGETHER! ENFORCING THE OCCUPATIONAL HEALTH AND SAFETY ACT OF ONTARIO REG. 67/93, S.32: A COLLABORATIVE APPROACH

Bronwen Edgar, Natasha Salt, Sandra Callery, Mary Vearncombe
Sunnybrook Health Sciences Centre, Toronto, Canada

Issue: Several Ontario hospitals have recently been cited and/or fined by the Ontario Ministry of Labour for having food and drink in clinical workspaces. This has heightened awareness of the Regulation which states that "No food, drink, tobacco or cosmetics shall be consumed, applied or kept in areas where infectious materials, hazardous chemicals or hazardous drugs are used, handled or stored" (O. Reg 67/93, S. 32). A literature review identified outbreaks associated with eating/drinking in patient care areas. Sunnybrook Health Sciences Centre is a 1212 bed tertiary care centre and prohibiting eating/drinking in clinical areas has been challenging.

Project: A policy was developed collaboratively with Occupational Health (OH), Human Resources and Infection Prevention and Control (IP&C) to outline safe practices for eating and drinking in the workplace. The policy addresses 1) the requirement to identify safe areas for eating and drinking 2) disposal of food/drink in prohibited areas and 3) hand hygiene accessibility in the safe zone. A checklist for evaluation of areas was developed. Clear signage was created to designate areas where food and drink are permitted.

Results: An e-notice has been distributed to all hospital employees outlining the process for enforcement of the Regulation. Clinical Managers and Directors have received the checklist and are performing walkabouts of their areas in collaboration with IP&C and OH to identify spaces for safe eating and drinking. It is expected that all clinical spaces will be assessed and signage posted.

Lessons learned: Old habits die hard. It is difficult to change behaviours of staff and there has been resistance from all disciplines. IP&C continues to remind staff that this Regulation is in place to ensure their safety. To ensure buy-in and compliance, onus has been placed on the clinical units to determine their safe eating and drinking areas.

POSTER BOARD #89

DEVELOPMENT OF AN OR CHECKLIST FOR THE PREVENTION OF IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS/PACEMAKERS SURGICAL SITE INFECTION

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Issue: In June 2011, an Electro-Physiology (EP) cardiologist from the Foothills Medical Center (FMC), a tertiary care center of over 1000 beds, approached Infection Prevention and Control (IPC) to investigate a perceived increase in surgical site infections (SSI) related to implantable cardioverter-defibrillators (ICD) and pacemakers (PPM). A retrospective review of the SSI cases and a detailed process review followed.

Project: A one-year review of SSI cases was undertaken in collaboration with IPC and the Cardiac Device Clinic staff. A process review of pre-, intra- and post-operative procedures was initiated focusing primarily on practices. The findings and recommendations were presented at an interdisciplinary Cardiology Rounds. Collaborative efforts between IPC, operating room staff/educators/nurse clinicians, cardiac device clinic staff and EP cardiologists resulted in the development of an OR checklist modelled after the successful OR Checklist from World Health Organization (WHO).

Results: During the period of 01/10/2011 to 30/09/2013, 1308 procedures were performed at FMC and 13 cases (rate: 1.0%) were identified with an SSI (based on the CDC criteria). The process review revealed a lack of standardized protocol for antibiotic prophylaxis (timing, dosage), skin antisepsis (application), cleaning and disinfection of electronic equipment and post-op wound care. Poor compliance with theatre discipline (e.g. PPE, hand hygiene, traffic control) was also noted. Following this review, IPC recommendations were given and an intra-operative OR Checklist was formulated. IPC surveillance is ongoing.

Lessons learned: The process review was very valuable and led to the identification of gaps not only in surgery but also in all clinics servicing the ICD/PPM patients. The review has increased awareness amongst staff to review practices in their own clinical setting as well as stimulating the development of an ICD/PPM OR Checklist specific to their discipline.

POSTER BOARD #91

MEETING THE DEMANDS OF QUALITY IMPROVEMENT: PREPARATIONS FOR A SUCCESSFUL SURGICAL SITE INFECTION SURVEILLANCE PROGRAM

Maja McGuire, Sandra Callery
Sunnybrook Health Sciences Centre, Toronto Ontario, Canada

Issue: A push to increase quality improvement initiatives in our facility has led to the development of a new surgical site infection (SSI) surveillance program for laminectomy surgery. To facilitate buy-in from the two surgical specialties (orthopaedic and neuro surgery) that perform this surgery a number of things were done in preparation for our first face-to-face meeting.

Project: Infection Prevention and Control (IP&C) collected crude infection data post laminectomy surgery from April 1, 2013 to March 31, 2014. The data collected consisted of total number of laminectomies performed by each service, number of «potential» surgical site infections per service, patient demographics and criteria from the primary surgery. Patient cases with a possible SSI were identified through active surveillance of microbiology culture results and patient readmissions for one year post laminectomy surgery. SSIs were classified based on nationally recognized case definitions.

Results: If our overall goal of this surveillance initiative was to reduce SSI's we had to first determine baseline rates of SSI's in this surgical population. From April 1, 2013 until Feb 1, 2014 there were 247 laminectomies performed and 11 potential SSIs identified by IP&C. Over time we will be able to identify both clusters of infection and issues/interventions that may increase rates above the baseline. Breakdown of the two different surgical patient populations showed comparable length of surgery, age of patient and American Society of Anesthesiologists (ASA) Score. Challenges will be minimal loss of patients to follow up.

Next steps: Preliminary data will be presented to a multi-disciplinary group to outline the following: 1. Review SSI case definition and potential SSI's identified. 2. Identify risk factors for infection (i.e., use of instrumentation, antibiotic timing). 3. Determine an acceptable method of post-discharge surveillance. 4. Create a working group where future discussions can be made.

POSTER BOARD #93

EVALUATION OF A NEW C.DIFFICILE INFECTION CASE ADJUDICATION CRITERIA: EXCLUSION OF COLONIZATION IN HOSPITAL ADMITTED PATIENTS WITH POSITIVE PCR RESULTS

Nalini Agnihotri, Neil Rau, Thomas Warren
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Objective: Prospective Evaluation of simple clinical criteria to distinguish colonized from infected *C.difficile* PCR-positive hospitalized patients.

Methods: Criteria were developed using a literature review and a review of suspected colonization cases observed from January 2012 to June 2012. *Clostridium difficile* colonization was provisionally considered to be present if two of the following three criteria were met: 1. Normal WBC. 2. Less than three loose bowel movements in 24-hour period. 3. Recent laxative use (48 hours prior to stool sample being obtained). Criteria were then applied to positive cases from July 2012 to September 2013. Provisionally colonized patients were monitored for a change in symptoms within one month of the positive PCR result.

Results: Out of 2072 stool specimens submitted to laboratory during the study period, 173 (8.4%) were tested positive by PCR. Of these 31 (17.9 %) met the criteria for colonization and 142 (82.1%) were considered infections. Symptoms resolved between 0 to 5 days (mean 1.2 days) in colonized cases. Only two provisionally colonized cases out of 31(6.5%) were later developed infection. One had persistent diarrhea, while the other was readmitted with worsening of diarrhea. For rest of the colonized patients 29/31, the criteria used remain true as they did not develop clinical infection for the duration of hospital stay or on readmission within one month following adjudication.

Conclusion: This criteria correctly distinguishes *C.difficile* infection from colonization with 93.5% accuracy in this patient population and can serve as a good indicator to distinguish between colonization and infection when PCR test is positive.

POSTER BOARD #95

THE "AGENT MULTIPLICATEUR": A LINK TO BRINGING DOWN THE BARRIERS OF INFECTION PREVENTION AND CONTROL (IPAC)

Fernanda Cordeiro¹, Silvana Perna¹, Yves Longtin^{1,2}, Bobby Paré¹, Chantal Bellerose¹, Debby Ben-David¹, Pearl Orenstein¹, Anne Desmarais¹, Lara Maalouf¹
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Issue: In Quebec, the recent creation of an IPAC nursing specialty confirms the important role of nurses in this area. IPAC is a field that requires continuous efforts

POSTER PRESENTATIONS

at all times by all participants to decrease healthcare associated infections. Even the most effective IPAC program cannot replace “back to basics” prevention measures that should be practiced by all healthcare workers. A multidisciplinary committee consisting of over fifty “Agent Multiplicateurs (AM)” or champions was created at a McGill affiliated hospital to collaborate with IPAC in promoting a culture of patient safety to prevent infections.

Project: The program, a first of this magnitude in Canada, focuses on two key themes: promoting safe practice and ensuring safe patient environment. A year-long detailed action plan with three learning modules based on the theme of “IPAC back to basics:” hand hygiene, equipment cleaning and routine practices and additional precautions (AP) was created. Launched in March 2013, bimonthly courses, including one full day practicum are provided. Learning strategies include lectures, videos, handouts, toolkits, etc. Objectives, outcome and process measures, actions and evaluations are documented using an improvement charter.

Results: Ongoing commitment of the AMs is demonstrated by regular attendance at meetings. AMs developed effective signage for AP, initiated several audits, education sessions and hand hygiene promotion with their coworkers. They gained increased visibility and reported feelings of empowerment, increased awareness and heightened knowledge. Some take ownership and feel confident in responding to their coworkers about IPAC related issues. Most importantly, the IPAC nurses created a team of allies throughout the hospital.

Lesson learned: Administrative support and buy-in from affected stakeholders are critical in launching a program of this magnitude. Key elements for success include experienced and knowledgeable IPAC nurses familiar with the institution’s culture, perseverance, structure and preparedness. Social marketing skills are essential to mobilize and engage AMs to influence change.

POSTER BOARD #96

MAKING ROUTINE PRACTICES “ROUTINE”

Sonja Cobham, Sandra Callery, Mary Vearncombe, MD, FRCPC
 Sunnybrook Health Sciences Centre, Toronto, Ontario Canada

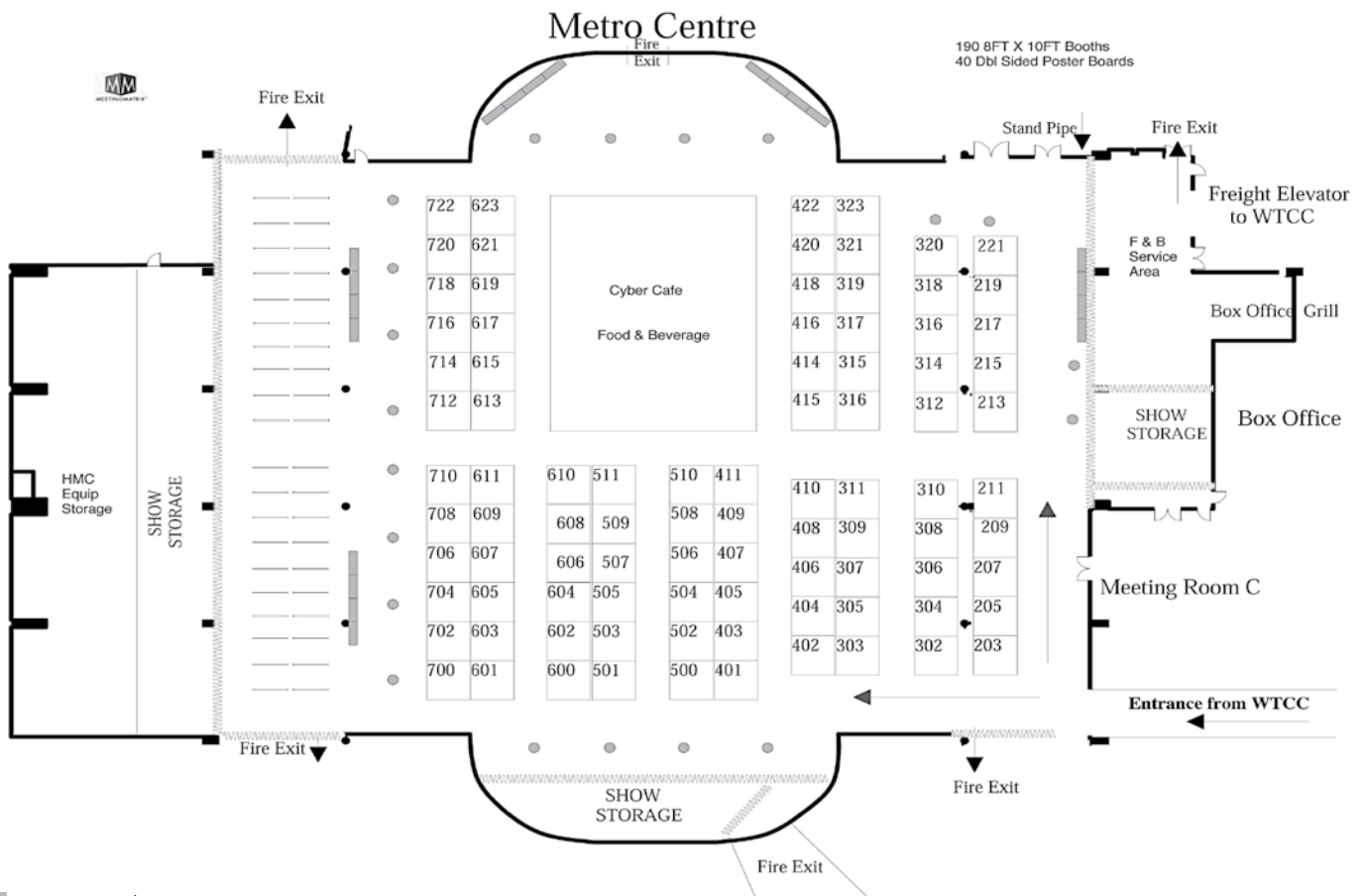
Issue: St. John’s Rehab (SJR) is a 154-bed rehabilitation hospital serving 2,500 inpatients annually. It has a comprehensive outpatient program that sees more than 50,000 visits per year. Patients are referred to SJR from multiple hospitals with varying screening and management practices for Antibiotic Resistant Organisms (ARO). A patient’s ARO status may not be known until after admission. The majority of patient rooms are multi-bed rooms. Other contributing factors to ARO transmission include multiple bed transfers within units, communal equipment, and group activities such as physiotherapy sessions. An outbreak of VRE on an inpatient unit prompted a review of compliance with Routine Practices and environmental cleaning protocols.

Project: As part of the outbreak measures, enhanced cleaning protocols were implemented. Infection Prevention and Control (IP&C) and Environmental Services (ES) conducted a review of environmental cleaning practices. Staff received education on environmental cleaning, and Routine Practices with emphasis on chain of infection transmission, core competencies, cleaning of communal equipment and hand hygiene. A cleaning protocol chart was provided to ES staff as a reference tool. Fluorescent markers were used in conjunction with observational audits to assess the quality of patient room cleaning practices. Feedback was provided to ES staff at the time of the audit.

Results: The audits using the fluorescent markers identified 20% of the surfaces and equipment were not cleaned to standard. ES supervisor and ES staff reviewed marker results and failed rooms were re-cleaned prior to reopening. No new cases of VRE were identified after introduction of the outbreak management measures and enhanced cleaning protocols.

Lessons learned: Staff found that interactive educational sessions using the fluorescent markers reinforced knowledge and provided rationale for practices and protocols. ES staff expressed an increased pride in their work.

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Module 3: Hand Hygiene and Personal Protective Equipment explains when and how hand hygiene should be done. The module also describes how best to protect yourself and the patients in your care by using Personal Protective Equipment appropriately.



Module 4: Environmental Controls describes these elements and reviews strategies to reduce healthcare associated infections that are related to cleaning equipment, environmental cleaning, waste management, Sharps Safety and more.



Module 5: Source Control & Education describes the components of Source Control and explains how strategies improve patient flow, manage visitors and promote respiratory hygiene/cough etiquette that will help reduce healthcare associated infections.



Module 6: Routine Practices Applications How does the application of Routine Practices vary according to the nature, scope and duration of contact with patients? While the principles remain the same, healthcare workers with "high", "medium" and "low" patient contact will find that some elements are more applicable than others in their daily work.



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Getting a Hand on Nosocomial Infections

STATE OF STATE



NIs are the **fourth** leading cause of death in Canada¹

More than **200,000** Canadians acquire NIs each year, resulting in **8,000 – 12,000** deaths²

40% occur in Ontario

28% of Ontario health care workers did not comply with hand hygiene practices in 2012³

Hand hygiene compliance before patient contact in Alberta Health Services was **47%** in 2012⁴

An increase in adherence to hand hygiene by only 20% has been shown to reduce the rate of NIs by **40%**⁶

CRITICAL AREAS

Two cornerstones to infection control and nosocomial infections (NIs) are hand hygiene and environmental surface cleaning. Due to the nature of their jobs, health care workers frequently wash their hands throughout the day and many end up suffering from dry and irritated hands. This painful irritation contributes to decreased compliance with hand hygiene policies.⁷ Dry, damaged skin can spread bacteria more easily because it flakes off, taking bacteria with it.⁸ To alleviate this irritation, health care workers should practice patting hands dry rather than rubbing as well as using soft and absorbent paper towels, such as Canadian company, Kruger Products', superior Embassy Supreme Thru-Air Dried paper towel.

In terms of environmental cleaning, several new technologies promise to eliminate antibiotic-resistant bacteria using ultraviolet light or hydrogen-peroxide vapour, yet these expensive technologies overshadow one integral solution to antibiotic resistant bacteria – hospital cleaning staff.

IMPACTING THE BOTTOM LINE

Cleaning staff is the front-line against antibiotic-resistant bacteria, but health care budgets grow consistently tighter while demands on cleaning staff continue to mount. To support cleaning procedures, institutions should ensure cleaning staff – whether outsourced or internal – are using quality cleaning products, which contribute to reducing health care costs by minimizing the length of hospital stays, morbidity and mortality associated with avoidable NIs.⁹

In tandem with cost control, risk management needs to consider reputational issues and patient concerns of NIs. In 2013, Joseph Brant Hospital in Burlington, Ontario paid a \$9 million settlement in a class action lawsuit after the 2006/2007 *C. difficile* infection outbreak, often cited as the worst such outbreak in Ontario, during which more than 200 patients were infected with

the bacterium and 91 died. While this is a severe consequence, outbreaks may deter patients from using certain hospitals, and create challenges in attracting and retaining leading health care professionals.

VIABLE SOLUTIONS

Health care institutions can't be expected to win this fight alone. Working with experienced partners like Kruger Products that understand the unique challenges health care institutions face will support your initiatives to improve hand hygiene and NI prevention.

Hands can be the route of transmission for dangerous pathogens³

80% of hospital staff who dressed wounds infected with MRSA carried the organism on their hands for up to three hours

60% of hospital staff, within 30 minutes of contact with patients with *Clostridium difficile* infection, were contaminated without even having touched the patient, from merely returning drug charts to the ends of beds

To learn more about how Kruger Products can help enhance your facility's infection prevention and control plans, visit www.krugerproducts.com/afh or call 1-800-665-5610.

1 Improving Hand Hygiene Among Health-Care Professionals. The College of Physicians and Surgeons of Ontario; 2009 July [cited 2014 Mar 11]. Available from: <http://www.cpso.on.ca>
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EXHIBITORS

2015 IPAC Canada Conference, Victoria Booth 320

Co-hosted by IPAC Canada members on Vancouver Island and IPAC British Columbia, the 2015 national Education Conference will be held at the Victoria Conference Centre-Fairmont Empress (June 14-17, 2015). For information on the 2015 conference, contact IPAC Canada at 1-866-999-7111 or info@ipac-canada.org

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AMG Medical Booth 422

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*Safer Healthcare Now! Campaign, Prevent Ventilator Associated Pneumonia: Getting Started Kit, p. 6, June 2012.



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Canadian Association of Medical Device Reprocessing Table near 211

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www.camdr.ca
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Canadian Journal of Infection Control Table near 712

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CardioMed Booth 604

Certification Board of Infection Control & Epidemiology Booth 213

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References: 1. QFT Package Insert, March 2013, US05990301L; 2. Diel, R., et al. (2011) Am. J. Respir. Crit. Care Med. **183**, 88. 3. Harada, N., et al. (2008) J. Infect. **56**, 348; 4. Diel, R., et al. (2008) Am. J. Respir. Crit. Care Med. **177**, 1164.

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³ Compared to the STERRAD 100NX.

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Clinical Editor appointed



The Board of Directors of IPAC Canada is pleased to announce the appointment of Chingiz Amirov, MPH, CIC to the position of Clinical Editor of the *Canadian Journal of Infection Control*. Officially taking office on September 1, 2014, Chingiz will work with Pat Piaskowski, the current Clinical Editor, in preparation for the

publication of the spring and summer 2014 journals.

Chingiz is Director of Infection Prevention and Control at Baycrest Health Sciences in Toronto. He holds a degree in Preventive Medicine from his home country of Azerbaijan and a Master's degree in Public Health from Emory University in Atlanta, Georgia. His past appointments include a Medical

Officer position at the International Committee of the Red Cross (Geneva-based humanitarian agency), Guest-Researcher at the Centers for Disease Control and Prevention in Atlanta, and Research Coordinator at the Emory University School of Medicine. He has had a dynamic and progressive 15-year career with outstanding performance and innovative experience in research, prevention, and control of infectious diseases and healthcare-associated infections.

Chingiz's strong analytical and research aptitudes with a solid academic background and hands-on experience in infection prevention and control and hospital epidemiology will be assets to him in his newest role.

He is a member of IPAC GTA (Greater Toronto Area) chapter and represents Long Term Care on the 2015 Scientific Program Committee. ✳

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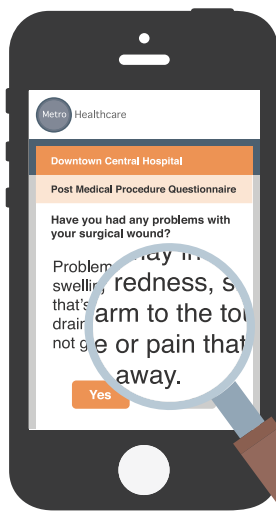


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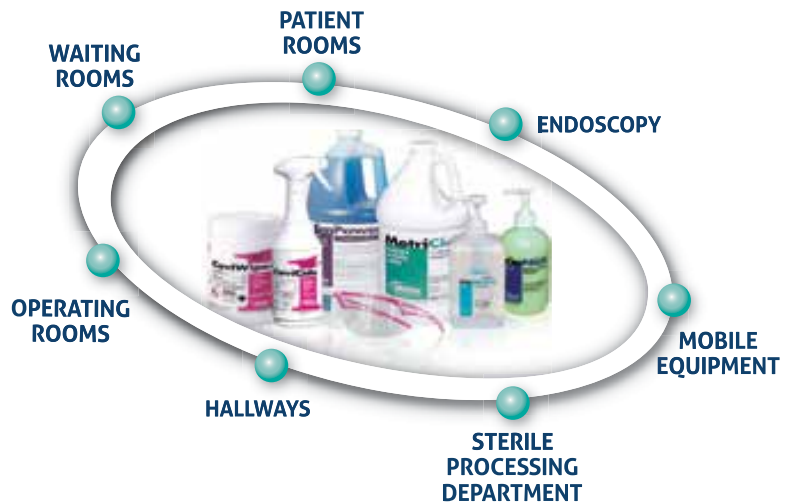


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AN-2014-02-0015

SLATE OF CANDIDATES FOR ELECTION TO THE IPAC CANADA BOARD OF DIRECTORS

The Nominating Committee of the Board of Directors of IPAC Canada is charged with the responsibility of ensuring continuity by nominating a slate of directors for positions open in 2014 (Policy 12.10). Additionally, nominations for board positions are welcomed from members of IPAC Canada. Serving on the board of IPAC Canada is an excellent way to participate at the national level. This offers the opportunity to meet a wide range of IPAC Canada members, network with allied professional groups, and work with other motivated and experienced board members.

Because of changes to election laws as prescribed in the current by-laws, the procedure for election of directors and officers has changed. Please also note that, because of bylaw changes to terms of office, the current president will hold office until the 2015 AGM and the current president-elect will become president at the 2015 AGM. The election for a president-elect will take place every two years, starting in 2015.

Timelines for election of officers and directors:

- December 16, 2013: Announcement of the Nominating Committee slate of directors.
- February 14, 2014: Deadline for additional nominations from membership.
- February 28, 2014: Announcement of final slate of candidates for election at 2014 AGM.
- May 28, 2014: Elections to be held at the Annual General Membership Meeting, Halifax.
- May 28, 2014: Newly elected board orientation, Halifax.

There being no additional nominations as of the deadline date of February 14, 2014, the Nominating Committee of the board of directors of Infection Prevention and Control Canada (IPAC Canada) has put forth the following candidates for positions open as of May 28, 2014. Additional nominations from the membership of IPAC Canada will be accepted at the Annual General Meeting (May 28, 2014). Position descriptions (Section 2 Board of Directors, Policy) may be obtained from the Membership Services Office (info@ipac-canada.org).

- Secretary (three-year term): Marilyn Weinmaster, RN, BScN, CIC; Regina, SK
- Director (Education background) (three-year term): Barbara Catt, RN, BScN, MEd, CIC; Toronto, ON
- Director (Experienced ICP) (three-year term): Ramona Rodrigues, RN, BSc, MSc(A), CIC, CNS; Montréal, Québec

CANDIDATE PROFILES



MARILYN WEINMASTER, RN, BScN, CIC is a Regional Long Term Care Infection Prevention and Control Professional (ICP) in the Regina Qu'Appelle Health Region. During her career, she has been a staff nurse, care coordinator, a manager in long term care and rehabilitation (adult and paediatric) and an ICP in long term care, complex care and rehab. She has been an ICP for 10 years. As an IPAC Canada member, she has chaired the Membership Core Committee, and was chair of the Long Term Care Interest Group. She has represented long term care on the 2011 and 2012 Scientific Program Committees, participated on the Routine Practices E-Learning Modules Working Group for development and review of the e-learning tool, and has participated as a pilot test site for RPAP tools. She is a member of the Competencies Review for Healthcare Workers Review Committee. Marilyn was president of IPAC SASKPIC for three terms and has chaired the chapter's annual education planning committee. Marilyn held the position of IPAC Canada Secretary/Membership Director for one term and is seeking re-election as secretary of the board.

Philosophy: *The past three years I had the privilege of serving on the board as the Secretary/Membership Director. My rationale for why I chose to let my name stand for a second term is the same today as it was in 2010. Through IPAC Canada I have built relationships with members from a variety of disciplines and settings. Their passion, dedication and knowledge in promoting infection prevention and control in a challenging and dynamic health care system has strengthened my desire to serve a second term. While the membership director position has been eliminated, I look forward to serving on the board as secretary. I am committed to supporting the board as it transitions to a policy board and move the organization and its members forward.*



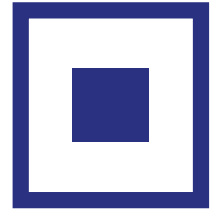
BARBARA CATT, RN, BScN, CIC, MEd has worked in the field of infection prevention and control for many years. Her work experiences include emergency room, operating room, ICU, medical-surgical, long-term care, and professor of nursing at college and university levels. She has worked in a variety of healthcare settings including public health, small community hospital and large tertiary healthcare centre. Barbara is a registered nurse and holds a

Master in Education where her research was focused on principles of adult learners. She has been involved in research and publications regarding disease transmission and education such as core competencies. Currently Barbara is the coordinator of the IPAC Canada Endorsed Infection Control Course offered at Centennial College and is a lecturer for the Prevention of Catheter-Related Blood Stream Infections, Adult Education and Ambulatory Care Settings modules. In 2008, she developed an Infection Control Course for Estheticians at Centennial College and continues to be the

Continued on page 79



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lecturer. She has been working at Sunnybrook Health Sciences Centre in Toronto since 2003 as an Infection Prevention and Control Coordinator, Professional Practice Leader. She played a major role in curriculum development and implementation of core competency certification and hand hygiene initiatives. She continues to be an active member in IPAC Canada, APIC, CNO, and RNAO. She is a past member of the IPAC Canada Standards and Guidelines Committee, HealthPro Clinical Advisory Committee and past president for IPAC Greater Toronto Area (GTA), formerly CHICA TPIC. She is the current chair of the IPAC Canada Education Core Committee and an active participant on the IPAC Canada Prehospital Care Interest Group. In 2013, Barbara was appointed interim director by the board of IPAC Canada to fill the position vacated by Donna Moralejo as of December 31, 2013.

Philosophy: *I think of a quote by Robert E. Lee who once stated: "The education of man is never completed until he dies," which supports my belief that we are all lifelong learners. As an educator and as a professional in infection prevention and control (IP&C), teaching and learning becomes a daily part of our roles and responsibilities. Educators need to think outside of the box and be flexible! Evaluate what has worked in the past which may not work in today's situations. Times have changed and it is with these day-to-day challenges and opportunities to which we need to capitalize on in order to be successful in change. The change comes not only with knowledge and understanding but also from our passion. The bar needs to be raised and our expectations need to be higher!*



RAMONA RODRIGUES, RN, BSc, MSc(A), CIC, CNS is manager for the Infection Prevention and Control Service of the McGill University Health Centre (MUHC) in Montreal, Quebec. She manages a team of nine infection control professionals and three support staff for four adult sites: the Montreal General, the Royal Victoria, the Montreal Neurological Institute and the Chest Hospital in Montreal. Ramona has been a strong supporter for ensuring the minimum number of resources to practice infection prevention and control. She was a member of the Canadian Infection Prevention and Control Alliance group in 1997 and 1998 that

published ratios for the number of professionals per acute care beds. In Quebec, as a member of the Comité sur les infections nosocomiales du Québec, she supported the regulation to enforce Health Care Facilities to support the ratios. In addition, she worked collaboratively with colleagues in Quebec to have the specialization recognised by the l'Office des professions du Québec as a clinical nurse specialist in infection prevention and control. Ramona is an active member of several provincial expert committees. She is an expert consultant for the Comité sur les infections nosocomiales du Québec (CINQ), an advisory committee to the Ministry of Health of Quebec; a member of Surveillance provinciale des infections nosocomiales (SPIN); a consultant to the Quebec Provincial Committee on Environmental Hygiene and an active member of several regional infection control working groups. Ramona has been a speaker at several conferences, posted abstracts and taught infection control to varied professionals. In 2011, she was asked to review the infection control program at the Chest Diseases Hospital (CDH) in Kuwait City, Kuwait, United Arab Emirates.

Philosophy: *It gives me pleasure working for organizations that recognize and promote best practice in the field that is dear to me. Advancing this passion nationally and internationally is what IPAC Canada supports. Being leaders in the field, pursuing values of professional integrity, critical thinking, accessibility, responsiveness, innovation, diversity, advocacy, and excellence in all of its activities are value statements in keeping with my personnel career achievements. I have had the opportunity throughout my career locally, nationally and internationally to promote excellence and best practice through development of standards, development and recognition of educational programs for infection prevention and control professionals including front line staff, advocating for recognition of the expertise in the field and promoting consumer awareness for infection prevention and control. I feel that I can help IPAC Canada to continue its legacy of being innovative, responsive and supportive to the memberships' needs and in building a credible organization that is recognized worldwide. Empowering and facilitating the membership with assets to help challenge processes, stakeholders and consumers in the pursuit for best wellness and safety practice in infection prevention and control is far-reaching. I trust it is my raison d'être to contribute in making that difference. **

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Congratulations to the following May-October 2013 graduates.

New

Linda Borycheski, MLT, CIC..... Niagara Falls, ON
 Steven L. Chan, CIC..... Lethbridge, AB
 Susan L. Day, BSc, RN, CIC..... Cavan, ON
 Carolyn J. Doroshuk, RN, CIC Edmonton, AB
 Debora Giese, RN, CIC, B.Sc. Terrace, BC
 Rosemarie Irene Howie, PhD, CIC..... London, ON
 Catherine M. Kerr, MSc, CIC..... Peterborough, ON
 Bridget S. Maxwell, BN, RN, CIC..... Halifax, NS
 Devon Metcalf, CIC Guelph, ON
 Janine R. Moen, RN, BScN, CIC..... Grande Prairie, AB
 Karen R. Pardy, BN, RN, CIC..... Yellowknife, NT
 Michelle K. Ramirez, HBSc, CIC..... Guelph, ON
 Anuradha Rebbapragada, PhD, CIC Toronto, ON
 Rachael L. Sawicki, CIC Brampton, ON
 Dori L. Taylor, RN, CIC..... Varna, ON
 Kimberly L. Wray, HBScN, RN, CIC..... Brantford, ON

Renewing

Donna Baker, CIC..... Orleans, ON
 Joann Stella Beckstead, CIC Alexandria, ON
 Laurie D. Boyer, CIC North Bay, ON
 Maureen Buchanan-Chell, RN, CIC..... Edmonton, AB
 Gwen M. Cerkowniak, RN, BScN, CIC..... Saskatoon, SK
 Sharon M. Connell, RN, CIC Little Britain, ON
 Edwige D. De Souza, CIC Hamilton, ON
 Carla Feltrin, MSc, RN, CNCC(C), CIC Niagara Falls, ON
 Kimberly Anne Leslie, CIC Kamloops, BC
 Nadine M. Mazinke, RN, BSN, CIC..... Regina, SK
 Evelyn L. Nicol, CIC..... Nelson, BC
 Heidi Pitfield, CIC..... Barrie, ON
 Joy E. Pyett, CIC..... Coldstream, BC
 Stefanie C. Ralph, CIC Brantford, ON
 Catherine I. Richard, CIC Ottawa, ON
 Ramona Rodrigues, MSc(A), CIC Kirkland, QC
 Lucia Elisabeta Salagean, CIC Mississauga, ON
 Lydia M. Salvino, CIC..... Guelph, ON
 Helen Catherine Shaw, CIC..... Sarnia, ON
 Sharon Marie Wilson, RN, BScN, CIC Edmonton, AB

Industry support

The chapters of IPAC Canada provide regional education and networking to their members. Many of their programs would not be possible without the support of industry. IPAC Canada acknowledges and thanks the many sponsors who have enhanced chapters' ability to provide quality programming. Some of the 2013 chapter sponsors are highlighted here:

<p>Chapter: IPAC Simcoe-Muskoka NanoShield Environmental Solutions Ontario Ministry of Labour (government) Pinchin Environmental Ltd Simcoe Muskoka District Health Unit (government) Public Health Ontario – North Simcoe Muskoka Infection Control Network (government)</p>	<p>Chapter: IPAC Eastern Ontario Ecolab Webber Training</p>
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IPAC – Central South Ontario (CSO) news

By Chris Mitchell, RN, CIC

It was a pleasure to have the opportunity to present at the APIC National conference held in Florida in June 2013 and again to the chapter members of IPAC CSO. The professional and financial support of the chapter and my employer were much appreciated.

The presentation was a case study review of infections with *Mycobacterium fortuitum* from implantable venous access devices (IVAD) in the oncology population. A multifaceted investigation which included a review of both community and hospital procedures was carried out. This investigation examined insertion, access and maintenance of these devices. *M. fortuitum* is a nontuberculous mycobacterium commonly found in water and soil but rarely causes infections.

Although a point source during the investigation was not found the process review was valuable.

Lessons learned:

- The investigation of sentinel events, such as rare infections, provides an opportunity to review and improve infection control practices within various healthcare settings.
- A collaborative approach to the treatment of patients receiving care in various areas optimizes patient safety.
- Case study presentations increase staff awareness and knowledge of the subject matter.
- Opportunity for infection control professionals to investigate and then present findings increases professional development. 🍁



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Environmental Services, tell EMS, tell your designate, and tell your director about the benefits of joining our national organization.

If that person joins IPAC by May 1, 2014, both you and the new IPAC Canada member will be eligible to win a complimentary 2014-2015 membership (value \$202). You are eligible for the draw with every new IPAC Canada member that you get to sign up. Should the winning

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Send in this form no later than May 1, 2014. An announcement of the winners of this offer will be made at the 2014 conference. Membership applications can be found at http://www.ipac-canada.org/about_join.php. 🍁

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