

The Canadian Journal of INFECTION CONTROL

Revue canadienne de PRÉVENTION DES INFECTIONS

The official journal of the Community and Hospital Infection Control Association – Canada • Association pour la prévention des infections à l'hôpital et dans la communauté – Canada

INSIDE:

CHICA-Canada Mental Health Interest Group report:
Preliminary findings on current IPAC practices

Variation in the medical management of patients
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Influenza and antibiotic-resistant organism burden

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* Frequency of outbreak investigations in US hospitals: Results of a national survey of infection preventionists, American Journal of Infection Control, February 2012, Vol. 40, No. 1, Page 2

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CHICA-Canada will be a major national and international leader and that recognized resource in Canada for the promotion of best practice in infection prevention and control.

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CHICA-Canada is a national, multidisciplinary association committed to the wellness and safety of Canadians by promoting best practice in infection prevention and control through education, standards, advocacy and consumer awareness.



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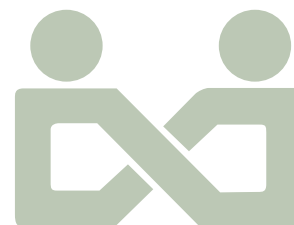
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The Abilene Paradox: Do we go along to get along?

Once again at the CHICA annual conference, many presenters challenged us to look at new information in new ways. Conference sessions discussed topics such as engaging executives and using their support, hand hygiene updates, right brain thinking in a left brain system, mind-mapping, and keeping infection prevention and control fresh and relevant.

Attendees at the Annual General Meeting were asked to consider a potential for a name change for CHICA-Canada. And then, on the last day of the conference, a session on VRE screening challenged attendees to consider cost benefit, risk assessment, and balancing patient-centred care with patient safety when looking at their VRE screening and management protocols.

Exhibitors displayed and educated attendees about some new products and technologies, some of which have only become available in the last few years.

All of this new information leads to questions and potential reconsideration of the way infection prevention and control (IPAC) is practiced or how we operationalize our IPAC programs. When faced with the choice of making changes, it is often challenging to think of new ways of doing things and letting go of what we have been doing.

For many of these changes to take place, ICPs will need to work with other individuals and teams. While this often leads to a better decision and outcome, there are some pitfalls of this approach. An example of this is the story of the Abilene Paradox.

This story is often used in management training to describe when some individuals involved in a group decision fail to share their true feelings about a proposed change and decide to go along

“When faced with the choice of making changes, it is often challenging to think of new ways and difficult to let go of what we have been doing”

to get along.

On a hot afternoon visiting in Coleman, Texas, the family is comfortably playing dominoes on a porch, until the father-in-law suggests that they take a trip to Abilene [53 miles north] for dinner. The wife says, “Sounds like a great idea.” The husband, despite having reservations because the drive is long and hot, thinks that his preferences must be out-of-step with the group and says, “Sounds good to me. I just hope your mother wants to go.” The mother-in-law then says, “Of course I want to go. I haven’t been to Abilene in a long time.”

The drive is hot, dusty, and long. When they arrive at the cafeteria, the food is as bad as the drive. They arrive back home four hours later, exhausted.


One of them dishonestly says, “It was a great trip, wasn’t it?” The mother-in-law says that, actually, she would rather have stayed home, but went along since the other three were so enthusiastic. The husband says, “I wasn’t delighted to be doing what we were doing. I only went to satisfy the rest of you.” The wife says, “I just went along to keep you happy. I would have had to be crazy to want to go out in the heat like that.” The father-in-law then says that he only suggested it because he thought the others might be bored.

The group sits back, perplexed that they together decided to take a trip which none of them wanted. They each would have preferred to sit comfortably, but did

not admit to it when they still had time to enjoy the afternoon.¹

The lesson of the Abilene Paradox for ICPs and other leaders using groups or teams to discuss and implement changes is to continually ask if they are “going to Abilene.”

Some ways to avoid this costly “trip” are including persons who may have differing points of view in the team and openly asking for others who don’t share the same opinion as the group. It is critical to create an interactive team atmosphere and culture where one voice or two voices are not the only ones heard. Other team input techniques such as nominal group technique² and open space technology³ can be used to ensure that input is freely obtained from all participants.

ICPs continue to be challenged by change and new ideas and, where appropriate, letting go of previous ideas and practices. Engaging and actively using the synergy of teams can make all the difference. 

1. Harvey, Jerry B. (1974). “The Abilene paradox: the management of agreement.” *Organizational Dynamics* 3: 63–80
2. <http://asq.org/learn-about-quality/idea-creation-tools/overview/nominal-group.html> (accessed July 10, 2012)
3. <http://www.openspaceworld.org/cgi/wiki.cgi?AboutOpenSpace> (accessed July 10, 2012)



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CHICA-Canada Mental Health Interest Group report: Preliminary findings on current IPAC practices

Authors:

This article, based on the 2008-2009 survey, has been contributed by the members of the CHICA Canada-Mental Health Interest Group

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ABSTRACT

Background

In 2001 the World Health Organization (WHO) estimated that 450 million people worldwide were suffering from mental or behavioural disorders at any given time (1; 2). According to the Quick Facts by the Mood Disorders Society of Canada, "Chances of having a mental illness in your lifetime in Canada is one in five"(3). Treatment and management of mental or behavioural illnesses can be found in acute care hospitals, long-term care facilities, group homes, day/outreach treatment centres (5; 6), vocational rehabilitation, tertiary mental health hospitals, and correction facilities (3; 7; 8). Unlike physically ill patients in primary health care settings, most patients in mental/behavioural healthcare settings are not confined to beds. This highly mobile patient population with divergent behaviour is often a challenge to traditional infection prevention and control (IPAC) strategies, which makes the containment of infection difficult. The human interactions of "milieu therapy" and frequent change of communal living sites further contribute to the risk of healthcare-associated infections (HAIs) (2; 9). Consequently, a comprehensive infection prevention and control program (IPACP) specifically designed for the mental health population is the foundational requirement for the successful application of IPAC principles and practices.

To address the challenges inherent in applying IPAC principles in the mental health setting, the CHICA-Canada Mental Health Interest Group (CHICA-MHIG) was founded by Mr. Jim Gauthier in 2005. The group's goal was to support members interested in the IPAC practices in mental and behavioural healthcare settings.

Members often expressed a need to adapt IPAC practices to address unique patient populations with mental illness given a lack of relevant IPAC publications and references. Members also sought to learn from other members. In response, CHICA-MHIG launched a survey in November 2008 to investigate the IPAC practices among group members working in the mental health settings. The objective was to establish data on staff ratios, surveillance programs, admission screening protocols, immunization programs, hand hygiene programs, physician supports, special challenges and strategies, and guidelines and standards that have been referenced in program development. A literature search was also undertaken to examine the anecdotal claim that a lack of mental health specific IPAC references exists. This article represents the results of the survey and the literature review.

METHODS

Questionnaire

Data collection was carried out between November 2008 and March 2009. A 36-item questionnaire using a combination of 15 open-ended and 21 closed questions (Appendix A) was distributed via e-mail to CHICA-MHIG members across Canada. A total of 34 facilities in six provinces (British Columbia, Alberta, Manitoba, Ontario, Prince Edward Island, and Newfoundland and Labrador) participated in this study. Follow up e-mails and phone calls were conducted to clarify any unclear responses and to capture missing data.

The questions were based on the Best Practice Guidelines published for acute care, long-term care, and all healthcare settings by Canadian sources (10;11;12;13). The purpose of the survey was to investigate the current IPAC practices among CHICA-MHIG members' facilities.

Data compilation was supported by the Research and Science Department at Ontario Shores Centre for Mental Health Sciences using the Statistical Package for the Social Science program for analysis. A detailed report was generated under five major categories: Facility Characteristics and Staff Ratios; Surveillance and Data Management; Prevention Program; Challenges; Strategies and Guidelines/References Used.

Literature review

A preliminary literature search with various keywords, search engines and websites yielded more than 6110 articles (Appendix B). Title review indicated that there was no lack of articles addressing or giving guidelines and recommendations for the prevention or control of particular infectious conditions in all healthcare settings. However, no publications from Canadian sources were found pertaining to a comprehensive IPACP for tertiary mental health settings.

Survey

Nineteen out of 34 (56%) facilities responded to the survey, with the majority (12/19) from the province of Ontario, two from Alberta and British Columbia, and one each from Manitoba, Prince Edward Island and Newfoundland and Labrador.

RESULTS

Facility characteristics

Sixty-eight per cent (13/19) of facilities were stand-alone MH centres. More than half of the 19 facilities (53%) provided

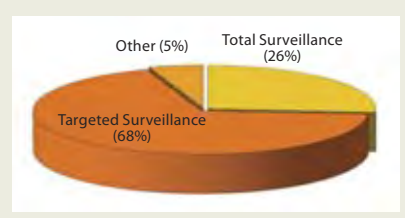
tertiary MH care. Fifty-eight per cent (11/19) of facilities hosted regular Infection Control Committee meetings. As to medical support, 62% (12/19) were equipped with an infectious disease physician on site or as a consultant.

The staff ratio varied from 0.23 to 0.59 full time equivalent (FTE) infection control professional (ICP) or practitioner per 100 beds with the mean of 0.55 (Table 1). According to the 2008 Ontario Provincial Infectious Disease Advisory Committee (PIDAC) guidelines for infection prevention and control programs in Ontario for all healthcare settings, the recommendations for staff ratio is 0.87 FTE ICP per 100 acute care beds, 0.66 FTE ICP per 100 occupied long-term care beds, 1 FTE ICP per 100 beds with high-risk activities (haemodialysis), and 3.3 FTE ICP per 100 Intensive Care Unit beds (13). The current staff ratios fell short from the recommended acute care level of staffing among our member facilities, not to mention that the ICPs in mental health settings also service out-patients living in the community.

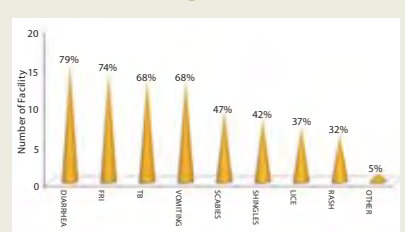
Surveillance program and data management

All 19 (100%) facilities conducted surveillance. Twenty-six per cent (5/19) conduct total surveillance, while 68% (13/19) undertook targeted surveillance, and one (5%) facility surveyed for only antibiotic resistant organisms (AROs) and *Clostridium difficile* and nothing else routinely (Graph 1a).

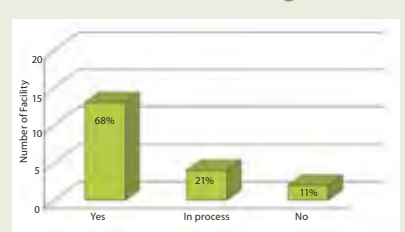
GRAPH 1a: Type of Surveillance



GRAPH 1b: Targeted Surveillance



GRAPH 2: Written Surveillance Program



GRAPH 3A: Admission Screening



TABLE 1: Comparison to Recommended Minimal Ratio of Infection Control Practitioners to Number of Beds (FTE ICP:100 beds)

Recommendation	PIDAC, Ontario, Canada (5)				PHAC, Canada (15)		Quebec, Canada (15)		Delphi Project, U.S.A. (15)	Survey Results	
	ACC	SACC	ICU	LTC	ACC	LTC	ACC	SACC	ACC	ACC/LTC	
Minimal Ratio (FTE ICP: 100 beds)	.87	1	3.3	.66	.60	.40 -.67	.75	1	.8 - 1	High	.59
										Low	.23
										Mean	.55

FTE = Full Time Equivalent; ICP = Infection Control Practitioner; ACC = Acute Care; SACC = Special Acute Care (Settings with high activities or with special programs such as transplant, burns, haemodialysis etc.); LTC = Long-term Care; PIDAC = Provincial Infectious Diseases Advisory Committee; PHAC = Public Health Agency of Canada

For those facilities that undertook targeted surveillance, surveillance items include diarrhoea (79%), febrile respiratory illness (FRI) (74%), vomiting (68%), pulmonary tuberculosis (TB) (68%), scabies (47%), shingles (42%), lice (37%), and rashes (32%). The rationale for inclusion of the last five targeted surveillance items in the survey was because the mental health patients frequently move between communal living facilities (such as shelters, group homes and jails) which potentially increased their risks for exposure to communicable disease (Graph 1b).

A written surveillance program was developed with specifics on the survey plan, systematic collection, analysis of surveillance data, and actions to prevent or control the potential infectious conditions. This can reduce HAI rates, but also be useful in monitoring the effectiveness of the IPACP (14). The result showed that a written surveillance program was in place in 68% (13/19) of sites (68%). Although 11% (2/19) facilities did not have a written program, 21% (4/19) were in the process of writing one (Graph 2).

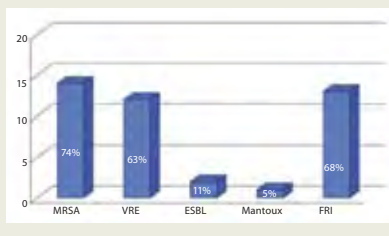
In response to the open-ended question "What references/guidelines is your surveillance program based on?" participating facilities in four provinces (Alberta, British Columbia, Manitoba, and Ontario) referenced regional or provincial guidelines. These included Manitoba guidelines (15), British Columbia Centre for Disease Control (16), Provincial Infection Control Network of British Columbia (17), Canadian Nosocomial Infection Surveillance Program (18), the Provincial Infectious Diseases Advisory Committee (13), and the sentinel publication the Definitions of Infection for Surveillance in Long-Term Care Facilities by McGeer et al. (19).

Thirty-two per cent (6/19) of facilities screened all new patients for potential carriers or infectious conditions and 68% (14/19) of facilities screened for FRI upon admission. Forty-seven per cent (9/19) of facilities screened high-risk patients only, while 11% (2/19) screened on case-by-case basis (Graph 3a).

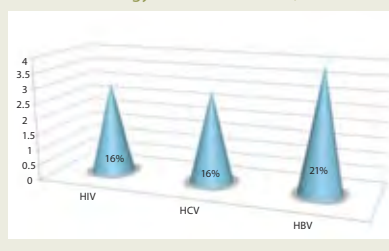
Respondents were asked "What conditions are deemed high risk if admission screening is based on high-risk level?" The responses varied.

Two facilities used PIDAC (13) or

GRAPH 3B:
New Admission Screening Items



GRAPH 5: New Admission Serology Test (Number of facility does the serology test on admission)

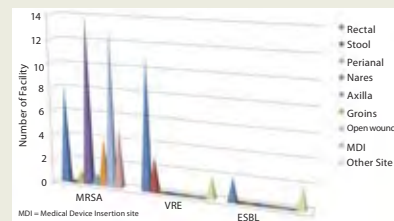


Manitoba guidelines for their admission screening guidelines and five facilities listed screening criteria similar to the risk groups identified in the PIDAC documents (20). The high-risk criteria were based on the following conditions:

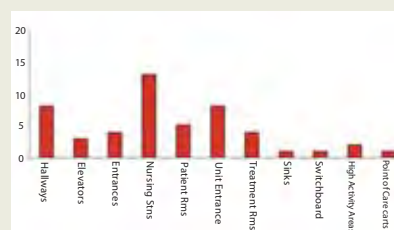
- previously been colonized or infected with AROs
- admission to healthcare facilities within last 12 months for > 48 hours
- overnight hospital stay > 12 hours
- previous hospitalization > 72 hours, admission from long-term care
- transfer from other facility/outbreak unit/intensive care units (ICUs)
- homeless or living in a shelter, time in a corrections facility
- evidence of wound(s), intravenous (IV) drug user
- undergoing dialysis and/or chemotherapy

Not all 19 facilities screened both Methicillin-resistant *Staphylococcus aureus* (MRSA) and Vancomycin-resistant enterococcus (VRE) for AROs screening on admission. Seventy-four per cent (14/19) of facilities screened for MRSA, 63% (12/19) screened for VRE, and 11% (2/19) screened for Extended Spectrum Beta-Lactamase (ESBL) (Graph 3b). Screening on AROs revealed that more facilities swabbed from nares (14/19) and open wounds (13/19) than from the rectum (8/19), perineum, or perianal

GRAPH 4: AROs Screening Sites



GRAPH 6: Location of ABHR Stations

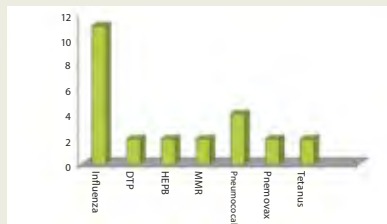


sites, partly due to the consideration of individual patient's past trauma experiences (Graph 4).

A few (3/19) facilities routinely screened for Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) while four facilities screened for Hepatitis B Virus (HBV) under the category for New Admission Serology Test (Graph 5). More than half of facilities (11/19) performed routine TB Screening upon admission using Mantoux skin test and/or chest X-ray depending on the patient's previous history.

The management of surveillance data varies. Fifty-eight per cent (11/19) of facilities currently did not have a database nor commercial software to manage epidemiological data. For those (8/19) facilities where a data management program for surveillance was in place, the most used databases were Microsoft Excel and Access. One facility used an experimental Access™ software called Infection Prevention and Control Surveillance and Education Tracking (IPACSET) at a pilot stage, initiated and provided by the Central South Infection Control Network in collaboration with University of Waterloo in Ontario. Other databases used included the Risk MonitorPro for incident reporting and risk management, the Epigraphics for data presentation, and the neutrol-host system for Internet networking (21).

GRAPH 7: Patient Vaccinations



Prevention programs

Survey results showed that the following prevention programs had been used.

Eighty-four per cent (16/19) of facilities had a written hand hygiene program in which one facility did not include hand care. Three of 19 facilities had no such program in place, but two of them were in the process of developing one.

The questionnaire also asked about hand hygiene (HH) education for staff and patients, HH auditing, locations of alcohol-based hand rub (ABHR) dispensers, and the form of hand sanitizers used (e.g., foam versus gel). Fourteen out of 19 facilities provided staff education through in-class training, role modeling, videos, signage and one-on-one counselling. Seven of the above 14 facilities also provided patient education using brochures, signage and staff reminders at mealtimes. ABHR dispensers were mounted in the areas considered to be easy to access. Five of 19 facilities provided both liquid and foam ABHR depending on the location. Eleven of 19 facilities used foam ABHR, to prevent patient ingestion of alcohol in areas where supervision was not possible. Most locations for wall-mounted ABHR are in staff areas within the patient care units. Otherwise, they are mounted throughout the public places such as hallways, entrances to elevators, and cafeteria. (Graph 6).

The vaccination program for patients (Graph 7) was in place in 68% (13/19) of facilities, with 85% (11/13) of them targeting seasonal influenza. Forty-six per cent (6/13) of facilities also gave pneumococcal vaccination to high-risk group patients such as those who are > 65 years of age. For those mental health settings (32%) that did not provide a vaccination program for patients, they were either affiliated with the acute care hospital with short stay (3/19), or

TABLE 2: References used by the number of CHICA- MHIG ICPs

APIC 12 Association for Professionals in Infection Control and Epidemiology, Inc. (USA)	PIDAC 11 Provincial Infectious Diseases Advisory Committee
HEALTH CANADA 6	CHICA-CANADA 5 Community and Hospital Infection Control Association of Canada
MOHLTC 4 Ministry of Health and Long-term Care (Ontario)	OHA/OMA 3 Ontario Hospital Association (Canada) Ontario Medical Association (Canada)
BEST PRACTICES (SOURCES UNKNOWN) 3	
PHAC 2 Public Health Agency of Canada	HICPAC 2 Healthcare Infection Control Practices Advisory Committee (USA)
PROVINCIAL GUIDELINE (MACID) 2 Manitoba Advisory Committee on Infectious Diseases (Canada)	
BCCDC 1 British Columbia Centre for Disease Control (Canada)	CCAR 1 Canadian Committee on Antibiotic Resistance (PHAC)
CSA 1 Canadian Standards Association	LCDC 1 Laboratory Centre for Disease Control (Health Canada)
PICNeT 1 Provincial Infection Control Network of British Columbia	WHO 1 World Health Organization

the program was provided by the public health unit and the ICP was not involved. Vaccination was also based on medical directives and case-by-case (2/19). Other vaccination items such as diphtheria-tetanus-polio (2/19), hepatitis B (2/19) and measles-mumps-rubella (2/19) were given when required.

In terms of off-unit policy, 79% (15/19) allowed patients off-unit to smoke during regular times. In an outbreak, 63% (12/19) of facilities kept patients within the outbreak unit. Sixty-eight per cent (13/19) of facilities did not allow patients incontinent of either feces or urine off the unit at any time. Eighty-nine per cent (17/19) of facilities restricted patients from leaving the patient care unit when the patient was symptomatic with *Clostridium difficile* diarrhea.

Challenges in mental health settings

Patients within mental health settings are highly mobile, and many may have behaviours (such as obsessive-compulsive disorder or substance misuse) that make the use of traditional infection containment methods a challenge.

Patients are often in close proximity

during group activities, such as in-house schooling, vocational training, and group therapies which can provide many opportunities for disease transmission.

When conditions permit, patients often have ground privileges and trips outside where they may share drinks, cigarettes and body fluids during social interactions. This provides opportunities for transmission of pathogens.

The highly challenging patient population with neuropsychiatric, dual diagnostic, behavioural, forensic, and cognitively impaired issues require more times from ICPs to develop client-specific intervention in collaboration with the health care team.

IPAC strategies in mental health settings

Results showed that IPAC strategies were carried out with safety as a priority and to minimize disruption to patient's care environment and therapeutic activities.

Examples provided by respondents included staff encouraged patients to perform HH at regular intervals or as needed, provision of interactive group education on HH, personal

hygiene, and cough etiquette at patients' community meetings. These strategies required extensive one-on-one time for patient education and staff support, and management of outbreaks on a case-by-case basis. Cohorting patients and staff was a strategy used whenever applicable and appropriate. Some mental health settings closed units, while others (7/19) allowed the non-cases leave the units with clean clothing and HH, and enhanced environmental cleaning to contain the outbreak. Enhanced outbreak cleaning included, but was not limited to: the outbreak unit, hand rails outside patient care units, elevators, cafeterias, classrooms, vocational training rooms, equipment, sensory rooms, and physiotherapy/recreation areas. Foam ABHR was mounted for out-of-sight locations to deter ingestions. Gel ABHR dispensers were mounted within the sight-line of staff members to prevent ingestion or self-harm from patients using it to start fires (22). Due to the infrequent need for additional precautions and isolation in mental health settings, staff can benefit from well-designed signage that clearly indicate the specific Personal Protective Equipment (PPE) required for different types of precautions.

Signage materials and locations were critical for patients' safety. For reusable signs, choose materials with smooth surfaces, and avoid sharp edges. For single-use signs, post them behind a permanently mounted plexiglass.

To tackle the ongoing risks from patients sharing personal items, such as cigarettes, beverages, and body fluids, some mental health facilities had policies prohibiting sharing. For patients who disregard the policy, members suggest to start a cigarette cessation program and discourage smoking; monitor the access to cigarette lighters and matches for fire and safety precautions; hand out one or two cigarettes only, prior to patients' outing on ground privileges; supervise and educate patients during smoke and snack breaks; emphasize

the disadvantages of sharing items especially for clients with known respiratory illnesses and blood-borne pathogen infections; provide environmentally friendly disposable cups on site; store personal grooming items in the patients' cabins inside nursing stations; and educate on sexually transmitted diseases.

For patients who engage in certain behaviours, such as constantly picking and digging into private areas of the body, and consequently contaminating their hands, advice was given to concentrate on instructing proper behaviour, and giving verbal reminders for HH. Other alternative interventions may include the use of zip-up jump suits, Posey™ mitts, finger taping, enhanced environmental cleaning, and a private room placement if one was available. If none of the above could effectively prevent the potential spread of body fluids due to patients' fixational behaviour, one-to-one staff to patient monitoring was helpful in the application of distraction techniques.

Guidelines referenced by the MHIG responders for their IPCP designs were not different from those of other healthcare settings (Table 2). Results reflected that the highest numbers of responders (12/19) had included APIC as references; while 11/19 facilities referred to PIDAC which maybe due to the fact that responders were mostly from Ontario where the PIDAC Best Practices Documents had been readily promoted and available.

DISCUSSION

What has been learned from these results?

More than half of the responders were freestanding tertiary (14/19) facilities providing primary mental health care. One-third of facilities (6/19) had no written surveillance program while all of them conducted surveillance at varied levels. Less than half (8/19) of facilities managed surveillance data with a database program. Fifty-eight per cent (11/19) of facilities do not offer patient influenza

vaccine mostly due to short length of stay or management by local public health departments. Not all 19 facilities had a written HH program or routine practices HH education for patients. Only one facility started the *Just Clean Your Hands* program when the data was collected in 2008. More facilities (12/19) than expected had an infectious disease physician on site or as a consultant.

According to the Public Health Agency of Canada (PHAC) in 2010, "Inadequate staffing was cited as the most common reason for non-performance of essential IPAC responsibilities (23, p.30)." The discrepancies in staff ration (0.32 ICP FTE per 100 beds which is below recommended staff ratio for acute care settings) showed that the surveyed IPCPs require a higher ICP staff to patient ratio to address the challenges and strategies for mental and behavioural healthcare settings.


The different levels of IPAC practices in MHIG member facilities also reflected the lack of standardized best practices for the mental health settings. This needs to be addressed.

Limitations and future directions

The results from this questionnaire revealed the characteristics of the participants' practices with sample information from six provinces. The authors acknowledged that the resulting data did not represent all mental healthcare communities across Canada. Also, some remaining issues not surveyed included the challenges and strategies of design/renovation/construction, sharing and maintenance of therapeutic pools and hair salon facilities, IPAC practices during therapeutic activities and settings, and patient sexual interaction safety. Consequently, to validate the results from this survey, there is room for a bigger scale study extending to regional and national levels.

Another limitation is the questionnaire design which was not user friendly, and thus time consuming. In a future study, results can efficiently be managed by using electronic questionnaire such as the Survey Monkey.

CONCLUSION

As mental health patients are within all sectors of the healthcare system, ICPs in the CHICA-Canada MHIG refer to guidelines and best practices available for all healthcare settings, to develop and update their IPACP accordingly. The various levels of IPACP from the survey results indicate the need to set standards for the baseline IPAC practices in MH to guide ICPs (particularly novice ones) and facilities to provide a comprehensive and effective IPACP. Similarly, the survey results can benefit ICPs in their claims for a reasonable ICP to MH patient ratio and organizational supports (resources). 

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The questionnaire and literature search results are available upon request.

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Variation in the medical management of patients admitted to hospital with pneumonia: the Regional Antimicrobial Utilization Review (RAUR) study

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ABSTRACT

Background

Pneumonia is responsible for a large proportion of hospital admissions and antimicrobial utilization. The RAUR study sought to characterize the variation from best practice in the management of patients admitted to hospital with a diagnosis of pneumonia, determine whether it was warranted and estimate the excess costs of care due to unwarranted variation.

Methods

The RAUR study is a retrospective medical record review of patients admitted to any one of the five acute care hospitals in the North Simcoe Muskoka Local Health Integration Network in Ontario from January 1, 2006 to December 31, 2008. Compliance with the evidence-based criteria recommended for the management of pneumonia was assessed for each patient, hospital site and the region.

Results

The RAUR study demonstrated significant variation from best practice. The recommended diagnostic criteria for pneumonia were observed in only 35.7% (95% CI 32.9, 38.4) of patients. The criteria recommended for admission to hospital was absent in 13.4% (95% CI 11.4, 15.3) of patients. The duration of antimicrobial therapy exceeded the recommended guidelines in 60.3% (95% CI 57.5, 63.1) of patients. The estimated excess health-care system costs exceeded \$2,000,000 over the study period, or 0.14% of the entire regional health-care system budget.

Interpretation

Unwarranted variation in health services utilization for patients admitted with a diagnosis of pneumonia is a prevalent

problem, and contributes to poor health system performance by compromising access to healthcare services, increasing the costs of those services and compromising patient safety.

INTRODUCTION

The prevalence and impact of unwarranted variation from effective medical care in clinical practice has been well documented in the literature (1,2,3). Antimicrobial stewardship programs (ASP) have been identified as an effective intervention to mitigate against unwarranted variation in antimicrobial utilization (4). Despite this evidence, ASP have been variably implemented in acute care facilities in Ontario due to lack of commitment by hospital administration, absence of information technology to support prospective monitoring of antibiotic use and lack of clinical infectious diseases pharmacist and physician personnel to support an ASP (5).

The objective of this study was to document the presence and impact on healthcare system performance of unwarranted variation in the treatment for all patients admitted to hospital with a diagnosis of pneumonia during a three-year period in the North Simcoe Muskoka Local Health Integration Network (NSM LHIN) (6). The results have been used to guide the development of a regional ASP, a strategy that is focused on interventions targeting local drivers of inappropriate antimicrobial utilization.

METHODS

The NSM LHIN is located in the province of Ontario, Canada. It is one of 14 provincial regional health authorities responsible for the fiscal management of Ontario's publicly funded health-care system. There are five acute care

hospitals in the NSM LHIN serving a population of approximately 450 000, or 3.45% of Ontario's population (6). All five hospitals in the NSM LHIN are community-based hospitals, ranging from 72 beds to 279 beds (average 160 beds, sd 71 beds). In the period reviewed, none of the hospitals had an antibiotic stewardship program.

The study protocol was approved by each hospital's research ethics committee. All the patient and hospital-level data was non-nominal. Medical records were retrospectively reviewed for adult patients (≥ 18 years old) admitted to all five hospitals from January 1, 2006 to December 31, 2008 with a Canadian Institute of Health Information Discharge Abstract Database code of pneumonia as the most responsible diagnosis for admission (J12.0 to J18.9). Each medical record was initially screened and retained for inclusion if an admission diagnosis of pneumonia was documented by the attending physician. A random sample of each hospital's patient population was subsequently included for review. Random samples were generated using STATA statistical analysis package (7).

The random sample sizes were sufficient to ensure 95% confidence of being representative of the hospital population with an accuracy of $\pm 5\%$.

Standardized data collection sheets were used to collect data related to the following: patient demographics, comorbidities, severity of illness on presentation (CURB-65 score¹)(8), diagnostic criteria for pneumonia (9), antimicrobial treatment, resolution of clinical illness and competing outcomes (supplemental material available from author).

The data collection sheet's face validity was verified by two infectious diseases specialists, and inter-observer reliability was verified by two independent data collectors after reviewing 100 medical records from a single hospital site ($\kappa \geq 0.7$ for non-binomial variables). Collected data was collated and checked for accuracy by double-data entry methodology.

1 CURB-65 is the acronym for five prognostic factors; Confusion of new onset, Urea > 7 mM, Respiratory rate > 30 bpm, Blood pressure < 90 mm Hg or diastolic pressure < 60 mm Hg, and age > 65 years.

For the diagnosis of pneumonia, the study patients were compared against reference criteria: i) presence of ≥ 3 of any of the following clinical criteria which includes productive cough, dyspnea, chest pain (pleurisy), fever (or hypothermia), and clinical findings of consolidation by auscultation, in addition to ii) a new chest X-ray infiltrate of lobar or multilobar airspace disease. These criteria are required for inclusion into either non-inferiority or superiority clinical trials for antimicrobial treatment of community-acquired bacterial pneumonia (9). Variation in the diagnosis of pneumonia was defined as the proportion of study patients who did not fulfill these criteria on admission to hospital.

The admission rates to hospital for patients diagnosed with pneumonia were compared against the predicted rates of admission according to the CURB-65 scoring system. The CURB-65 score has been validated for both predicting mortality and guiding admission decisions for patients diagnosed with pneumonia (8). For patients with a CURB-65 score of ≥ 3 , best practice requires admission to hospital because of the expected high mortality rate. Patients with a CURB-65 score of 0 or 1 can be safely managed as outpatients, and patients with a score of 2 may be managed either in-hospital or as outpatients depending on their clinical needs. A modified CURB-65 scoring system was used in this study.² To ensure comparability, the observed mortality rates for the modified CURB-65 categories were compared to the expected mortality rates predicted by the original CURB-65 score, and were found to be similar. Variation in the admission rates was defined by i) the proportion of patients admitted to hospital with a low CURB-65 score ($= 0, 1$ or 2) without evidence of hypoxia, hypotension or confusion at the time of admission. The impact of this variation on health system performance was quantitated as the excess days of inpatient stay (EDIS) for this population. EDIS due to potentially avoidable admissions was estimated from the total number of hospital days utilized by this population.

2 A Glasgow Coma Scale Verbal score of ≤ 4 was used to define "confusion" for the modified CURB-65 Score.

The duration of antimicrobial treatment for pneumonia was compared against contemporary treatment guidelines for the study period (10). The recommendations for the duration of antimicrobial treatment for community-acquired bacterial pneumonia are based on the individual patient's severity of illness and time to resolution of symptoms (clinical outcome criteria)(10). In summary, antimicrobial therapy should be continued for a minimum of five days, until fever has resolved for at least 48 hours and at least three of the following four clinical variables (hypotension, dyspnea, hypoxia or tachycardia) have been resolved for at least 24 hours. Variation in the duration of antimicrobial treatment is defined by two indicators: i) the proportion of study patients whose treatment duration exceeded the recommended guidelines, and ii) the excess days of antimicrobial therapy (EDAT) utilized in the study population (11). EDAT was defined as the difference in days between the observed and the recommended treatment duration. The EDIS attributable to EDAT was estimated by weighted-multiple linear regression analysis.

The total EDAT was used to determine the excess costs of antimicrobial treatment due to practice variation. For the NSM LHIN, the daily average weighted cost of antimicrobial treatment for pneumonia was \$12.36. The total excess days of hospitalization was used to determine the excess costs of potentially avoidable hospital admissions and prolonged lengths of stay. For the NSM LHIN health-care system, the average daily cost of hospitalization (inpatient, non-intensive care unit) for the study period was \$516.00 (<http://www.mohltcim.com/hit/UniDisplay.aspx>, Susan Plewes, NSM LHIN Director, Integrated Health System Design).

Data analysis was conducted using STATA statistical software (7). All distributions (after logarithmic transformations when indicated) were assessed for normality utilizing visual inspection of histograms and standardized normal probability plots. All continuous data was compared using analysis of variance (ANOVA). All categorical data was compared using χ^2 . The association of multiple variables with either a depend-

ent continuous outcome or binomial outcome was analyzed by weighted-multiple regression analysis or logistic regression analysis, respectively.

RESULTS

Study patients

The total number of patients meeting the inclusion criteria was 2,982. The random sampling methodology generated 1,194 medical records for review. The actual number of records reviewed as a proportion of the estimated sample needed for each hospital is shown in Figure 1. Fewer records than needed in hospitals A and D due to inability of the hospital to locate the records.

Admission characteristics of the study patients are listed in Table 1. The study population was subsequently categorized into two groups defined by the presence or lack of three or more of the following risk variables; home oxygen therapy, current smoker, diabetes mellitus, chronic renal insufficiency, polypharmacy, long-term care facility (LTCF) residency, and recent hospitalization (Figure 2). There were significant differences in prevalence of these groups among hospitals ($p < 0.001$).

Variable prevalence of the recommended diagnostic criteria for pneumonia among study patients

Medical records were examined for the presence of diagnostic clinical criteria commonly required for inclusion into non-inferiority and superiority clinical trials for antimicrobial treatment of pneumonia. The proportion of patients meeting all the diagnostic criteria for pneumonia was 35.7% (range 24% to 47%) ($p < 0.0001$) (Figure 3). Using a more sensitive but objective criterion that only included CXR abnormalities, the range of patients fulfilling this condition increased to 61.6% (range 46% to 74%) ($p < 0.0001$) (Figure 3). Overall, 38.4% (95% CI 35.6, 41.1) of patients did not have any CXR changes consistent with the diagnosis of pneumonia, and only 6.4% of these patients had their empiric antimicrobial treatment discontinued within 48 hours of admission to hospital.

TABLE 1. Characteristics of the study patients by hospital*

Variable	Value
Gender – M (%)	49.6%
95% CI	(47.7, 51.4)
Age – year	
Mean	72.9
95% CI	(72.0, 73.8) ¹
Comorbidities – % (95% CI)	
Home oxygen therapy	10.8 (9.0, 10.6) ¹
Current smoker	19.3 (17.0, 21.7) ¹
Diabetes mellitus	25.2 (22.6, 27.8)
Chronic renal insufficiency	17.3 (15.1, 19.6)
Polypharmacy – % (95% CI)	54.5 (51.5, 57.4) ¹
Long-term Care Facility (LTCF) Residency – % (95% CI)	21.0 (18.6, 23.4) ¹
Recent Hospitalization – % (95% CI)	29.6 (26.9, 32.3)
Pneumonia Diagnostic Criteria (Present) % (95% CI)	
Clinical plus CXR (Full)	35.7 (32.9, 38.4) ¹
CXR only (partial)	61.6 (58.9, 64.4) ¹
CURB-65 Score (95% CI)	2.3 (2.23, 2.4) ¹
Clinical Outcome Criteria (Present) % (95% CI)	
Fever	42.6 (39.8, 45.4) ¹
Dyspnea	25.3 (22.8, 27.8)
Hypotension	30.6 (28.0, 33.3) ¹
Hypoxia	59.3 (56.4, 62.3) ¹

* Variables described in the Supplementary Appendix
¹ $p < 0.01$

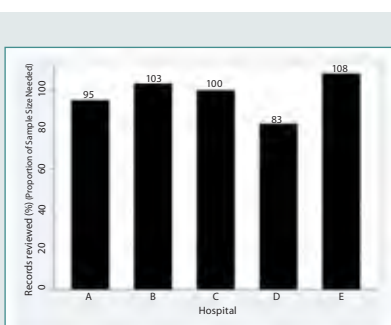


FIGURE 1. Number of medical records reviewed as a proportion of the total number needed by hospital

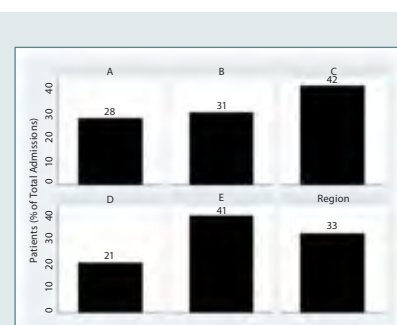


FIGURE 2. Study patients with three or more risk variables at admission by hospital and region

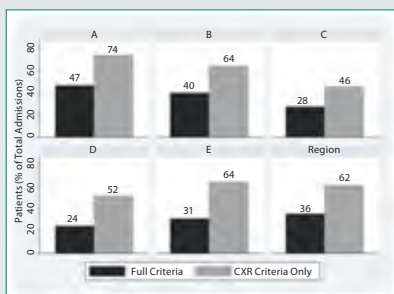


FIGURE 3. The proportion of patients fulfilling the diagnostic criteria for pneumonia by hospital and region

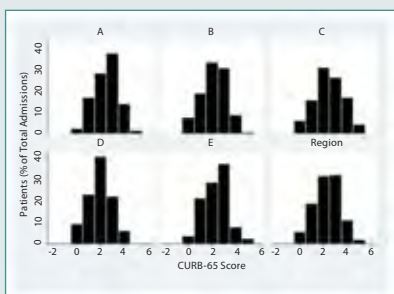


FIGURE 4. Distribution of CURB-65 score in patients by hospital and region

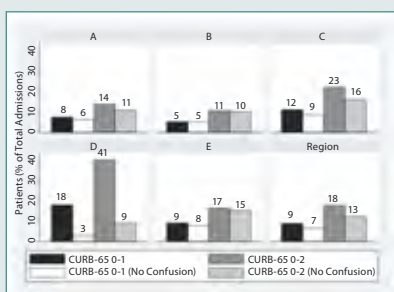


FIGURE 5. Admissions to hospital with low severity of illness and absent hypoxia and hypotension by hospital and region

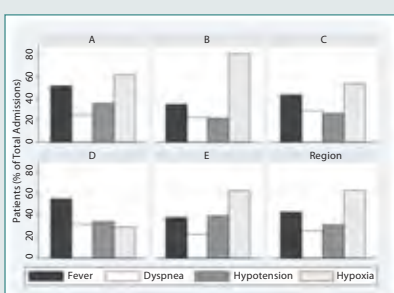


FIGURE 6. Prevalence of clinical outcome criteria at the time of admission by hospital and region

Variable practice in decisions for admission to hospital

The number of admissions to hospital with a primary diagnosis of pneumonia was 4.5/100 separations (95% CI, 2.9, 6.0). An analysis of the potential impact of hospital service capacity and utilization differences (supply-sensitive care) on the rates of pneumonia admissions did not reveal any associations with the following factors: total number of inpatient days, total number of hospital separations, total number of hospital beds in daily operation or the total number of daily emergency room visits (univariate analysis).

The mean CURB-65 score was 2.29 (95% CI 2.23, 2.36) and demonstrated significant differences among hospital sites ($p < 0.001$) (Figure 4). The proportion of patients admitted to hospital who had a CURB-65 score ≥ 3 ranged from 28% to 53% between hospital sites ($p < 0.0001$). Of the remaining patients, each was examined for the requirement of a hospital-specific intervention that could explain the need for admission (oxygen therapy for hypoxia), fluid and/or vasopressor/inotropic support (for hypotension) and confusion impairing safe outpatient management). Even after accounting for confusion on admission, 13.4% (95% CI 11.4, 15.3) of the total patients reviewed were admitted to hospital despite a CURB-65 score of 0, 1 or 2 and did not need oxygen therapy or fluid and/or vasopressor/inotropic support, thus identifying a subset of patients with a potentially avertable admission to hospital (Figure 5).

No significant relationship was demonstrated between hospital admission rates and any of the following: gender, age, proportion of patients with ≥ 3 risk variables at the time of admission, proportion of patients demonstrating full or partial diagnostic criteria for pneumonia, or the CURB-65 score.

Variation in the duration of antimicrobial treatment for pneumonia

The prevalence of fever, hypotension and hypoxia were different between hospital sites ($p < 0.001$), but the proportion of patients with dyspnea was similar ($p = 0.2$) (Figure 6).³ The majority of patients

³ Tachycardia was not utilized as a clinical outcome criteria as it is not independent of either fever, hypotension or dyspnea.

demonstrated 2 or less concomitant clinical outcome criteria at the time of admission ($p = 0.068$) (Figure 7). For patients with fever, dyspnea or hypotension, over 90% demonstrated resolution within 72 hours of initiating antimicrobial treatment, whereas 63% demonstrated resolution of their hypoxia within the same time frame (Figure 8). Adhering to the recommended treatment guidelines, the expected duration of antimicrobial therapy would be five days for over 80% of the study population. Overall, the observed variance in treatment duration was 60.3% (range 53.9 to 65.6%) between hospital sites ($p = 0.0562$) (Figure 9), of which only 2.18% (95% CI 1.35, 3.00) was due to under-treatment. For this population, the mean excess days of antimicrobial therapy (EDAT)⁴ was 4.62 (95% CI 4.31, 4.92), or 2.76 days (95% CI 2.54, 2.98) for the entire study population. The range of EDAT between hospital sites was 3.46 days to 4.81 days ($p < 0.02$) in the discordantly treated population (Figure 10). No correlation was demonstrated between the EDAT and the following: gender, CURB-65 score, presence and number of risk variables on admission, presence and number of clinical outcome criteria on admission or their time to resolution. The EDAT was similar in 2007 (the publication year of the pneumonia treatment guidelines) compared to 2006 and 2008.

The hospital mortality rate was 8.9% (95% CI 4.2, 14.7). Compared to the mortality rate in those patients who received one day of antimicrobial therapy, continued reductions in mortality were demonstrated up to five days of treatment, after which time no further reduction in hospital mortality was demonstrated (Table 2).

The readmission rate within one month of a previous hospitalization was 14.3% (range 5.8, 28.9) ($p < 0.001$). There was no association between the rate of readmission and antimicrobial treatment duration, with the OR for readmission of 1.08 (95% CI 0.68, 1.73) for patients with treatment durations

⁴ EDAT = difference between the days of treatment received and the recommended days of treatment according to the resolution of clinical outcome criteria.

TABLE 2. Incremental mortality benefit of antimicrobial therapy for each additional day of treatment

Treatment Completed (Days)	Incidence Rate Ratio (95%CI)
2	0.42 (0.26, 0.68)
3	0.43 (0.21, 0.87)
4	0.46 (0.28, 0.75)
5	0.56 (0.38, 0.82)
6	0.89 (0.52, 1.54)

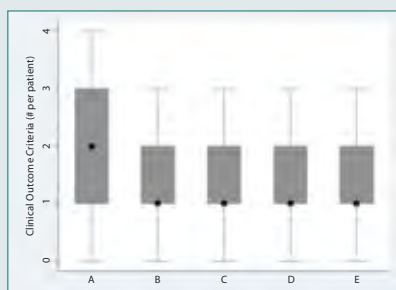


FIGURE 7. Distribution of clinical outcome criteria among study patients by hospital

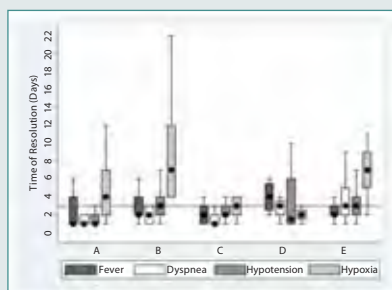


FIGURE 8. Time to resolution of clinical outcome criteria by hospital

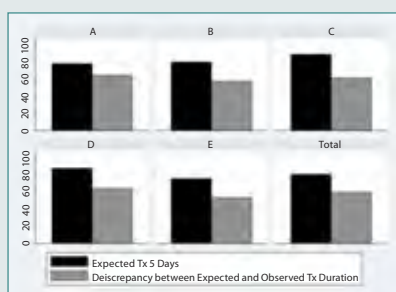


FIGURE 9. Observed variance in expected treatment duration (five days) by hospital and region

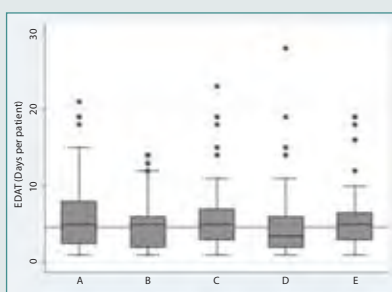


FIGURE 10. Excess days of antimicrobial treatment (EDAT) by hospital

in excess of 5 days compared to those treated for five days.

The incidence of ARO colonization and/or infection was 11.1% (range 8.0, 17.3%) ($p < 0.01$). No association could be demonstrated between the incidence of ARO colonization/infection and excessive duration of antimicrobial treatment (OR 1.02, 95% CI 0.97, 1.08).

The EDAT contributed to an increased length of stay of 0.41 days (95% CI 0.25, 0.56) for each unwarranted day of parenteral therapy after accounting for differences in CURB-65 score, risk variables on admission, patient clinical outcome

criteria on admission and their time to resolution, and type of empiric antimicrobial regimen utilized. The estimated EDIS attributable to parenteral EDAT was 1,365 days.

Impact of variation from effective care on healthcare system performance

The total EDAT was 8,230 (95% CI 7,574, 8,886) for the study period, resulting in excess antimicrobial costs of \$101,723. The total excess days of hospitalization due to EDAT were 1,365 hospital days resulting in excess hospitalization costs of \$704,340 for the study period.

The total excess days of hospitalization due to potentially avertable admissions of patients with a low CURB-65 score and absent hypoxia, hypotension and confusion was 2,397 days resulting in excess hospitalization costs of \$1,236,852. The total excess costs were estimated to exceed \$2,000,000 or 0.14% of the total NSM LHIN healthcare budget, and the total excess hospital days were estimated to account for 0.63% of all patient days for the study period.

INTERPRETATION

Brief summary

We demonstrated the presence of significant variation in the diagnosis, admission decisions and antimicrobial treatment decisions for patients admitted to hospitals with a diagnosis of pneumonia. We could not demonstrate any obvious explanatory factors that could clinically account for these variations in practice. The impact of the observed variation on healthcare system performance resulted in increased costs of care and decreased access to hospital resources. While the excess costs due to inappropriate antimicrobial use was minimal, the nearly 8,000 excess days of therapy along with nearly 4,000 excess days of hospitalization resulted in a potentially significantly increased patient risk for the acquisition of AROs. Inaccurate diagnoses, unnecessary hospital admissions and prolonged lengths of stay are all important contributing factors of inappropriate antimicrobial utilization.

Explanation

Unwarranted variation from effective medical care, especially for the case of inappropriate antimicrobial utilization, has been repeatedly demonstrated in many clinical settings (12,13,14). The misdiagnosis of pneumonia has been demonstrated to not only negatively impact antimicrobial utilization but also patient outcomes (15, 16, 17). Compliance with recommended pneumonia treatment guidelines has been consistently demonstrated to be less than 50% for appropriate empiric therapy, and especially poor compliance has been demonstrated for discontinuing treatment at the appropriate time (12,18). The vari-


ation in both admission practices (19-25) and prolonged lengths of stay (26,27,28) for patients diagnosed with pneumonia has also been well documented.

There are many explanations for the results in this study. While there is no gold standard for the diagnosis of pneumonia nor any pathognomonic finding(s), what has emerged from many studies is that only a certain subset of patients who meet specific criteria seem to benefit from antimicrobial treatment and this attributable net benefit decreases rapidly over time so that the majority of patients no longer benefit from ongoing treatment after three to five days (10, 14, 29, 30). Also, many clinical syndromes can mimic and complicate the diagnosis of pneumonia, injecting a high degree of uncertainty into the clinical diagnosis, thus sometimes necessitating admission to hospital for investigations and monitoring even in the absence of significant disease (31, 32). There is also great reluctance to discontinue antimicrobial therapy even when an alternative diagnosis has been established for fear that the patient may have a concomitant infection that is now responding to treatment (13). And despite the increasing risk and incidence of ARO infections among hospitalized patients, most physicians don't believe that antimicrobials pose any significant risks to patients or their environment (33, 34).

Limitations

The nature of the retrospective medical record review prevented us from interviewing the attending physician in order to better determine their rationale for any observed variation from effective care. All attempts were made to account for any explanatory factors contributing to warranted variations from best practice, however, many factors may not have been recognized and this may have led to an overestimation of the extent and impact of unwarranted variation among the study population (32). The missing records for sites A and D could limit the validity of interpretation for those sites. The strengths of this study were that it was a multi-centre, multi-year study that analyzed data at the level of the patient and then aggregated the findings to compare across hospital sites.

CONCLUSIONS

Successful ASP must prospectively monitor and intervene not only on unwarranted antimicrobial utilization practices, but also on the driving factors that contribute to inaccurate diagnoses, unnecessary hospital admissions and prolonged lengths of hospitalization in order to improve overall health-care system performance. Through understanding local patterns of practice that contribute to unwarranted variation in antimicrobial utilization, local ASP can direct their resources and efforts on practices that will have the most return on investment for both the patient and the healthcare system. The ubiquitous practices across healthcare facilities which contribute to inappropriate antimicrobial and healthcare system utilization suggests that a coordinated regional approach may offer the best opportunity for successful and sustainable implementation of an ASP. The quality indicators utilized to monitor the effectiveness of an ASP should not only include compliance with better antimicrobial prescribing, but also their impact on minimizing unwarranted variation from best practice in the diagnosis, admission and management decisions of specific infectious diseases syndromes. 

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CONFLICT OF INTEREST

The author reports no conflict of interest relevant to this article.

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Part of the Solution Working Towards a Cleaner Tomorrow

Hospital-associated infections (HAIs) are under the microscope, so to speak. And more and more solutions to gain control are cropping all the time - from new resources and procedures to more effective surveillance and tracking methods. But even with all this, the war on HAIs will never be won without basic and proper cleanliness standards.

“Effective cleaning starts with effective products,” says Jay Candido, Corporate Director, Marketing and Operations - Away From Home Division, Kruger Products. Everything from the chemical solvents, types of gloves worn by cleaning staff, and the devices used to clean (e.g. rags, wipes, paper towels, mops), plays an important role in preventing and managing HAIs. Without a clean environment, other measures such as screening and hand washing are futile, no matter how effective they may appear in a research setting.

Investing in quality cleaning products from the start should be part of any HAI prevention plan and can help institutions avoid future costs associated with outbreaks.

Typically, a challenge arises when reconciling hospital spending. Until recently, investing in quality cleaning products was not high on many hospitals' budgets. But with the rise of superbugs, like MRSA and *C. difficile*, it's quickly being recognized as a necessary part of this battle.

“High performing paper towel and wipes are important parts of a winning strategy,” says Candido. *“What may seem like high spending upfront can actually save health care institutions money over the longer term.”* Part of this



is a direct cost saving from requiring less product with each use because it is higher performing, and part of it is the savings that come from better HAI prevention and management. Investing in quality cleaning products from the start should be part of any HAI prevention plan and can help institutions avoid future costs associated with outbreaks.



“We can equip health care facilities with ideal system solutions for these types of environments. A great example is pairing a simple-to-use, high performing, touchless paper towel dispenser in common washroom areas or patient rooms with the longest roll towel in the market (our White Swan, 1,200' roll towel). The touchless feature helps reduce the spread of germs and infections and the longest roll towel will help reduce the need for servicing from maintenance staff so they can focus on keeping other areas of the facility clean,” says Candido.

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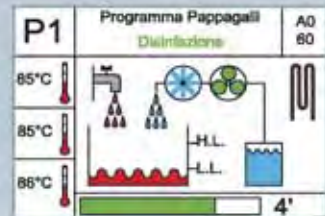
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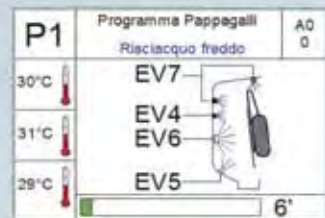
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Temporal association between influenza burden and increased nosocomial antibiotic-resistant organism cases in an academic teaching hospital

University Health Network-Toronto
General Hospital site

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ABSTRACT

Background

The 2010-2011 influenza season resulted in a markedly increased number of hospitalizations for influenza cases at Toronto General Hospital as compared to previous seasons. An increased number of nosocomial antibiotic-resistant organisms (ARO) were also noted during the fall and winter of 2010-2011. It was hypothesized that the two events may be linked.

Methods

A laboratory information system (LIS) search was performed to identify all positive Influenza (A and B) and ARO cases between November and January of each of the 2009-2010 and 2010-2011 influenza seasons. Infection control surveillance line lists were cross-referenced with the LIS search to identify all nosocomial cases.

Results

A temporal association was found between inpatient influenza burden and increased nosocomial ARO cases from November 2010 to January 2011 as compared to the previous season.

Conclusions

It was hypothesized that the increased number of ARO cases were related to: lack of isolation rooms, multiple patient transfers and accommodation on off-service units, "isolation fatigue" amongst staff and staff shortages.

KEY WORDS:

influenza burden, antibiotic-resistant organism burden, ARO.

Acknowledgments:

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INTRODUCTION

Human influenza, or the flu, is a common acute viral respiratory infection affecting millions of people each year. In the United States, between 5-20% of the population, on average, acquires the flu each year (1). Similarly in Canada, an estimated 10-25% of the population acquires the flu annually (2). The influenza season typically runs from November to April.

Methicillin resistant *Staphylococcus aureus* (MRSA), vancomycin resistant enterococcus (VRE) and *Clostridium difficile* (*C. difficile*) are considered the three major healthcare-associated antibiotic-resistant organisms (ARO). MRSA is a well-known healthcare-associated pathogen that significantly affects morbidity and mortality (3, 4). VRE exhibits resistance to multiple antimicrobial agents and has limited available treatment options (3, 4). Similar to MRSA and VRE, *C. difficile* is more likely to be pathogenic in patients who are immunocompromised, chronically ill and taking certain antibiotic therapies (5). *C. difficile* is the most common cause of infectious diarrhea in hospitalized adult patients in the industrialized world (5, 6). Infections acquired in healthcare settings are among the major causes of unintended adverse events, increased length of stay, altered quality of life, increased morbidity and mortality, and increased costs (3, 4, 6, 7, 8).

The following retrospectively describes the temporal association drawn between the increased number of hospitalized cases of influenza and the incidence of nosocomial ARO cases during the same influenza season.

METHODS

The Toronto General Hospital (TGH) is a quaternary care teaching facility with 461 inpatient beds, 11 medical and/or surgical inpatient units and three intensive care units with numerous medical and surgical program specialties.

A retrospective electronic clinical laboratory information system (LIS) (Attachemate Kea!®) search was conducted for all lab-confirmed positive influenza (A and B) and ARO cases admitted between November 1st and January 31st of each of 2009-2010 and 2010-2011 seasons. The LIS results were cross-referenced with the hospital's infection control patient surveillance line lists to identify all nosocomial ARO cases during this same time period and to ensure data accuracy. The *p*-value for the difference in proportions was calculated using Microsoft® Excel 2003 for the number of nosocomial ARO cases to the number of patients admitted during the two seasons.

Nosocomial ARO cases were classified as such by the Canadian Nosocomial Infection Surveillance Program (CNISP) definitions for MRSA, VRE and *C. difficile*. Once a positive result for MRSA, VRE, or *C. difficile* is obtained, infection control practitioners classify cases as nosocomial based on knowledge of previous status and length of stay (9, 10, 11). Nosocomial MRSA and VRE were identified after 48 hours of admission (9, 10). Nosocomial *C. difficile* infection was classified according to symptom onset time which is generally greater than 72 hours after admission or 4 weeks after discharge from hospital (11).

Data of the number of patients on additional precautions was collected from Infection Prevention and Control reports generated from the hospital's electronic patient record (Quadramed) for comparison of the 2009-2010 and 2010-2011 seasons. Additional precautions refer to infection prevention and control interventions used in addition to routine practices to interrupt the transmission of suspected or confirmed infectious pathogens (12). Additional precautions include barrier equipment (gowns, gloves, goggles and masks), accommodation and environmental controls (12). Additional precautions are categorized by Contact, Droplet and Airborne modes of transmission (12, 13).

Confirmed influenza cases were obtained from the Public Health Agency of Canada FluWatch, Toronto Public Health Flu Bulletin and the hospital microbiology laboratory reports. These comparative data were collected to show the increased burden of influenza in Ontario and Toronto and subsequently TGH during the 2010-2011 season. Confirmed employee influenza cases and changes to environmental staffing resources were obtained from Occupational Health and Environmental Services respectively. Data were compared between the 2009-2010 and 2010-2011 seasons as indicators of the proposed association.

RESULTS

The 2010-2011 influenza season resulted in a three-fold increase in lab-confirmed influenza hospitalizations in Ontario, a two-fold increase in the Greater Toronto Area (GTA), and a four-fold increase at TGH as compared to the 2009-2010 pandemic year (Table 1)(14, 15). Correspondingly, TGH saw an increase of 728 inpatient admissions and 350 more inpatients requiring additional precautions during the 2010-2011 season. In addition, TGH saw 59 more cases of confirmed influenza. During that same period, 56 more nosocomial ARO cases were identified (Figure 1). The 2010-2011 nosocomial ARO cases amounted to a 151% increase over the 2009-2010 season (Table 2). The two-tailed *p*-value for the difference in proportions demonstrated statistical significance between the two seasons ($p \leq 0.001$).

TGH witnessed almost triple the number of clusters/outbreaks and unit closures due to outbreaks during the 2010-2011 influenza season. The 2010-2011 season also saw six more staff cases of confirmed influenza by Occupational

Health, 162 more sick calls by Environmental Services employees, and 143 more Environmental Services staffing hours than the 2009-2010 season (Table 2).

DISCUSSION

Hospitalized influenza cases increased four-fold from the 2009-2010 to the 2010-2011 seasons. Simultaneously, the total number of nosocomial healthcare-associated AROs increased nearly three-fold between the two seasons. This increase was statistically significant ($p \leq 0.001$). There were a number of factors that may have contributed to these increases. First, the number of inpatient admissions drastically increased from the 2009-2010 to the 2010-2011 season. Likewise, the number of patients requiring additional precautions increased by a 1:2 ratio as compared to the number for admissions over the same period. This had a considerable impact on accommodation and resources. Guidelines recommend that single rooms with dedicated toileting facilities be used for patients requiring additional precautions (13,16). Existing policies at TGH were reflective of these recommendations; however, policies did not address cohorting for increased isolation burden or lack of single rooms. The increased isolation burden on the units made accommodation in single rooms an overwhelming challenge. On average, the number of single rooms with dedicated toilets in a medical and/or surgical inpatient unit at TGH is seven. The average number of isolated patients per day in the 2010-2011 season was 56 compared to 45 in the 2009-2010 season. The surge in patients requiring single rooms resulted in multiple patient transfers and accommodation on off-service units.

TABLE 1:

Influenza Season	Ontario Hospitalizations	Greater Toronto Area Hospitalizations	Toronto General Hospital Hospitalizations
2009-2010	1299 †	299 ±	18
2010-2011	4475 †	596 ±	77

Comparison of laboratory-confirmed influenza hospitalizations in Ontario, the Greater Toronto Area, and Toronto General Hospital

† Data from Public Health Agency of Canada

± Data from Toronto Public Health

TABLE 2:

Toronto Hospital	Nov-Jan 2009/10	Nov-Jan 2010/11
Confirmed influenza cases	18	77
Nosocomial MRSA cases	9	12
Nosocomial VRE cases	10	44
Nosocomial <i>C. difficile</i> cases	18	37
Total nosocomial ARO cases:	37	93
Clusters/Outbreaks	3 (2 CDI, 1 VRE)	8 (5 CDI, 2 VRE, 1 Influenza)
Unit closures due to outbreaks	0	3
Admissions	4133	4861
Isolated patients (airborne, droplet and contact precautions)	286	636
Average # of isolated patients per day (Average # of single rooms per medical and/or surgical inpatient unit = 7)	45	56
Occupational Health – confirmed employee influenza cases	11	17
Environmental Services sick calls	462	624
Environmental Services hours	105	248

Data comparison: 2009-2010 and 2010-2011 seasons


An increased additional precautions burden along with numerous patient transfers between units has been associated with the transmission of healthcare-associated pathogens (6, 8). This was demonstrated when the 2010-2011 season witnessed three times the number of clusters and outbreaks combined. There were three *C.difficile* clusters, as well as one influenza, two VRE and two *C.difficile* outbreaks. Twenty nosocomial VRE cases were identified in one outbreak attributing to a four-fold increase in VRE cases. Three unit closures resulted from these outbreaks which placed an even greater strain on units to accommodate newly admitted patients. As such, patients were often accommodated on off-service units.

Secondly, the increase in patients requiring additional precautions laid the foundation for “isolation fatigue” amongst staff. Studies have shown that an increase in workload is associated with reduced hand hygiene compliance (16, 17, 18, 19) and affects compliance with routine practices and additional precautions (13). Furthermore, failure to fully use routine practices and additional precautions has led to person-to-person transmission of pathogens (12, 13, 20, 21, 22). As such,

the literature shows that outbreaks could be prevented if compliance with routine practices and additional precautions has been optimal (13, 22).

Lastly, staff shortages are known to influence workload. During the 2010-2011 influenza season, the staff shortages experienced from confirmed influenza and sick calls was associated with a negative impact on staff workload. Moreover, during observed clusters and outbreaks, the demand for Environmental Services staffing increased by 143 hours for the 2010-2011 season. In such instances, the healthcare workers and housekeeping staff were already working at full capacity before the outbreak and were further strained (6, 23). This strain increases the potential for breaches in all practices and for environmental contamination. There appears to be a synergistic effect between staff shortages, increased workload, and increased transmission.

In conclusion, an increased influenza burden was noted to be temporally associated with an increased nosocomial ARO burden. Decreased compliance with routine practices and additional precautions along with the increased environmental microbial burden could have a synergistic effect in promoting

microbial transmission. Subsequent changes have been made to policy and practice at Toronto General Hospital. An Isolation Escalation policy has been developed to assist the Patient Flow department. When an increase in the number of patients requiring additional precautions on inpatient units or in the emergency department is significantly hampering patient flow; the policy outlines steps for reassessing isolation status and cohorting of patients under the guidance of the Infection Prevention and Control department. The policy has not been utilized so its effectiveness has not been evaluated to date. In addition, Environmental Services staffing complements have been revised and increased. The revision to staffing complements has been recently implemented and therefore has not been evaluated to date. 

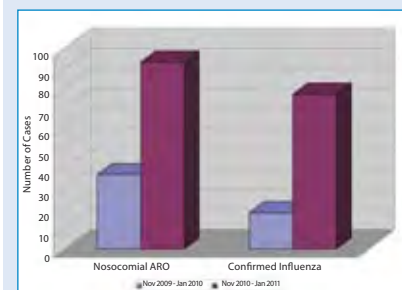


FIGURE 1. Comparison of nosocomial ARO and influenza cases over the 2009-2010 season and 2010-2011 season

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NEWS

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Jim Gauthier, MLT, CIC
President, CHICA-Canada

You are CHICA-Canada

For my editorial this issue, I wanted to share with all members parts of my opening remarks from the CHICA-Canada National Conference, held this June in Saskatoon, Saskatchewan.

Honorary members, invited guests, friends. Welcome to CHICA-Canada's national conference. This organization is 36 years old, about the same age I am, give or take a year or two, and so much has occurred over these 36 years. In 1976 we did not have an issue in Canada with MRSA, but with plain old penicillin-resistant Staph aureus. C. difficile was around in 1935 but was not associated with antibiotic associated diarrhea until the '70s and the main form of detection was culture – probably closer to 48 or 72 hours for a result. VRE was not even heard of until into the 1980s.

My ideas for this talk have been numerous but I keep coming back to one thought: CHICA is its members. CHICA


is not the board of nine volunteers, or in some cases voluntolds. CHICA is not its staff, the journal, or website or conference for that matter. It is you – the member, the front line infection prevention and control practitioner. It is the nurse, technologist, epidemiologist, public health inspector, medical doctor, PhD, or other healthcare practitioner. It is the healthcare worker who is trying to make a patient, resident or client well, or trying to keep them well. CHICA is friends new and old, talking, laughing and brainstorming. It is every one of our over 1600 members. It is the roughly 400 board-certified members with a CIC after their name. These 400 represent 36% of our eligible members who have their CIC, which is the highest percentage of members in North America, if not the world. CHICA is the hardy few who ran and walked in the IFIC event at 0630 to raise funds for those in under-resourced countries around the world.

The CHICA national conference is you being here, sharing ideas, stories and theories. Everything you will listen to over the next two and a half days and have listened to on the previous two days has generally come from your ideas on previous year's evaluations. I think you are all aware that all of you present at this conference will provide the ideas and topics that we will mold into that conference two years from now. This November, the 2014 conference Scientific Program Committee will sit down with the evaluations generated at this conference, and the topics left in the parking lot from the 2013 committee, and shape out a program that will intrigue, and educate you, the CHICA member.

I have been amazed at the involvement of CHICA members. Your board puts out a call for a member to sit on a committee or assist with a project, and the in-basket at our membership services office fills up with e-mailed résumés. Please let your name stand for one of the three positions open on the board for terms commencing January 1, 2013: President Elect, Director of Programs and Projects, and Director of Standards and Guidelines. You will find it a very worthwhile endeavor.

If your chapter would like more information on board activities, invite one of the board members to your chapter meeting. If you can help us with travel expenses, we will be there to talk to your members.

As a heads-up, the coming years will see surveys and questionnaires asking for your opinion: please take a couple of minutes to fill them out as they arrive so CHICA is representative of your ideas.

The first six months of this residential gig have been a whirlwind, and the coming six months have no evidence of being any quieter. 



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Jim Gauthier, MLT, CIC
Président, CHICA-Canada

CHICA-Canada, c'est vous

Dans ce numéro, j'ai pensé transmettre à tous les membres des extraits de mon allocution d'ouverture à l'occasion du congrès national de CHICA-Canada, qui a eu lieu en juin à Saskatoon, en Saskatchewan.

Chers membres honoraires, invités de marque et amis, soyez les bienvenus au congrès national de CHICA-Canada. Notre organisation a 36 ans, soit mon âge à quelques années près. Il s'est passé tant de choses en 36 ans. En 1976, il n'y avait pas de problème de SARM au Canada, on n'était confronté qu'au bon vieux staphylocoque doré résistant à la pénicilline. Le *C. difficile* circulait en 1935, mais ce n'est que dans les années 1970 qu'on l'a associé à la diarrhée consécutive à un traitement antibiotique et notre principal outil de détection était la culture – il fallait probablement jusqu'à 48 ou même 72 heures pour

obtenir un résultat. Quant à l'ERV, jusque dans les années 1980, on n'en avait jamais entendu parler.

Plusieurs idées me sont venues à l'esprit pour cette allocution, mais je revenais toujours à la même réflexion : ce qui caractérise CHICA, c'est les membres qui en font partie. CHICA n'est pas un conseil d'administration formé de neuf bénévoles, dont certains se retrouvent parfois là un peu par la force. CHICA, ce n'est pas le personnel qui y travaille, ni la revue, ni le site Web, pas plus que le congrès. CHICA, c'est vous – le membre, le professionnel en prévention et contrôle des infections qui œuvre sur le terrain. C'est l'infirmier, l'infirmière, le ou la technologue, l'épidémiologiste, l'inspecteur ou l'inspectrice en santé publique, le médecin, le chercheur titulaire d'un doctorat et tout autre professionnel de la santé. C'est le

collègue qui tente de ramener un patient, un résident ou un client à la santé ou de maintenir tous ces gens en santé. CHICA, c'est un réseau d'amis, anciens et nouveaux, qui rient ensemble et échangent des idées spontanément. C'est chacun de nos 1 600 membres. C'est aussi les quelque 400 membres agréés par le Certification Board of Infection Control (CBIC), qui apposent les initiales CIC après leur nom. Ces 400 personnes représentent 36 % de nos membres en règle; il s'agit du pourcentage le plus élevé parmi les associations du genre en Amérique du Nord. CHICA, c'est aussi les valeureux marcheurs et coureurs qui, à 6 h 30 le matin, ont participé à l'activité de l'IFIC visant à recueillir des fonds pour les pays défavorisés.

Le congrès national de CHICA, c'est vous tous qui êtes réunis pour échanger des idées, des témoignages et des théories. Tout ce que vous entendrez dans les deux journées et demie à venir et que vous avez entendu au cours des deux journées écoulées provient en gros des idées que vous avez exprimées dans les évaluations des années antérieures. Je crois que vous avez tous conscience que, par votre présence ici, vous apportez des idées et des sujets qui nous alimenteront dans la préparation du congrès qui aura lieu dans deux ans. Dès novembre, le comité responsable du programme scientifique du congrès 2014 se réunira et s'inspirera des commentaires reçus au sujet du présent congrès ainsi que des thèmes laissés en plan par le comité organisateur du congrès 2013 pour élaborer un programme qui saura piquer votre curiosité et accroître vos connaissances.



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« CHICA n'est pas un conseil d'administration formé de neuf bénévoles, dont certains se retrouvent parfois là un peu par la force. CHICA, ce n'est pas le personnel qui y travaille, ni la revue, ni le site Web, pas plus que le congrès. CHICA, c'est vous – le membre, le professionnel en prévention et contrôle des infections qui œuvre sur le terrain. »

Je suis fasciné par l'engagement des membres de CHICA. Il suffit que votre conseil d'administration lance un appel à tous pour trouver un membre disposé à siéger à un comité ou à prêter main-forte à un comité pour qu'ensuite la corbeille d'arrivée du personnel responsable des services aux membres soit inondée de courriels de membres intéressés. Je vous invite à proposer votre candidature à l'un des trois postes à pourvoir au conseil et dont le mandat commencera le 1^{er} janvier 2013 : président désigné, directeur des programmes et des projets, directeur des normes et des lignes directrices. Je




suis persuadé que vous trouverez cette expérience des plus intéressantes.

Si votre section régionale souhaite obtenir plus d'information sur les activités du conseil d'administration, n'hésitez pas à inviter un membre du conseil à l'une de vos rencontres. Si vous pouvez contribuer

à absorber une partie des frais de déplacement, nous nous ferons un plaisir de nous rendre sur place pour échanger avec vos membres.

Au cours des années à venir, vous recevrez des sondages et des questionnaires destinés à recueillir votre opinion. Je vous prie de prendre quelques minutes pour y répondre dès que vous les recevrez pour que CHICA puisse continuer d'être le reflet de vos idées.

Les six premiers mois de mon mandat à la présidence ont été fort animés et rien ne laisse présager que les six prochains mois seront plus calmes. 

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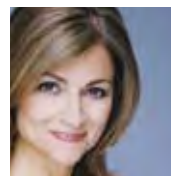
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Gerry Hansen, BA

Executive Director, CHICA-Canada

Association name change

At the 2012 AGM held in Saskatoon on June 21, members voted to give the board of directors a mandate to proceed with an association name change. This means that, at the 2013 AGM, members will vote either to change the association name to one suggested by membership (see below) or retain its current name.

Over recent years, there has been interest in investigating whether CHICA should change its name since other organizations have completed a name change (for example, Infection Prevention Society of the UK) or attempted to change their name (for example, APIC). In addition, the board of directors of CHICA-Canada has discussed whether CHICA-Canada's legal name and acronym are still appropriate. The board asked the question: *Does the name need to be simplified to be current, recognized and easy to relay to media, etc.?* The full name (Community and Hospital Infection Control Association – Canada) is very long, sometimes tongue twisting, and is often too cumbersome to be printed in media articles. Often, media will not use our full name because of its length but will use the name of the institution of the spokesperson – we are therefore not represented as the national voice of infection prevention and control. The acronym CHICA-Canada can be unclear to non-members and is often misunderstood. The board also asked the question: *Does our current name address the various disciplines of our membership and our focus?* By 2011, we no longer only represent hospitals or community. Our constituents now include public health, laboratories, prehospital care, and alternative services. Other constituents encompass political communities, such as government networks, standards and accreditation, First Nations, Correctional Services, etc.

“By 2011, we no longer only represent hospitals or community. Our constituents now include public health, laboratories, prehospital care, and alternative services.”

The board then asked: *Is the acronym (CHICA) recognizable to healthcare leaders and the public?* Finally, the board asked: *What do members want to do?*

An online survey (February 2012) and a follow up discussion board (May 2012) provided good reasons to support change and equally good reasons to keep the current name. Some felt the name is old fashioned and should be more appropriate to our membership and easily recognizable as the purpose of the organization. Others had an emotional tie to the history of the name, felt it does encompass the scope of members, and worried about the cost of changing the name in this time of financial restraint. There was concern about the cost to chapters in changing their names when many have just gone through the process of chapter name change. At the 2012 AGM, there were passionate reasons to both keep the current name and to change it.

Why would we look into a name change at this time? Indeed this is the time for change, if members so wish. The newly revised *Not-for-Profit Corporations Act* came into effect in October 2011. All incorporated not-for-profit organizations are compelled to review and submit their articles of incorporation and their by-laws to satisfy the requirements and terminology of the new act. This must be completed and submitted to Corporations

Canada by October 14, 2014. If we do not comply with this exercise, we are in danger of losing our not-for-profit status and the resulting tax benefits for CHICA, its chapters, and its members and supporters. If there is a name change, it can be included in the submission without additional cost.

What is the cost of a name change?

We will be budgeting \$8,000 over 2013 and 2014 for legal advice in the submission of the new articles and by-laws. This does not change if there is a name change. If a name change occurs at any other time, there could be another legal fee of \$3-5,000.

With a new name there will be branding considerations. Requests for information from branding consultants show that professional advice in this matter, including development of a new logo, and communication with members and external stakeholders, would be approximately \$10,000. We have not included website changes in the estimates for branding because we feel we have an expert webmaster and web designer already in place to make any necessary changes. There would, however, be internal costs for infrastructure changes such as stationery, website, cheques, and communication, estimated at \$5,000 over two years.

What is the cost to chapters? With a name change, chapters must change their


stationery, website, logos and cheques over the next two to three years. They are not expected to change immediately. Current stock can be used up (except for cheques). We anticipate that there is a minimal cost to the chapter. CHICA will be taking the initiative of informing chapter banks and the Canada Revenue Agency of the changes in chapter names.

What will be the process of change?

The board will prepare an online request for name change suggestions and invite members to propose a new name and the rationale for using the new name. A short list will be submitted to members for voting and the final name could be ratified at the 2013 AGM. This is the most important aspect of that ratification: this is the last chance for members to make the decision to change the association name or to retain its current name.

What are the timelines of change?

The following timelines are tentative and depend on member engagement in the discussion on name change and on approval of the new articles/by-laws by Corporations Canada.

For a copy of the results of the February 2012 and May 2012 surveys, please contact CHICA-Canada. 

Tentative Date	Action
June 2012	Approval to proceed with name change
2012-2013	Call for suggestions from members for name change; online voting of short list
June 2013	Ratification of new name or retention of current name at 2013 AGM. This will require a 2/3 vote of members in attendance at the AGM. Members may also vote by proxy if they are not able to attend the 2013 AGM. (The official proxy vote form will be distributed to members in spring 2013.)
Remainder of 2013	Rebranding process
October 2014	Deadline date for submission to Corporations Canada. It is hoped that this date will be pushed forward and that approval will be received earlier than October 2014.
January 1, 2015	The new name would come into effect. This date could also be pushed forward depending on the process of approval with Corporations Canada.



2012-2013 Member and Source Guide

The 2012-2013 Member and Source Guide has been distributed. An online version can be accessed in the Members Area of www.chica.org. We apologize to Tagg Design Inc. for the inadvertent exclusion of their corporate information in the printed 2012-2013 Buyers' Guide. A revised Buyers' Guide is posted online.

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¹CDC. Guidelines for Environmental Infection Control in Healthcare Facilities, June 6, 2003/52 (RR 10): 1-42 II. Cleaning spills of blood and body substances



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ARO Point-Prevalence Survey

CHICA-Canada and the ARO Point-Prevalence Study Team (D. Gravel, Guanghong Han, Z. Hirji, O. Larios, A. McGeer, A. Simor, and K. Weiss) would like to thank all of those who participated in the cross-Canada Point-Prevalence Survey of Antibiotic-Resistant Organisms (AROs: MRSA, VRE, and *C. difficile*) that took place in November 2010. This survey for AROs could not have been done without you! The survey was remarkably successful, providing the first national prevalence information for these AROs in Canadian hospitals. A total of 176 acute-care facilities across the country, representing 65% of all those that were eligible, participated voluntarily and provided data. This unique survey also provided valuable information about infection prevention and control policies across the country, and correlated these with prevalence rates. Preliminary results were provided to all study participants, and have been presented at national

and international scientific meetings, including the annual CHICA-Canada conference last year. A manuscript is currently being prepared for publication, and a report will also appear in the *Canadian Journal of Infection Control* later this year.

In order to monitor changes and trends in ARO rates, a follow-up prevalence study is being planned for November of this year, and once again, this project is fully supported and endorsed by CHICA-Canada. Infection prevention and control professionals in acute-care facilities will be approached and offered an opportunity to participate in this important initiative. In the meantime, any questions regarding this survey may be addressed to Dr. Andrew Simor (andrew.simor@sunnybrook.ca) or Vicki Williams, CIC (victoria.williams@sunnybrook.ca). The ARO Point-Prevalence Study Team looks forward to working closely again with CHICA-Canada and its members. 





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1. ASTM E 1174, Study # 110238-101, April 25, 2011, BioScience Laboratories, Bozeman, MT. 2. ASTM E 1174, Study # 100907-101, January 6, 2011, BioScience Laboratories, Bozeman, MT. ASTM E 1174, Study # 111209-101, March 8, 2012, BioScience Laboratories, Bozeman, MT. When tested, using the ASTM E 1174 test methodology against other hand sanitizers commonly used in healthcare facilities. | ©2012, GOJO Industries, Inc. All rights reserved. | #9627



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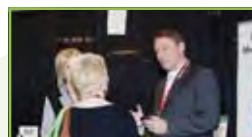
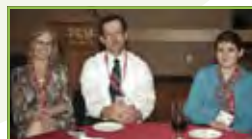
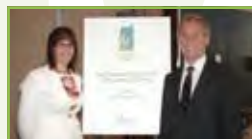
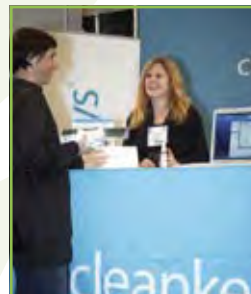


Growing for the Future 2012 National Education Conference

TCU PLACE, SASKATOON, JUNE 16-21, 2012



2012 NATIONAL EDUCATION CONFERENCE
June 16-21, 2012
TCU Place, Saskatoon, SK



Growing for the Future 2012 National Education Conference

TCU PLACE, SASKATOON, JUNE 16-21, 2012



CHICA-Canada Chapter Presidents.



2012 Virox Scholarship Winners.



CHICA HANDIC was the winning chapter for both the CHICA CIC Chapter Achievement Award and the 3M Chapter Achievement Award. Chapter members are shown with Kathie McGhie of 3M Canada and Jim Gauthier.



CHICA Canada Board of Directors: Jennifer Grant, Donna Moralejo, Marilyn Weinmaster, Donna Wiens, Bruce Gamage, Jim Gauthier, Karen Clinker, Judi Linden (Inset Michael Gardam).



International representatives: Candace Friedman (IFIC), Barbara Russell (CBIC), Ruth Barratt (New Zealand), Anne Krolikowski (CBIC), Michelle Farber (APIC), Jim Gauthier, Glenda Schuh (CBIC).



2012 Scientific Program Committee: Joanne Baines, Colette Ouellet, Alexis Silverman, Anne Bialachowski, Molly Blake, Marilyn Weinmaster, Oscar Larios, Rita Montgomery, Gwen Cerkowniak.



Mandy Deeves displays the CHICA Simcoe-Muskoka charter which was presented by Jim Gauthier at the Opening Ceremonies.



Yasmin Chagla accepts the 2012 Moira Walker Memorial Award for International Service from Jim Gauthier.



Bridget Maxwell, displays her 2012 Ecolab Poster Contest winning submission with Doug Hons (Ecolab), Jim Gauthier, and Karen Clinker (CHICA Director, Programs & Projects).



Dr. Allan Ronald accepts the 2012 Champion of Infection Prevention and Control Award from Kathie McGhie (3M Canada) and Jim Gauthier (President of CHICA-Canada).

Photos by Cindy Moleski Photography, Saskatoon

AWARD WINNERS

- 2012 Champion of Infection Control: Dr. Allan Ronald
- 2012 Moira Walker Memorial Award for International Service: Yasmin Chagla
- 2011 Editorial Award: Chantal Backman, RN, MHA, PhD; Patricia Beryl March, RN, PhD; Naomi Krogman, BA, MS, PhD; Geoffrey Taylor, MD; Anne Sales, RN, PhD; and Virginia Roth *Barriers and Bridges to Infection Prevention and Control: results of a case study of a Canadian surgical unit* (Winter 2011).
- 2012 Ecolab Poster Contest: Bridget Maxwell, Halifax
- CHICA-Canada CIC Chapter Achievement Award: CHICA HANDIC
- 3M Chapter Achievement Award: CHICA HANDIC. You can view the winning submission at www.chica.org

- Best First Time Abstract: Rosemarie Howie, London Health Sciences Centre, for her abstract: *Assessing the Impact of Bedpan Processing Modifications and Environmental Cleaning Education on Hospital Hygiene*
- Best Poster Presentation: Jayshree Somani, Rouge Valley Health System, for her poster: *Hands Up! Improving hand hygiene compliance as a key patient safety and quality initiative*
- Best Oral Presentation: Gertie van Knippenberg-Gordebeke, The Netherlands, for her presentation: *RISK FOR HEALTHCARE ASSOCIATED INFECTIONS (3-21%) IN CASE OF NEGLIGENT BEDPANMANAGEMENT*
- Exhibit passport prizes: Sony Reader – Grace Volkening, Toronto; Coach handbag – Dea Graessli, Regina
- Free hotel stay (three nights): Veruchia Grabowski, Qatar
- Early bird registration draw: Tricia Herridge, Camrose

2012 RUN OR WALK FOR IFIC

First place male: Jim Gauthier (Braveheart, Slayer of Germs) with a time of 23.15 minutes

First place female: Jennifer Grant with a time of 22.37 minutes

Honorary mention: Tara Donovan who was one step behind Jennifer

First place walker: Maria Ralph and Anne Bialachowski - they were walking together

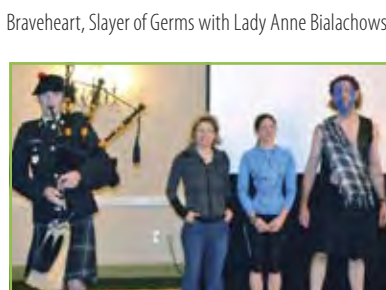
Most sponsor monies raised: Sue Lafferty

Chapter with the most participants: CHICA SASKPIC

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Braveheart, Slayer of Germs with Lady Anne Bialachowski

Growing for the Future 2012 National Education Conference

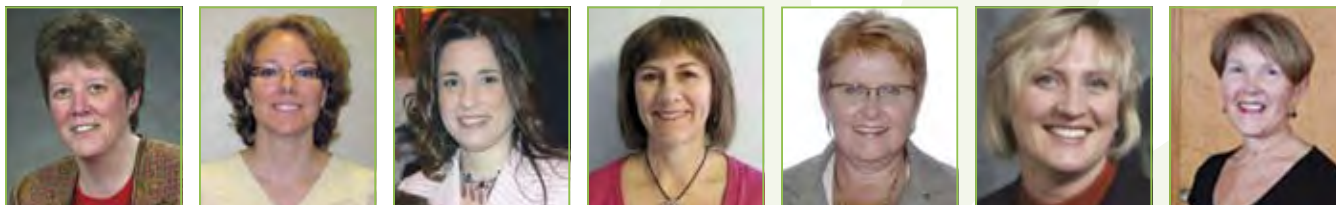
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2012 CHICA-CANADA AWARD OF MERIT

The 2012 CHICA-Canada Award of Merit has been presented for dedication and service to CHICA-Canada in the development of the six modules of the Routine Practices E-Learning Tool. This initiative required not only significant expertise in

the practice of infection prevention and control and the education of healthcare workers, but also considerable dedication to an 18-month project. The end product is an engaging tool that will be valued by healthcare workers and administrators in all settings. 2012 Award of Merit recipients were recognized at the 2012

Opening Ceremonies.
 Donna Moralejo, PhD
 Isabelle Langman, RN, CIC
 Silvana Perna, BScN, MSc(A), CIC
 Faith Stoll, RN, BScN, CIC
 Marilyn Weinmaster, RN, BScN, CIC
 Nina Williams, RN, BN
 Marion Yetman, RN, BN, MN, CIC



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CHICA 2012 (CD•MP3) ORDER FORM

CD MP3 Plenary Sessions

- P1. How to Engage Executives To Make IPAC a Priority - Cheryl Etches
- P2. Executive Support in Action - Anne Bialachowski & David Higgins
- P3. Antibiotic Stewardship - Joseph Blondeau
- P4. Antimicrobial Resistance Awareness - Margaret Fast
- P5. Disaster Dilemmas: Shawn Carby
- P6. What Did You Bring Home with You That's Not in Your Luggage? - Jay Keystone
- P7. To Decolonize, or Not? - John Embil
- P8. The Future of IPAC: Right-brain Thinkers in a Left-Brain System - Bruce Gamage
- P9. IPAC - Keeping It Fresh, Keeping It Relevant - Julie Storr
- P10. Surveillance: Should Every Battle Be Waged...Can Retreat Be a Better Alternative?-C. Lemieux
- P11. Closing - Storytelling in Infection Prevention and Control - Hugh McLeod

CD MP3 Pre-Conference Half Day Programs

- PC1a,b,c. Pediatrics (3 CDs) - Emergency Department, IPAC & Neonates, CLABSI & VAP Bundles, Management of Varicella Zoster & Impact of Immunization
- PC2a,b,c. Long Term Care (3 CDs) - Cleaning, Disinfection and Sterilization, Tuberculosis, Surveillance, Outbreak Management

CD MP3 Pre-Conference Full Day Program

- PC3a,b,c,d,e. (5 CDs) - Virox Cleaning, Disinfection and Sterilization Day

Novice Practitioner Day

- NP1. Planting The Seeds of Wisdom
- NP2. Knowing If It's Growing
- NP3. How Doctors Think
- NP4. Cultivating Teamwork
- NP5. Equipment To Make The Field Grow
- NP6. Surveillance for an Effective IPAC Program
- NP7. Working The Field To Increase Your Yield

CD MP3 Advanced Practitioner Day

- AP1. Fighting The Good Fight
- AP2. Describing The Game Plan
- AP3. Conditioning Your Team:
- AP4. Protecting The Blind Side
- AP5. Making the Abstract Concrete
- AP6. Landing In The End Zone
- AP7. Supporting The Rookies
- AP8. How Doctors Think

CD MP3 Concurrent Sessions (2CDs ea.)

- C1a,b. Accreditation
- C2a,b. Community & Home Care
- C3a,b. Non-Traditional Settings
- C4a,b. Pet Therapy / Visitations
- C5a,b. Bugs! (Meningitis, Pertussis, Measles)
- C6a,b. IPAC in The Operating Room

CD MP3 Oral Presentations

- O1. Cleaning, Disinfection and Sterilization
- O2. Outbreak Management
- O3. Surveillance
- O4. Program Evaluation
- O5. Quality and Process Improvement
- O6. Practice Standards and Guidelines

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The meeting is driven by an excellent scientific programme covering topics such as infection prevention and control, epidemiology and surveillance, decontamination, new technologies, infectious diseases, laboratory microbiology and antimicrobial agents, to name a few. There will also be an opportunity for delegates to exchange views and ideas about the latest developments in nosocomial and hospital-acquired/healthcare-associated infections.



HIS is returning to Liverpool, one of Britain's most vibrant and cosmopolitan cities, after the very successful 2010 HIS International Conference. The 2012 event will again be located in the BT Convention Centre, a purpose-built, state-of-the-art facility situated in the heart of Liverpool along the historic, world heritage waterfront. 

Early bird registration rate closes after 10th September 2012
Abstract submission closes 21st September 2012

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REFERENCES: 1. Cohen S, et al. Removal of Oral Care to Reduce Catheter-Associated Urinary Tract Infections. Paper presented at APIC 2010, New Orleans, LA, July 2010.
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CIC Graduates: December 2011 - June 2012

"Certification is commitment." These three words are part of the vision statement for the Certification Board of Infection Control and Epidemiology (CBIC). Certification was developed to ultimately protect the public. A recent article found that hospitals that have a certified infection control director have significantly lower rates of MRSA bloodstream infections (AJIC 2012;40(3):96-101).

The new and recertified CICs, from a variety of healthcare settings, have spent hours studying, digesting facts, and reading current literature. This information and life experiences, along with successful completion of the CIC examination, ensure the infection prevention and control practitioner deserves to place a CIC® after their name. Congratulations one and all!

– Jim Gauthier, MLT, CIC, President, CHICA-Canada

CHICA-Canada congratulates the following CIC graduates for the period December 2011 to June 2012.

Motasesm Abuelreish, MD, CIC; Mississauga, ON
Melisa Avanes, CIC; Richmond Hill, ON
Michelle J. Beyko, RN, BSN, MEd., CIC; Saskatoon, SK
Karen L. Campbell, CIC; Stouffville, ON
Sharon L. Carella, RN, CIC; Thunder Bay, ON
Ellie M. Clarke, RN, CIC; Brampton, ON
Megan C. Clarke, RN, CIC; Waterdown, ON
Sonya M. Cornelius, MLT, CIC; Kingston, ON
JoAnne E. De Jager, RN, BScN, CIC; Hamilton, ON
Michele C. de Jonge, RN, BScN, CIC; Almonte, ON
Pauline M.T. Dubeau, RN, CIC; Burlington, ON
Constance Forget- Falcicchio, CIC; Ile Bizard, QC
Jessica Fullerton, CIC; Hamilton, ON
Michael A. Gardam, MD,CM,MSc,FRCPC,CIC; Toronto, ON
Shasta Gibson, CIC; Ancaster, ON
Stacey Guthrie, CIC; Simcoe, ON
Diane Hart, BSc, CIC; Cayuga, ON
Kathryn J. Hart, CIC; Dartmouth, NS
Shaunattonie L. Hudson-Henry, RN, CIC; Brampton, ON
Fuad Ibrahimov, CIC; Richmond, BC
Jessica C. Ip, MSc., CIC; Markham, ON
Barbara Susan Jacka, RN, CIC; Edmonton, AB
Jo-Anne L. Janigan, RN, BScN, CIC; Ottawa, ON
Jenn Johnson, RN, CIC; Ottawa, ON
Elaine A. Langille-Bonell, CIC; North Bay, ON
Jasin Lapointe, CIC; Long Sault, ON
Tammy A. MacDonald, RN, BScN, MBA, CIC; Dartmouth, NS
Tanya L. MacNeil, RN, BScN, CIC; Timberlea, NS
Michael P. McAuley, CIC; Vancouver, BC
Liz McCreight, CIC; Toronto, ON
Patricia Darlene Perry, CIC; Hamilton, ON
Suzanne Plourde, CIC; Toronto, ON
Ann I. Seigny, CIC; North Bay, ON
Colleen M. Weir, CIC; Stittsville, ON
Mary Katherine Wight, RN, CIC; Belleville, ON
Mirza Z. Ali, CIC; Ajax, ON
Anne K. Augustin, CIC; Orangeville, ON
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Environmental Services: Your Strategic Partner in the war on Hospital Acquired Infection

According to the Canadian Institute for Health Information (CIHI), there are over 220,000 cases of Hospital Acquired Infection (HAI) reported each year in Canada.

Reductions in hospital funding and increased incidence of community-based infections are putting more pressure on hospital ICP teams. Hospital Boards are now accountable for publicly reported goals for HAI prevention as part of their quality commitments.

A strong and collaborative partnership between Environmental Services and the other professionals on the ICP team is mission critical to winning the war on HAIs. Your EVS partner must also be on the leading edge of technical innovation in their field.

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Position Statement – VRE Screening and Contact Precautions

In the past year, some Canadian healthcare facilities have decided to reduce or stop the screening for Vancomycin Resistant Enterococci (VRE) as well as the use of Contact Precautions as a VRE control strategy, while others continue to support current guideline recommendations for VRE surveillance and the use of Additional Precautions.¹

Recognizing that there are two bodies of expert opinion on VRE control, CHICA-Canada takes no position on the specific strategy of decreasing or stopping screening or Contact Precautions for VRE. The following recommendations should not be interpreted as an endorsement of this practice by CHICA-Canada. However, CHICA-Canada does recommend that any changes to practice should be motivated by a desire to improve patient care, and should only be considered in the context of an infection control programme already meeting or exceeding best practices.

For those healthcare facilities that are considering a change in VRE control strategy, CHICA-Canada recommends a considered approach including:

- Epidemiologic investigation and risk assessment for any VRE infection specific to their facility.
- Consultation with staff and client groups including high risk wards/clinics.
- Discussion with risk management and bioethics.

¹ PIDAC. "Statement on Screening and Containment of Vancomycin-resistant Enterococci (VRE)." <http://www.oahpp.ca/about/whatsnew/statement-on-vre-screening-and-containment.html>. accessed June 22, 2012.

- Consultation with patient relations and public affairs.
- Consideration of legal consultation and review of existing practice guidelines and evidence-based studies.
- Discussion with external stakeholders, including the health region.
- An enhanced communication strategy, including multiple contingencies and the possible need to alter strategy in the future.

Further, CHICA-Canada recommends that any savings incurred from decreased screening and Contact Precautions should be reinvested in the following activities (as determined by the risk assessment above):

- Environmental cleaning.
- Quality promotion and assessment of environmental cleaning and application of Routine Practices and Additional Precautions.
- Hand hygiene.
- Antimicrobial stewardship.
- Monitoring of health care-associated infections (HAIs).

Finally, any such changes should be accompanied by close monitoring of VRE culture-positive HAIs following the changes, to assure that undue harm is not incurred as a result of any changes in policy. In the event that harm is found, facilities should be prepared to return to previous policies. It is also highly recommended that those facilities that choose to change their strategy should communicate their experiences to other members of the infection control community for future policy making. ☒

A French translation of this position statement is available at www.chica.org



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CHICA-PANA (Peel and Neighbouring Areas)

Although a new, southern Ontario chapter with a small membership, CHICA-PANA is mighty! Our territory encompasses Brampton, Mississauga, Orangeville, Caledon and neighbouring areas. Pictured here is CHICA-PANA's first president, Alexis Silverman, bestowing "the T-shirt" upon Anne Augustin, current president.


Our chapter meetings always begin with a round table. This is an opportunity to meet others, learn about what each of us are doing, and provide an opportunity to discuss projects and issues. A business meeting follows which includes CHICA-Canada updates and interest group updates. The educational portion of our meetings varies. Here are some highlights from our meetings this year thus far:

- In January, we had great discussion about an item that appeared on the CBC about paper towel contamination. See <http://www.cbc.ca/news/health/story/2012/01/23/seniors-infection-er.html>.
- A 2011 AJIC journal article about hospital bath basins frequently contaminated with multidrug resistant human pathogens was the subject of immense discussion during the March meeting.
- The May meeting hosted two speakers:
 - » Managers from SteriPro Canada, a reprocessing company newly located in Mississauga (see www.steriprocanada.com/).



Left to Right: Alexis Silverman and Anne Augustin

- » IFIC conference, Venice, Italy presented by chapter member, Risa Cashmore.

At our September meeting, we will be taking a tour of the above new reprocessing company. For more information about meetings, please contact Anne Augustin at augustin@headwatershealth.ca. 



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CHICA-HANDIC's Educational Day 2013: An educational train

CHICA-HANDIC welcomed over 243 attendees on board their infection prevention and control express on June 7 at the beautiful Grand Olympia Banquet and Convention Centre in Stoney Creek.

Our conductor for this 16th annual educational event was CHICA-HANDIC chapter president, Mark Jefferson. Travelers boarded the educational train with an enlightening keynote address by lawyer Lonny Rosen whose talk *Managing Privacy Challenges While Protecting Patients and Residents from Infection* made everyone whistle. The annual education day featured a variety of stops with wonderful timely presentations such as:

- *Runaway Train*, focused on EMS services and management of unplanned events by Gary Goguen, Hamilton Police Services
- *Trouble in the Tunnel*, a new, exciting perspective on managing CAUTIs, was shared by Laura Robb, Trillium Health Centre

- *Don't Jump the Tracks* was an exemplary presentation by Dr. Martha Fulford, Infectious Diseases Specialist, whose topic was surgical tourism. (Martha presents annually and is a crowd favourite.)
- *Is this Your Stop?* was presented by Dr. Dominic Mertz, who spoke about antibiotic stewardship
- *Prevention Express* was all about vaccine preventable diseases then and now by the talented Regional Infection Control Network team from Central South: Stefanie Ralph and Virginia Tirilis
- *End of the Line* dealt with blood-borne risks in the funeral home setting, presented by guest speaker, John Hart

Closing the day was the energetic, "moo-tivated" keynote presenter, Carole Bertuzzi. Attendees loved her fast-paced look at not taking oneself too seriously. She demonstrated how to energize oneself while being aware of the draining

impact of the naysayers we encounter in our personal and professional lives. The audience was tickled pink and aching with laughter when she was finished; it was a great way to end a fast-paced, informative day.

Our annual education day would not be possible without the dedication (and humour) of our Education Committee and the support of the CHICA-HANDIC members. Our 2012 conference planning team members were: Tamara Johnson (Chair), Connie-Gittens Weber, Andrea Iacurti (new Education Chair), Cheryl Collins, Stefanie Ralph, Donna Lyle, Risa Cashmore, Mary Catherine Orvidas, Mark Jefferson, Lois Lacroix, Manuela Lopez, Virginia Tirilis, Samira Kermanchi and Tricia Hutton.

CHICA-HANDIC thanks our creative "moo-tivated" members and industry partners for once again making our annual education day a huge success and value packed day for our healthcare continuum. See you in 2013 for another great day! 🐄



Lawyer, Lonny Rosen whose talk was *Managing Privacy Challenges While Protecting Patients and Residents from Infection*.



Gary Goguen, Hamilton Police Services, focussed on EMS services and management of unplanned events.



Laura Robb, Trillium Health Centre, *Trouble in the Tunnel*, a new, exciting perspective on managing CAUTIs.



Don't Jump the Tracks was an exemplary presentation by Dr. Martha Fulford, Infectious Diseases Specialist, whose topic was surgical tourism.



Vaccine Preventable Diseases Then and Now, Stefanie Ralph and Virginia Tirilis from Public Health Ontario.



Dr. Dominic Mertz, who spoke about antibiotic stewardship.



Closing the day was the energetic, "moo-tivated" keynote presenter, Carole Bertuzzi.



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