

# 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

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#### MISSION

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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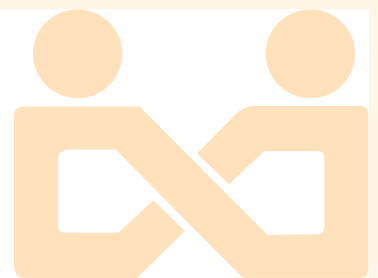
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## What a difference a decade makes

It seems like only yesterday when people around the world watched the much anticipated dawn of the new millennium and awaited the dreaded Y2K. Now, 10 years later, how much has changed, or in some cases, not changed in infection prevention and control (IPAC)?

Based on news reports and journal listings there were definitely some new or re-emerging infectious diseases or IPAC issues in the past 10 years. Some of note are:

- Pandemic H1N1
- SARS
- Monkey pox

- Spread of H5N1 in humans and birds (following an initial appearance in 1997)
- Emergence of *C difficile* BI/NAP1/027
- Outbreaks of CTX-M ESBL
- Rapidly increasing rates of CA-MRSA
- Anthrax used as weapon of bioterror in United States post 9/11
- Public reporting of some health care acquired infection rates in some provinces
- More public and media attention to hand hygiene in health care


In some cases these occurrences were sequential but in some cases they overlapped. One of the most memorable overlaps was the occurrence of Monkey pox cases in the U.S. during the SARS outbreak. Some of these occurrences were anticipated such as a pandemic or bioterrorism and most had plans in place to deal with them. However, many of these events were unanticipated. These unanticipated events challenged IPAC resources, knowledge and capacity and will likely do so for some time.

One thing that is certain is that all of the above have changed the way IPAC is practiced in health care and communities.

On the other hand, there are some things that have not changed significantly in the past 10 years and continue to challenge those involved in IPAC in many health care settings. A few of these include:

- Increased rates of health care acquired MRSA and VRE in our health care facilities
- Low influenza vaccination rates in health care workers
- Inadequate hand hygiene compliance rates among workers in health care

As another decade begins CHICA-Canada members will likely face new or re-emerging IPAC challenges while continuing to grapple with existing challenges. The continued growth of CHICA-Canada including national and chapter memberships, annual conferences, industry members and this journal all improve the ability of members to cope with the changes that are just around the corner.

Although there is no way to predict the future, there is one thing that is certain... change! 







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- 1 Braden Scale for Predicting Pressure Sore Risk. Available at: [www.bradenscale.com/braden.PDF](http://www.bradenscale.com/braden.PDF). Accessed November 6, 2008.
- 2 Recommended practices for positioning the patient in the perioperative practice setting. In: *Perioperative Standards and Recommended Practices*. Denver, CO: AORN, Inc; 2008.



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# Beat Those Bugs! Implementing contact precautions in community dialysis units for closer-to-home care

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## ABSTRACT

“Beat Those Bugs!” was the call to action for the Providence Health Care Renal and Infection Prevention and Control programs to provide closer-to-home care in community dialysis units, for hemodialysis patients positive for the antibiotic-resistant organisms, Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant Enterococcus. The initiative assessed barriers and facilitators to: implementing Contact Precautions; developing practice standards for nurses and renal technicians to enact Contact Precautions care; providing staff and patient education essential to implementing these standards; and, securing environmental and equipment supports required for Contact Precautions care. Through the “Beat Those Bugs!” initiative, all six Providence Health Care Community Dialysis Units have the capacity to provide Standard/Routine as well as Contact Precautions care enabling patients to receive closer-to-home care in their home communities regardless of their antibiotic-resistant microorganism status. Program evaluation (based on annual screening) demonstrates that the “Beat Those Bugs!” program is an effective model for safe, evidence-based and ethical care in the hemodialysis setting.

**Key words:** Methicillin-resistant *Staphylococcus aureus*, Vancomycin-resistant Enterococcus, community hemodialysis, Contact Precautions, closer-to-home care.

## INTRODUCTION

“Beat Those Bugs!” (BTB) was the call to action to honour Providence

Health Care’s (PHC) commitment to patients and their families to provide closer-to-home hemodialysis (HD) care for patients positive for an antibiotic-resistant organism (ARO) wishing to receive dialysis in their home community and for whom that location is medically appropriate.

### MRSA and VRE in Hemodialysis Patients

Methicillin-resistant *Staphylococcus aureus* (MRSA) and Vancomycin-resistant Enterococcus (VRE) are AROs and important healthcare pathogens (1) which cause significant morbidity and mortality within the HD patient population (1,2,3). HD patients are at increased risk of colonization with an ARO and subsequent ARO infection (2,4) due to several risk factors (4) including:

- Multiple hospitalizations
- Exposure to MRSA and VRE positive patients
- Weakened immune systems associated with chronic illness
- Insertion of central and peripheral vascular catheters
- Ongoing skin punctures related to vascular access
- Increased frequency of antibiotic use

### Vancouver Coastal Health hemodialysis care providers

HD care is provided for adults within the Vancouver Renal Region (VRR) by Renal Programs located at St. Paul’s Hospital (SPH) and Vancouver General Hospital (VGH). St. Paul’s Hospital, part of Providence Health Care (PHC), is a 600-bed tertiary/quaternary healthcare facility located in downtown Vancouver, British Columbia (BC), Canada. The PHC Renal Program provides in-centre HD care at SPH for approximately 285



adult patients and community dialysis for approximately 170 patients in six Community Dialysis Units (CDUs). Three CDUs are located in metro Vancouver and three in separate communities along the BC coastline. The VGH Renal Program provides HD for approximately 110 adult patients in the in-centre unit and admits patients to the CDUs administered by the PHC HD program.

### Traditional ARO infection control practices at PHC

When a patient is discovered to be either MRSA and/or VRE positive an infection control practitioner (ICP) places an electronic infection control alert for the ARO in the patient's electronic medical record maintained in the hospital's Admission Discharge and Transfer (ADT) system. This alert remains active for the current admission and for all subsequent admissions. Decolonization of and removing alerts for ARO-positive patients is not routine practice at PHC and within the VRR (5).

Prior to the BTB initiatives, patients with alerts for MRSA or VRE were required to dialyze at the SPH or VGH in-center HD units. When dialyzing in the in-centre units, patients with alerts for MRSA or VRE were cared for using Contact Precautions (6,7,12), which is the recommended standard of care for patients positive for an ARO in the VRR. Contact Precautions include: patient placement in a single room or cohorted in a multi-chair room with patients with like AROs, or spatial separation between colonized and non-colonized patients for each HD treatment. HD staff caring for patients on Contact Precautions don a new gown and gloves for each direct contact with the patient with an ARO and their immediate environment and dispose of the gown and gloves after each patient contact. HD staff practice diligent hand hygiene following removal of gowns and gloves. Before the BTB initiative a program of care for patients with an ARO, including Contact Precautions supported by the necessary education and resources, was not available in the CDUs. This meant that patients with an ARO alert living in coastal and metro communities with a

dialysis unit were required to travel up to three times a week from their community to an in-center unit at SPH or VGH for their dialysis treatment.

The VRR is a large area with natural obstacles including mountains and ocean inlets that complicate travel. Travel times from coastal communities to the in-centre units range from one to five hours by car including up to two one-hour ferry rides, or a one-hour flight and a 40-minute ambulance ride to the hospital. When the dialysis treatment was finished the patient made the return trip home. The HD program heard from patients and their families that traveling these distances three times a week greatly added to the already heavy burden of illness shouldered by patients receiving HD and their families.

PHC HD leaders recognized the burden of travel, care and associated costs for patients with alerts and their families. To honour PHC's patient-centered commitment to HD care the HD leaders challenged the HD and Infection Prevention and Control (IPAC) teams to devise a program of safe and effective closer-to-home HD care for patients positive for an ARO in all six CDUs. This challenge launched the BTB initiative.

## METHODS

### Forming the BTB team

The BTB team consisted of the HD program Physician Leader, Clinical Nurse Specialist, Operations Leader, Educators, CDU Clinical Nurse Leaders, the IPAC Physician Leader and ICP.

### Goals for BTB

Implement a program of care enabling patients with an ARO to dialyze in their home community when:

- The patient chooses to dialyze in their home community
- It is medically appropriate for them to receive dialysis in a CDU
- Space in the CDU is available
- The principles of Standard/Routine and Contact Precautions (6,7,12) will guide the BTB program.
- All CDU staff will have education and training in order to provide, safe, competent, and ethical care.
- Education will be based on infection

control and HD evidence and best practice, which is clearly defined and in place.

- All CDU staff will be supported to implement and sustain the practice changes to manage HD patients with an identified ARO.
- The BTB program will be monitored using a quality improvement approach based on a yearly patient screen for AROs.

### Evidence-based and best practices

BTB commenced with a literature search for evidence-based infection control practices for managing patients alerted for AROs in hospital (2,3,6,13) and community settings. At the time of the first literature search there was a paucity of evidence-based literature describing the prevention of transmission of AROs in community dialysis settings (actually in both in-centre and CDU settings). The literature search inquired into CDU practices in both Canadian and the United States CDU facilities for managing HD patients with AROs. The result showed variations in ARO management in CDUs. Therefore, in 2003, PHC and VGH infection control and HD programs collaborated to develop a working draft of the "Vancouver Coastal Infection Control Guideline for Hemodialysis Patients with Antibiotic Resistant Organisms (VCH HD ARO Guideline)" (5). VRR and Vancouver Infection Control Committee have ratified the VCH HD ARO Guideline, which guides the in-center and CDU practice for managing HD patients with an ARO.

### With the VCH HD ARO Guideline

and development plan in place the BTB team began the process of developing the BTB program. The team's strategy was to start a pilot BTB program at one CDU. Following program implementation and evaluation in the first CDU, learnings were implemented in the subsequent five CDUs.

## COMMUNITY DIALYSIS UNIT ASSESSMENT

### Physical resource

Metro CDU 1 was asked, and agreed to be the BTB pilot CDU. The BTB team



started by assessing the unit's physical and human resources required to manage patients with an ARO using Contact Precautions (2,3,6). A checklist approach was used to evaluate the physical and practice resources to determine strengths and gaps to implementing Contact Precautions (6,7) for metro unit 1.

Following the first assessment, each step and checklist item was evaluated. The lessons learned were applied with adaptations to the other CDUs, as each of the six CDUs is a unique physical environment with varying resources and needs to implement Contact Precautions. Each of the six CDUs required modifications and adaptations in order to implement Contact Precautions.

### Checklist items

#### ✓ *Cleaning and disinfection*

Each CDU employs contracted housekeeping services. The BTB team reviewed the housekeeping contracts and cleaning solutions used. Cleaning methods were reviewed to ensure the cleaners understood principles of cleaning and disinfection in a healthcare facility providing HD (8).

The team also assessed the CDU staffs' routine and turnover cleaning procedures and practices for patient care equipment.

Cleaning solutions and cleaning methods used by the unit staff were also reviewed to ensure staff understood principles of cleaning and disinfection.

All the CDUs have common areas used by all patients. These common spaces include lockers, as well as kitchen and lounge areas. Once the dialysis treatment run starts and the patients are settled, a nurse or renal technician staff is assigned to wipe the commonly touched areas in the shared spaces with a disinfectant wipe.

At the end of each dialysis treatment all stations for all dialysis patients, with and without alerts, are cleaned and disinfected, as patients without alerts may be dialyzed in the stations used for patients being cared for with Contact Precautions.

#### ✓ *Patient placement*

The decision of where to place the patients with alerts was made during the initial unit assessment visit. The BTB team collaborated with the CDU staff in each of the six units to determine the optimum location in each unit for patients with alerts to dialyze. Each CDU had a designated and finite number of dialysis stations for patients with an ARO. The stations and patients were cohorted in an area within the unit physically separated from the non-alerted patients or in an area with reminders that Contact Precautions must be practiced for patients with an ARO. Key elements for station placement for patients with an ARO included:

- Placement of the precautions area near the unit entrance
- A minimum four foot separation (9)

#### TABLES

\* Column 1 describes the 6 CDUs. CDUs 1,2,3 are located in the metro Vancouver area. CDUs 4,5,6 are located in the Vancouver coastal region.

\* Column 2 describes the patient population mean and (range) for each of the CDUs.

\* Columns 3,4,5,6 describe the prevalence by percent and (number) of patients from 2005 to 2009.

\* Green squares indicate a prevalence of MRSA or VRE in the CDU.

\* Purple squares indicate no prevalence of MRSA or VRE on the unit.

\* Symbol "%" denotes the percentage of patients

positive for the identified ARO in the CDU population.

\* Symbol "n" denotes the number of patients positive for the identified ARO in the CDU population.

Table 1: Prevalence of MRSA in CDUs from 2005 to 2009

Metro CDU	Patient Population Mean (Range)	2005 % / n	2006 % / n	2007 % / n	2008 % / n	2009 % / n
1	40 (39-41)	14% (6)	14% (6)	12% (5)	12% (5)	14% (6)
2	25 (22-29)		8% (2)	8% (2)	4% (1)	24% (6)
3	76 (76)			4% (3)	8% (6)	8% (6)
Coastal CDU						
4	6 (5-7)		14% (1)			
5	8 (6-10)		14% (1)		14% (1)	14% (1)
6	6 (5-6)		16% (1)	16% (1)	*2 (33%)	*2 (33%)
<b>**CDU 6 with a patient alerted for both MRSA and VRE</b>						

Symbol "%": The percentage of patients positive for MRSA in the CDU population.

Symbol "n": The number of patients positive for MRSA in the CDU population

between dialysis patients

- A dedicated hand washing sink and plenty of hand sanitizer available
- Patient access to a dedicated bathroom or methods to clean the bathroom either by patients or staff after use

### ✓ **Dialysis times**

The BTB and unit goal is to cohort alerted patients and attempt to dialyze the alerted patient cohort on the last dialysis treatment run of the day. However, travel and patient timing needs are also considered in determining what time of day a patient can arrive for dialysis, so dialysis treatment times may have to be adjusted to meet the needs of the patient. To achieve the maximum amount of dialysis treatment run time the ARO positive patients started their dialysis treatment at the same time as patients who are not ARO positive.

### ✓ **Equipment**

The BTB team assessed the type of equipment that was shared between patients for its risk of coming into direct contact with the patients and its ability to be cleaned and disinfected between patient uses. Equipment that is in limited supply and must be shared between patients must be cleaned and disinfected between patient uses (6,7,8). Equipment that could not be cleaned and disinfected and came into contact with patients was dedicated for the ARO patient population. For example, the CDUs dedicated a supply cart for ARO positive patients. The dedicated equipment cart included: HD supplies, sharps, lab supplies, an emergency box, and dressings. Garbage, laundry carts and linen were dedicated in the precautions area so staff and patients would not have to leave the precautions area to dispose of garbage or collect linen.

A strategy most CDUs have in place involves patients picking their own dialysis supplies to promote patient independence. Due to the potential of transmission associated with ARO positive patients picking their supplies from the general stock, a decision was made that nurses would collect supplies for ARO positive patients to help reduce the risk of transmission.

### ✓ **Hand hygiene**

The foundation of the BTB program is hand hygiene by both staff and patients (1,6,7,8,12). The BTB assessment ensured an adequate number of sinks, hand soap and towels were available for staff and patients and plenty of alcohol hand sanitizing agent was conveniently placed and accessible to staff and patients. During the unit assessment the BTB team discussed hand hygiene theory, methods, practice and the importance of role modeling hand hygiene by the unit staff and patients.

### ✓ **Personal protective equipment**

All CDUs were assessed for the type and availability of Personal Protective Equipment (PPE) supplies for staff caring for patients with alerts. PPE items include: barrier gowns and/or aprons; gloves in a range of sizes and materials (vinyl, latex or nitrile); masks, and eye protection. PPE items were placed to ensure they were readily available for each staff person.

### **CDU human resource assessment**

Before the introduction of ARO positive patients to metro CDU 1, the BTB team met with the CDU nursing and technical staff. The goal was to hear the staffs' concerns, fears and suggestions around introducing ARO positive patients into the CDU. The team discussed the staffs' role in reducing the risks of transmission of AROs in the CDU, the foundational concepts of hand hygiene, Contact Precautions, and the evidence that these practices reduce the risks of transmission of AROs (1,2,3,7).

The team discussed the ethical issues related to providing dialysis treatment for patients with an ARO in their home communities. The team discussed the issue of keeping the alerted patient's ARO diagnosis confidential, balanced with all the patients' need for frank and detailed education around ARO transmission and prevention strategies.

### **Assessing and addressing CDU patient concerns**

Before introducing the patients with an ARO to the CDU, the CDU staff discussed the physical and practice changes for ARO care with the unit patients. Staff

discussed how the culture and social aspects of the unit might change. They explained the BTB philosophy of care, the precautions that would be in effect and the role that staff and patients played in reducing the risks of transmission. The CDU staff augmented the patient ARO information by providing all patients with the BC Ministry of Health education pamphlets about MRSA and VRE (10, 11) and were available to answer patients' and families' questions. While most patients were comfortable with the introduction of patients with an ARO to the CDU after explanations and support for this change, one CDU patient group requested and received additional dialogue from Renal and IPAC administration and clinical leadership before patients with an ARO were introduced to the unit.

## **EDUCATION AND TRAINING**

### **The "Beat Those Bugs!" workshop for CDU staff**

The BTB education and training component for HD staff was developed and shared with the CDU staff before ARO positive patients were admitted to each CDU. The BTB workshop curriculum is based on the CDU assessment visits, literature reviews, consultation with other HD units and the "Vancouver Coastal Infection Control Guideline for Hemodialysis Patients with Antibiotic Resistant Organisms".

The BTB workshop is a six-hour program (lunch included). The agenda included:

- A 90-minute orientation to the principles of IPAC, which included the microbiology and epidemiology of MRSA and VRE, Contact Precautions (6,7), hand hygiene, barrier selection and use, cleaning and disinfection and screening methods (8).
- A 90-minute demonstration of Contact Precautions (6,7) in action for the dialysis patients with an ARO. Questions around adapting Contact Precautions to specific CDUs were encouraged.
- After lunch, a 90-minute session with the renal program's Clinical Nurse Specialist, ICP, renal educators, clinical leaders and CDU staff focusing

on concepts of patient education, information sharing strategies and confidentiality for patients with and without an ARO.

- The last 30 to 60 minutes was a question and answer session, which focused on answering and clarifying staffs' questions and concerns. This part of the workshop employed a communication tool named the "Wall of Fear". At the start of the workshop staff were given post-it notes with their handouts. Staff was asked to write the questions, comments or concerns that they might feel uncomfortable asking aloud on the post-it notes at any time during the workshop, and place it on a wallboard. Before the session ended the post-it notes were collected and arranged into categories and the questions, comments and concerns were addressed. The "Wall of Fear" was an effective communication tool to help create dialogue for staff who are not comfortable speaking in a group and to identify concerns and fears.

### Education for patients positive for an ARO

Before patients with alerts were dialyzed in the CDU, they and their family or

advocates, were given an orientation to the CDU. The orientation focused on locations for: hand hygiene stations, lockers, kitchen, bathrooms, their dialysis station and instructions on their role in Contact Precautions while they were at the dialysis unit. As well as verbal instruction, each patient was given written pamphlets covering these subjects (10,11) and time to address questions and concerns.

### Education for all CDU patients

CDU patients, their families or advocates, volunteers and staff were informed that in time, patients with special infection control needs would be introduced to and dialyzed at the CDU. The patients' questions regarding their safety, risks of transmission, and their fears were addressed. Consistent with maintaining confidentiality, personal medical information including ARO status of individual patients was not discussed.

Education for patients included information from BC Ministry of Health education pamphlets for MRSA (10) and VRE (11), hand hygiene (8,12), cleaning and disinfection (8), and the changes to practice in the specific CDU (5). An example of a practice and social change

was; dialysis volunteers agreed to serve snacks to patients rather than patients taking items from a common plate or source. To support hand hygiene in the CDUs, during the introduction of ARO alerted patients, a hand washing blitz contest was initiated. During the blitz, patients, family members and staff were invited to enter a draw as often as they wished: the price of each entry, "one hand wash".

### ADMITTING PATIENTS WITH ANTIBIOTIC-RESISTANT ORGANISMS

Following the planning, development and implementation of the BTB program the next steps, before admitting ARO positive patients to the CDU, was to ensure baseline and yearly ARO screening was done to determine if ARO transmission in the CDUs took place.

### Screening goals

The HD CDU patients were screened for AROs:

- To determine a baseline of patients' ARO status before patients with an ARO were introduced to the CDUs (prevalence).

Table 2: Prevalence of VRE in CDUs from 2005 to 2009

Metro CDU	Patient Population Mean (Range)	2005 % / n	2006 % / n	2007 % / n	2008 % / n	2009 % / n
1	40 (39-41)				7% (3)	7% (3)
2	25 (22-29)			4% (1)	4% (1)	12% (3)
3	76 (76)					
Coastal CDU						
4	6 (5-7)					
5	8 (6-10)					
6	6 (5-6)			16% (1)	*16%(1)	*16%(1)
<b>*CDU 6 with a patient alerted for both MRSA and VRE</b>						

Symbol "%": The percentage of patients positive for VRE in the CDU population.

Symbol "n": The number of patients positive for VRE in the CDU population.

- To find new cases of both MRSA and VRE in the CDU patient populations (incidence).
- To identify patients with an ARO in order to implement Contact Precautions.
- To assess for evidence of nosocomial transmission of AROs in the CDUs.
- To evaluate the effectiveness of current IPAC practices in the CDU.

### CDU ARO pre-screen

Before MRSA or VRE positive patients were introduced into the six CDUs, the existing patient population was screened for both MRSA and VRE. Pre-screening ensured there were no undetected HD patients with AROs in the existing CDU population before patients with alerts were introduced.

### Alerted patients admitted to CDUs

The prevalence of MRSA or VRE is described as the total number of patients in the CDU with either MRSA or VRE during the year (14). Following the negative screening results for AROs in metro CDU 1, patients alerted for MRSA were admitted to the unit and a prevalence of MRSA was established in metro CDU 1 for February 2004. Metro CDU 2 and coastal CDUs 3, 4, 5 admitted patients alerted for MRSA in 2006.

Currently all six CDUs admit patients alerted for MRSA. Prevalence

rates for MRSA for all CDUs are described in (Table 1) indicated by the green squares in Table 1.

The prevalence of VRE in CDUs was first established in metro CDU 2 and coastal CDU 6 in January 2007 when patients alerted for VRE were admitted to the units. Prevalence rates for VRE for all CDUs are described in (Table 2) indicated by the green squares in Table 2.

### Annual MRSA and VRE screening

The annual HD ARO screen is described as a Cumulative Incidence (CI) measure of frequency (14). The annual screen tested all HD patients in the CDUs who are at risk of nosocomial transmission of either MRSA or VRE during the year.

For the remainder of the year the annual screen is supplemented by screening HD patients:

- Upon return from travel to another dialysis unit
- Upon return from an acute hospital admission
- And working up all clinical cultures for AROs

### Methods for the annual screen

HD patients with no alert for MRSA were screened for MRSA by collecting one specimen from both nares, one specimen from the perineum and if available one specimen from one wound or inflamed site.

HD patients with no alert for VRE were screened for VRE by collecting one rectal swab with fecal staining. Patients may collect their own specimen for both MRSA and VRE in the dialysis unit if they wish to and are able to do so.

### Surveillance definitions used to determine nosocomial transmission (13)

Non-nosocomial transmission, not attributable to the CDU; Positive specimen is collected less than 72 hours of being admitted to the CDU, for example upon return from an inpatient admission or travel to another dialysis unit.

Possible nosocomial transmission; positive specimen is collected less than 30 days of being admitted to the CDU.

Probable nosocomial transmission attributable to the CDU; positive specimen is collected greater than 30 days after being admitted to the CDU.

## RESULTS

### Evaluation of screening outcomes for CDUs

Nosocomial transmission rates of MRSA in CDUs (Table 3) were based on annual MRSA screening and supplemental screening results from 2005 to 2009. Nosocomial transmission rates of 4% (or one patient) were attributable to

Table 3: Incidence of Nosocomial Transmission of MRSA in CDUs from 2005 to 2009

Metro CDU	Patient Population Mean (Range)	2005 % / n	2006 % / n	2007 % / n	2008 % / n	2009 % / n
<b>1</b>	40 (39-41)	0	0	0	0	0
<b>2</b>	25 (22-29)	0	4% (1)	4% (1)	0	0
<b>3</b>	76 (76)	0	0	0	0	0
Coastal CDU						
<b>4</b>	6 (5-7)	0	0	0	0	0
<b>5</b>	8 (6-10)	0	0	0	0	0
<b>6</b>	6 (5-6)	0	0	0	0	0

Symbol "%": The percentage of patients positive for MRSA in the CDU population.

Symbol "n": The number of patients positive for MRSA in the CDU population.



metro CDU 2 in 2006 and 2007. The remainder of the CDUs demonstrated no nosocomial transmission of MRSA.

Nosocomial transmission rates of VRE in CDUs (Table 4) were based on annual VRE screening and supplemental screening results from 2005 to 2009 and demonstrated no nosocomial transmission of VRE in CDUs where patients with alerts for VRE were dialyzing, indicated by the green squares in Table 4.

## DISCUSSION

### Nosocomial transmission of MRSA and VRE

The first patients with alerts for MRSA were introduced to metro CDU 1 in 2004 and then to the other metro and coastal CDUs in 2006. The prevalence rates of MRSA and then VRE remained constant in the metro CDU and variable in the coastal CDUs. The prevalence rates for MRSA and VRE also demonstrated the number of HD patients with an alert for an ARO that are able to dialyze in their home communities.

Nosocomial transmission of MRSA was demonstrated in metro CDU 2 in 2006 and 2007. All other metro and coastal CDUs have not demonstrated nosocomial transmission of MRSA.

There has been no evidence of transmission of VRE in the metro and coastal CDUs.

### Other success

The development of the BTB program resulted in ancillary successes in the HD and infection control programs:

- The focus of BTB processes on ethical principles of care associated with care of patients positive for an ARO in the dialysis units.
- The development and practice of processes respecting patient rights around confidentiality of their diagnosis, including their ARO status, and education of the CDU patients.
- The development and practice of separating the “bug” from “person” and continuing to discuss AROs for the purpose of patient and staff education.
- The development of proactive approaches to prevent the transmission of AROs in the CDUs.
- The development and implementation of the Vancouver Coastal Infection Control Guideline for Hemodialysis Patients with Antibiotic Resistant Organisms, which guides the VRR practice around Contact Precautions and managing patients in the dialysis units with an ARO.
- Fostering the development of trusting staff and patient working relationships,

which focused on ARO transmission prevention strategies.

- Demonstration that AROs can be successfully managed in the unit when staff and patients are aware and practice the proven methods to prevent transmission.

### Did the BTB model work?

The key elements identifying the BTB program as successful are:


- Develops an inclusive and collaborative working environment with HD staff, leaders, patients, their advocates and IPAC staff.
- Develops infection control education and support around Contact Precautions for patients with an ARO, which is critical.
- Addresses the fears of patients and staff around the prevention of ARO transmission.
- Provides an effective model to help staff provide safe, competent and ethical care to dialyze patients with an ARO in community HD settings.
- Prevents the transmission of AROs in community dialysis units.
- Successfully effects and sustains change.
- Is flexible and able to be implemented in small to large CDUs for AROs spread by direct or indirect contact.

Table 4: Incidence of Nosocomial Transmission of VRE in CDUs from 2005 to 2009

Metro CDU	Patient Population Mean (Range)	2005 % / n	2006 % / n	2007 % / n	2008 % / n	2009 % / n
1	40 (39-41)	0	0	0	0	0
2	25 (22-29)	0	0	0	0	0
3	76 (76)	0	0	0	0	0
Coastal CDU						
4	6 (5-7)	0	0	0	0	0
5	8 (6-10)	0	0	0	0	0
6	6 (5-6)	0	0	0	0	0

Symbol “%”: The percentage of patients positive for VRE in the CDU population.

Symbol “n”: The number of patients positive for VRE in the CDU population.

- Is sustainable and effective in reducing and preventing the risks of ARO transmission. 

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<sup>1</sup> Darouiche, R.O., Wall, M.J., & Kamal, M.F. et al. (2010). Chlorhexidine-Alcohol versus Povidone-Iodine for Surgical-Site Antisepsis. *New England Journal of Medicine*, 362, 18-26.

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<sup>1</sup> Rutala, W.; Weber, D.; and the Healthcare Infection Control Practices Advisory Committee (HICPAC), Guidelines for Disinfection and Sterilization in Healthcare Facilities, 2008. Centers for Disease Control and Prevention.  
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# Helping healthcare workers decide: evaluation of an influenza immunization decision tool

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## ABSTRACT

Healthcare workers (HCW) experience decisional conflict or uncertainty of the best alternative when deciding about influenza immunization. Despite free and easy access to influenza vaccine, and resource consuming campaigns, immunization rates among HCW remain unacceptably low. This is in part due to decisional conflict, which may be alleviated by a decision aid. To address this issue we developed the Ottawa Influenza Decision Aid (OIDA) to help HCW make an informed decision about influenza immunization. The OIDA was tested in a large acute care hospital during the influenza immunization campaign. We recruited HCWs from the Orthopaedic Ward and Logistical Services, using block randomization, to complete the OIDA and a feedback questionnaire. The majority (85%) of respondents that completed the OIDA felt that immunization was very important to avoid getting influenza and 95% were sure of the best choice for them. In response to the feedback questionnaire, 84% of respondents found the information clear and 77% concluded the OIDA helped them to recognize a decision. Results of this study support the OIDA as a useful tool for HCWs considering influenza immunization. This study is an important step towards evaluating the usefulness of the OIDA within prevention campaigns. Recommendations include evaluation of the OIDA by incorporating it into large-scale influenza immunization campaigns.

**Key words:** Influenza immunization, healthcare workers, decision aid

## INTRODUCTION

Decisional conflict refers to personal uncertainty about the best course of

action and is influenced by modifiable factors such as feeling uninformed, unclear about which benefits or risks matter most, and unsupported in decision making (1). Decision aids can improve knowledge and decrease decisional conflict around a specific choice (1-4). Sullivan *et al.* (5) demonstrated that healthcare workers (HCWs) in long-term care homes (LTCHs) experienced decisional conflict when considering whether or not to receive the influenza vaccine. Our team developed the Ottawa Influenza Decision Aid (OIDA), a four-page booklet designed to help HCWs make an informed decision about influenza prevention strategies (including adverse events and contraindications). To date the OIDA is the only decision aid focused on influenza vaccination that is specifically geared towards HCWs. It translates current research evidence into an accessible, balanced and understandable format for all HCWs to move knowledge into action. The decision aid provides facts about influenza, and describes their prevention options (receive the influenza vaccine, wait for an outbreak then receive the vaccine and take anti-viral pills, or decline both options). It also actively engages HCWs in deliberation by eliciting their personal values for the benefits and harms, preferred option, knowledge of options, and perceptions of unresolved decisional needs, and next steps. We have previously published a description of the OIDA and results of a pilot study (6), in which LTCH staff found the tool helpful when considering their options for influenza prevention. However, the acceptability among acute care workers is unknown.

The study objective was to evaluate the acceptability of the OIDA to staff in an acute care hospital during the

influenza immunization campaign. We hypothesized that providing the OIDA would address HCWs' decisional needs regarding influenza prevention options.

## METHODS

The acceptability of the OIDA was assessed in areas of a large, bilingual acute care hospital where it was used in parallel with the organization's annual influenza immunization campaign. The Ottawa Hospital is a 1174 bed academic teaching hospital that is serviced by 12,029 staff including 3489 RNs, 314 RPNs, 1183 physicians and 1800 volunteers, where the vaccine uptake rate among HCWs is at best 50%. The influenza vaccine was provided free of charge through Ontario's Universal Immunization Program. Consultation meetings with stakeholders (from infection control and occupational health departments) identified two areas (Orthopedic Ward and Logistical Services) in two hospital campuses where the OIDA would be implemented. These areas provided unique and identifiable populations within the hospital, allowing for comparison. In many other hospital areas HCWs work on multiple wards, making access to and recruitment of staff difficult for participation in a randomized trial. Managers were consulted for advice on providing the OIDA to HCWs, and were asked to inform their staff of this initiative.

To evaluate if the OIDA helped users to resolve their decisional needs, data were captured from questions

embedded in the second part of the OIDA after users had reviewed information about influenza, options, benefits, harms, and probabilities. These questions elicited: values (personal importance of each options' benefits and harms); preferred option; knowledge of differences between options; perceptions of decisional needs (feeling uncertain, informed, clear about personal values, supported in decision making and future plans).

To evaluate staff perceptions of the OIDA, a self-administered feedback questionnaire, adapted from previously validated surveys (6-8), was provided. Participants were asked to evaluate the OIDA on content, including clarity, helpfulness, quality of evidence and their recommendation of it to others. The study was approved by the hospital's research ethics board (#2007742-01H) and staff recruitment occurred from November 2-16, 2007. Staff were recruited through three sets of posters and information sheets on the study, which were placed in work areas, as well as by a research assistant throughout the campaign period. Staff had access to the reference document of evidence used for the OIDA. All documents were available 24-hours a day in English and French.

The research assistant visited the work areas up to three times a day to recruit staff. Staff were asked to complete the OIDA, the feedback questionnaire, and return both to a drop-off box. The participation, completion and return of all materials by staff was voluntary and anonymous.

Information collected from the completed OIDs and feedback questionnaires was entered into SPSS (Version 15.0). Analysis was performed using descriptive statistics to determine response frequencies and percentages.

## RESULTS

Sixty-three HCWs completed and returned the feedback form, and 45 also returned the completed OIDA. Table 1 includes the number of individuals eligible to participate in the study, as well as the rates for the OIDA and feedback form. Limited demographic information for participants was available from completed feedback forms. 63% (40/63) of the respondents were female and 40% (25/63) between the ages of 30-44 years. The remaining 60% of participants were nearly evenly split, 28% under the age of 30 and 32% were between the ages of 45-59. Occupations varied among respondents with the majority being registered nurses (43%; 27/63) and logistical service personnel (32%; 20/63).

## RESULTS OF QUESTIONS EMBEDDED IN THE OIDA AFTER FACTS AND PROBABILITIES WERE PRESENTED

### Values

A majority of respondents felt it very important to avoid the following: 1) getting influenza (85%; 29/34), 2) taking antiviral drugs (77%; 27/35), 3) work limitations (74%; 26/35) and 4) side effects of the influenza vaccine (52%; 6/31).

Table 1. OIDA and Feedback form completion rates

	Orthopaedics Ward * N (%)	Logistical Services ** N (%)	Total N
Completed the OIDA	28/60 (47)	17/165 (10)	45/225
Completed the feedback forms	39/60 (65) <sup>†</sup>	24/165 (15)	63/225

\* On the Orthopaedics Ward there were 60 individuals that worked during the study period and considered as eligible participants.

\*\* Within Logistical Services there were 165 individuals that worked during the study period and considered as eligible participants.



## Knowledge

Responses indicated a good level of understanding about the risks associated with each option. 86% (31/36) knew which option (decline flu shot & pills) had the highest risk of getting the flu and 86% (31/36) knew the flu shot had the lowest chance of placing elderly patients at risk of dying from influenza-related complications. 94% (33/35) knew the flu shot had the highest chance of a sore arm and 72% (26/36) knew antiviral pills had the highest chance of nausea and vomiting.

## Perceptions of decisional needs

86% (31/36) of the respondents reported they knew enough about the benefits and risks of the options, 97% (36/37) were clear about which benefits and risks mattered most, 91% (34/37) felt they had enough support and 95% (35/37) were sure about which choice was best for them.

## Preferences

Of the respondents, 73% (24/33) preferred the influenza vaccine, 12% (4/33) declined both the influenza vaccine and antiviral pills, 12% (4/33) did not know which option was most important to them and 3% (1/33) would prefer to wait for an outbreak. 71% (25/35) indicated their next step would be to sign a consent form and get the influenza vaccine.

## Results of the feedback questionnaire

The results of the questionnaire are presented in Table 2. The majority of HCWs felt that the information presented in the decision aid was clear (84%; 53/63) and provided the right amount of information (59%; 37/63). However, only 35% (22/63) felt that the tool was completely neutral and balanced. 77% (47/61) responded that the OIDA helped them recognize

that a decision needs to be made and 80% (47/59) indicated that the OIDA helped them know that the decision depends on what matters most to them. 78% (49/63) indicated that they were very or somewhat satisfied with their decision about influenza prevention.

Additional space on the feedback form was made available for individual comments, and 15/63 (24%) of respondents provided some comments. The comments provided were useful and will aid in the further development and evaluation of the OIDA. The comments were diverse. They included suggestions for lengthening and shortening the OIDA; requests for additional information about the vaccine – including risk groups, strains included and additives; as well as questions about the knowledge of providers about influenza and the vaccine. Copies of the feedback forms are available on file at the Coordinating Centre site, Bruyère Continuing Care.

Table 2. Questionnaire responses regarding acceptability of the OIDA

OIDA content feedback	Participants responded Yes * N (%)
It had about the right amount of information	38/63 (61)
The information was completely or mostly clear	53/63 (84)
The length was just about right	37/63 (59)
It was completely neutral and balanced	22/63 (35)
It was clearly or slightly slanted towards the flu shot	39/63 (62)
It was very or somewhat helpful when making the decision about influenza prevention choices	30/63 (48)
I was very or somewhat satisfied with my decision about the influenza prevention option I chose	49/63 (78)
I would definitely or probably recommend this decision aid to others	41/63 (65)
It was not important or somewhat important to have the information in the decision aid labeled as strong or weak	47/63 (75)

\* During the study there were 63 individuals that completed the feedback form about the OIDA.


## Discussion

Responses to the feedback form indicate that most would recommend the OIDA. As with a previous evaluation, the OIDA was found to be an acceptable, clear, evidence-based tool that supports best practices for influenza prevention (6). The OIDA is designed to provide HCWs with options for influenza prevention in a balanced and evidence-based manner. In this study however, staff perceived that the tool was slanted towards the influenza vaccine. This may have been influenced by a change in the hospital's influenza immunization policy at the time of the study, which excluded unimmunized staff from work without pay in the event of a nosocomial influenza outbreak. Based on this new policy, the OIDA presents influenza vaccination as the first option for influenza prevention. Staff perceived that this differed from the previous, more lenient policy which allowed unvaccinated employees to work using infection control measures including masks and gloves, in the event of an outbreak.

Results from the completed OIDs suggest that respondents had low decisional conflict, which may in part be due to reporting bias. Ideally, evaluation of decision conflict should be carried before and after the completion of the OIDA to evaluate change in decisional conflict. One limitation of the study is the small numbers of respondents who returned the OIDA and feedback forms, limiting the generalizability of the results. Better uptake for participation in the clinical ward (Orthopaedics) may reflect the relatively closed meeting area where staff spend significant time during their shift. As a result this may have facilitated

recruitment, while staff in Logistical Services are dispersed throughout the hospital, potentially limiting recruitment.

Unfortunately planned strategies to integrate the OIDA into the influenza prevention campaign within the hospital were not possible for 2007 due to tight time lines and preexisting plans established for the vaccination campaign. Therefore, the project was run in parallel with the campaign and was not actively promoted by Occupational Health staff or between peers within the hospital. This may have contributed to the potential limitation related to the low percentage of respondents who returned either the OIDA or feedback form. Another study limitation was the inability to link an individual's indicated preferred choice and their final immunization status, due to anonymity of respondents. Future studies should consider tracking the vaccination status of the participants who have completed the OIDA to determine the correlation between the tool and actual behaviour.

The next step is to fully incorporate and evaluate the OIDA as part of a multifaceted influenza prevention campaign as supported by a recent systematic review, which found that a combination of interventions result in better staff immunization rates (9). This would support universal access of this tool to all HCWs. 

## Acknowledgments

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## Potential conflicts of interest:

All authors report no conflict of interest relevant to this article.

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# Reprocessing and sterilization standards

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## INTRODUCTION

Accreditation Canada launched Qmentum, its newest accreditation program, in 2008. Among the enhancements of this program over the previous program AIM are standards specific to reprocessing and sterilization.

2009 survey results (the most recent survey year) identify consistent trends from the use of the Reprocessing and Sterilization Standards and help pinpoint areas for improvement in acute care centres in Canada. This information will be useful in informing and targeting support, education and other improvements in the areas of reprocessing and sterilization services.

## QMENTUM RESULTS

In 2009, the Accreditation Canada Reprocessing and Sterilization Standards were used in 75 surveys in Canada. The majority of these surveys took place in Ontario and Quebec, and all organizations involved were acute care centres.

Overall results indicate that 84.5% of criteria in these standards were deemed as met (1). This is a good indicator that, from an accreditation perspective, reprocessing and sterilization services are generally meeting the needs of the service providers and the subsequent users.

## AREAS FOR IMPROVEMENT

Items related to Physical Space (standard 3.0) and Quality and Risk Management (standard 12.0) consistently appear among the Reprocessing and Sterilization Standards' top five unmet criteria. Expanding the view to include the top 10 unmet criteria reveals a clear trend toward Quality and Risk Management issues as being the greatest area for improvement.

The program builds and expands on the standards for reprocessing and sterilization already part of the Qmentum accreditation program.

Of particular note on the issue of Physical Space, consistent areas for improvement include:

- issues of cross-contamination of sterilized and contaminated devices/equipment and separation of different work areas
- physical space designed to have a closed area for decontamination
- regulation of air quality, ventilation, temperature and relative humidity, and lighting in decontamination, reprocessing and storage areas.

Of particular note on the issue Quality and Risk Management, consistent areas for improvement include:

- annual reviews of reprocessing and sterilization activities, with formal reports to senior management
- regular reviews of quality management system by team leaders
- documentation of risk management systems, including continual improvement measures
- staff training to identify, assess, prioritize, reduce and communicate risks in the reprocessing area.

## CONCLUSION AND RECOMMENDATIONS FOR SUPPORT

It is evident that organizations struggle most with the optimum use of physical space and the utilization of Quality and Risk Management systems in the running of services. In searching for opportunities to best support strengthening reprocessing and sterilization activities in Canadian acute care centres, results from the 2009 accreditation surveys indicate that focussing on these two areas would create the most

impact in addressing wide-spread and systematic gaps.

When identifying opportunities for improvement, however, the difficulty in addressing physical space issues within the physical confines of many acute care centres must be considered. Also, since it is evident from the analysis of the top 10 unmet criteria that issues of quality and risk appear the most frequently, it may be more tangible and may produce larger scope solutions to first pursue opportunities that are addressed in

standard 12.0 of the 2009 Reprocessing and Sterilization standards – issues of quality and risk management.

## ACCREDITATION CANADA'S STERILIZATION DISTINCTION PROGRAM

Accreditation Canada has developed a Reprocessing and Sterilization of Reusable Medical Devices Distinction Program that offers a highly specialized assessment of sterilization and reprocessing services. The program builds and expands on the standards for reprocessing and sterilization already part of the Qmentum accreditation program. For organizations that have excelled in the Qmentum program, the Distinction Program offers an opportunity for enhanced recognition, and may also offer opportunities of knowledge sharing through the program's focus on excellence and innovation.

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- Annual standard operating procedure review
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Following their initial submission of these performance measures, organizations will demonstrate continued compliance with the distinction program throughout the two-year cycle by regularly submitting indicator results.

The Distinction Program was piloted in four Canadian acute care sites in January and February 2010. Feedback from the pilots include positive comments on the use of the program's audit tools and an appreciation for the knowledge-base of the specialized evaluators. The program and indicators will be refined based on pilot and evaluator feedback, as well as the results of a national consultation taking place in spring 2010. The program will be ready for national launch in fall 2010. <sup>1</sup>

<sup>1</sup> The rating scale in Qmentum is met versus unmet.

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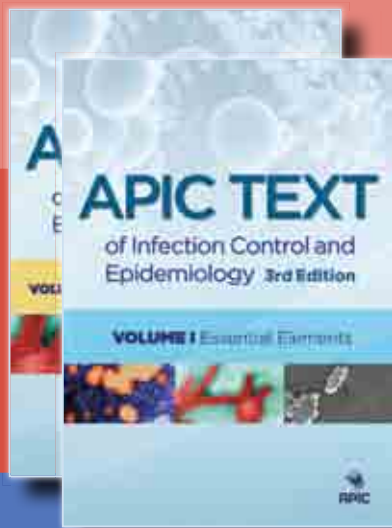
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It's been said that  
**"the only thing that  
stays the same is change."**

It's critical for hospitals to embrace evolving technology and trends in infection control to upgrade their facilities in order to experience rewarding business benefits and maintain leading cleaning programs for their staff and communities

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*Dr. Dale Grinstead, Ph.D. Microbiologist, Diversey*

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## ORAL PRESENTATIONS

TUESDAY, JUNE 1

2:00-3:00 P.M.

Please see final program for room assignments

## ORAL PRESENTATIONS #1 : CLEANING AND DISINFECTION

2:00-2:15 P.M.

EVALUATION OF THE EFFICACY OF STEAM  
DISINFECTION OF IN-VIVO HOSPITAL SURFACES

Paolo Uy, Dick Zoutman

Queen's University, Kingston, Ontario, Canada

**Introduction:** Transmission of MRSA and VRE on hospital surfaces is increasingly recognized. Chemical cleaning methods are time consuming, subject to variability in use, contact time and have the potential for toxicity and ecosystem impacts.

**Objective:** This study was designed to determine the efficacy of a steam sterilization system in eliminating MRSA and VRE from hospital high touch surface materials.

**Methods:** High quality dry steam was produced using a SteamKing(R) 1500 commercial steamer with thermal accelerated nanocrystal sanitation technology (TANCS). 2 cm test discs were machined from tabletop laminate, toilet seat plastic and stainless steel door handles. Discs were sterilized and inoculated with high concentrations of MRSA and VRE cultures prepared in tryptic soy broth. After drying, the test surfaces were exposed to steam using the system's hose and 4 cm nylon brush for 5 seconds, immediately after which the residual bacterial inoculum was eluted in saline, serially diluted and quantitatively plated in duplicate to allow colony counts. Inoculated but non-steamed test discs served as controls.

**Results:** The initial inoculum of MRSA and VRE dried and eluted from the test disc surfaces averaged  $1 \times 10^6$  cfu/disc. After a 5 second steam exposure the test discs revealed a 6 log<sub>10</sub> reduction compared to the control untreated discs for both MRSA and VRE on all three test surface materials. We conclude that steam exposure results in a 6-log reduction of MRSA and VRE on heavily contaminated surface materials used in hospitals quickly and efficiently.

2:15-2:30 P.M.

BEDPAN DISINFECTORS: "WORKING THE BUGS OUT OF THE SYSTEM":  
HUMAN FACTORS ANALYSIS AND WORK PLACE DESIGN TO  
ENHANCE CLEANING AND DISINFECTION

Sydney Scharf, Allison Lamsdale, Ian Clearie, Sharon Stapleton, Elizabeth Bryce, Linda Dempster, Vancouver Coastal Health, Vancouver, Canada

**Introduction:** Bedpan decontaminators (BPDs) may be potential sources of pathogenic organisms if improperly used. As part of a comprehensive strategy to decrease the number of CDAD cases, 64 BPDs and factors associated with their use that contributed to unacceptable failure rates of cleaning and disinfection were examined.

**Interventions:** Over a 12-month period, a multidisciplinary team conducted 5 audits in 4 interventional phases to address concerns regarding visibly soiled items after processing in BPDs. Interventions included the establishment of a regular quality maintenance program, development of user friendly pictorial guides, default programming to prevent function of the machines without detergent and to enforce use of the intense detergent cycle. Intensive education sessions were conducted at all sites.

**Results:** A total of 1,982 items were inspected over the audit/intervention cycle. Percent failure rates ranged from 6.7% to 32.8% depending upon the interventional phase. The lowest failure rate was associated with an intensive educational and monitoring phase but this could not be sustained throughout the entire facility. An overall failure rate of 14% compared to 44% was noted when rinse agent and detergent was used compared to detergent use alone. Issues that contributed to failure of cleaning included unfilled detergent dispensers, use of the quick-wash cycles, double stacking of items, and use of inappropriate cleaning agents.

**Conclusions:** Mechanical and human factors must be addressed by a multidisciplinary team when investigating the proper use of BPDs. Default systems to force compliance with correct use are the most desirable option to minimize cleaning failures.

2:30-2:45 P.M.

HOUSEKEEPING CLEANING COMPLIANCE IN THE HEALTH CARE  
ENVIRONMENT IS IMPROVED AND SUSTAINED WITH THE USE OF UV  
MARKER AS AN AUDIT TOOL AND BY PROVIDING PERFORMANCE FEEDBACK

Adriana Trajtman, Michelle Alfa, Michelle MacRae, Kanchana Manickam

St. Boniface General Hospital, Winnipeg, MB, Canada

**Issue:** Proper environmental cleaning is critical to eliminate or reduce the environmental source of microorganisms. Improving and sustaining cleaning compliance is urgently needed in the health-care setting.

**Project:** a) Assessing cleaning compliance of House Keeping Staff (HKS) using the UV Marker as an audit tool and b) Evaluating the effect of providing feedback to the HKS in improving the cleaning compliance and sustaining the improvement over time. A UV Marker was applied to different surfaces within the patient bathrooms on consecutive week days, over a twenty-four week period. A target of 90% cleaning compliance on average was recommended by HKS as the desired level. The study included three Arms: Arm one: the staff received feedback throughout the study, Arm two received feedback for the first 12 weeks and Arm three was given feedback

for the last 12 weeks based on UV Marker results in the form of posters.

**Results:** A total of 80 rooms and 320 sites were evaluated over the 24 week study. A pre-study visual audit revealed a cleaning compliance of 55%. Arm 1 which received feedback for the entire 24 weeks had a cleaning compliance of 83.75% that was sustained throughout the study. Arm 2 performed well irrespective of no feed back or feed back (73.7% to 76.6%). Arm 3 improved over time from no feed back to feed back (73.6% to 88.9%).

**Lessons learned:** 1. The UV marker is a better audit tool for improving cleaning compliance of housekeeping staff. 2. Providing performance feedback improved and helped sustain cleaning compliance.

2:45-3:00 P.M.

PROSPECTIVE CLINICAL EVALUATION OF PATIENT TOILET CLEANING:  
COMPARISON OF C. DIFFICILE SPORE REMOVAL USING AN  
ACCELERATED HYDROGEN PEROXIDE FORMULATION (OXIVIR<sub>TB</sub>)  
TO A STABILIZED HYDROGEN PEROXIDE FORMULATION (PERDIEM).Michelle Alfa<sup>1,2</sup>, Evelyn Lo<sup>3</sup>, Pat DeGagne<sup>1</sup><sup>1</sup>Diagnostic Services of Manitoba, Winnipeg, MB, Canada, <sup>2</sup>St. Boniface Research Centre, Winnipeg, MB, Canada, <sup>3</sup>St. Boniface Hospital, Winnipeg, MB, Canada

**Background:** Nosocomial spread of *C. difficile* is a significant risk and current guidelines recommend bleach to reduce environmental spore reservoirs.

**Objective:** To determine if Oxivir<sub>TB</sub> (OTB) which is a 0.5% ready to use accelerated hydrogen peroxide (AHP) formulation that showed some in vitro sporocidal activity could reduce the load of *C. difficile* (CD) spores in toilets of patients with CDAD compared to the currently used stabilized hydrogen peroxide cleaner; PierDiem (PD).

**Materials and Methods:** This prospective study compared CD spores levels in toilets when OTB (Arm 1) or PD (1:64 use dilution) were used for CDAD patient toilets with (Arm 2) and without staff initiating (Arm 3). CD spore levels were assessed in toilets of patients with diarrhea who did not have CDAD (Arm 4). Patient toilets were sampled daily to assess the CD spore level. Cleaning compliance of toilets was audited using Glitterbug UV marker tool. Toilets were assessed daily for 1 week or until the patient was discharged.

**Results:** In Arms 1, 2, 3, and 4 patient enrolment was 50 (133 toilets sampled), 57 (148 toilets sampled), 68 (254 toilets sampled) and 68 (179 toilets sampled), respectively. Overall cleaning compliance was 60%, 70%, 65% and 59% for Arms 1, 2, 3, and 4 respectively. The CD spore levels were 28%, 32%, 45% and 10% for Arms 1, 2, 3, and 4, respectively.

**Conclusions:** Our study showed that Oxivir<sub>TB</sub> provided a one-step cleaning process that provided a significant ( $p = 0.0023$ ) reduction of CD spores (28%) compared to the SHP current cleaner (45%).

## ORAL PRESENTATIONS #2: DATA AND SURVEILLANCE

2:00-2:15 P.M.

IMPACT OF UNIVERSAL ADMISSION SCREENING ON NOSOCOMIAL  
RATES OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)Virginia Roth<sup>1,2</sup>, Natalie Oake<sup>2</sup>, Kathy Suh<sup>1,2</sup>, Monica Taljaard<sup>2,3</sup>, Karam Ramotar<sup>1,3</sup>, Natalie Bruce<sup>1</sup>, Baldwin Toye<sup>1,3</sup>, Alan Forster<sup>1,2</sup><sup>1</sup>The Ottawa Hospital, Ottawa, ON, Canada, <sup>2</sup>The Ottawa Health Research Institute, Ottawa, ON, Canada, <sup>3</sup>University of Ottawa, Ottawa, ON, Canada

**Background:** MRSA incidence is increasing in Canada. Detecting asymptomatic carriers at hospital admission allows for patient isolation and may prevent further spread.

**Objective:** To determine if the nosocomial incidence of MRSA is lower following universal admission screening.

**Methods:** Pre-intervention (Jan 2006-Dec 2007), patients were screened for MRSA on admission based on risk factors (previous hospitalization, direct transfers, known MRSA). Post-intervention (Jan 2008-Jun 2009), all patients were screened on admission to our hospital. Real-time PCR was used for MRSA detection; PCR positive specimens were confirmed by culture. Nosocomial MRSA incidence pre- and post-intervention was compared using interrupted time series analysis.

**Results:** There was a significant increase in new MRSA carriers detected on admission post-intervention vs pre-intervention (2.2 vs 1.0/1,000 admissions;  $p$ -value<0.001), and a higher proportion were considered community-acquired (81 vs 72.6%; OR=1.6, 95%CI 1.0-2.6;  $p$ -value=0.03). The compliance rate for admission screening post-intervention was 83% vs 60% pre-intervention. Despite the increase in detected cases at admission, the post-intervention nosocomial MRSA incidence was not significantly different compared to pre-intervention (47.3 vs 44.5/100,000 pt days; incidence RR = 1.06, 95% CI 0.91-1.24,  $p$ -value=0.4).

**Conclusions:** Universal admission screening detects significantly more MRSA carriers than risk factor-based screening and improves screening compliance. However, nosocomial MRSA incidence in our hospital did not decrease. Possible explanations include poor compliance with hand hygiene and contact precautions, inadequate facilities, and imperfect admission screening compliance. As the detection rate in our study was low, universal screening may be more effective in settings with higher MRSA prevalence.

2:15-2:30 P.M.

## BUILDING SUPPORT FOR A REGIONAL SURVEILLANCE SYSTEM

Janet Allen<sup>1</sup>, Tracey Spencer<sup>2</sup>, Lisa Hope<sup>3</sup>, Wanda Stewart<sup>4</sup>, Susan Schaub<sup>5</sup>, Mary Lu Sample<sup>6</sup>, Susan Cooper<sup>1</sup>, Dick Zoutman<sup>1,2</sup>

<sup>1</sup>South Eastern Ontario Infection Control Network, Kingston, Ontario, Canada, <sup>2</sup>Kingston General Hospital, Kingston, Ontario, Canada, <sup>3</sup>Providence Care, Kingston, Ontario, Canada, <sup>4</sup>Quinte Healthcare Corporation, Belleville, Ontario, Canada, <sup>5</sup>Brockville General Hospital, Brockville, Ontario, Canada, <sup>6</sup>Perth & Smiths Falls District Hospital, Smiths Falls, Ontario, Canada

**Issue:** The timely collection of accurate information about hospital associated infections (HAIs) is fundamental to surveillance programs. There is no regional system in southeastern Ontario. Without meaningful data, health service provider (HSP) leaders are unable to justify appropriate resources.

**Project:** With South East Local Health Integration Network support, SEOICN advanced an ambitious project which had as its' primary goal, to improve capacity to track selected HAIs in this region. Following a Request for Proposal (RFP) for Project Lead, a contract was awarded and the initiative began in earnest in May 2009. A Regional Implementation Surveillance Team (RIST) comprised of Infection Control Professionals (ICPs), managers, and other experts met regularly to assist with the development of an RFP for the software solution. During 2009, communication briefs were regularly disseminated to hospital CEOs, Clinical Leaders, Information Technology Leads, ICPs and the RIST. Presentations tailored to the audience were provided at a number of forums.

**Results:** In January 2010, the CEOs of all 6 acute care hospitals agreed to support the project by participating in the sharing of on-going system operating costs. With the implementation of a regional surveillance system, HSP leaders will have a better understanding of the implications of HAIs with respect to operational costs, lengths of stay, treatment outcomes and transfer of patients.

**Lessons Learned:** Early engagement of ICPs and their managers established ground level support and advocacy. The identification of key individuals at the executive level within each organization was critical to successful adoption of the project.

2:30-2:45 PM.

#### AN EASY AND TECH SAVVY WAY TO MANAGE INFECTION CONTROL DATA AND RESOURCES

Natasha Vrhovnik, Maja McGuire, Jane Middlehurst, Sandra Callery  
Sunnybrook Health Sciences Centre, Toronto, Canada

**Issue:** Develop a Microsoft SharePoint @ Portal for the Infection Prevention and Control (IP&C) team to streamline processes, standardize data collection, increase accessibility and improve communication.

**Project:** Our IP&C team of 14 staff covers a 1212 bed acute care tertiary trauma teaching hospital and Long-Term Care facility across four separate sites. The project involved reviewing the IP&C team's common electronic file storage and identifying deficiencies in daily surveillance processes, document storage, accessibility and workflow. Initial infrastructure and configuration was completed by our Information Services Department. The core content and dynamic functionality was designed and developed by the IP&C team.

**Results:** The portal has centralized reporting and provides easy access to consistent real time data and resources. One invaluable list includes the daily surveillance report which tracks all patients on precautions and their status. This secure list is displayed in a spreadsheet where internal and external access is available and viewing permissions may be granted to key decision makers. Additional lists, shared calendars, tools, templates and presentations are accessible on the portal. Other value added features of the portal include the ability to archive investigations and cases that have been reviewed/closed, sort data, and export for further analysis.

**Lessons Learned:** The integration of a Microsoft SharePoint @ portal is an effective change that assists our team to perform daily surveillance tasks in an efficient and consistent manner. The portal is a growing part of the department's strategy to facilitate continuous improvement, communication, team building and best practices in knowledge management.

2:45-3:00 PM.

#### VAP TRACKING MADE EASY: TRIGGERS AND ASSESSMENT TOOL

Natasha Vrhovnik, Barbara Catt, Sandra Callery  
Sunnybrook Health Sciences Centre, Toronto, Canada

**Issue:** In 2009, the Ontario Critical Care Information System (CCIS) expanded mandatory reporting for Intensive Care Units (ICUs) to include data collection for Ventilator Associated Pneumonia (VAP). Surveillance of VAPs was not an established process at Sunnybrook Health Sciences Centre (SHSC). Three of the 6 ICUs have ventilated patients. CCIS reported that for 2009/2010 SHSC had 10228 ventilator days. The ventilator occupancy rate was 74.71%. Based on the volume of ventilated patients the daily assessment of all patients for a VAP by chart review would be labour intensive.

**Project:** To develop a data collection tool and to identify elements of the VAP case definition that can be used as triggers to prompt further investigation

**Results:** A robust data collection tool was developed for the investigation of VAPs. This tool would become multipurpose for the collection of data for other Healthcare acquired infections (HAI). Reviewing daily reports for positive respiratory cultures and pharmacy antibiotic utilization became the two main triggers to prompt further investigation for the presence of a VAP. Approximately 1/4 of VAPs that met the CCIS case definition were identified because of antibiotic change where sputum results were either not collected or negative for an organism.

**Lessons Learned:** A multidisciplinary approach is vital to completing a VAP investigation (i.e., pharmacy, laboratory, physician, nurse, radiology and physiotherapy). Establishing triggers prompting investigations is equally important to maximize productivity. VAPs are often diagnosed without meeting the case definition. Infection Prevention and Control is well suited to the collection of this data.

## ORAL PRESENTATIONS #3: COLLABORATION

2:00-2:15 P.M.

### CREATING HIGH QUALITY, EVIDENCE-BASED PROVINCIAL GUIDELINES: AN EVALUATION PROCESS DEVELOPED BY THE PROVINCIAL INFECTION CONTROL NETWORK OF BC (PICNET)

Salman A. Klar<sup>1</sup>, Bruce Gamage<sup>2</sup>, Joanne Archer<sup>2</sup>

<sup>1</sup>School of Population and Public Health, University of British Columbia, British Columbia, Canada, <sup>2</sup>Provincial Infection Control Network of British Columbia, British Columbia, Canada

**Issue:** PICNet sought to evaluate our current Respiratory Outbreak Prevention and Control Guidelines by seeking feedback from our Community of Practice (COP). Lessons learned will be used to update the document and improve the development process for future guidelines.

**Project:** Currently available guideline evaluation instruments did not meet our need. A mixed evaluation process was developed. This process included application of the AGREE Instrument, interviews with key informants and an online survey. Utility and quality of the guidelines were assessed, the development process was reviewed and suggestions for updating the document were solicited.

**Results:** The AGREE instrument identified the need for detailed evidence weighting and decision-making steps to improve the rigor of the development process. Of the 66 respondents to the online survey, 49 provided complete responses. Eight-three percent of respondents were aware of the document and 59.5% had used it to update local plans. The recommendations were useful for 73.2% of respondents and 82.1% found them evidence based. The lengthiness of the document was identified as a barrier to uptake by both key informants and members of our COP; including pandemic response sections and summaries was also recommended.

**Lessons Learned:** Key lessons included the need to incorporate the AGREE instrument into the development process to improve the quality of guidelines. The current document needs updating to include detailed evidence weighting, views of patients and frontline staff, short recommendation summaries and sections on pandemic influenza. Overall, the support for the document was high among PICNet's COP and key informants.

2:15-2:30 P.M.

### PROVINCIAL/REGIONAL H1N1 COLLABORATION: A RECIPE FOR SUCCESS

Shelley Woolfrey<sup>1</sup>, Penny Ralph<sup>1</sup>, Marion Yetman<sup>2</sup>, Donna Moralejo<sup>3</sup>, Paula March<sup>4</sup>, Lorraine Mitchell<sup>4</sup>, Paula Price<sup>5</sup>, Jackie Young<sup>5</sup>, Ada Fowler<sup>6</sup>, Donna Ronayne<sup>6</sup>

<sup>1</sup>Central Health, NL, Canada, <sup>2</sup>Department of Health & Community Services, NL, Canada, <sup>3</sup>Memorial University School of Nursing, NL, Canada, <sup>4</sup>Labrador-Grenfell Health, NL, Canada, <sup>5</sup>Western Health, NL, Canada, <sup>6</sup>Eastern Health, NL, Canada

**Issue:** Pandemic planning had been ongoing in this province since 1999, but we had grown tired of the same old menu! The appearance of a novel influenza strain in Mexico in April 2009 created an insatiable **hunger** for information and guidance.

**Project:** As a result, a joint Infection Prevention & Control (IPAC) - Occupational Health Hygiene (OHH) Committee sprouted from the Provincial Pandemic Planning Committee in NL to collaborate on a **well balanced recipe** for the management of Pandemic Influenza in all Health Care settings.

*Recipe/Ingredients:*

- 1 lb of current best practice (national and provincial guidelines)
- 1 cup of regional content
- 2/3 cup of emerging research
- sprinkles of IPAC and OH professionals province wide
- handfuls of support from Memorial University Faculty of Nursing
- a pinch of local expertise
- a bushel of patience

*Directions:*

While the guidelines were marinating, we prepared and served a gourmet appetizer of H1N1 education to all health care workers (HCWs) in the province.

**Results:** The appetizer of HCW education perfectly complemented the crisp, clear guidelines concocted from our ingredient list. A very rewarding, well balanced H1N1 management experience was had by all!

**Lessons learned:** The collaboration of expert chefs and the careful gathering of the finest ingredients is crucial when faced with the challenge of creating a **new recipe**. Equally as important is preparing the palettes (educating) of the end consumer to ensure they have satisfying and (ful)filling culinary experience.

2:30-2:45 P.M.

### A PROVINCIAL APPROACH TO INFECTION PREVENTION & CONTROL FOR NOVA SCOTIA

Patsy Rawding, Suzanne Rhodenizer Rose  
Department of Health, Nova Scotia, Canada

In June 2005 the Department of Health funded an Infection Control Consultant role for 3 years to support infection prevention and control needs across the healthcare continuum. The Consultant's mandate was to formulate a province-wide approach to standards development and implementation across health care sectors and to facilitate program alignment across all practice settings.

The Consultant devoted significant time to advising and working on collaborative initiatives with acute care providers, as well as many non-hospital-based providers such as those with Continuing Care, Emergency Health Services, the Department of Community Services, the Department of Environment & Labour, and others.

An environmental scan provided insight into gaps, opportunities and approaches used by other provinces. Key stakeholders were assembled to offer their thoughts around developing a framework for enhanced coordination and consistent practice. A detailed Concept Document was developed by the Departments of Health and Health Promotion & Protection in consultation with Infectious Diseases experts and supported in principle by the Departments of Community Services and Environment & Labour.

The concept was for a Provincial Centre for Infection Prevention & Control with the mandate to contribute to enhanced coordination and consistent infection prevention and control (IP&C) practice across healthcare service provider organizations, as well as collaboration between key government departments and service providers.

Executing the mandate will facilitate the implementation of best practice documents, enhanced competencies and additional resources in the field, and effective networks for enhanced communication and coordination across all levels of the system and all practice settings.

2:45-3:00 PM.

#### EMERGENCE OF A ROBUST ACUTE CARE INFECTION PREVENTION SUPPORT NETWORK: FROM ORIENTATION TO GROUP SUPPORT TO E-MENTORING, THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS!

Laurie Boyer<sup>1</sup>, Isabelle Langman<sup>1</sup>, Amanda Gauthier<sup>2</sup>, Natalie Marcello<sup>3</sup>, Jaime Elmore<sup>4</sup>, Rachelle Beaubien<sup>5</sup>, Trina Renaud<sup>6</sup>, Andrea Skeoch<sup>7</sup>, Jennifer Joyal<sup>8</sup>, Dawna O'Toole<sup>9</sup>, Anne Sutcliffe<sup>9</sup>

<sup>1</sup>Northeastern Ontario Infection Control Network, Northeastern Ontario, Canada, <sup>2</sup>Lady Dunn Health Centre, Wawa, Ontario, Canada, <sup>3</sup>Sault Area Hospitals, Sault Ste Marie, Ontario, Canada, <sup>4</sup>Blind River & District Hospital, Blind River, Ontario, Canada, <sup>5</sup>St. Joseph's General Hospital, Elliot Lake, Ontario, Canada, <sup>6</sup>Kirkland & District Hospital, Kirkland Lake, Ontario, Canada, <sup>7</sup>Temiskaming District Hospital, New Liskeard, Ontario, Canada, <sup>8</sup>Chapleau District Hospital, Chapleau, Ontario, Canada, <sup>9</sup>Sudbury Regional Hospital, Sudbury, Ontario, Canada  
In late 2008 among 26 area acute care facilities, 7 ICPs were hired in various facilities and began to practice within 4 months of each other. Most were working in rural or small community hospitals with little opportunity to learn from peers or previous incumbents. A plan to provide orientation support to these new practitioners was initiated using a regional model. It became apparent that formation of a group to address common needs would be a way to leverage collective learning as well as provide an opportunity for the members to network with each other. As the group evolved and the members grew from novice to beginner and advanced beginner stages, more experienced ICPs from acute care settings were invited to join the group as mentors. Now with representatives from nearly half of the acute care facilities in the region meeting monthly by videoconference, and a number of new ICPs who were not included in the initial cohort beginning to practice, the group seeks to expand its resources and potential to assist each other. All ICPs from acute care settings in the region will be invited to meet for semi-structured meetings and round table discussions on a monthly basis. Group members will be offered an opportunity to participate in an Open eMentoring project as a supplemental means of sharing knowledge and experience in an asynchronous environment. The Acute Care ICP support group are ahead of the curve on collaboratively bolstering the profession!

#### ORAL PRESENTATIONS #4: COMMUNITY PARTNERS

2:00-2:15 PM.

#### THE EFFECT OF HAND HYGIENE EDUCATION ON COMMUNITY HEALTHCARE PROVIDERS

Mandy Deeves, Mary Judith Macfarlane

North Simcoe Muskoka Infection Control Network, Orillia, ON, Canada

**Background/Objectives:** Infection Prevention and Control (IPAC) training and resources in the community health care setting are limited. This study evaluated knowledge of the home health care worker (HCW) about Best Practices in hand hygiene (HH), before and after an education program.

**Method:** Nine home health care agencies took part in a randomized case control study using an anonymous pre- and post-test questionnaire. The research question was, "Is there any difference in the level of HH knowledge in the community health care provider after HH education has been implemented?"

**Results:** Control group: 341 pre-test questionnaires were mailed out with a 43.4 % response rate. 340 Post-test #1 questionnaires were sent out with 35% response rate. Intervention group: 212 Pre-test questionnaires were sent out with 96% response rate; 141 Post-test #1 questionnaires were distributed with 66% response rate, and 38% return on 151 Post-test #2 questionnaires. Intervention group mean scores at Post-test #1 and Post-test #2 were significantly higher than Pre-test scores ( $P < .001$ ). The mean score in Post-test #2 (11.43) was significantly lower ( $P = .037$ ) than Post-test #1 (12.22); but is significantly higher ( $P < .001$ ) than the Pre-test score. There was no significant difference ( $p = 0.111$ ) between Pre-test and Post-test #1 score in the Control group.

**Conclusion:** The intervention used in this study demonstrated increased HH knowledge among participants'. Researchers did not assess whether improvement in knowledge was sustained over time. Further study related to hand hygiene practice in the community setting is required.

2:15-2:30 PM.

#### COMMUNITY PROVIDER BASIC TRAINING USING A TRAIN-THE-TRAINER MODEL

Mark Jefferson, Anne Bialachowski, Virginia Tirilis

Central South Infection Control Network, Dundas, Ontario, Canada

**Issue:** When it comes to educating staff, community healthcare providers (CHP) face numerous challenges, including: a decentralized care environment; poor access to supplies, and; lack of dedicated funding for IPAC supplies and human resources, to name but a few.

**Method:** In the spring of 2008, CSICN held focus groups with senior leaders and educators from CHP agencies and used the information gathered to plan a series of Infection Control train-the-trainer (T3) workshops, in which individuals would be trained and provided resources to take back to their organizations to train their staff. Four workshops were run between May 2008 and April 2009. The workshops

addressed: hand hygiene, adult education, IPAC history, microbiology, routine practices, CA-MRSA, occupational health, surveillance and outbreak management, C. difficile, cleaning and disinfection, and pandemic preparedness. Participants were also given assignments that they were required to complete and report on.

**Results:** The T3 model created an excellent opportunity to provide IPAC education to CHP, while investing in a system to ensure ongoing education would be sustainable. The assignments ensured that the participants were implementing an IPAC education program in their organizations. The feedback on the various educational tools provided at the workshops was overwhelmingly positive.

**Conclusion:** The T3 model is an effective way to provide up-to-date and necessary information to a large number of staff over a broad geographical area. CHP need to continue to be a focus of attention for educational initiatives and resource development and dissemination, as this is a significantly under-resourced sector.

2:30-2:45 PM.

#### INFECTION PREVENTION AND CONTROL (IPAC) KNOWLEDGE, ATTITUDE AND PRACTICES OF PRIMARY CARE PHYSICIANS IN THE CHAMPLAIN REGION OF ONTARIO

Laurel Rockwell, Colette Ouellet, Jun Ji

Champlain Infection Control Network, Ottawa, Canada

**Background:** Good IPAC practices can reduce patient and provider risk of healthcare-associated infections. Little is known about IPAC knowledge and practices in primary care.

**Method:** A knowledge, attitudes and practices (KAP) survey of hand hygiene, routine practices, influenza vaccination and pandemic influenza was conducted among physicians in 25 Community Health Centres and Family Health Teams in Champlain between January and September 2009. Environmental and hand hygiene audits were conducted to document discrepancies between self-reported and observed IPAC practices.

**Results:** The KAP survey, completed by 116 physicians, found that over 60% had received IPAC education; 46% were confident in their ability to follow recommended IPAC practices during a pandemic; 22% wear eye protection to examine patients with fever and cough; 46% find it difficult to perform hand hygiene as recommended; 39% see themselves as hand hygiene role models; 18% would continue to work with a febrile respiratory illness (FRI), and 30% recap needles. The audits revealed that all centers have surgical masks and gloves available, 64% have gowns and eye protection, and 60% have a sharps injury prevention protocol. One centre actively screened patients for FRI, the others performed passive (72%) or no screening (24%). Alcohol-based hand gel was available at point of care in only 15% of instances. The hand hygiene audits revealed that 76% of physicians clean their hands after patient contact, but only 56% before.

**Conclusion:** These findings highlight targets for improving primary care physicians' IPAC knowledge and practice to reduce the risk of infection transmission.

MULTI-PURPOSE

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2:45-3:00 PM.

HOME CARE INFECTION CONTROL PRACTITIONERS:  
INSPIRING EXCELLENCE IN INFECTION PREVENTION  
AND CONTROL PRACTICE AND INFLUENCING POLICY

Nan Cleator, Irene Holubiec, Joan Wekner, Vivian Papaiz  
*Victorian Order of Nurses for Canada, Ontario, Canada*

Infection surveillance is essential in home-care to meet Accreditation standards and address growing infection risks. Published literature is acute-care focused, making it problematic for home-care Infection Control Practitioners (ICPs) to collect meaningful data. Nurse mobility and isolation inherent in home-care makes educating and engaging nurses in infection reporting challenging. A meaningful and practical surveillance strategy in home-care was needed. In partnership with the North-Simcoe Regional Infection Control Network, a quality improvement project was conducted seeking to identify a relevant approach to home-care infection surveillance.

Access to expert resources and early involvement of key stakeholders ensured the project design included tactical strategies to address challenges. Important outcomes included design of an evidence-informed reporting tool and process suitable to home-care. Nurses were educated on how to recognize and report infections; a novel approach to education delivery was tested, identifying an effectual alternative to in-class education. Lessons learned from the project were incorporated into a national approach.

Evaluation revealed that success was achieved by focusing everyone on client care, quality improvement and by following sound change management processes. As a result of this work, the Accreditation required organizational practice was met and in collaboration with Accreditation Canada, Infection Prevention and Control (IP&C) standards were influenced and home-care surveillance indicators were developed. This initiative demonstrates that home-care ICPs can inspire excellence in IP&C practice and influence policy. Home-care ICPs can use this presentation to plan infection surveillance and decide on implementation strategies and resources required to develop an effective and sustainable infection surveillance strategy.

## WEDNESDAY, JUNE 2 (2:00-3:00 PM.)

### ORAL PRESENTATIONS #1: OUTBREAKS

2:00-2:15 PM.

A UNIFIED APPROACH FOR OUTBREAK  
MANAGEMENT AT MULTIPLE FACILITIES

Linda Adam<sup>1</sup>, Christy Green<sup>2</sup>, Greg Reilly<sup>2</sup>,  
Sarah Wright<sup>2</sup>, Linda Dempster<sup>1</sup>, Elizabeth Bryce<sup>1</sup>

<sup>1</sup>Vancouver Coastal Health, Vancouver, Canada,

<sup>2</sup>Douglas College Faculty of Nursing, Coquitlam, Canada

**Background:** Vancouver Coastal Health (VCH) has 14 acute care hospitals, 14 directly operated long term care facilities, and 41 contracted long term care facilities. Debriefing meetings following the conclusion of several gastrointestinal and respiratory outbreaks identified differences in outbreak management at the facilities. Two student nurses were contracted to develop a standardized toolkit for use by all VCH facilities to manage outbreaks.

**Methods:** An assessment and inventory of currently available resources (educational materials, checklists, signage, FAQ sheets and directives) was performed. Together with an experienced ICP who supervised the project, the students selected the most relevant, concise, and applicable material. Two standardized tool kits for outbreak management of gastrointestinal and influenza outbreaks were then developed with each toolkit providing instructions for Acute Care and Long Term Care facilities. These were first presented to the regional infection control group for review after which nursing and management input was obtained. During the recent norovirus outbreak season, users of the toolkit were asked to fill out a customer satisfaction survey.

**Results:** User-friendly regional tool kits for the management of outbreaks of gastroenteritis and/or influenza in both acute care and long term care facilities were developed. The tool kits were distributed to managers and Infection Control staff throughout the region to standardize the approach to outbreak management.

**Conclusions:** Involvement of front-line healthcare workers and management in addition to Infection Control was crucial in development of consistent outbreak management plans. Staff rated the checklist and educational tools highly.

2:15-2:30 PM.

MEASURING THE IMPACT OF INFECTION CONTROL RESOURCE TEAMS

Camille Achonu, Paige Reason, Liz Van Horne, Cathy Egan, Michael Gardam  
*Ontario Agency for Health Protection and Promotion, Toronto, ON, Canada*

**Introduction:** In 2008, Ontario created Infection Control Resource Teams (ICRTs) to act as expert consultants to hospitals providing advice and assistance in outbreak investigation and management. In 2009, four hospital corporations with seven hospital sites received assistance from ICRTs. An evaluation was carried out to determine the effectiveness of ICRTs in decreasing rates of nosocomial Clostridium difficile infection (CDI).

**Methods:** A pre-post intervention study comparing hospitals with ICRT visits to a control group of hospitals was carried out. Four control hospitals were randomly matched to each hospital based on size and hospital type. Data on CDI cases and hospital patient days from seven hospitals with ICRT visits and twenty-eight control hospitals were obtained from the Web Enabled Reporting System. CDI rates were calculated three months before and after the ICRT visit or a comparable period for control hospitals. All analysis was done in SAS V9.1.

**Results:** In hospitals that had an ICRT visit, the average CDI rate decreased 55% from 88/100,000 patient days to 40/100,000 patient days. In control hospitals, the average CDI rate increased 3% from 40/100,000 patient days to 41/100,000 patient days over a comparable period.

**Conclusion:** Overall, CDI rates in hospitals visited by an ICRT were halved within three months of the visit. Given that control hospitals experienced a negligible change in CDI rates over a comparable period, these findings indicate the implementation of ICRTs had a favourable short-term impact on CDI rates. Future work will look at the long-term impact of ICRTs.

2:30-2:45 PM.

SERRATIA MARCESCENS IN A LARGE CARDIAC CARE CENTRE

Jenn Johnson, Manal Gethamy, Natalie Bruce, Kathy Suh

*The Ottawa Hospital, Ottawa, Ontario, Canada*

**Issue:** *Serratia marcescens* is an important nosocomial pathogen. Outbreaks of *S. marcescens* in cardiothoracic centers have been previously described. In 2009, we identified multiple clusters of *S. marcescens* in patients admitted to the University of Ottawa Heart Institute. Compared with 2008, the number of patients with positive cultures for *S. marcescens* (cases) almost doubled.

**Project:** An investigation was undertaken to review common practices, focusing specifically on respiratory equipment and reprocessing of OR equipment. A retrospective chart review of all cases identified between January 2008 and December 2009 was performed. Other variables examined included: catheterization lab use, OR theatre used, diagnostic procedures performed and equipment used, intubation and duration of mechanical ventilation, and type and method of feeding and dialysis.

**Results:** Sixty-nine cases were identified, and their charts were reviewed. Sixty-two (90%) were surgery patients, and 43 (62%) had *S. marcescens* isolated from the respiratory tract; with or without positive specimens from other sites. Sixty-eight percent of cases were identified within the first two weeks of admission. Practice review identified breaches in reprocessing of laryngoscope blades in the OR setting. Protocols for proper reprocessing of the laryngoscope blades were reinforced. No common source was identified from the case record review or from practice review, however.

**Lessons Learned:** Occurrence of *S. marcescens* in inpatients is not uncommon; however, identifying a single source can be challenging and time consuming. Multiple factors such as breaches in practice, cleaning practices and hand hygiene compliance may contribute to ongoing transmission of this pathogen.

2:45-3:00 PM.

LEARNING FROM EXPERIENCE – EMBRACING PREVENTIVE STRATEGIES  
FOR OUTBREAK MANAGEMENT IN A NEONATAL INTENSIVE CARE UNIT

Laurie Streitenberger, Audra Jesso, Richard Wray, Michael Rotstein, Anne Matlow  
*The Hospital for Sick Children, Toronto, Ontario, Canada*

**Background/Objectives:** Neonatal intensive care units (NICU) are known to experience clusters of hospital associated infections. Our experience has led to the implementation of a bundle of practice strategies which have been successful in outbreak management of contact transmitted organisms.

**Methods:** To contain an outbreak of *Serratia marcescens*, our NICU's outbreak management team developed and applied a bundle of practice strategies: basic principles of cohorting patients and staff, emphasizing hand hygiene, restricting patient room access, enhancing environmental cleaning, and developing a concise communication plan. A nursing room monitor role was created to assist with the implementation of the practice strategies specific to their assigned room. Epidemiological investigation included prevalence screening of patients, environmental screening, and pulsed field gel electrophoresis when new patient or environmental isolates were identified. This framework was applied to a subsequent cluster of hospital associated Group B *Streptococcal* (GBS) infections.

**Results:** Both outbreaks were quickly controlled with no transmission following the application of practice strategies. The NICU team began to anticipate and independently implement these practice strategies. Debriefing exercises revealed an increase in staff confidence and empowerment related to managing an outbreak. The nursing room monitor role is under review as a patient safety position within the NICU.

**Conclusions:** In our experience, a standardized bundle of practice strategies worked to prevent further transmission during an outbreak. With repeated application of consistent practices, staff confidence and competence in outbreak management may be enhanced. If key elements are incorporated into daily practice, there may be preventive value.

### ORAL PRESENTATIONS #2: EDUCATION

2:00-2:15 PM.

IN-SERVICES ON DEMAND, A USEFUL EDUCATIONAL  
TOOL FOR INFECTION CONTROL PRACTITIONERS

Abdul Chagla, Laura Farrell, Tim Cronsberry,  
Christine Moussa, Norma Reese, Marina Salvadori

*South Western Ontario Infection Control Network, St. Marys, Ontario, Canada*

**Issue:** Keeping up to date on infection control practices has been recognized as a challenge by Infection Control Practitioners (ICPs) and other healthcare workers who are continually faced with limited educational resources and competing priorities. The issues is further aggravated when healthcare staff work in rural settings and are unable to attend educational sessions organized in urban teaching centers.

**Project:** South Western Ontario Regional Infection Control Network (SWOICN) has created a web-based learning tool called In-Services on Demand that can be accessed at anytime by healthcare workers.

**Result:** On a regular basis, the SWOICN Network Consultant updates the website and posts current topics related to infection control practices/procedures and guidelines. The format of these postings is basically an articulated power point which provides an audio commentary. Along with the learning component, the program also assists in providing quizzes to test the newly-gained knowledge. These

quizzes can be used for self monitoring or can be printed off as a performance indicator at work. The presentations are designed to be used by clients to offer continuous education for staff groups in their facility and help overcome barriers like providing opportunities to staff who work shifts or are part time employees.

**Lessons Learned:** The measured outcomes surpassed the initial objectives by the calls received on the uptake of the program. The program encourages contacting SWOICN to provide feedback or for any inquiries, or further information. This could be a very simple but effective tool for web based in-service.

2:15-2:30 P.M.

#### WHAT'S ON YOUR STOP SIGN IN THE EMERGENCY DEPARTMENT?

Barbara Catt, Sandra Callery

*Sunnybrook Health Sciences Centre, Toronto, Canada*

**Issue:** Transmission of organisms can be stopped by spatial separation, engineering controls, hand hygiene, environmental sanitation, equipment disinfection/sterilization and personal protective equipment (PPE). In a busy Emergency Department, confusion about the selection of additional precautions that are required can result in inaccurate information documented on the STOP sign. This leads to frequent calls to IP&C. At Sunnybrook Health Sciences Centre (SHSC), the healthcare worker (HCW) is responsible to initiate precautions and place the STOP sign on the door. SHSC is a large tertiary teaching facility located in Toronto, Ontario.

**Project:** A reference chart for emergency staff was developed in collaboration with the front line workers and Infection Prevention & Control (IP&C).

The reference tool focuses on respiratory, gastrointestinal symptoms, antibiotic resistant organisms, rashes and tuberculosis. It includes key information on PPE and room requirements as well as projected duration of precautions. The chart was piloted in the Emergency Department.

**Results:** The reference chart was presented to Clinical Care Leaders and at unit staff meetings. A laminated copy is posted on every isolation cart for easy access. This is also available on the IP&C intranet. Feedback from staff has been positive and supportive for easy access tools.

**Lessons Learned:** Daily audits for completion of the STOP sign will be continued. The ultimate goal is to decrease the inaccuracies documented on the STOP sign. Roll-out of the chart begins March 1, 2010. This will include education sessions for all emergency staff. This may illicit some future changes in the chart.

2:30-2:45 P.M.

#### HOSPITAL VOLUNTEERS AS IPAC CHAMPIONS: UTILIZING A VALUABLE RESOURCE

Jessica Fullerton, Anson Kendall, Karen Stockton

*University Health Network, Toronto, ON, Canada*

**Issue:** Volunteers have generally been a under-utilized resource. Volunteers at University Health Network (UHN) are valuable members of UHN's interdisciplinary team, supporting patients, family members and staff. Volunteers at Toronto Western Hospital expressed interest in receiving education on infection prevention and control. The IPAC department saw potential for interested volunteers to act as IPAC champions.

**Project:** Education as well as question and answer sessions were scheduled with volunteer personnel. Specific areas covered were as follows:

- Routine practices and additional precautions
- Hand hygiene
- Screening of patients
- PPE
- Transmission
- Ambulation of patients
- Common antibiotic-resistant organisms

IPAC information binders were created and kept at Volunteer Services for reference. Contents included: a summary of routine practices, additional precaution at-a-glance posters, patient information pamphlets, common IPAC policies, donning and doffing how-to posters as well as IPAC department contact information.

**Results:** The education sessions were received with great interest and enthusiasm and resulted in extending to all three UHN hospital sites. The reference binders have been used with positive feedback. Volunteer personnel have assisted IPAC with: Providing educational material for inquiring patients and families  
Advocating proper hand hygiene and participating in hand hygiene audits  
Assisting family/visitors with proper donning/doffing of PPE  
Encouraging patient and visitor self-screening.

**Lessons Learned:** Volunteers interested and educated are empowered to act as IPAC champions. This promotes the use of a previously overlooked resource for infection prevention and control.

2:45-3:00 P.M.

#### ACADEMIC RESOURCE KIT FOR INFECTION PREVENTION & CONTROL: PUTTING THE CURRENT RESOURCES IN THE HANDS OF INSTRUCTORS EDUCATING HEALTHCARE STUDENTS

Laurie Boyer<sup>1</sup>, Isabelle Langman<sup>1</sup>, Carolyn Inglis<sup>2</sup>

*<sup>1</sup>Northeastern Ontario Infection Control Network, Ontario, Canada, <sup>2</sup>Canadore College, North Bay, Ontario, Canada*

Instructors teaching healthcare students may have a difficult time defining and acquiring the best teaching tools based on the most current infection prevention practices.

During a clinical placement in infection control, a nursing student assisted us to realize that in order to ensure that the next generation of healthcare professionals come to practice with knowledge and skills in infection prevention, their professors may need our assistance guidance

to define the best practices and acquire useful teaching resources.

Our team realized that busy healthcare educators require a broad range of knowledge of ever-changing recommended practices to draw upon to teach. We also realize that it is not always easy to root out the most current practices from internet sources in order to be able to adjust curriculum and lesson plans. The Academic Resource Kit for Infection Prevention and Control was developed as an answer to these needs! The kit consists of a binder and CD which contain IPAC teaching resources in as many forms as possible. Putting the resources in the hands of educators in multiple media formats is intended to make it easy to move the learning into the classroom.

From identifying the Best Practice Guidelines, to interactive "Flash" modules, learning games, posters and fact sheets, the Academic Resource Kit provides many alternative means for instructors to use to promote improved IPAC practice and clarity in practice recommendations. Let's prepare the next generation before they begin clinical practice!

#### ORAL PRESENTATIONS #3: NOVEL IDEAS

2:00-2:15 P.M.

#### DEVELOPMENT OF THE PERSONAL PROTECTION STRATEGY MODEL AS A TRAINING TOOL TO ENCOURAGE PROGRESSIVE THOUGHT AND ACTION REGARDING IPAC IN EMERGENCY SERVICE

Natalie Hiltz<sup>1</sup>, Alexis Silverman<sup>2</sup>

*<sup>1</sup>Peel Regional Police Service, Brampton, Ontario, Canada, <sup>2</sup>Region of Peel Public Health, Brampton, Ontario, Canada*

**Issue:** Infection prevention and control begins at the first point of care, which can occur well before entry into an acute care setting. Emergency Service Workers (ESWs) (Police, Fire and Paramedics) comprise the 911 emergency response system where they are at risk of coming into contact with infectious disease. In 2009 the Personal Protection Strategy (PPS) Model for IPAC was created to provide a simple, practical and structured tool to integrate critical thinking skills regarding IPAC into this setting.

**Project:** To develop the PPS Model to facilitate its use by ESWs in interpreting and engaging their environments to include IPAC. The model has 3 distinct parts that empower ESWs to perform the: 1) Building Phase of immunization and hand hygiene, 2) Assessment Phase of situational IPAC assessment and 3) Action Phase to appropriately use PPE; to control their Location, Duration Proximity and Interaction (LDPI) as well as to Decontaminate and Disinfect (D & D) equipment. Phases are sequential, fluid and interchangeable to help ESWs devise progressive IPAC strategies. Impactful scenario-based training has ESWs apply the PPS to mock incidents based on exposure reports.

**Results:** The PPS model has grown into a well-received, practical and progressive way of teaching IPAC. The expansion of its use has caused a significant drop in ESW exposures to infectious diseases through an increased understanding and confidence regarding IPAC. The model is currently being used at the Ontario Police College and is expanding to the Ministry of Youth Justice Services and the Ministry of Correctional Services

2:15-2:30 P.M.

#### HAUNTED HOSPITAL: PREPARING FOR ACCREDITATION

Stefanie Ralph

*Norfolk General Hospital, Simcoe, Ontario, Canada*

**Issue:** The Accreditation Canada Qmentum Program surveys frontline staff to assess compliance with accreditation standards. Many Infection Prevention and Control standards address "behind the scenes" or department specific work. Staff in all departments need to have an understanding of how these standards are met in the implementation of the IPAC program. Staff also need to be reminded of the programs/initiatives completed and IPAC resources available.

**Project:** Twelve interactive displays/stations addressing key IPAC accreditation standards were set-up in a large conference room. All stations were Halloween themed and manned by costumed contributors to the IPAC program, including the senior team and public health. The Haunted Hospital was open for two hours and staff were able to attend at their leisure for the 15 minute walk through. Stations included hand hygiene, maintenance of air handling systems, good/bad food service workers, pandemic planning, and influenza vaccination.

**Results:** Staff retained the information acquired through the Haunted Hospital for the Accreditation survey. Of the 98 standards for IPAC, Norfolk General Hospital met 96. The feedback from surveyors was that staff could clearly describe IPAC policies/procedures and explain the rationale for these practices.

**Lessons Learned:** The relaxed and interactive atmosphere was conducive to learning, retaining information, and provided an excellent way to reach a large number of staff and cover many different topics. This project also provided staff an opportunity to interact with the senior leadership team and public health. We would use this method again in the future.

2:30-2:45 P.M.

#### LOW VOLUME STOOL COLLECTOR DEVICE

Liaquat Jamil<sup>1,2</sup>, Michelle Alfa<sup>1,2</sup>

*<sup>1</sup>St. Boniface Research Center, Winnipeg, MB, Canada,*

*<sup>2</sup>University of Manitoba, Winnipeg, MB, Canada*

**Background:** *Clostridium difficile* causes *C. difficile*-associated disease (CDAD). Rapid accurate diagnostic testing for CDAD is crucial to ensure timely implementation of isolation precautions. Insufficient stool samples (e.g. < 1-3mls) is a problem with elderly incontinent patients who require diapers and often result in sample rejection by objective laboratory.

**Objective:** The goal of the study was to develop a low volume stool collection device (LVSC) that could be inserted into a diaper or used to collect stool from a



bedpan facilitating stool collection.

**Method:** Two LVSC devices along with a centrifuge recovery tube were developed. These devices were tested for their capacity to absorb liquid as well as the efficiency of fluid recovery. The recovered sample was assessed to determine if *C. difficile* antigen tests and the Cytopathic Effect assay provided reliable results.

**Result:** Assessment of samples submitted for CDAD testing indicated that 95% had volumes that were < 3mLs. The LVSC devices showed absorbency of 7-9mLs and fluid recovery of 78% for device 1 and 55% for device 2. Using spiked normal stool samples, the recovered fluid from both LVSC devices showed reliable antigen detection and no loss of toxin titer as detected by the CPE assay. When the LVSC devices were used for clinical stool specimens, 100% of the positive (11 samples) and negative (25 samples) clinical stool samples submitted for CDAD testing produced reliable antigen and CPE diagnostic test results.

**Conclusion:** The LVSC device and recovery apparatus showed promising results to overcome inadequate sample volume collection for CDAD testing.

2:45-3:00 P.M.

NOVEL USE OF MEDICAL AND DISPENSING DIRECTIVES FOR HEALTHCARE PROVIDER PROPHYLAXIS WITH OSELTAMIVIR DURING PH1N1 OUTBREAKS IN AN ACUTE CARE HOSPITAL

Maureen Cividino, Stephanie Pust, Carolyn Gosse, Stephanie Dowhan-Soltys  
*St. Joseph's Healthcare, Hamilton, Canada*

Three outbreaks of pandemic H1N1 occurred November 2009 at St. Joseph's Healthcare Hamilton; one in the Emergency Department, and two on inpatient mental health units. This required large numbers of staff to receive oseltamivir prophylaxis. The pandemic H1N1 vaccine had only been available for four days and many health care providers (HCPs) had not yet been immunized. Timely prophylaxis was accomplished by use of a medical directive from Occupational Health and Safety, consistent with the College of Physicians and Surgeons of Ontario's recommended practice, and a Dispensing Directive, consistent with the Ontario College of Pharmacists. This allowed the drug to be dispensed by the hospital pharmacy to regulated health professionals. The drug was dispensed directly by nursing managers to HCPs. A total of 331 packages containing 10 doses of oseltamivir were dispensed and simultaneous immunization was offered to those health care providers not yet immunized. Of those eligible for prophylaxis only two declined. A comprehensive self-directed oseltamivir education package was created and distributed to those health care providers (HCPs) selected to dispense the drug. When all rights and responsibilities were understood, an electronic acceptance response was submitted, authorizing prescribing and dispensing of oseltamivir for prophylaxis in an outbreak. The uptake for prophylaxis in this model was excellent.

ORAL PRESENTATIONS #4: HAND HYGIENE

2:00-2:15 P.M.

ENGAGEMENT OF FAMILIES AND CLIENTS IN THE CLEAN HANDS PROTECT LIVES CAMPAIGN

Kathy Maxwell, Judy Maheu, Lily Yang, Andrea Concil, Fred Char  
*Bloorview Kids Rehab, Toronto, Canada*

**Issue:** To successfully implement the Ontario Hospital Association's (OHA) Clean Hands Protect Lives campaign which focuses on educating our clients and families about the importance of effective hand hygiene.

**Project:** Bloorview Kids Rehab partnered with clients and families to form a working group and launched the Ontario Hospital Association's Clean Hands Protect Lives campaign in June 2009. This campaign engages families/clients in 1:1 hand hygiene education sessions on admission including a handwashing demonstration that is supported by a kid friendly handwashing DVD and an education audit tool in the electronic chart. A pre and post education survey was completed by the client/family to evaluate the effectiveness of the program.

**Results:** In pre and post surveys of inpatient families, 87% and 74% respectively said that they would be comfortable asking their health care providers to wash their hands. In the post survey, 76% of clients/families felt their participation in Bloorview's Clean Hands Protect Lives program improved their hand cleaning practices. Both pre and post surveys indicated that a high value was placed on having hand sanitizer at the bedside, providing hand cleaning education to client/family members on admission and clear, visible hand cleaning instructions.

**Lessons Learned:** The education/audit tool in the admission assessment provides a visual prompt for nurses to use and provides easy auditing of the hand hygiene education. Without direct observation it is difficult to analyze if this hand hygiene education transfers to a behavior change.

2:15-2:30 P.M.

THE USE OF THERAPEUTIC CLOWNS: A UNIQUE STRATEGY TO TEACH HAND HYGIENE TO CHILDREN

Cara Sudoma, Jamie Burnett, Helen Kelson, Lily Yang  
*Bloorview Kids Rehab, Toronto, Canada*

**Project:** The purpose was to create a child-friendly video in alignment with the Ontario Hospital Associations' (OHA) Patient Safety Initiative Your Health Care Be Involved. This concept, inspired by our therapeutic clown and patient safety coordinator, uses a creative strategy to teach hand hygiene to children.

**Need:** Patient safety is a healthcare priority and hand hygiene is pivotal in maintaining a safe environment for clients and families. There is a noted lack of education tools geared to the pediatric population. This video was designed as an engaging, child-friendly way to teach hand hygiene, and its importance to children.

**Results:** This short video has been used extensively at Bloorview. Feedback has been very positive and the video has been integrated into our admission

process as a key component of the OHA's Clean Hands Protect Lives initiative. The use of clowns was a huge hit with both clients/families and staff. "Ricky" is a recognizable character that our clients relate to and he is viewed as a credible source for learning.

As a bonus the video met Accreditation Canada's Required Organizational Practice to inform and educate clients/families about their role in patient safety.

**Lessons Learned:** Making a high quality video can be expensive and takes time and resources. Our team learned the importance of integrating content that was kid friendly and the value of using multiple communication strategies, including voice-overs and on-screen prompts. Sustaining new initiatives can be rewarding, but requires perseverance and determination.

2:30 PM – 2:45 PM

WHERE HAVE YOUR HANDS BEEN?

Debra Hayden, Marjolyn Pritchard  
*Toronto Public Health, Toronto, Ontario, Canada*

Hand hygiene is an essential part of any Pandemic plan and the cornerstone of infection prevention and control. Recognizing the need for increased hand hygiene in our younger population, Toronto Public Health (TPH), in partnership with the local school boards, has developed and distributed a DVD to help foster good hand hygiene practices by children in grades 4 to 6.

Working with our younger generation, TPH is helping children expand their awareness of hand hygiene to include "Where have my hands been?" By encouraging children to think beyond their learned habits of hand washing only after toileting and before eating, they will help facilitate a social shift, leading to an increase in hand hygiene throughout the population. In addition to local school boards, TPH is working with day nurseries and other organizations to provide hand hygiene education where children meet and participate in group activities. TPH would like to share its experience of developing, distributing and evaluating this new Hand Hygiene DVD and Clean Hands Kit.

2:45-3:00 P.M.

THE TIPPING POINT: IMPROVING HAND HYGIENE IN A CHALLENGING ENVIRONMENT

Yasmine Chagla, Tina Martin  
*London Health Sciences Centre, London, ON, Canada*

**Issue:** Paediatric Emergency Department (P-ED) is typically perceived to have barriers to hand hygiene improvements, such as the assumption that alcohol-based hand rub (ABHR) pose a safety risk for children through ingestion, ocular injury, or flammability risk. Other factors such as lack of sinks, time, and high workload also play a role in low compliance rates.

**Project:** Multifaceted hand hygiene program was introduced in a multi-centre teaching hospital of London Health Sciences Centre (LHSC). P-ED stood out with their use of "connectors" (networking staff) and "mavens" (staff that propagated hand hygiene knowledge to others) to lead staff. The approach was multifactorial, including the use of: enablers, education, role models, champions, communication and leadership support.

**Results:** The overall hand hygiene compliance went from 16.5% in 2008 to 72.26% in 2009. The physicians led the way in compliance with 82% which is not only a substantial change, it is also different than most units who report their physicians to be lowest of all the health care workers.

Positive deviance and a culture changed surfaced with staff adhering to new expectations. Although other areas that hosted the program improved marginally and/or significantly, this group appeared to unite quickly and integrate the initiatives flawlessly.

**Lessons Learned:** A multifactorial approach to hand hygiene, well chosen leads and positive deviance can produce successful outcomes even with inherent obstacles to compliance. Our hope is to take this positive deviance narrative and re-tell it to influence other units when preparing for change.

POSTER PRESENTATIONS

TUESDAY, JUNE 1

1230-1:30 P.M.

(Poster board numbers will be listed in the on-site program)

FEBRILE RESPIRATORY ILLNESS (FRI): ELECTRONIC DOCUMENTATION IN THE DIALYSIS SETTING

Colleen Weir, Rita Brownrigg, Natalie Bruce, Kathy Suh, Virginia Roth  
*The Ottawa Hospital, Ottawa, Ontario, Canada*

**Issue:** Since SARS, FRI screening has been a recommended surveillance practice in dialysis units to promptly identify and prevent transmission of viral respiratory illnesses. Although its importance is well recognized, the implementation and documentation of FRI screening can be challenging in busy hospital settings such as dialysis units.

**Project:** In October 2008, a computerized FRI screening program was added to the existing electronic charting system of The Ottawa Hospital (TOH) dialysis program, consisting of 3 in-center and 4 satellite units serving 678 patients. FRI surveillance criteria were added to the electronic intake assessment. An electronic prompt instructed the nurse to screen for FRI. If "positive screen" was selected, the RN was required to complete a prewritten progress note documenting the symptoms and precautions initiated. The electronic program provided overall numbers of positive FRI screens and compliance results on a monthly and quarterly basis.

**Results:** Since the implementation of the electronic screening, no outbreaks of influenza have occurred in TOH dialysis settings. The compliance audit of screening ranged from 93-96% during the 2009 H1N1 pandemic.



**Lessons Learned:** Augmenting existing dialysis electronic charting with FRI screening is an effective way to facilitate FRI surveillance in a dialysis setting. The electronic documentation allowed the dialysis ICP to easily confirm that appropriate precautions were initiated on all patients with positive FRI screening. Having an electronic FRI screening system in place prior to the H1N1 pandemic allowed for effective and timely feedback of FRI screening compliance during the pandemic.

#### BUILDING A CASE FOR ADDITIONAL CLEANING STAFF

Zahir Hirji, Karen Foster, Barb Paul

*Bridgepoint Health, Toronto, Canada*

**Issue:** Bridgepoint Health is a rehabilitation/complex care hospital. Our physical layout doesn't support proper infection control practices. Evidence suggests that controlling organisms in the environment can contribute to decreased transmission.

**Project:** Build a business case for additional cleaning staff.

Information utilized included:

- Rates for organisms
- Length of stay statistics
- Environmental service staffing changes
- Environmental cleaning audit results
- Cleaning routines from PIDAC Best Practices for Environmental Cleaning
- Workload measurements from the Ontario Healthcare Housekeepers Associations
- Internal review of practices

**Results:** MRSA nosocomial rate in 2008 was 27.4 per 100000 patient days. 75% occurred on the medical rehabilitation/activation unit, including 100% of the hospital's VRE transmission. Admissions increased 40% in complex care and 25% in rehab. No environmental services staffing changes since 2005. Cleaning audits illustrated many sites were not clean after one pass. Best practice guidelines identified surfaces that were not being cleaned routinely. Workload measurements reflected a 1.4 FTE deficit for one unit. The internal review estimated 22.5 hours that could be reallocated. Cleaning staff were added in May 2009 to the MRA unit. Since adding the staff 4 events of nosocomial transmission occurred in 7 months compared to 43 in the previous 18 months.

**Lessons Learned:** AROs continue to increase. Maintaining a clean environment is imperative, especially in poorly designed areas. Using best practices and workload measurements can assist in identifying efficiencies. Aligning our recommendations with the hospital's vision and mission demonstrated the importance of cleaning to senior management, who have preliminarily approved the additional resources.

#### REDUCTION OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS TRANSMISSION IN A GERIATRIC SETTING FOLLOWING THE IMPLEMENTATION OF DAILY BATHS WITH DISPOSABLE 2% CHLORHEXIDINE GLUCONATE CLOTHS

Heather L. Candon, Judy A. Ritchie, Jane E. Van Toen, Chingiz Amirov

*Baycrest, Toronto, Ontario, Canada*

**Background:** Many long-term care facilities and nursing homes, including Baycrest, contend with endemic rates of methicillin-resistant *Staphylococcus aureus* (MRSA) colonization among residents. Over a three year period, the rate of Baycrest-acquired MRSA for the entire facility was 0.27 per 1,000 patient-days. Alarmingly, however, the rate of Baycrest-acquired MRSA was considerably higher on the Acute Care and Transition (ACT) unit, where 21% of cases were acquired. As such, an infection control intervention was needed to limit transmission.

**Method:** An interrupted time-series design was used to evaluate the effect of daily 2% chlorhexidine gluconate (CHG) bathing to reduce MRSA transmission. A MRSA point prevalence sweep was performed. To assess MRSA transmission, swabs were collected within 48 hours of admission, and on discharge. MRSA-positive patients were placed on contact precautions. The main outcome measure was the number of ACT-acquired MRSA cases post-intervention.

**Results:** Time periods for comparison were six months pre-intervention, followed by a one-month washout, and six months post-intervention. Pre-intervention there were 169 admissions (3811 patient-days) and post-intervention 168 (3598 patient-days). The length of stay was comparable for both time periods. Colonization pressure was not significantly different from pre- to post-intervention, at 11.8% and 10.8%, respectively. There was 95% swab-collection compliance throughout. Implementation of daily CHG bathing significantly reduced the incidence of MRSA transmission from 4.99 to 0.56 per 1000 patient-days, representing a reduction of 89% ( $p < 0.001$ , chi-square analysis).

**Conclusions:** CHG daily bathing resulted in a significant decrease in MRSA transmission rates in a geriatric chronic care setting.

#### ISOLATION PRACTICES FOR OSELTAMIVIR-RESISTANT H1N1 IN A TERTIARY PEDIATRIC HOSPITAL

Michael Rotstein, Richard Wray, Laurie Streitenberger, Anne Matlow

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**Issue:** Challenges exist when managing emerging, novel viruses, particularly in pediatrics. These challenges include the negative impact of isolation precautions on the child and family. As well, pediatric patients with respiratory viral infections pose a specific problem given their burden of environmental contamination. Patients with suspected or confirmed pH1N1 were isolated using Enhanced Droplet/Contact (EDC) precautions including the use of gown, gloves, N95 respirator, and eye protection. During the second wave of the H1N1 pandemic we identified one laboratory-confirmed oseltamivir-resistant strain of H1N1. This patient was an immunocompromised patient with repeated hospitalizations who remained intermittently polymerase chain reaction (PCR) positive from June to December 2009, at which time the strain was identified as resistant.

**Project:** On review of the available literature, parallels between the resistant strain of this virus and antibiotic-resistant organisms were drawn. Recognizing that immunocompromised children can shed for a prolonged period of time, our patient identified as being oseltamivir-resistant was placed into EDC precautions until continued shedding of the virus could be ruled out.

**Results:** In February, 2010 three nasopharyngeal specimens were collected, each one week apart, for laboratory analysis of pH1N1 using PCR. Once the three serial specimens were determined to be negative by PCR, the patient was removed from EDC precautions. There was no evidence of nosocomial transmission.

**Lessons Learned:** Isolation strategies must include ongoing team and family communication and balancing risks associated with the child, their family members, other patients, and staff members.

#### TO ADJUVANT OR NOT TO ADJUVANT – CONNECTING THE DOTS FOR PREGNANT WOMEN THROUGH TARGETED OUTREACH AND EXPERT COUNSELING

Rachel Johnson, Christine Moore, Alison Gilmour, Joyce Telford, Reham Soliman, Christine Botsford, Catherine Chan, Arati Das, Yasmin Ramohamed, Andrea Boggild, Matthew Sermer, Mary Anne Adam, MSH Infection Control Team

*Mount Sinai Hospital, Toronto, Ontario, Canada*

**Background:** Mount Sinai Hospital (MSH) performs about 6,500 deliveries each year, and has the largest high risk obstetrical population in Canada. During the 2009 pandemic, pregnant women were identified to be at particular risk of serious complications, and became a priority group for vaccination.

**Project:** A vaccination clinic was established to meet the needs of pregnant women coming to obstetrical clinics at MSH. It involved collaboration between infection control, obstetrical providers, and outpatient obstetrical clinic staff. The clinic opened when the vaccine became available, and continued for four weeks. The model used to roll-out the program was adapted frequently to accommodate vaccine supply variation and receipt of supplies of the unadjuvanted vaccine. Counseling became a focus, and involved access to in-person counseling and a hotline.

**Results:** The vaccination clinic administered 1585 doses of pH1N1 vaccine and 540 doses of the 2009 seasonal trivalent influenza vaccine. Wait times were minimal and pregnant women and their partners were able to receive as much counseling as necessary. Vaccinations remain available at the clinic, and have become a permanent process of the unit.

**Lessons Learned:** Pregnant women expressed many concerns about the vaccine and about pandemic influenza. A focus on counseling was crucial. Written material remained useful, especially from familiar credible resources, and the high demand for in-person counseling demonstrated its apparent value. Ethical complications arose due to the vaccine shortage and high demand from partners and children. Using a flexible model ensured that the program adapted to the dynamic nature of the situation.

#### INFECTION PREVENTION AND CONTROL (IPC) AND TECHNICAL SERVICES (TS): ACHIEVING HARMONY WHEN DOING CONSTRUCTION

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<sup>2</sup>McGill University, Montreal, Quebec, Canada

The Jewish General Hospital (JGH) is a 637 bed tertiary care hospital built in 1934. Due to the age of our facility, renovation projects are required in order to achieve 3 major goals: repair the deteriorating infrastructure, meet the most current standards for IPC and patient care and respond to the changing needs of our hospital population.

**Issue:** IPC and TS are experts in their respective fields. It is often difficult for the two disciplines to incorporate their knowledge and come to an agreement of the measures required for the safety of patients and personnel. The role of IPC is to prevent the spread of infections in patients and personnel. The role of TS is to ensure construction projects are completed appropriately in a timely and fiscally responsible way. Any renovation or construction project poses a risk for acquisition of infections, such as aspergillosis, in susceptible individuals.

**Project:** Several tools were developed to review IPC requirements before, during and after the project. These include an architectural blueprint checklist, a renovation/construction/repair compliance checklist and a non-compliance incident report form. A contract including IPC requirements is signed between the contractors and the institution.

**Results:** Clear delineation of roles and mutual expectations resulted in an improvement in the collaboration and understanding of the process between IPC and TS.

**Lessons Learned:** To minimize risk, it is crucial that IPC and TS collaborate and communicate effectively. Each must appreciate the other's role throughout all phases of the construction/renovation process.

#### PROCESS AND FEEDBACK ENHANCES THE COMPLETION OF ADMISSION SCREENING SWABS

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Allison McGeer, MSH Infection Control Team

*Mount Sinai Hospital, Toronto, Canada*

**Background:** Expert bodies recommend that patients at high-risk of colonization or infection with antibiotic resistant organisms (AROs) be screened. At Mount Sinai Hospital a nasal and rectal swab are obtained on admission and tested for AROs for all medical and surgical patients that are admitted and are at risk of being colonized. Compliance for completing admission swabs within 24hrs has not been measured and early identification of patients colonized with AROs leads to fewer patients requiring additional precautions due to exposure to ARO positive patients.



**Project:** An audit process was developed to measure the number of admission swabs completed within 24hrs for high risk patients stratified by nursing unit. The expectation is admission swabs are to be completed in the emergency department (ED) before the patient is transferred to an inpatient unit if the patient is admitted through the ED.

**Results:** The audits were performed for one week each month beginning February 2008 until September 2009. Feedback was provided back to nursing management through graphs and information was passed onto front line staff. Percent completion of swabs in the ED in February 2008 was 29% and has increased steadily to 79% in September 2009. The number of swabs completed within 24hrs of a patient's admission has increased from 63% in September 2008 to 87% in September 2009.

**Lessons Learned:** Monthly feedback to staff regarding admission swab rates helped increase compliance. Feedback was decreased to quarterly and compliance has been maintained. Quarterly feedback has been sufficient to maintain compliance.

#### NEW 300 BED HOSPITAL CONSTRUCTED WITH INFECTION CONTROL INPUT INTO THE DESIGN. HAS IT IMPACTED HOSPITAL ACQUIRED INFECTION?

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**Background:** Abbotsford Regional Hospital and Cancer Centre was opened August 24th, 2008. It is a state of the art tertiary hospital in the Fraser Valley of B.C. From the beginning, Infection Control participated in the design; recommending private patient rooms, isolation rooms with anterooms, increased negative pressure rooms, soiled holding areas etc. The old hospital Abbotsford hospital (MSA) had mainly four bed wards, limited negative pressure, no anterooms, and no clear dirty and clean utility. Hospital acquired infections from *clostridium difficile* and AROs was high. The new hospital opened with the original staff plus additional new staff. The housekeeping services were provided by the same contractor.

**Objective:** to determine if the newly constructed hospital would see reduced hospital acquired infection; specifically *clostridium difficile*, MRSA and VRE.

**Method:** Surveillance data compared hospital acquired *clostridium difficile*, MRSA, and VRE rates from MSA (old hospital) April 1st/07 to March 31st/08 and April 1/08 to Aug. 24/08 with data following the move to ARHCC (new hospital) August 25 to December 11/08.

**Results:** The number of patients with hospital acquired *clostridium difficile* in the old hospital 1.10 and 1.20/1,000 pt. days compared to .5/1,000 pt. days following the move to the new hospital. Hospital acquired MRSA .90 and .57/1,000 pt. days compared to .24/1,000 pt. days. Hospital acquired VRE .26 and .35/1,000 pt. days compared to .16/1000 pt. days

**Conclusion:** Te data suggests there has been a reduction in hospital acquired c.diff, MRSA and VRE. However continued surveillance is needed to confirm an ongoing reduction in these rates.

#### USE OF HOSPITAL EDUCATORS TO EXPEDITE MASS IMMUNIZATION OF HEALTHCARE PROVIDERS WITH PANDEMIC H1N1 VACCINE IN AN ACUTE CARE HOSPITAL

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*St. Joseph's Healthcare, Hamilton, Canada*

During the second wave of Pandemic H1N1 in Hamilton, Ontario in November 2009, Pandemic H1N1 vaccine was made widely available to health care providers (HCPs). The vaccine sequencing identified health care providers as one of the top priority groups. To effectively vaccinate over 4000 HCPs, a delivery strategy was developed to utilize hospital nurse educators to enhance the occupational health nurse capacity to deliver the vaccine quickly and safely. Nurse Educator redeployment facilitated the administration of pH1N1 vaccine to almost 3000 staff within a two-week period, including vaccinating almost 1000 in a single day. The nurse educators functioned under approved Medical Directives and were provided appropriate education. This proved to be an effective method to greatly expedite immunization of large numbers of both HCPs (and patients) with minimal disruptions to HCP routines.

#### SUCCESSFUL INFLUENZA IMMUNIZATION CAMPAIGNS FOR HEALTHCARE PERSONNEL – A NEW APPROACH

Donna Baker<sup>1</sup>, Anne McCarthy<sup>2,1</sup>, Larry W. Chambers<sup>1,2</sup>, Shelly McNeil<sup>3</sup>, Virginia Roth<sup>2</sup>

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<sup>2</sup>The Ottawa Hospital, Ottawa, Ontario, Canada,  
<sup>3</sup>Canadian Centre for Vaccinology, Halifax, Nova Scotia, Canada

**Background:** Healthcare organizations must find ways of keeping nurses, physicians and allied health professionals working during seasonal influenza epidemics. Despite abundant evidence of the safety and efficacy of influenza vaccines, immunization rates among healthcare workers in hospitals and long term settings remain well below the public health target of 90%. Current initiatives targeted at increasing healthcare workers immunization rates are having limited success with immunization rates as low as 2% but averaging 40-60% in most acute care facilities reporting these data.

**Issue:** Few resources are available to assist influenza immunization campaign planners in the development of effective influenza campaigns in healthcare organizations.

**Development of a Tool:** The Canadian Healthcare Influenza Immunization Network (www.chiin.ca) has worked with twenty healthcare organizations and completed a systematic review of the literature to create "Successful Influenza Immunization Campaigns for Healthcare Personnel - A Guide for Campaign Planners". The Guide provides:

- A quick reference checklist
  - A strategic approach to campaign planning
  - A tool kit with templates and examples that can be modified to meet local needs
- Challenges:** The Guide was piloted in ten healthcare organizations during the 2009-2010 influenza season. Even though H1N1 derailed regular campaign planning, the users reported that the Guide was useful and practical and they would continue to use it.
- Conclusions:** This is the first comprehensive, evidence-based, bilingual tool developed to assist campaign planners and healthcare administrators in creating successful, long-term strategic influenza immunization campaigns for healthcare workers.

#### ENGAGING STAFF: BEHAVIOURAL CHANGE APPROACH TO IMPROVED HAND HYGIENE AND INCREASED ALCOHOL-BASED HAND RUB USAGE

Yasmine Chagla, Tina Martin, Michael John  
*London Health Sciences Center, London, Ont., Canada*

**Issue:** In response to low hand hygiene compliance rates and an unenthusiastic response to alcohol based hand rub (ABHR), a coordinator with a background in behavioural change (bc) led a program to engage staff in a culture change using bc concepts.

**Project:** Over a two-year period, several initiatives were integrated in London Health Sciences Centre (LHSC), a multi-site tertiary academic centre. Initiatives included: unit-centered process, testimonials, positive deviance descriptions, and recruitment of staff champions. The project was multi-faceted supported by LHSC Leadership, Ministry of Health and Long Term Care (MOHLTC) audit tools, and Regional Infection Control Network (RICN) educational tool.

**Results:** Before implementation of the program, overall hand hygiene compliance rate (2008) was 32.5% (3121 completed opportunities vs. 9583 total available opportunities), with deficiencies observed "before patient contact" (19.8%), and "before aseptic procedures" (8.3%). After implementation of the program (2009) hand hygiene compliance rose to 67.6% (8820 completed opportunities vs. 13049 total opportunities), with increases in all four opportunities, especially "before patient contact" (56.2%).

Analysis of purchasing trends 6 months before and 6 months after introduction of the program revealed increases in the use of ABHR and soap. Increase in ABHR was larger than that of soap (67.7% vs. 48.5% respectively).

**Lessons Learned:** Efforts to engage health care workers through positive behavioural change strategies were helpful adjuncts in increasing ABHR usage and hand hygiene compliance. Furthermore, the use of this interactive strategy drew the interest of further inpatient/outpatient units, suggesting that similar strategy may be both viable and desirable.

#### LIFT THE LABEL

Stefanie Ralph, Mary McKenzie  
*Norfolk General Hospital, Simcoe, Ontario, Canada*

**Issue:** Discharged roommates of MRSA/VRE patients were electronically flagged as "exposed." Typically hospitals don't relay this information to the patient or family physician, resulting in no community follow-up. When readmitted, these patients were treated as MRSA/VRE isolations until laboratory testing proved otherwise, increasing workload and financial burdens. Patients readmitted and isolated were understandably frustrated that no communication had taken place.

**Project:** In May 2009 the hospital experienced a VRE outbreak generating a large number of discharged patients identified as VRE "exposed." These patients were sent a letter and fact sheet informing the patient of the exposure. A similar letter was sent to the family physician informing him/her of the results requesting follow-up laboratory testing. Updated laboratory results were faxed to hospital Infection Control from the family physician. When negative results were obtained the flag was removed preventing unnecessary isolation.

**Results:** Letters sent to 93 patients exposed during outbreak and their physicians. A total of 58 isolations have been prevented to date, a 62% response rate. This project has received positive feedback from staff, physicians, and the community. The collaboration between Infection Control and community physicians has reduced workload and associated costs. The positive outcome for patients is enhanced communication with Infection Control and the opportunity to ask questions.

**Lessons Learned:** It is commonly assumed that discharged patients are no longer a hospital responsibility. However, collaboration with community physicians has saved time, frustration and money. Valuable education has been disseminated throughout Norfolk County. The Infection Control Department now sends letters to all discharged contacts and their physicians.

#### IMPROVING HAND HYGIENE ADHERENCE IN AN NICU THROUGH EDUCATION DEFINING INFANT AND NICU SPACES

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*Mount Sinai Hospital, Toronto, Ontario, Canada*

**Issue:** Hand hygiene is important in preventing the spread of nosocomial infections. Initial adherence to the "4 moments" of hand hygiene audits in our neonatal intensive care unit (NICU) was 59%. Follow up discussion with staff identified that application of the 4 moments in our open NICU provided a unique challenge because the physical environment within and surrounding the incubator made it difficult to define what constituted the "patient environment".

**Project:** A multi-disciplinary group reviewed the 2007 hand hygiene results during education sessions and determined that there was uncertainty about what constituted the patient's environment in our open concept NICU. Patient care scenarios were reviewed and clear definitions for "baby space/environment"

and "NICU space/environment" were developed. Two hand hygiene reference documents specific to the NICU were developed and distributed. One detailed the process for hand hygiene in the NICU and the other included scenarios to demonstrate application. An e-learning tool was developed and is currently being rolled out to staff in the unit for continuing education.

**Results:** Clearly defining the "patient environment" in the NICU through consultation and feedback provided clarity to the staff on when to perform hand hygiene. Adherence to hand hygiene improved to 68% in 2008 and 76% in 2009.

**Lessons Learned:** In some specialty care and open concept care areas, teaching hand hygiene by the "4 moments" requires clear, accepted and well-understood definitions of patient vs. hospital environment. Feedback from the multidisciplinary team is helpful in clarifying definitions and improving hand hygiene adherence.

#### ENVIRONMENTAL CLEANING: HOUSEKEEPING SERVICES HAVE SOMETHING TO SAY!

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St. Boniface General Hospital, Winnipeg, MB, Canada

**Issue:** The input of the housekeeping staff (HKS) on their role in infection control has seldom been assessed or analyzed. We administered a survey to assess the knowledge of housekeeping staff about the importance of their role in the health care settings.

**Project:** A survey questionnaire approved by the St. Boniface General Hospital site administration was provided to 41 housekeeping staff of the hospital. The survey contained 20 specific questions addressing specific issues related to their work, their knowledge about infectious diseases and their input in improving the services. Thirty one individuals (75.6%) returned the completed survey. The responses were based on a scale of 1 to 5 which included, strongly disagree (1), moderately disagree (2), not sure (3), moderately agree (4) and strongly agree (5).

**Results:** Some of the important points brought out by the survey were: The housekeeping staff felt they were more valued by patients than staff (90%, 73.4%). They were aware of the risk posed by dirty bathroom surfaces to patients (93.6%). They said that they are not given adequate time to clean the patient rooms (58%). All of them wanted to gain more knowledge about infectious agents (100%)

**Lessons Learned:** a) Housekeeping staff feel undervalued in their role within the healthcare site. b) Housekeeping staff are willing to improve their performance level, but need knowledge and audit tools to facilitate this change. c) Time allocated per room needs appropriate guidelines for both regular and isolation rooms

#### HT1N1 INFLUENZA OUTBREAK IN A MENTAL HEALTH INSTITUTION

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Leeds, Grenville, Lanark District Health Unit, Brockville, ON, Canada

**Background:** Outbreaks in Mental Health Centres present challenges for infection prevention and control. A hospital wide dance occurred in a 100 bed Mental Health facility on Oct. 28, 2009. On Oct 30 the first case of influenza like illness presented on one unit. Within hours, two more cases were identified on the same unit. Over the next 24hrs 14 cases were identified on five units. In total 25 patients became ill, seven cases were laboratory confirmed pH1N1. Vaccine became available on Oct 27. Immunization had begun for front line staff but had not had time to be effective. Patients had not been immunized.

**Methods:** Outbreak procedures, including enhanced droplet precautions with N95 respirators, were instituted immediately. On October 31, in consultation between the Medical Officer of Health and physician responsible for medical care it was decided to treat all cases and prophylax all contacts in the closed facility with Tamiflu.

**Results:** The spread of illness was halted on units where patients were compliant taking Tamiflu. The outbreak continued longer on the units that had non compliance. No exposed staff became ill.

**Conclusions:** Rapid interventions resulted in quick containment of the outbreak. The use of Tamiflu was effective in stopping the spread of influenza. Mental Health patients are not always compliant taking medications due to their illness resulting in difficulties managing outbreaks. Socializing of patients within the facility is common practice thus these patients should be included as high priority for influenza immunization due to the risk to spread communicable illness.

#### IT'S IN THE BAG: SPECIMEN COLLECTING LIKE A CHAMPION!

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**Issue:** Long Term Care (LTC) Homes are required to send specimens to the OAHP Public Health Labs during outbreaks. The labs report that many specimens are collected incorrectly, leaking or incorrectly labeled. The better the specimen collection, the faster the causative agent can be identified. Specimen collection during outbreak is a complicated task performed at most annually and hard to maintain competence. The last resource was created 10 years ago and Personal Protective Equipment was not worn.

**Project:** In collaboration with public health, public health lab and LTC, content was created to identify key points to improve specimen collection during outbreaks. A 15 minute DVD shows viewers how to collect and handle stool samples and nasopharyngeal swabs. A section also demonstrates how to complete the public health lab forms. A professional film company 'Dog and Pony Studio' was hired to produce an engaging educational DVD. This DVD comes with a teaching guide as well as a post viewing test that can be used by LTC homes as a teaching tool for staff.

**Results:** Initial response to 'Its In The Bag' has been positive. It has been distributed

across Ontario. The release was delayed due to Ontario requirement for different PPE during the pH1N1 pandemic. This resource is useful for regular outbreak seasons.

**Lessons Learned:** We had not predicted that a pandemic would take place prior to the filming of this DVD and an N95 mask would be required during this different flu season.

#### INFECTION CONTROL AND ACCREDITATION – MAKING THE LINK

Allison Philpot, Amanda Bonacci

Accreditation Canada, Ottawa, Canada

**Introduction:** Accreditation Canada's newest accreditation program, called Qmentum, launched in 2008, has included components of Infection Prevention & Control, and Reprocessing and Sterilization. A presentation will be provided by Accreditation Canada that focuses on these two sections of Qmentum survey results. The first section will include a high-level overview of the infection prevention and control aggregate accreditation results for surveys that took place between January 2008 and June 2009. The second section of the presentation will focus on the results from the use of the Reprocessing & Sterilization standards from surveys that took place in 2009. The overview will also highlight trends and priority areas for education and training. Lastly, an update will be provided on "what's new" with Accreditation with regard to IPAC and Reprocessing & Sterilization.

**Methods:** The analysis of survey results will outline trends in terms of strengths and areas for improvement in organizations where IPAC and Reprocessing & Sterilization standards have been used. The purpose of identifying trends will be to inform the industry of areas that appear to require more education, training, or improvements required to meet the accreditation standards of the Qmentum program.

**Results:** The data will be retrieved from those organizations that have applied the IPAC standards from January 2008 to June 2009, and the Reprocessing & Sterilization standards from January 2009-December 2009.

**Conclusions:** This presentation will also give attendees the opportunity to hear about updates from Accreditation Canada to keep abreast of opportunities and changes.

#### GOLDMANN TONOMETER DISINFECTION – RECOMMENDATION AND ISSUES

Melanie Barbacsy<sup>1</sup>, Dick Zoutman<sup>1,2</sup>

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**Issue:** Goldman tonometers must be high-level disinfected after use, as they are classified as a semi-critical item according to the Spaulding principal. The CDC currently recommends four disinfectants that can be used for this purpose: 3% hydrogen peroxide, 5000 ppm chlorine, 70% isopropyl alcohol and 70% Ethyl alcohol. A review of the current literature as well as an informal audit to assess the best method for Goldman tonometer disinfection of 6 large hospital ophthalmology centers in Ontario, Canada was completed in 2007.

**Results:** No consistent practice or solution for tonometer disinfection was identified following the survey of the 6 hospitals. The literature review indicated that the 70% ethyl alcohol or the chlorine were the most effective means of tonometer disinfection. On completion of the literature review and survey, Hotel Dieu Hospital implemented a new process of Goldman tonometer disinfection using 70% ethyl alcohol. However, within 2 months there was already noticeable deterioration of the tonometer tips due to the alcohol.

**Lessons Learned:** Current suggested methods for high-level disinfection of tonometer tips are neither consistent with, nor compatible with the existing tips used in current practice. As a result Hotel Dieu Hospital is considering high-level disinfection of tonometer tips using a washer-disinfector in Central Sterilization Reprocessing.

#### SPORADIC CASES OF MULTI-DRUG RESISTANT ACINETOBACTER BAUMANII IN A COMMUNITY HOSPITAL ICU

Pawan Sindhar, Ben Mack, Felicia Laing, Leanne Leroy  
Fraser Health, Surrey, BC, Canada

**Issue:** Between December 2007 and August 2008 sporadic occurrence of MDR-Ab was noted in a 15-bed medical-surgical intensive care unit of a 450-bed community hospital. We describe 8 patients with positive cultures for multi-drug resistant *Acinetobacter baumannii* (MDR-Ab), and the infection control response.

**Project:** An epidemiological investigation was started to determine commonalities for patients with positive MDR-Ab cultures. Environmental sampling was done within one of the rooms and MDR-Ab with the same antibiogram was isolated from 2 of 6 high contact points. Infection control response included enhanced cleaning of the affected rooms and shared equipment, ICU staff education on the significance of MDR-Ab, and weekly point prevalence for rectal colonization of MDR-Ab on all admitted patients.

**Results:** The investigation suggested that shared equipment, such as ventilator and sink, may have contributed to the transmission of the organism. Susceptibility testing to tigecycline was performed on 6 of 8 isolates, and tigecycline was used to treat 2 of 8 patients. The isolates were presumed to be a common strain because of the unusual antibiogram for our institution, although genetic strain typing was not performed.

**Lessons Learned:** These cases increased the understanding of transmission and significance of MDR-Ab by the ICU staff, importance of appropriate antibiotic prescription and restriction, specifically, meropenem, and improvement disinfection of shared equipment, especially, ventilators, between each use. The microbiology laboratory gained experience with testing for rectal colonization with MDR-Ab and with susceptibility testing for tigecycline.



## DO HIV-POSITIVE HEALTHCARE WORKERS REFRAIN FROM EXPOSURE-PRONE PROCEDURES? RESULTS OF A SURVEY OF HEALTHCARE PROFESSIONALS IN FOUR HEALTH ZONES IN THE EASTERN KASAI PROVINCE (DEMOCRATIC REPUBLIC OF THE CONGO)

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We assess the extent to which HIV positive health care professionals are encountered in health zones (HZs) in the Eastern Kasai Province, whether they refrain from exposure-prone procedures, and whether there could be any variation based on the setting of employment (rural versus urban) and on the profession of health care workers. We visited four health zones and surveyed 279 health care professionals. Respondents provided among other things, demographic data and other information on presence and patterns of participation of health care workers in exposure prone procedures. Forty-nine percent of the respondents reported the presence of HIV positive health care workers within their health facilities. The great majority of respondents (60%) are of the opinion that HIV positive health care workers refrain from exposure-prone procedures. As much as 73.3% and 67.4% of the respondents in the two urban health zones have a significantly better opinion about this preventative behavior of their co-workers as compared to their rural counterparts. The great majority of respondents (64.5%) are of the opinion that the confidentiality of HIV positive health care workers is greatly or totally respected as opposed to only 35.5% respondents who have a different opinion. Rural health zones represent an environment in which confidentiality is perceived as greatly or totally disrespected. There is a need to improve the utilization and management of HIV positive health care workers not only to protect their human rights but also to ensure the safety of unsuspecting patients who patronize health care facilities.

## PARTNERSHIPS AND COLLABORATION BETWEEN IPC PROFESSIONALS AND ENVIRONMENTAL SERVICES

Helen Gibson, Nicki Saunders, Teri Murduff, Mike Cabral

Lakeridge Health, Oshawa, Ontario, Canada

**Issue:** Infection Prevention and Control (IPAC) and Environmental Services (ES) are two programs quite often working in silos unaware of each others work. A key component of the phenomenon is different program Directors.

**Project:** To show that two programs under one leadership provides strategies to:

- Strengthen relationships
- Foster collaboration
- Foster better understanding of issues and costs
- Foster IPAC and ES Champions
- Re-design team responsibilities

**Results:** Both programs reported:

- Increased participation in the development of ES and
  - IC Provincial Best Practice document
  - Better communication process
    - enhances culture of trust-share information
    - more involved and a clearer picture
    - interpersonal relationships improved
    - one leader = equal power
    - one leader = one message delivered
  - Improved systems
  - Improved efforts towards prevention and control of infections
- Lessons Learned:** One director for two programs has pros and cons:
- Support from senior management has added to our success
  - Trust has been built
  - eliminated hierarchy
  - less people to cloud the message
  - Increased knowledge and value of working towards same goals and objectives
    - proactive vs reactive approach
    - provides autonomy and responsibility of assignments
  - Provided the ability to document financial impact/variances for special cleaning and/or outbreaks
    - easier to validate any increase budget needs
  - Increased burden to the director
    - time management
    - staff meeting
    - other administrative meetings

## IMPROVED ANTIBIOTIC PRESCRIBING FOR COMMON RESPIRATORY TRACT INFECTIONS BY FAMILY PHYSICIANS RECEIVING PRESCRIBING FEEDBACK

Dick Zoutman<sup>1,2</sup>, B. Douglas Ford<sup>1</sup>

<sup>1</sup>Queen's University, Kingston, Canada, <sup>2</sup>Kingston General Hospital, Kingston, Canada

**Background:** Antibiotics are over prescribed and first-line choices are underutilized by family physicians for respiratory tract infections.

**Method:** The study was conducted in southeastern Ontario in 2008 and 2009. Eligible patients presented with: colds, laryngitis, croup, acute bronchitis, influenza, acute sinusitis, acute otitis media, pharyngitis, pertussis, community-acquired pneumonia, or acute exacerbations of chronic bronchitis. Physicians were randomly assigned to monthly or delayed feedback conditions. A program evaluation survey was administered.

**Results:** Thirty-eight physicians provided treatment data on 5,196 eligible patient encounters. Patients received antibiotics in 49 % of encounters. Feedback did not influence antibiotic prescribing rates ( $F = 0.1, P = .7$ ). First line antibiotic choices were used 53 % of the time when antibiotics were prescribed. Physicians receiving monthly feedback prescribed more first line antibiotics when compared to their baseline prescribing and the delayed feedback group ( $F = 6.8, P = .009$ ). Penicillin

( $F = 5.4, P = .02$ ) and erythromycin ( $F = 8.0, P = .005$ ) use increased and the use of second generation cephalosporins ( $F = 4.8, P = .03$ ) and extended spectrum macrolides ( $F = 7.9, P = .005$ ) decreased. Physicians reported the feedback was interesting and useful. 87 % thought feedback should come from medical associations and no physician thought from pharmaceutical companies.

**Conclusions:** First line antibiotic choices were increased through feedback.

Feedback on antibiotic prescribing would reduce costs due to increased use of less expensive first line choices. Bacterial resistance would also be impacted as first line antibiotic choices are frequently narrow spectrum.

## TALKING DIGITALLY BETWEEN IPAC AND EMERGENCY DEPARTMENT: LEVERAGING THE POWER OF ELECTRONIC COMMUNICATION DURING THE H1N1 PANDEMIC

May Abdalla

Windsor Regional Hospital, Windsor, ON, Canada

**Issue:** At Windsor Regional Hospital a paper based Febrile Respiratory Illness (FRI) screening tool is utilized as a communication tool between Infection Prevention and Control (IPAC) department and units to signal the need for further follow up once the patient is seen or admitted to the hospital. Last fall during the peak of the H1N1 pandemic, the WRH Emergency Department (ED) was overwhelmed with the increased number of positively screened (FRI) patients seen in a single day. As a result measures were taken to improve 1) the communication strategy between ED staff and also between IPAC and ED 2) proper precautions and placement of patients prior to them being brought into the Emergency Department.

**Project:** WRH ED utilizes Mckesson Horizon's Clinical Tracking Board that communicates patients' information such as chief complaint, demographic information, lab results, and CTAS level. With the assistance of our IT staff additional fields were added to the Tracking Board. This allows FRI screening information to be entered at time of triage nurse. The patient's FRI status (negative FRI, Positive FRI with travel, and Positive FRI without travel) were documented and reported daily from the Tracking Board. These numbers were then reported to the Public Health Unit by the IPAC department.

**Results:** During November of 2009, we were able to detect more than 700 positive FRI (with and without travel history).

**Lessons Learned:** Working as a team between the ED staff, IPAC, and IT promoted a collective understanding of the need of accuracy and timely information.

## VIROLOGICAL REQUIREMENTS OF HAND ANTISEPTICS – THE CHOICE OF TEST VIRUSES IN EUROPE

Jochen Steinmann

MikroLab GmbH, Bremen, Germany

**Issue:** Proper hand hygiene is one of the most important measures to prevent nosocomial infections caused by viruses. Its application requires products with a proven effectiveness against selected model viruses evaluated in a quantitative suspension assay and/or on artificial contaminated fingerpads and the entire hand, respectively. The most important issue is the choice of the test virus.

**Project:** The aim of the study was to evaluate different hand antiseptics according to the European Norm. This Norm describes a quantitative suspension test with poliovirus type 1 LSc-2ab and adenovirus type 5. A product is active after demonstrating a 4 log<sub>10</sub> reduction of virus titer. Additionally, the efficacy of antiseptics against viruses can be studied by in vivo assays with artificial contaminated fingerpads or the entire hand.

**Results:** Only two types of antiseptics are able to fulfil these high requirements of the suspension test: ethanol (> 80.0 %) based products and ethanol plus a synergistic ingredient. Two WHO formulations failed to inactivate the test viruses. Adenovirus type 5 is more lipophilic than poliovirus type 1 and thus inactivated by lower ethanol concentrations and n-propanol but not by iso-propanol. In Europe, there is no antiseptic with an efficacy (4 log<sub>10</sub> reduction) against Hepatitis A Virus (HAV) after short exposure time (<2 min).

**Lessons Learned:** The virucidal efficacy of many hand antiseptics is often studied in a stepwise procedure. In Europe, many products have difficulties to demonstrate an efficacy against non-enveloped stable viruses like poliovirus and HAV both in vitro and in vivo.

## IMPROVED ACCESS TO PERSONAL PROTECTIVE EQUIPMENT (PPE) IMPROVES COMPLIANCE WITH ROUTINE PRACTICES

Dawn Major

Musoka Algonquin Healthcare, Huntsville, Ontario, Canada

**Issue:** Compliance with routine practices by HCW's is low and well documented in the literature. Access to PPE is not readily available where patient care is performed. If available it is usually just gloves of limited sizes. Most PPE stored in supply rooms, unless the patient is on isolation, then it may be at the room entrance. HCWs are extremely busy and there is time involved in accessing appropriate PPE for routine practices. HCWs become complacent with risks and often don't think about the risk of interactions.

**Project:** Install PPE holders in two units, ED and Med/Surg at opposite facility sites. Audit compliance with Routine Practices at the intervention and non-intervention units at each site for a total of 100 audits per unit; in total 400 audits. No education to be provided on routine Practices prior to or during the intervention. Audit tool developed utilizing the CHICA Canada Audit tool with modification to reflect Best Practices in Ontario. Data analysis was performed and supported by an Epidemiologist.

**Objectives:** This presentation will discuss the issue of non compliance with routine practices and discuss some of the previous research on the topic. The effects that PPE holders installed at patient room entrances have on staff compliance with Routine Practices will be discussed. The results were statistically and clinically

significant and they indicated improved compliance and adherence to routine practices. Staff feedback about the project was positive. The results of this project were used to support the purchase of additional PPE units at the hospital.

#### IMPROVING SURVEILLANCE IN NOVA SCOTIA'S OFFENDER HEALTH SERVICES THROUGH AN INFECTIOUS DISEASE DOCUMENTATION FORM

Dean C. Smith

Capital District Health Authority, Dartmouth, Nova Scotia, Canada

Conducting surveillance and tracking infectious illnesses in all five of Nova Scotia's correctional facilities is a daunting task for any Infection Prevention and Control Practitioner. With high offender turnovers, short periods of incarceration, incompatible information technology platforms where multiple health care providers are involved in providing care, obtaining a clear picture of an infectious incident and treatment can be problematic. Nova Scotia's Offender Infection Prevention and Control Practitioner has developed an Offender Health Infectious Disease Documentation form to help simplify this process. The document is an algorithmic based form the entire health care staff can utilize exclusively to document infections. The form, piloted in Nova Scotia's largest correctional facility (Central Nova Scotia Corrections Facility), is designed to be a "one step, one page" document that will help guide clinicians to properly address infective processes in their facilities. The speaking session will illustrate the specificities of the form and the unique road that led to its development.

#### EFFECTIVENESS OF DEKO WASHERS IN ELIMINATING CLOSTRIDIUM DIFFICILE (CD) SPORES

Michelle Alfa, Jane Bishop, Bev Dobbyn, Pamela Kibsey, Kelly MacDonald  
Vancouver Island Health Authority, Victoria, B.C., Canada

**Objectives:** A study was undertaken to determine the effectiveness of the mechanical action. Detergent and temperature on the elimination of CD spores in the DEKO bedpan washer.

**Method:** An observational study was performed using DEKO bedpan washers on three wards in three different hospitals. Prior to the observational period all machines underwent a maintenance check. A set protocol including strict loading parameters, inspecting washer arms and using alkaline detergent was established. 45 bedpans were inoculated with a fecal spore preparation. The preparation was also dispensed into 9 cryovials. Five test bedpans and 1 control were tested in six separate runs on Cycle 5 of each bedpan washer. The cryovial was included with the first test bedpan. Temperature, alkaline detergent volume and length of cycle were recorded for each run. Upon removal of the bedpan a visual inspection was completed. The bedpans and cryovials were sent to the lab for analysis of viability and number of CD spores.

**Results:** Of 45 bedpans tested, two had viable spores (1-2) remaining after washing following the manufacturers procedures and study protocol. Viable spores remained in all nine cryovials

**Conclusion/Discussion:** This study demonstrated that the temperature achieved in the DEKO was insufficient to kill all CD spores. Temperature in combination with the alkaline detergent and mechanical washer did eliminate CD spores when study protocols were followed. We recommend that regular washer maintenance instructions for proper use be implemented on each ward for bedpan washers to perform optimally.

#### SUCCESSFUL STRATEGIES TO USE FOR A SCABIES OUTBREAK IN THE COMMUNITY

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Saskatoon Health Region, Saskatoon, Saskatchewan, Canada

**Issues:** Limiting the spread of scabies between community facilities, clients and staff was complicated because of the following issues:

- Notification and definitive diagnose of rashes was untimely.
- Implementation of contact precautions was not being followed for skin to skin contact.
- Communication and follow up with multiple care givers and agencies was a challenge.

#### Project: Outbreak Management

Scabies Outbreak Infection Control Measures were implemented as per protocol. Prophylaxis treatment was recommended to those who had skin to skin contact with cases.

Treatment failure was considered if symptom severity did not lessen after two weeks.

#### Results:

9 clients and 7 Home Care staff had confirmed or were suspected of having scabies and treated with a scabicide.

Close family contacts to the cases were also treated. Six out of 19 staff contacts to the cases chose to be treated.

Education was delivered on contact precautions, standard precautions, and on scabies symptoms, transmission, and proper application of scabicide.

#### Lessons Learned:

- Staff need to be suspicious of scabies and be proactive in identifying the cause of any undiagnosed rash on clients.
- Individuals need to be taught how to apply scabicide to avoid treatment failure.
- Environmental cleaning of common areas of the residence is important in limiting the spread of scabies.

**References:** Saskatoon Health Region, Scabies Outbreak. Infection Prevention & Control Manual 2007. Michigan Department of Community Health. Scabies Prevention and Control Manual 2005.

#### EVALUATING IPAC AND PARAMEDICINE IN PEEL: USING AN AMERICAN SURVEY FOR CANADIAN RESULTS

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Melanie Jordison<sup>2</sup>, Pam Munro<sup>2</sup>, Jennifer Roach<sup>2</sup>

<sup>1</sup>Region of Peel Health Services, Peel Region, Canada,

<sup>2</sup>Region of Peel Paramedic Services, Peel Region, Canada

**Issue:** Infection prevention and control (IPAC) strategies are required across the health care continuum. Although paramedics are often the first point of contact within the health care system, the existing literature on IPAC in paramedicine is limited. One study by Eisinger et al (JEMS, 2009) used survey results demonstrating IPAC knowledge and attitudes of an American emergency medical service. The authors concluded that IPAC education is an area requiring improvement with these health care providers.

**Methods:** In partnership with Peel Paramedic Services, Peel Public Health adapted the survey used by Eisinger et al (2009) to investigate the level of IPAC knowledge within the local paramedic service. The survey included questions on: disease transmission, proper use of PPE, level of confidence in the paramedic's ability to protect him/herself from infectious disease, and employment during SARS. 366 surveys were distributed with a completion rate of 99%, representing 94% of paramedics employed by the Region of Peel.

**Results:** Preliminary analysis identified that working during SARS did not adversely affect paramedics' level of confidence in protecting themselves against disease. However, there was inconsistency in their ability to identify appropriate PPE. For example, MRSA was identified as requiring an N95 respirator and eye protection, while eye protection was not indicated for other droplet-transmitted diseases.

**Conclusion:** While Peel paramedics are confident in their ability to protect themselves from infectious disease, knowledge of disease transmission and PPE requires enhancement. These results will be used to direct further IPAC training for paramedics in the Region of Peel.

#### ANALYSIS OF A CLUSTER OF EXTENDED SPECTRUM BETA LACTAMASE PRODUCING KLEBSIELLA PNEUMONIAE IN A SURGICAL ONCOLOGY FLOOR

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**Background:** Nosocomial infection caused by extended-spectrum beta-lactamase-producing *Klebsiella pneumoniae* (ESBL Kp) has been reported worldwide. Between March and August 2009, 12 nosocomial cases of ESBL Kp were identified in a surgical oncology unit. The goals of this study were (a) to describe a cluster of ESBL Kp in a surgical oncology unit of a tertiary care healthcare facility and (b) to show the impact of reinforced routine and additional infection prevention and control measures on halting nosocomial transmission.

**Methods:** Epidemiology and risk factors were reviewed for all cases and ESBL isolates were typed using pulse field gel electrophoresis. Infection control measures including appropriate urinary catheter care, daily and terminal cleaning of rooms, routine practices, contact precautions for cases, and hand hygiene were reinforced via staff education.

**Results:** 11/12 cases of ESBL Kp were identified as infection including 8 urinary tract infections (UTIs), two urosepsis, and one abdominal wound infection. All 10 patients with UTIs/urosepsis had either an indwelling or intermittent urinary catheter. Molecular typing revealed that the cluster was polyclonal with one predominant genotype shared by 7/12 patients. After the reinforcement of control measures, the ESBL Kp rate returned to base line.

**Conclusion:** Reinforced infection prevention and control measures were able to control further transmission of ESBL Kp without causing major disruption to a surgical oncology unit.

#### PILOT PROJECT TO EVALUATE THE EFFICACY OF REPROCESSING EDUCATION IN FRASER HEALTH

Jacqueline Hlagi, Sandra Daniels, Petra Welsh  
Fraser Health Authority, British Columbia, Canada

In 2007, BC Ministry of Health mandated a reprocessing audit for all health care facilities in British Columbia with an expectation rates would achieve 100% compliance. The original audits identified overall compliance of Fraser Health reprocessing was 51%. Fraser Health had to remediate the gap identified.

The first step was to summarize and fan out educational materials developed from CSA reprocessing standards. Standard Operating Procedures (SOPs) were developed for some critical steps in reprocessing. This was used to initiate a pilot project that focussed on Residential Care (HSPs). SOPs, an education day discussing the audit, and personalized site visits by an ICP, appeared to increase rates from 25% to 76%. However, owned and operated (O+O) sites also improved compliance without ICP support. The second step was to fan out this education process to the O+O facilities to determine if education further improved compliance. The SOPs were modified and simplified. Another education day was provided that altered the focus from the audit to the steps in reprocessing. Site visit counselling was again provided by an ICP prior and was expanded to owned and operated (O+O) sites and HSPs. Compliance improved from 68% to 94% (O+O) and 76 to 96% (HSPs).

FH is expanding the education platform to acute care through modifications of SOPs, on-site department visits, and online education modules. Our presentation includes the compliance reports, the final version of the SOPs and the education framework.

#### PARTICIPATION OF FRONTLINE STAFF IN THE USE OF ACTION BUNDLES TO DECREASE THE INCIDENCE OF HEALTHCARE-ASSOCIATED CLOSTRIDIUM DIFFICILE INFECTION

Felicia Laing<sup>1</sup>, Noorsallah Esmail<sup>2</sup>, Darlene Spence<sup>2</sup>, Fred Roberts<sup>2</sup>, Martha Grypma<sup>1</sup>, Judi Moscovitch<sup>2</sup>, Elizabeth Findlay<sup>2</sup>

<sup>1</sup>Fraser Health Authority, Surrey, BC, Canada, <sup>2</sup>Fraser Health Authority, Burnaby, BC, Canada,

<sup>3</sup>Fraser Health Authority, New Westminster, BC, Canada

**Background:** Although the incidence of *Clostridium difficile* infection (CDI)



in Fraser Health has remained consistent from April 2006-March 2009 there is variation between the 12 acute care hospitals and the overall rate runs higher than national and provincial rates. Previous interventions to reduce the spread of CDI have been unsustainable. We describe the tools that were developed and the improvement work that engaged senior executives and frontline staff to lead changes for reducing CDI.

**Methods:** In July 2009 a CDI Action Team at Burnaby Hospital piloted the use of a Practice Bundle to test a series of changes for improving patient isolation and accommodation, environmental cleaning and decluttering. By February 2010, a hospital-wide launch of the improvement bundles was made to leaders from various departments. Four additional action bundles were introduced: Physical Plant, Cleaning, People Bundle and Antimicrobial Stewardship.

**Results and Conclusions:** The kick-off for the CDI improvement work started small but individuals from key departments attended and showed ownership by generating their ideas for approaching best practices. They in turn nurture a cultural change through peer-to-peer support. Early identification of suspect CDI patients occur on a daily basis. Appropriate bed accommodation increased from 13-85%. Space planning to create separate dirty and clean utility rooms and convert multi-bed rooms to single or dedicated rooms is underway. While these and other measures continue to be tracked it is the active participation of staff that is maintaining the momentum that makes this work a success.

#### MRSA DECOLONIZATION IN A LONG TERM CARE CENTRE

Zoran Pikula<sup>1</sup>, Wil Ng<sup>1</sup>, Gladys George<sup>1</sup>, Diane White<sup>1</sup>, Christie Vermeiren<sup>2</sup>, Kevin Katz<sup>1,2</sup>

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<sup>2</sup>Shared Hospital Laboratory, Toronto, Ontario, Canada

**Background:** MRSA decolonization may be a useful adjunct to MRSA control. At Seniors' Health Centre a 10-day course of: p.o Bactrim and Rifampin; nasal Mupirocin and 2% Chlorhexidine wash is administered if not contraindicated. Three weekly screens are done, beginning 3 days after the treatment, followed by monthly screens. A second treatment is often undertaken if the first one fails.

**Project:** We retrospectively followed results of 34 MRSA colonized residents who were decolonized from May04 to July09. Successful decolonization was defined as negative results on three weekly post-decolonization screens.

**Results:** 20 (58.82%) of 34 residents were decolonized after the first treatment. Long term follow-up was available on 14 of these residents (range 6-60 months) and all remained negative. 14 (41.18%) of the 34 residents failed the first decolonization. For being lost to follow-up four residents did not receive a second course while 10 got it and 8 of them were successfully decolonized. Long term follow-up (>6 months) was available on 5 of the 8 residents and all remained negative. Mupirocin E-susceptibility test was undertaken on 23 (67.65%) of the MRSA isolates. Only three isolates showed low level (MIC=12) resistance.

**Lessons Learned:** 28 (82.35%) of 34 MRSA+ residents were decolonized after one or two courses of the treatment and remained negative for months up to five years. A second attempt at decolonization may be reasonable in the event the first fails.

#### SUCCESSFULLY DECREASED CDI RATE BY A TEAM WORK IN AN ACUTE CARE SETTING

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The Scarborough Hospital, Toronto, Ontario, Canada

**Background:** C.diff is the most frequently identified cause of nosocomial diarrhea. CDI can range from uncomplicated diarrhea to sepsis and even death. Transmission of the bacteria and their spores (dorm ant external form of C.diff) occurs primarily via the fecal-oral route following transient contamination of the hands of HCW, patients and visitors. The contaminated environment plays significant role as a source of agent.

**Project:** Since 2004 increased rates of nosocomial CDI at the General campus of Toronto Scarborough Hospital (TSH) have been documented as 1.5 times the Ontario CNISP average rate.

The initiative to decrease the incidence of CDI and implement preventive strategies included:

- The internal review of hospital wide practice in preventing and detecting CDI.
- The external review of C.diff control practice by C.diff expert team.
- Implemented measures:
- Improved relationship between IPAC and clinical areas
- Highlighted housekeeping role; resources and services improved.
- Engaged physicians and pharmacists in managing antibiotic utilization
- Improved waste management
- Increased compliance of hand hygiene by staff in clinical areas
- Established strong communication and actions amongst TSH IPAC, senior management, nursing management and front line staff, educators, medical leadership, pharmacy and environmental services.

**Results:** The nosocomial CDI incidence rate has been decreased significantly from 2.0/1000 Pd (August 2008) to 0.50/1000 Pd (December 2008) and to 0.11 (March 2009-present).

**Lesson Learned:** United we succeed!

#### CREATION OF THE PRINCE EDWARD ISLAND PROVINCIAL INFECTION PREVENTION AND CONTROL STRATEGY

Christine Drummond, Stacey Linger

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**Issue:** In 2007, the PEI Environmental Services Accreditation Team identified a

deficit in infection prevention and control capacity across the health continuum. Despite increasing problems, there was no formal coordinated approach to infection prevention and control in the province. The PEI health system was lacking capacity to conduct adequate surveillance for health care associated and community acquired infectious diseases.

**Project:** In December of 2007, the PEI Department of Health approved funding for an additional 2.6 full-time equivalent permanent infection control positions for PEI and a temporary coordinator to direct the Strategy. In June 2008 an advisory committee was formed and provided overall direction to the Strategy. The advisory committee formed provincial task groups to focus on three main areas:

Develop provincial infection prevention and control **guidelines and standards**. Develop a provincial **surveillance** database to monitor MRSA, VRE, and C-diff. Develop and disseminate **education programs** for all practice areas.

The PEI infection prevention and control strategy includes 6 main components:

- increased infection prevention and control capacity
- clear accountability
- provincial guidelines and standards
- education and training
- surveillance and monitoring
- provincial coordination

The Strategy will ensure consistent standards within the health system and include partners in the public and private sectors.

**Result:** Through the Provincial Infection Prevention and Control Strategy, there is now a provincial focus for Infection Prevention and Control. A proposal has been developed and presented to the appropriate committees for approval for a fully staffed and functional infection prevention and control program for the province.

#### A CANADIAN CONTAINMENT APPROACH TO CLOSTRIDIUM DIFFICILE

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<sup>1</sup>Shriners Hospital for Children, Montreal Quebec, Canada, <sup>2</sup>Infection Control and Occupational Consultation Services, Quebec, Canada

**Issue:** Since the spring of 2003 Quebec has witnessed increased morbidity and mortality related to a hyper virulent strain of *Clostridium difficile*. Various guidelines address the usual approaches of surveillance, antibiotic stewardship, isolation practices, hand hygiene and hospital environmental disinfection.

**Project:** A literature review of general guidelines with a specific consideration of human waste management and bedpan reprocessing was completed to explore additional *Clostridium difficile* associated diarrhoea (CDAD) control opportunities.

**Results:** AETMIS, the Quebec government agency responsible for health services and technology assessment was mandated by the Ministry of Health and published an analysis of bedpan management in the province's health-care facilities. A novel approach restricts propagation of the contaminating spores by the use of waste containment at the source of patient care. Manual bedpan transportation and cleaning poses a high risk of contamination. The use of a sporicidal concentration of chlorine for surface disinfection is often problematic for the workers, the patients and the surfaces being disinfected. Prevention of the initial environmental contamination would provide a welcome achievement in prevention of CDAD infection. Using hygienic covers offers a safer procedure in bedpan management because the bedpan containing organic waste does not leave the isolation area for processing. As the utilised hygienic bag never leaves the room (except when the trash is emptied), the hazards of spore contamination and spread are minimal.

**Lessons Learned:** Implementation of the use of a disposable hygienic cover at the source of potential contamination provides a novel additional tool in CDAD infection prevention.

#### METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) INFECTIONS IN A BURN CENTRE

Barbara Catt, Victoria Williams, Sandra Callery

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**Background:** MRSA is an important healthcare associated pathogen. In Canada, approximately 72% of MRSA acquisitions occur in hospitals. MRSA infections in ICU settings are associated with increased morbidity and mortality. It is important to identify and contain transmission of MRSA as soon as possible.

**Purpose:** To describe detection of MRSA and associated patient outcomes in a fourteen bed burn centre.

**Method:** The Ross Tilley Burn Centre (RTBC) at Sunnybrook Health Sciences Centre (SHSC) is a level three regional trauma/burn centre located in Toronto, ON. Routine surveillance for MRSA required screening on admission, weekly prevalence and discharge from the unit. Swabs were obtained from the nares, perianal, wound and exit sites of indwelling devices. Clinical specimens were obtained based on symptoms. Epidemiology of each case of MRSA was investigated and patients were followed for duration of stay.

**Results:** In 2009, 12/25(48%) of MRSA cases in the RTBC were detected through prevalence screening. 18/25(72%) cases of MRSA were nosocomial corresponding to a rate of 4.92 per 1000 patient days for RTBC as compared to 0.62 for acute care at SHSC. 14/25(56%) patients developed an MRSA infection during admission as compared to 23% for the rest of the facility.

**Conclusion:** Burn patients are at high risk of nosocomial MRSA and developing infection. MRSA control programs in a burn centre should include admission swabs and ongoing targeted surveillance. Early implementation of control measures including contact precautions, staff/patient cohorting and enhanced cleaning after detection of nosocomial transmission are recommended to limit spread.



## ENERGY SAVING INITIATIVES IN THE OR: INFECTION CONTROL CONSIDERATIONS FOR REDUCED AIR VOLUMES

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**Issue:** In 2008, Sunnybrook Health Sciences Centre partnered with Honeywell to implement several energy saving initiatives including energy efficient lighting, domestic water use reduction, and expansion and optimization of heating, cooling and ventilation systems. One of these proposed measures was to reduce the operating room (OR) air flow during off hours. A reduction in OR flow from 20 to 10 air changes per hour (ACH) translates into a potential reduction in energy use of 42%, however, the effects of this air flow reduction on OR conditions and patient safety are not well documented.

**Project:** Sunnybrook facilities, OR, and Infection Prevention & Control (IP&C) staff met with Honeywell project managers to design a testing plan. Three OR suites operating Monday to Friday during daytime hours, and holding outpatient orthopaedic, ophthalmology and general surgery procedures were chosen as the test site. Modifications to existing OR ventilation were made and air flow measurement devices installed to enable controlled reduction of air flow. Occupancy sensors were installed such that after a period of unoccupied time, the OR ACH would drop from 20 to 10 ACH. IP&C criteria to be monitored were as follows: temperature, humidity, pressure relationships with adjacent rooms, air particulate counts, and time to return to normal.

**Results:** Preliminary testing of the ventilation system is under way.

**Lessons Learned:** Sunnybrook will use the results of the testing to ensure the safety of reduced air volumes during unoccupied OR time and may explore this initiative for other controlled OR settings.

## EFFICACY OF COMMON DISINFECTANT/CLEANING AGENTS IN INACTIVATING MURINE NOROVIRUS AS A SURROGATE FOR HUMAN NOROVIRUS

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**Background/Objectives:** Norovirus has emerged a major cause of foodborne gastrointestinal infection. Since the agent cannot be propagated in cell culture, limited information exists on the effectiveness of disinfectants and cleaning agents on norovirus. The objective of this study was to determine the efficacy of commonly used types of cleaning agents and/or disinfectants used in health care facilities in British Columbia on the surrogate virus, murine norovirus (MNV-1). In this study, funded by CHICA-Canada, sodium hypochlorite, accelerated hydrogen peroxide and a quaternary ammonium compound were assessed.

**Methods:** A virus suspension of known concentration was placed onto stainless steel disks under wet load (0 min) or dry load (90 min) conditions and exposed to defined concentrations of the disinfectant/cleaning agent for 1, 5 or 10 minutes. Virus inactivation was measured by plaque assay using the quantitative carrier test (QCT-2) method.

**Results:** Sodium hypochlorite at 1350 ppm at 1, 5 and 10 minutes showed an 8.6 log reduction. At 675 ppm, a 10 minute contact time at wet and dry load showed a log reduction of 8.6 and 7.73, respectively. There was less than a 1 log reduction with accelerated hydrogen peroxide (7000 ppm) and ammonium chloride (280 ppm) at wet and dry load for 1, 5 and 10 minutes. Disinfectants used all showed little to no cytotoxic effects on the RAW 264.7 cell culture.

**Conclusions:** Sodium hypochlorite appears to be more effective in reducing virus load on stainless steel surfaces than quaternary ammonium or accelerated hydrogen peroxide.

## ASSESSMENT OF THE EFFICACY OF A NEW SCORING SYSTEM FOR CLOSTRIDIUM DIFFICILE INFECTIONS AND PREDICTOR OF ANTIBIOTIC PRESCRIBING

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We developed a scoring system for Clostridium difficile (CD) and evaluated its efficacy at predicting severity, appropriate antibiotic treatment and reducing the length of stay of hospital admissions.

All patients presenting to a London District General Hospital between 20 February to 10 August 2009 with diarrhoea and stool-positive for CD toxin were included. The following demographic details were included: sex, age, Department of Health severity score (DHSS), the modified Barnet & Chase Farm severity score (BCFSS), the length of stay and the admission outcome. The BCFSS comprised of stool frequency, white cell count, renal function, albumin, temperature, age, proton-pump inhibitor usage and co-morbidities. Using a case-case design, the two scoring systems were compared.

This study included 50 patients with CD, 60% were female and 40% male. Median age was 81 years (range 51 to 95 years) and median admission length was 16 days (range 3-80 days). 70% of patients were eventually prescribed Vancomycin using the DHSS, but 62% of these patients were originally prescribed Metronidazole. In contrast, 77% of the same patients would receive Vancomycin from time of diagnosis using the BCFSS with an average 5-day reduction in hospital stay. There were 12 recorded deaths associated with CDI. Only 17% of these would have been commenced on Vancomycin using the DHSS, compared to 92% using the BCFSS. The BCFSS is a more sensitive predictive score of severity than the DHSS for CD. The BCFSS predicts the most appropriate antibiotic and reduces the length of stay in hospital.

## MICROBIAL SURVEY OF DEPOSITION SITES IN HIGH DENSITY AREAS OF A UNIVERSITY CAMPUS

Jody Decker, Robin Slawson

*Wilfrid Laurier University, Waterloo, ON, Canada*

The H1N1 onset, targeting age cohorts encompassing post-secondary students, newly identifies universities as higher transmission risk places. Students have complex, extensive social networks and mixing patterns extending into the broader community, and differing notions of risk from the general public. Scant studies have investigated infectious disease transmission in universities. This study tests the hypothesis that areas within a university with higher bacterial loads will impose a higher risk of opportunistic exposure by: identifying high deposition transmission sites, exploring the links between bacterial loads and corresponding illness, and providing evidence-based data on risk potential.

A survey of representative microbial groups was performed on selected sites within residence buildings on campus. Sites were swabbed following standard procedures, recovering both whole cell isolates and total DNA. Microbial groups represent typical human and environmental organisms such as heterotrophs, coliforms, E. coli, Enterococcus, Staphylococcus spp. and Streptococcus spp.. Culturable isolates were enumerated and identity confirmed using PCR. Quantitative PCR will be used where sufficient DNA is recovered to confirm patterns observed from plate counts.

Highest microbial counts are associated with bathroom and kitchen areas (3.5 log CFU/cm<sup>2</sup>). Staphylococcus are isolated in lower numbers (0.5-1.5 log CFU/cm<sup>2</sup>) from some locations. Gender biases were found when male and female areas were compared.

Recommendations include: absenteeism reduction through targeted educational interventions (via health services, occupational health), enhanced monitoring, and changes in space design and hardware.

## POSTER PRESENTATIONS

### WEDNESDAY, JUNE 2

1230-1:30 P.M.

(Poster board numbers will be listed in the on-site program)

## EFFECTIVE COMMUNICATION: AN IMPORTANT TOOL IN CONTROLLING NOROVIRUS IN A COMPLEX CARE AND REHAB FACILITY

Linda Shi, Annie Li, Joann Braithwaite, Sharon O'Grady, Zahir Hirji  
*Bridgepoint Health, Toronto, Canada*

**Issue:** December 2009 Bridgepoint Health, a complex care and rehabilitation hospital experienced outbreaks of Norovirus over 5 weeks affecting 52 patients on 5 units. The complexity of the patients and the poor physical design of the units complicated the outbreak.

**Project:** The outbreak team met regularly to evaluate the effectiveness of infection control measures and to address ongoing issues. Traditional and creative communication channels were used to facilitate efficiency and transparency. Communication tools consisted of:

- Staff communication
- Outbreak alerts (email, memo and intranet) outlining the situation.
- Line lists facilitated communication of new patients.
- Lists of symptomatic patients were sent to Environmental Service to maintain cleaning efforts on the outbreak units and increase cleaning in new problem areas.
- ICP and managers facilitated sessions on hand hygiene and to coach personal protective equipment use.
- Reminders to remain home if experiencing symptoms.
- Patient communication
- Information sheets were developed for patients and updated regularly.
- Staff engaged patients one-on-one to address the infection control measures.
- Visitor communication
- Corporate communication developed information for visitors.
- Staff called families to update them about the outbreak and to reinforce control measures. New issues were identified; asking sick visitors to leave, assessing potential exposures at home when a patient is on pass, and screening family involved in patient food preparation.

Well patients were also used to update family and visitors.

**Lessons Learned:** A variety of communication strategies enabled staff, patient and visitors to end a widespread Norovirus outbreak.

## "JUST CLEAN YOUR HANDS" A YEAR IN THE LIFE OF HAND HYGIENE PRACTICES

Karen Gauthier, Lisa Mitchell, Susan Blakeney  
*Pembroke Regional Hospital, Pembroke ON, Canada*

**Issue:** In 2008, the Ontario Ministry of Health and Long Term Care (MOHLTC) introduced the "Just Clean Your Hands" program for all acute care facilities. Public reporting of hand hygiene audits was introduced. The aim was to educate healthcare providers and to break the transmission of organisms on hands.

**Project:** The project involved adapting the Program at Pembroke Regional Hospital so that Healthcare Providers would change behaviour by performing hand hygiene at appropriate moments. Action plans were developed to implement in 6 Phases. **One:** Facility Preparedness. The Project Coordinator, supported by Senior Leadership provided a communication plan and hospital rollout strategy. **Two:** Baseline Evaluation. Assessment of leaders and healthcare providers' knowledge and perception. Installation of Alcohol Based Hand Rub (ABHR) at point of care. **Three:** Implementation. Pilot Unit selection and education plans development. Hand Hygiene policy was revised. **Four:** Evaluation. Determined frequency of observational



audits and their feedback. **Five:** Review Cycle. Identification of Hand Hygiene Champions **Six:** Patient Engagement. Patient and public awareness program based on the theme “Clean Hands Protect Lives”.

**Results:** In follow up to the base line audit rates, sequential auditing shows progressive improvement in overall rates at the audited moments of hand hygiene and improvement in various categories of health care providers. Quarterly public reporting continues.

**Lessons Learned:** Hand hygiene compliance and the ability to change practices of human behaviour are assisted by leadership support, project champions and accessibility of resources.

#### DEVELOPING COMPETENCIES FOR AN E-MENTORSHIP PROGRAM

Nora Boyd<sup>1</sup>, Laura Fraser<sup>1</sup>, Christine Thrasher<sup>2</sup>, Sara Dalo<sup>1</sup>, Laurie Boyer<sup>3</sup>

<sup>1</sup>Erie St Clair Infection Control Network, Windsor, Ontario, Canada,

<sup>2</sup>University of Windsor - Nursing, Windsor, Ontario, Canada,

<sup>3</sup>Northeastern Ontario Infection Control Network, Sudbury, Ontario, Canada

**Issue:** “Mentoring can be extremely beneficial to assist in the development of new infection prevention and control professionals (ICPs). As with many other professions, a great deal of the learning involved in IPAC comes from the lived experience of that role that cannot be gleaned from a textbook” (CHICA article by A. Bialachowski). Mentorship is an effective strategy to develop competency and proficiency. Establishing suitable relationships between mentors and mentees involves pairing experts from a variety of health disciplines. To enhance capacity, the RICN is developing an online ementoring program to manage their mentoring relationships and to build communities of practice. To create an online ementoring system, RICN needed to determine competencies.

**Project:** Using the CHICA-APIC Standards of Practice and the CHICA ICP Self Assessment Tool, ESCICN developed a set of competencies for ICPs. These competencies were then validated by groups of expert ICPs and ICPs from across Canada. Triple Creek the ementoring platform vendor provided advice on how the competencies should be articulated.

**Results:** A set of 20 competencies were outlined which cover the diversity of infection control experience. This process has translated the CHICA-APIC Standards into useable information for ICPs to identify learning needs and areas of competence or proficiency. The competencies will be used by ESCICN to match mentors and mentees for our ementoring program.

**Lessons Learned:** Although the field of infection control is defined by the CHICA-APIC Standards and CHICA self assessment tool there is room for a more broad based set of competencies.

#### INFECTION PREVENTION AND CONTROL - REACHING A RURAL AND REGIONAL SETTING

Marina I Salvadori<sup>1,2</sup>, Norma Reese<sup>2</sup>, Laura Farrell<sup>2</sup>, Christine Moussa<sup>2</sup>, Abdul Chagla<sup>2</sup>, Tim Cronsberry<sup>2</sup>

<sup>1</sup>University of Western Ontario, London, Ontario, Canada, <sup>2</sup>Southwestern Ontario Infection Control Network, St Mary's Ontario, Canada

There are 14 RICNs in Ontario to assist healthcare providers across the continuum of care achieve best practices in Infection Prevention and Control. RICNs are designed to coordinate IPAC activities and promote standardization in healthcare facilities. They facilitate knowledge transfer and information sharing to reduce costly duplication of effort.

SWOICN provides services to a large area of southwestern Ontario from Lake Erie to the Bruce Peninsula, covering 21,639 square kilometers. The catchment area has 944,852 people; 69% are classified urban and 31%, rural. We serve 20 hospital corporations (30 sites), one community care access centre that coordinates homecare delivery, 72 long term care homes, 52 community support services (e.g. hospice, CNIB, rehabilitation clinics), first responders (e.g. ambulance services), physician practices, and six First Nations Communities. Many of our stakeholders have few human and financial resources to support IPAC. To bridge these gaps and reach our geographically dispersed and low density stakeholders, we have devised various support strategies, with varying degrees of success. Many have utilized technology. Strategies have included:

- An electronic newsletter biweekly – “A 5-minute infection connection”
- Web-based “Inservices On Demand” - accessible 24 hours a day, from any internet connection
- IPAC Chat available on line
- CIC Exam preparation study group via teleconference/videoconference
- A “desk reference” - orientation guide for new IPAC professionals and a desktop reference for experienced ones
- Binders with “hot topics” so policies and procedures for specific situations can be instantly accessed and implemented, hard copy or electronic
- Unique rollout of provincial initiatives

#### PREVENTION OF LEGIONELLOSIS IN A GERIATRIC HEALTHCARE FACILITY THROUGH COPPER-SILVER IONIZATION OF THE WATER DISTRIBUTION SYSTEM

Chingiz Amirov, Heather Candon, Jane Van Toen

Baycrest, Toronto, Canada

**Issue:** Legionellosis in Canada has a reported national incidence of 0.13 cases per 100,000, but is likely far more pervasive, as only 3% of sporadic cases are correctly diagnosed. The source of healthcare-acquired legionellosis is the water supply; disinfection of which can prevent this infection. Geriatric patients are a high risk group for legionellosis. To prevent legionellosis in our geriatric chronic care facility, we reviewed various water disinfection modalities for implementation.

**Project:** We reviewed three commonly used water disinfection methods, and made

the following conclusions: 1. Thermal eradication is tedious, labour intensive to implement, and allows prompt recontamination. 2. Hyperchlorination leads to pipe corrosion, carcinogens in the drinking water, and is difficult to maintain. 3. Copper-silver ionization is convenient, cost-effective approach, easier to maintain, and non-corrosive. In the event of mechanical failure, recontamination is delayed for weeks. Following the review, copper-silver ionization was selected as a disinfection method of choice and two ionization units were installed.

**Results:** Environmental monitoring was performed by culturing water samples prior to activating the ionization system. Detectable levels of *L. pneumophila* serogroups 1-14 were repeatedly isolated in 100% of samples. Tests were repeated one month after activation of the ionization system. *L. pneumophila* was isolated in 0% of water samples. Quarterly water testing instituted post-installation, isolated *L. pneumophila* in an average of 12.5% of samples ( $p < 0.0001$ , t test). Levels  $< 30\%$  are considered protective. Copper-silver ionization presents an effective and convenient disinfection modality for water distribution systems in healthcare.

#### WHAT TO DO WHEN CONSTRUCTION HAS OVERTAKEN YOUR HOSPITAL

Maja McGuire, Bronwen Edgar, Sandra Gallery

Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

**Issue:** Sunnybrook Health Sciences Centre has been challenged with multiple concurrent capital redevelopment projects as well as dozens of smaller renovation projects. Construction has included the Women's and Babies M-Wing vertical expansion, horizontal expansion of the Emergency Department (ED), and the multi-unit redevelopment for the Schulich Heart Program.

**Project:** An Infection Control Risk Assessment was completed prior to each project to determine hoarding plans, egress routes, impact on staff, patient and visitor areas. Construction affected elevator usage, required unit closures, decanted patients/services to temporary spaces, inconvenienced adjacent units to allow for plumbing/electrical/heating, ventilation and air conditioning tie-ins and resulted in construction barriers scattered throughout the facility.

**Results:** Our strategies to deal with construction started with on-going communication, planning and transparency between IPC, Corporate Planning, Occupational Health, Facilities and Clinical/Patient Areas. IPC team also performed weekly audits of construction hoarding and egress routes with special focus on high risk zones such as the Sterile Reprocessing Department and operating rooms' sterile corridor. Temporary units/spaces were evaluated prior to occupancy to ensure location, clean supply rooms, ventilation, waste management and cleaning met minimum standards. To offset closed beds IPC reviewed the process for placing patients on/off additional precautions to improve patient flow from ED to inpatient units.

**Lessons Learned:** Hospital construction has impacted the flow of staff, patients and processes. A multi-disciplinary approach to deal with the construction has allowed the facility to continue to operate while maintaining staff and patient safety.

#### THE FOLLOWING ABSTRACT HAS BEEN CHOSEN “BEST FIRST TIME ABSTRACT SUBMISSION”

FRIENDS HELPING FRIENDS: PEER AUDITING IN THE CENTRAL SUPPLY AREA: A NON-BIASED APPROACH TO AUDITING THE CENTRAL STERILE SUPPLY ROOM

Linda Howard<sup>\*1</sup>, Mona Williams<sup>1</sup>, Barb Dowdall<sup>2</sup>, Sue Hemeon<sup>2</sup>, Colette Ouellet<sup>3</sup>

<sup>1</sup>Carleton Place and District Memorial Hospital, Carleton Place, Ontario, Canada, <sup>2</sup>Perth Smith Falls District Hospital, Perth, Ontario, Canada, <sup>3</sup>Champlain Infection Control Network, Ottawa, Ontario, Canada

**Issue:** Release of the Ontario Best Practices for Cleaning, Disinfection and Sterilization (BPCDS) stimulated discussions with a local group of Infection Control Professionals (ICPs) and Central Sterilization Reprocessing staff (CSR) on the importance of ensuring standards in CSR were current. Staff in small rural hospitals feel isolated from outside resources and networking opportunities for CSR staff was infrequent. Yearly audits done previously by on-site staff were felt to be potentially biased.

**Project:** A Canadian Service Association of Ontario (CSAO) network meeting was held onsite to promote the concept of peer auditing. Two local hospitals, similar in size and procedures performed, agreed to an exchange of expertise through peer auditing. Audits were performed in April and August 2009, using Appendix C of the BPCDS. Staff from the CSR, Operating Room, and an ICP were involved in the audit.

**Results:** Improvements in practices based on compliance with standards and documentation were noted with ideas generated from the visiting peers. Issues Identified were grouped into categories of documentation gaps, product standardization, policy updates, quality assurance improvements and staff safety issues.

**Lessons Learned:** Peer audits provided additional insight into the application of current standards, empowered front line staff, and allowed shared discussion and policy exchange to improve patient care. Peers felt comfortable and open to the experience of learning through the auditing exchange.

#### SIMULATED-USE EVALUATION OF FLEXIBLE ENDOSCOPE CLEANING: COMPARISON OF ATP BIOLUMINESCENCE, BIOBURDEN AND PROTEIN AS CLEANING MARKERS

Iram Fatima<sup>1</sup>, Michelle Alfa<sup>1,2</sup>

<sup>1</sup>St. Boniface Research Centre, Winnipeg, MB, Canada, <sup>2</sup>Diagnostic Services of Manitoba, Winnipeg, MB, Canada

**Background:** Cleaning of flexible endoscopes is a critical phase in reprocessing. There have been few studies to determine the appropriate benchmarks for ATP bioluminescence methods that indicate adequate channel cleaning.

**Objective:** Simulated-use testing was used to compare ATP (relative light unit) with organic and bioburden residuals to establish benchmarks for adequate cleaning of flexible endoscope channels.

**Method:** The suction/biopsy (L1) and air/water channel (L2) were soiled with Artificial Test Soil (ATS) containing *E. faecalis* and *Paeruginosa* (~10<sup>8</sup>cfu/mL). Samples (in triplicate) collected from L1 and L2 were evaluated for residual ATP, protein, hemoglobin and bioburden after no, partial or complete cleaning.

**Results:** The flush method was selected for sample collection from lumens and provided > 95% recovery of organic, bioburden and ATP. The limit of detection for bioburden was 10<sup>2</sup> cfu/mL and 10<sup>3</sup> cfu/mL for Gram negatives and positives, respectively. The ATP method could detect 939 RLUs for ATS that was diluted 1:1000 (limit of detection was 16.9 RLUs for 1 ug/mL ATS protein). After complete cleaning there was < 200 RLUs/channel sample compared to 8,000 RLUs and 24,000 RLUs after partial cleaning for L1 and L2. When correlated with the published benchmark for protein (6.4 ug/cm<sup>2</sup> protein), the corresponding benchmarks for complete cleaning in L1 and L2 were 914 and 1030 RLUs/sample, respectively.

**Conclusions:** Our data indicated that ATP was a sensitive indicator for organic residuals but was insensitive for viable bacterial cells. We recommend that for flexible endoscope channels a level of < 900 RLUs provides an optimal benchmark for adequate cleaning.

#### EVALUATION OF THE EVOTECH® ENDOSCOPE CLEANER AND REPROCESSOR (ECR) BY SIMULATED-USE AND CLINICAL-USE TESTING

Alfa MJ 1,2, Olson N1, Fatima I1, DeGagne D2

1St. Boniface Research Centre, Microbiology Research Lab,

Winnipeg, MB, 2St. Boniface General Hospital, NFA Endoscopy Department, Winnipeg, MB.

**Background:** The EVOTECH® ECR has received FDA clearance for cleaning claims. Despite this, the SGNA alerted users in 2007 and 2009 to continue with manual cleaning of endoscopes until clinical testing data was available to confirm the ECR could provide adequate cleaning without full manual cleaning. The objective of this study was to perform simulated-use as well as clinical testing of the ECR cleaning cycle to determine if the cleaning was effective.

**Methods:** The benchmarks for effective cleaning of all channels and surfaces were: < 6.4 ug/cm<sup>2</sup> of protein, < 1.8 ug/cm<sup>2</sup> of hemoglobin and < 4 log<sub>10</sub> viable bacteria/cm<sup>2</sup>. For simulated-use testing, all scopes channels and two surfaces were inoculated with Artificial Test Soil (ATS) containing 8 Log<sub>10</sub>/mL of *Enterococcus faecalis*, *Pseudomonas aeruginosa* and *Candida albicans*. Soiled scopes were put through a “clean only” ECR cycle (detergent only). Colonoscopes, duodenoscopes and bronchoscopes were included in the simulated-use testing phase and each lumen and two surface sites were tested in triplicate for bioburden and protein. A clinical study was also performed on 15 patient-used bronchoscopes, and 20 each of; duodenoscopes, colonoscopes and gastroscopes. Surface (2 sites) and all channels of each patient used scope were tested after a “clean only” ECR cycle to quantify residual bioburden, protein and hemoglobin.

**Results:** In the simulated-use phase, for all scope types and channels tested the protein reduction achieved was >99% and the bioburden reduction factor (RF) was > 4 logs (i.e. met all benchmarks). In the clinical phase, of 55 scopes (130 lumens) tested post-cleaning, only 1/130 (< 1%) had 4.47 Log<sub>10</sub> cfu/cm<sup>2</sup> residual bioburden (i.e. slightly above benchmark). All 108 surfaces met the bioburden benchmark. All channels and surfaces met the benchmarks for hemoglobin and only 4/108 surfaces (3.6%) slightly exceeded the protein benchmark.

**Conclusions:** The EVOTECH® ECR provides reliable organic and bioburden removal from channels and surfaces of endoscopes without manual cleaning

#### PREVENTING INFECTIONS IN THE AMBULATORY CARE WORKFORCE: WHAT DO HEALTHCARE WORKERS THINK?

Linda Kingsbury<sup>1</sup>, Lyndsay O'Hara<sup>2</sup>, Elizabeth Bryce<sup>1,2</sup>, Cole Hilliard<sup>2</sup>, Sydney Scharf<sup>1</sup>, Annalee Yassi<sup>2</sup>

<sup>1</sup>Vancouver Coastal Health Authority, Vancouver BC, Canada,

<sup>2</sup>University of British Columbia, Vancouver BC, Canada

**Background:** Resources have shifted from inpatient to ambulatory settings, yet little has been documented regarding changing risks, worker safety, knowledge, and models to deliver effective IC and OH programs. Assessing HCW knowledge of correct IC and OH practices is a key first step in determining worker needs and in designing and delivering programs.

**Methods:** A previously validated questionnaire consisting of 103 items was administered utilizing convenience sampling methods. The questionnaire consisted of five sections related to OH and IC issues: 1) baseline demographics; 2) self-perception of knowledge; 3) knowledge assessment; 4) practices; 5) perception of risks. Respondents rated their knowledge on a 5-point Likert scale. Standard descriptive statistics were calculated to analyze demographic data and characterize the distribution of variables.

**Results:** The questionnaire results suggest that respondents did not apply in practice what they know, and may not possess the knowledge that they thought they knew. Conversely, it was also evident that a lack of knowledge translates into practice. The findings reveal differences in the level of knowledge and correct practice between clinical staff and technical and administrative staff.

**Conclusions:** Gaps in knowledge exist in ambulatory care. Targeted educational initiatives are necessary. Managerial support and engagement by all public and private organizations in ambulatory care partnerships is required during all phases of program design and delivery to ensure worker and patient safety.

This research was supported by Worksafe BC, The University of British Columbia, and Vancouver Coastal Health Authority.

#### “START SAFE” ORIENTATION AND BEYOND

Darlene Fawcett, Linda Fletcher, Jo-Anne Burt

Ontario Shores Centre for Mental Health Sciences, 700 Gordon Street, Whitby, Ontario, Canada

Post SARS it was recognized health care providers needed more knowledge of infection control practices to prevent workplace acquired infections.

The Ontario Shores Centre for Mental Health Sciences (Ontario Shores) Infection Control team decided infection control knowledge should be received by all staff and volunteers prior to placement. A comprehensive program was developed for orientation with the intent of giving new staff and volunteers the infection control skills, knowledge and resources to start work safely in a psychiatric care setting. Infection Control staff lobbied and received additional time to present the new expanded orientation program. The orientation education program includes required Ministry of Health and Long Term Care programs such as Infection Control Core Competencies (Hand Hygiene, Chain of Transmission and Routine Practice) and Just Clean Your Hands.

Infection Control Practitioners instruct clinical and non clinical staff on infection control practices using PowerPoint™ presentations, videos, participatory exercises on hand hygiene, donning and doffing of personal protective equipment. All new employees and volunteers complete post tests during this orientation confirming they can “Start Safe”. Beyond orientation all staff and volunteers are required to maintain their knowledge by annually completing the Core Competencies (including post test) in group sessions or by intranet self learning.

With this introduction to basic infection control and by engaging with members of the infection control team during orientation, new staff are equipped with the infection control knowledge, skills and resources they require to “Start Safe” and stay safe at Ontario Shores.

#### DEVELOPMENT OF AN ONLINE EDUCATION MODULE FOR THE PREVENTION OF SURGICAL SITE INFECTIONS FOR HEALTHCARE PROVIDERS

Joanne Archer<sup>1</sup>, Carrie Spencer<sup>2</sup>, Ahssan Moshref<sup>3</sup>, Bruce Gamage<sup>4</sup>

<sup>1</sup>Provincial Infection Control Network of BC, British Columbia, Canada, <sup>2</sup>Vancouver Coastal Health, Vancouver, BC, Canada, <sup>3</sup>Vancouver Coastal Health, Vancouver, BC, Canada, <sup>4</sup>Provincial Infection Control Network of BC, British Columbia, Canada

**Issue:** Post-operative surgical site infections (SSI) account for up to 40% of nosocomial infections and are a major source of morbidity in surgical patients. It is estimated that approximately 40-60% of these are preventable.

**Project:** PICNet sought to create an on-line learning module for best practices in preventing surgical site infections that is easily accessible throughout the province and meets a diverse variety of learner needs. Using an iterative process, with content experts, the writer organized the information into an educational format. Each chapter was then converted into an on-line platform. The course was designed to be interactive using a variety of techniques such as drag and drop technology, animation and video clips. As the learning is self paced, individuals may enter and exit at any point or repeat parts of the course. A diverse group of healthcare providers tested the module. The final product will be shared with health authorities in BC and made freely available on the PICNet website.

**Results:** Tester's feedback was that this course was very interesting, relevant, easily navigated and a very valuable learning tool. All of the respondents learned new information and at least half learned a significant amount of new information.

**Lessons Learned:** Online learning is an excellent tool for providing education to a diverse group of healthcare providers in a flexible, interactive and easily accessible manner. This online learning module provides valuable information to patient care staff and supports nationally acknowledged best practices.

#### A HAIRY TALE - CHAPTER 2: DID OUR INITIAL EDUCATIONAL INTERVENTION IMPROVE PRE-HOSPITAL PRACTICES OF PATIENTS WITH PLANNED CAESAREAN SECTIONS?

Wil Ng, Doreen Alexander, Bonnie Kerr, Man Fan Ho, Kevin C. Katz

North York General Hospital, Toronto, Ontario, Canada

**Background:** NYGH is a large community hospital undertaking ~1,800 c-sections annually. Surgical site infections (SSIs) are associated with increased morbidity, costs, and length of stay. Appropriate/no hair removal is one important aspect of preventing SSIs. A 2008 audit found 41% of patients self-removed hair prior to arrival; 83% of them shaved. Subsequently, the NYGH prenatal Journal was updated (given to all prenatal patients) to discourage hair removal within 1 month of term.

**Methods:** A re-audit was conducted to determine any impact of the intervention. Information on preferred methods to receive messaging was collected. Nursing staff attempted to conduct a standard interview for elective C/S patients in November 2009.

**Results:** The intervention had no impact on the hair self-removal rate (2008: 41%; 2009: 40%). A high proportion of patients removed hair within 1 week before delivery (2008: 87%, 2009: 92%); most did so within 2 days of admission. In 2009, 62% shaved versus 83% (p=0.07), suggesting a trend to other methods. Although only 25% of patients had seen/heard no hair removal messages, they were less likely to remove hair (20% vs 47%, p=0.06). Patients preferred receiving information from their OB/GYN (55%) or reading materials (20%).

**Conclusion:** Our intervention did not have an effect on hair self-removal. Among those who read the Journal, a smaller proportion shaved prior to presentation, suggesting a trend to positive behaviours after reading educational messages. Future prevention strategies will employ a combination of printed materials (e.g. enhanced prenatal books, posters) along with physician education during prenatal visits.

#### ADAPTING THE “JUST CLEAN YOUR HANDS” PROGRAM TO MEET THE NEEDS OF A MENTAL HEALTH FACILITY

Debbie Marsden, Linda Fletcher, Jo-Anne Burt

Ontario Shores Centre for Mental Health Sciences, 700 Gordon Street,

Whitby, Ontario, Canada

Creativity and innovation may be required when applying new programs initially





developed for the Acute Care Setting to a Mental Health facility. "The Just Clean Your Hands" (JCYH) Program, using the "4 Moments of Hand Hygiene" was initiated by the Ministry of Health and Long Term Care (MOHLTC) for acute and tertiary care facilities in 2007. We made three major changes to adapt the Program to Mental Health. First, the JCYH program has the patient bed area defined as "patient environment" where most care is given in acute care. In a Mental Health facility, the patient population is mobile, rarely remaining in their room. The "patient environment" required adaptation to fit our Mental Health care setting where nurses deliver care and have more patient contact away from the bedside. Secondly, with this expanded definition, non clinical staff needed to be included in the program as they may interact with patients in common areas like the fitness centre. Finally it was noted that the pre and post knowledge and perception survey questions did not reflect the type of care given in a mental health facility and some questions were changed. All changes to the program were reviewed and approved by the multidisciplinary "Just Clean Your Hands" working group. Having a different definition for "patient environment", including all staff in the program, and adjusting the survey questions helped staff understand the program and were necessary to implement the program in our Mental Health facility.

#### LONG-TERM CARE TOOL KIT

Nora Boyd<sup>1</sup>, Laura Fraser<sup>1</sup>, Holly Tesselar<sup>2</sup>, Mary Ann Jones<sup>3</sup>, Ashley Marchini<sup>4</sup>, Della Dyck<sup>5</sup>, Michelle Johnson<sup>6</sup>, David Chevalier<sup>7</sup>, Mike Potras<sup>7</sup>

<sup>1</sup>Erie St Clair Infection Control Network, Windsor, Ontario, Canada, <sup>2</sup>Twin Lakes Terrace, Sarnia, Ontario, Canada, <sup>3</sup>Marshall Gowland Manor, Sarnia, Ontario, Canada, <sup>4</sup>Lambton Community Health Services, Sarnia, Ontario, Canada, <sup>5</sup>Sun Parlor Home for Senior Citizens, Leamington, Ontario, Canada, <sup>6</sup>Meadow Park Inc, Chatham, Ontario, Canada, <sup>7</sup>University of Windsor - Nursing, Windsor, Ontario, Canada

**Issue:** Erie St Clair Infection Control Network (ESCICN) Long Term Care (LTC) Committee identified a need for a standardized infection prevention and control orientation for new staff in LTC. Also requested in the toolkit were educational fact sheets on particular micro-organisms, a pamphlet for a pregnant health care provider and information on VRE. Providing standardized educational tools will enhance capacity of the LTC ICP who wears many hats. A survey done province wide by the RICN, found that LTC has the fewest resources for infection control across the healthcare sectors.

**Project:** ESCICN LTC committee shaped work produced by nursing students, determining content and feedback to include. The final product was approved by the ESCICN LTC committee. The tool kit consists of:

- Two 20-minute elearning programs for orienting new staff on chain of transmission and routine practices. Each comes with a post test
- Bug of the Day Fact Sheets on 12 micro-organisms
- Pamphlet on infection control and the pregnant healthcare provider
- VRE Fact Sheet for Family and Visitors
- VRE Fact Sheet for Staff

- Information on hand hygiene is not included since Ontario is rolling out an excellent Just Clean your Hands for LTC this spring. The LTC tool kit has been distributed in Erie St Clair.

**Results:** Evaluation of its use has not been completed.

**Lessons Learned:** Providing resources for LTC has been identified as a need. Evaluation will show whether the toolkit is actually used to enhance capacity and standardize orientation and education.

#### WHAT ARE WE MISSING? INTRODUCING THE WIST POST-DISCHARGE SURGICAL SITE INFECTION (SSI) SURVEILLANCE TOOL IN A PEDIATRIC CARDIAC PROGRAM

Kimberley Allain<sup>1</sup>, Joanne Langley<sup>1,2</sup>, Tracy MacDonald<sup>1,3</sup>, John Finley<sup>1,2</sup>, Sharon McIntyre<sup>1</sup>, Donna King<sup>1</sup>

<sup>1</sup>IWK Health Centre, Halifax, NS, Canada, <sup>2</sup>Dalhousie University, Halifax, NS, Canada, <sup>3</sup>Central Newfoundland Region Health Centre, Grand Falls-Windsor, NL, Canada

**Background:** Post-discharge surveillance (PDS) for healthcare-associated infections in today's healthcare environment may be more important than ever. With shorter hospital stays and increased ambulatory and day surgery, surveillance done only during hospital stays underestimates the burden of illness. Our tertiary care center receives patients from 3 provinces, and post-op care may be provided in local communities. This study investigated the feasibility and effectiveness of PDS through the introduction of the Wound Infection Surveillance Tool (WIST) to post-operative visits within the pediatric cardiac surgery program.

**Methods:** In collaboration with the Pediatric Cardiac Care Team (PCCT) a data collection form was developed, and appended to the health record by PCCT staff on the day of the patient visit. Care is provided at the IWK and in traveling clinics throughout the Maritimes. SSI captured by this method was compared to SSI collected by routine Infection Prevention and Control surveillance.

**Results:** One infection occurred in 52 children between April 1, 2004-March 31, 2005. PDS using the WIST did not identify additional patients not already identified during routine surveillance. The program was feasible and compliance with WIST completion was 61.5%. The project was a valuable opportunity to collaborate with the PCCT.

**Conclusion:** A low incidence of SSI was found. A PDS method employing care team personnel in traveling clinics and in-hospital was feasible. Because of a low incidence of infection, it was concluded that PDS was not an appropriate use of resources at this time. IPCS will periodically revisit the need for PDS.

#### DOES PRODUCT FORMAT IMPACT EFFICACY OF ALCOHOL-BASED HAND HYGIENE PRODUCTS?

Sarah Edmonds

GOJO Industries, Inc., Akron, OH, United States

**Background/Objectives:** Hand hygiene is one of the most important interventions for preventing the spread of hospital-associated infections. Alcohol-based hand



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hygiene products have been recommended by the WHO for use in Healthcare settings. Traditionally these products have been gels, and only recently have foams and wipes been introduced into hospitals. The aim of this study is to determine whether there are differences in the antimicrobial efficacy of alcohol-based hand hygiene products with different formats: gel, foam, and wipe.

**Methods:** Test products chosen were representative of alcohol-based products currently found in hospital settings including a 70% ethanol gel hand sanitizer, a 70% ethanol foam hand sanitizer, and a 62% ethanol hand sanitizing wipe. These products were tested against various standard test methodologies *in vitro*: EN 1275 versus *Candida albicans*, ASTM E 1052 versus 2009 H1N1 Influenza, and a standard Time-Kill methodology (ASTM E 2315) versus various bacteria of importance in hospitals, including MRSA. Products were also assessed *in vivo* utilizing EN 1500 with application of 3 ml of test product for 30 seconds.

**Results:** All products achieved greater than 4 log<sub>10</sub> reduction against all organisms tested *in vitro*. All products met the *in vivo* requirements of EN 1500 and showed equivalent efficacy to the reference product.

**Conclusions:** Performance of ≥62% ethanol hand hygiene products was independent of product format. Alcohol-based hand sanitizing wipes and foam hand sanitizers should be considered as reliable as gel hand sanitizers for the reduction of microorganisms on the hands.

#### AN INFECTION CONTROL POCKET GUIDE: FROM CONCEPT TO COMPLETION

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**Issue:** In early 2007, the South Eastern Ontario Infection Control Network (SEOICN) Hospital Working Group comprised of Infection Control Professionals (ICPs) from area hospitals identified the need for a quick, simple, pocket sized reference tool for front line health care providers.

**Project:** A small working group of hospital ICPs began to collaborate on pocket guide development. Using current provincial or federal guidelines, content was integrated in a concise, easy to read format. A final draft was distributed to the Coordinators, Consultants and Medical Coordinators of the 13 other Regional Infection Control Networks (RICNs) as well as a representative from the Ministry of Health and Long Term Care. Valuable feedback led to several revisions before content was sent to a graphic designer. A print ready draft was distributed for final comment. Printing took place in March 2009. Due to demand; a second print took place in August. To date, nearly 70,000 copies have been distributed to health care workers across the province. Responses to a post-distribution user survey indicated that most found the pocket guide useful, the information clear and the spiral bound format convenient. An online version of the pocket guide is available on the RICN web-site at [www.ricn.on.ca](http://www.ricn.on.ca) and site monitoring demonstrates frequent and steadily increasing access.

**Lessons Learned:** Numerous meetings and revisions were necessary to ensure content was concise, accurate and consistent with guidelines. Feedback on the content, format and acceptability by front line care providers has guided the development of a similar tool for non-acute care settings.

#### INFECTION PREVENTION AND CONTROL RESOURCE MANUAL FOR RESIDENTIAL HOSPICE SETTINGS

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In Ontario the Regional Infection Control Networks (RICNs) have been approached by residential hospice care providers requesting information and education on a variety of Infection Prevention and Control (IPAC) issues. A working group was established to address the expressed needs of the unique health care provider group. As a result an "Infection Prevention and Control Resource Manual for Residential Hospice Settings" has been developed collaboratively between members of the Hospice Association of Ontario, the Regional Infection Control Networks, Public Health Units, and the Provincial End-of-Life Care Network.

It is known that the care in a hospice setting is comfort versus cure oriented, therefore IPAC measures may require a different approach and adaptation based on the resident's and families' needs and wishes. Despite the different focus, basic IPAC practices remain an integral part of safe resident care. Care should include measures to prevent infection transmission between residents, staff, volunteers and visitors while assisting residents and families through the palliative process.

The purpose of this resource manual is to provide hospice Executive Directors, managers, healthcare providers and volunteers practical IPAC information and guidance regarding appropriate practices and activities that will reduce the risk of palliative care residents acquiring and spreading infections.

The oral presentation will be presented by members (to be decided) of the working group using power-point. It will provide the audience an overview of the "Infection Prevention and Control Resource Manual for Residential Hospice Settings" contents while continuing to focus on compassionate, end of life care.

#### EVOLUTION OF AN IPAC HANDBOOK

Helen Gibson, Elise Haley, Ian Davis, Judy McCarten, Alice Brink, Lynda Bowen,

Darlene Heslop, Betty Jean Macdonald, Nicole Saunders

Lakeridge Health, Oshawa, Ontario, Canada

**Issue:** In Ontario, the release of Best Practice documents from Provincial Infectious Diseases Advisory Committee (PIDAC), Core Competencies from Ministry of Health Long Term Care (MOHLTC) and review of Frequently Asked Questions (FAQ) from staff, the IPAC team identified that key infection prevention and control concepts, practices and protocols were not clearly understood and further staff education was required. An additional challenge was to reach out to 3500 staff members within a multiple sited acute care facility to standardize everyone's IPAC practices.

**Project:** To develop an IPAC quick reference handbook which would enable all staff members, regardless of education level, to be confident in making critical thinking decisions based on IPAC policies, procedures and practices' provide information for FAQs; reinforce IPAC education in a fun, readily available, easy to read and of course EYE catching pocket sized format.

**Results:** Positive feedback was received from staff stating that it: reinforced their IPAC knowledge; assisted them in making timely decisions that protected patients, staff and visitors; reinforced the message that IPAC is everyone's responsibility. Increased demand for more copies was achieved through word of mouth both internally and externally (over 60 templates were provided to other health sectors). Visitors and members of the public were requesting copies, however we had to restrict distribution to staff to keep within budget

**Lessons Learned:** Provide a cleanable cover; insert a blank page for staff to include their own tips, notes, or changes.

#### DO THIS! DON'T DO THAT! CAN'T YOU READ THE SIGN?

Virginia Tirilis, Anne Bialachowski, Mark Jefferson, Maureen Cividino, Central South Infection Control Network Education Subcommittee members

Central South Infection Control Network, Dundas, ON, Canada

**Issue:** Stakeholders in our region requested that a working group be struck to develop consistent isolation signage for Acute and Long Term Care Facilities. Patients/residents frequently move between facilities and it was felt that common signage would make the transition easier for them, their families and the healthcare workers who care for them. The signs needed to reflect current best practices from Ontario's Provincial Infectious Disease Advisory Committee (PIDAC).

**Project:** Central South Infection Control Network (CSICN) Education subcommittee requested that all facilities across the region submit samples of their current isolation signs. These signs were used to create 4 prototypes. The signs were sent out with comment forms to 23 Acute Care Facilities and 94 Long term Care facilities. Feedback was incorporated to the prototypes and field tested with front line staff in several facilities.

**Results:** Four isolation signs were developed for use. They included: Contact, Droplet, Droplet/Contact, Airborne. The signs have large pictures rather than words, in an easily understood sequence suitable for staff and visitors to follow with bold defined colours. Instructions on the back of the signs for healthcare providers were important for those facilities with little to no IPAC support.

**Lessons Learned:** Development of common signage generates discussion about current best practice and assists with educating facilities about changes in practice. Familiarity of signs within facilities encourages correct use of personal protective equipment.

#### THE LION AT THE DOOR....PRACTICE IMPROVEMENTS POST-CLOSTRIDIUM DIFFICILE OUTBREAK

Edie McDermott, Sandi Lofgren

Markham Stouffville Hospital Corporation: Uxbridge Site, Uxbridge, Ontario, Canada

**Issue:** In June 2009, the hospital reached Outbreak status for *Clostridium difficile* nosocomial infections on the inpatient unit; our usual rate of 0 cases per month had increased to 5. An Interprofessional Outbreak Management Team was formed and immediately began review of the current practices for infection prevention and control, finding many areas within the hospital needing improvement.

**Project:** The team, which included a Regional Public Health Inspector, used a PIDAC best practices document on the management of *Clostridium difficile* as the template for improvement. Changes were implemented in the areas of pharmaceutical, nursing and environmental management of patients with both confirmed and suspected *Clostridium difficile* infections.

**Results:** Successful management of the *Clostridium difficile* outbreak with the exceptional turnaround time of seven weeks.

#### Lessons Learned:

- Low rates of nosocomial transmission are not to be taken for granted; intentional routine review of patients and their risk factors for CDI and due diligence is required.
- An interprofessional approach is tantamount to managing an outbreak situation, including diligent, consistent application of best practices for infection prevention control by medical, nursing, environmental and administrative staff and also by patients and their families.
- This very challenging time in the life of a small hospital in Uxbridge, ON provided an excellent opportunity to soar to new heights of best practice in the world of infection prevention and control.

#### FOLLOW THE YELLOW DOT AND ARMBAND: A LEAN INITIATIVE FOCUSED ON COMMUNICATION OF TRANSMISSION BASED PRECAUTIONS TO HEALTHCARE PROVIDERS

May Abdalla

Windsor Regional Hospital, Windsor, ON, Canada

**Issue:** Windsor Regional Hospital (WRH) is a 631 bed hospital in Windsor, Ontario with approximately 3000 employees. One of the hospital's strategic directions is to



“embed patient quality and safety in our culture” while providing Outstanding care, no exception. Due to the various types of infections, WRH recognized the need to improve communication of patients’ infectious status in such a way that protects the patient’s privacy, yet at the same time, provides various staff across various departments with enough information to prepare for appropriate patient placement, use of Personal Protective Equipment (PPE), and additional precautions.

**Project:** Two visual identifiers are being used to communicate in a confidential manner that a patient requires some type of transmission based precautions when being care for at WRH. Once a patient is identified as having a potential risk of infection, a yellow admission armband is placed on the patients arm along with a yellow dot placed on the spine of the patient’s chart with letter indicating (C-contact, D-droplet, and A-airborne).

**Results:** The process was aimed to enhance the communication regarding the type of necessary precautions for patients requiring transmission-based isolation. As a result of this new communication process, staffs are able to identify earlier the need to wear appropriate PPE, in turn has reduced our rate of transmission based infections to staff and other patients.

**Lessons Learned:** Outlining and standardizing our communication process system-wide has improved patient and staff safety especially at patient handoffs.

#### INACTIVATION AND STABILITY OF HEPATITIS C VIRUS

Jochen Steinmann<sup>1</sup>, Sandra Ciesek<sup>2</sup>, Martina Friesland<sup>3</sup>, Britta Becker<sup>1</sup>, Joerg Steinmann<sup>4</sup>, Thomas Pietschmann<sup>5</sup>, Elke Steinmann<sup>3</sup>

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**Background/Objectives:** In the absence of a cell culture system for propagation of the Hepatitis C Virus (HCV), the activity of disinfectants against HCV was extrapolated from studies with bovine viral diarrhoea virus (BVDV). The recent development of a HCV infection system allowed for the first time direct assessment of environmental stability and susceptibility to chemical disinfectants.

**Methods:** Inactivation studies were performed in a quantitative suspension assay using cell culture grown HCV. Residual infectivity was determined by end point dilution methods. Thermo stability of HCV was analyzed by incubation of HCV at different temperatures for several days or weeks. HCV RNA levels were analyzed by quantitative real-time PCR.

**Results:** The alcohols 1-propanol, 2-propanol and ethanol reduced the infectivity of HCV to undetectable levels within 1 or 5 minutes at concentrations of 30%, 40% and 50%, respectively. When comparing seven commercially available hand scrubs and rubs with 30 s exposure times, a reduction of virus titres by 6 log<sub>10</sub>-steps was observed with all samples tested. However, diluting the hand disinfectants to a concentration of 10% abrogated the virucidal activity of the alcohol-based rubs. To determine the environmental stability, we assessed viral infectivity and RNA copy numbers by storing HCV at room temperature for several weeks. Each week, viral titres decreased by 2-3 log<sub>10</sub>, and after 28 days viral infectivity was completely lost.

**Conclusions:** This study describes a novel system for the validation of chemical disinfectants active against HCV by analyzing virucidal activity of alcohols and hand disinfectants using a quantitative suspension assay.

#### IDENTIFYING THE GAPS IN INFECTION PREVENTION AND CONTROL RESOURCES FOR LONG-TERM CARE FACILITIES IN BRITISH COLUMBIA

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**Background:** Infection prevention and control (IPC) is a critical, although often neglected, part of long term care (LTC) management. Little is known about what IPC resources are available for LTC and how that impacts patient care and safety.

**Methods:** A random sample of LTC facilities were surveyed regarding leadership, infection control practitioner (ICP) coverage, IPC policies, support through partnerships, surveillance and control activities. All components measured have been identified as key for an effective IPC program.

**Results:** Eighty-six institutions participated. Facilities were compared by region, funding source and ICP coverage. Overall, LTC facilities lacked IPC leadership, especially with regard to physician support. Having no ICP, either on site or through the health region, was associated with poorer scores on all indices. Only 36% of practicing ICPs had more than 2 years experience and only 12% were CIC certified. Twenty-two percent of ICPs had additional roles within the institution and 44% had additional roles outside of the institution. Thirty five percent of institutions had no IPC dedicated budget. Funding source was not a significant contributor to overall quality of the IPC programme.

**Conclusions:** LTC services represent an important aspect of health services, bridging the community and acute care. IPC in LTC has not been paid the same degree of attention as acute care, despite general agreement that infections represent a significant source of morbidity and mortality. These data show that many LTC facilities lack the necessary resources to provide quality infection control programs.

#### OUTBREAK INVESTIGATION: CLOSTRIDIUM BOTULINUM FOOD POISONING LINKED TO HOME CANNING

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In May 2009, two adults from the same family presented to Kingston General Hospital with symptoms of respiratory and gastrointestinal illness. Patient #1 was admitted to the ICU after 17 hours in emergency with an undifferentiated illness of

respiratory distress requiring ventilation. Two days later patient #2 presented with respiratory distress at which time the diagnosis of botulism was considered. Botulinum anti toxin was administered to both cases. A case history was collected from the family. The investigation revealed that the cases regularly consumed home-canned foods. The Ministry of Health and Long Term Care was notified. Public Health Inspectors collected food samples from the home of the cases and the store where suspect food was purchased. Fourteen food samples were submitted to the Botulinum Reference Service in Ottawa for analysis. Subsequent clinical specimens (fecal) were positive for botulinum neurotoxin type B and viable *C. botulinum* type B. Cooked ground beef found in a pot on the stove tested positive for botulinum neurotoxin type B and viable *C. botulinum* type B. However, both cases subsequently denied consuming any of this product. Emergency department personnel need to be reminded that, while rare, cases of botulism do occur sporadically.

#### PATIENT BATHING - IT'S IN THE BAG!

Mark Jefferson, Anne Bialachowski, Virginia Tirilis

Central South Infection Control Network, Dundas, Ontario, Canada

**Background:** Packaged bath products (PBP) have been developed to address issues of patient hygiene. Proposed benefits of these products include reduced bathing time, reduced reliance on basins, soaps, linens and lotions, and reduced chances for cross contamination. Despite these proposed benefits, there is little evidence regarding their routine use for specific patient populations or during outbreaks. The CSICN was approached by a local stakeholder to perform a study on PBP usage in acute care facilities within the network.

**Method:** A survey was created and disseminated electronically to the 21 hospital sites within the CSICN.

**Results:** Facilities routinely used basins as the standard for bedside bathing of patients. Most facilities changed their bedside bathing practices to assist in the control of specific non-outbreak hospital acquired infections (HAI) and for the control of outbreaks of certain organisms. Changes in practice often involve the use of PBP and most often occurred in high risk areas such as ER and ICU departments.

**Conclusion:** A bundle of measures is often used to control an outbreak or the transmission of HAI, making it difficult to identify the impact of a specific measure. However, several facilities indicated that they have evidence that PBP have contributed towards the control of outbreaks and/or towards reducing the transmission of HAI when used routinely within their facility.

Further study is required in order to quantify the impact of PBP on the control of transmission of specific organisms and also may help to clarify the impact of specific bundles of control measures on a variety of outbreak organisms

#### DISCUSSION ABOUT THE EFFICACY OF INTUBATION IN THE PRE-HOSPITAL SETTING AND THE NEED FOR RESEARCH OF INTERMEDIATE OUTCOMES

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The purpose of this paper is to highlight the disparity in the acute care literature on pre-hospital endotracheal intubation (ETI) efficacy, and to emphasize the need for further research to explore the intermediate outcomes of pre-hospital ETI.

Pre-hospital ETI are performed in less than ideal environments, in difficult situations, and with little preparation time and poor sterility. Current evidence about the efficacy of pre-hospital ETI is inconsistent (1-5). Rising first-attempt success rates and falling complications rates for pre-hospital intubations are approaching those of emergency department intubation (2,6-11). However, patients intubated in the pre-hospital setting have a lower survival rates as their emergency department counterparts. Studies suggest that properly intubated pre-hospital patients can survive the initial life threatening event but do not survive the subsequent hospital stay (2,12). Presently the only long-term outcomes that have been extensively studied for pre-hospital patients are death and neurological status (2,10,12,13). There is a paucity of research that describes in-hospital events that alter patient outcomes.

In-hospital respiratory infections, specifically pneumonias, are a quantifiable intermediate outcome that is pathologically important for intubated patients, regardless of initial setting (14-20). Research on nosocomial pneumonias will aid to identify unique characteristics about patients who are intubated in the pre-hospital setting and their propensity to develop in-hospital complications that in turn lead to poorer outcomes. Research in this topic area will be informative for pre-hospital best practice guidelines and in-hospital management of intubated patients.

#### GOING BEYOND PROVINCIAL STANDARDS: IMPROVING IPAC IN REGIONAL EMERGENCY SERVICES THROUGH THE REGION OF PEEL DESIGNATED OFFICER WORKING GROUP

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**Issue:** The Designated Officer Program (DOP) is governed by a legislated protocol of the Ministry of Health and Long-Term Care's Ontario Public Health Standards.

Under this protocol, a member of emergency services (ES) is designated to exchange information with public health concerning exposures of emergency service workers (ESWs) to diseases of public health importance. In the Region of Peel, this has resulted in numerous calls placed after hours to the public health on-call system, suggesting a need for more support for designated officers (DOs) to manage ESW exposures.



**Project:** In 2009, Peel Public Health dedicated one Infection Control Specialist (ICS) to support the DOs of Peel's Police, Fire and Paramedic Services with IPAC issues through the creation of a Designated Officers' Working Group.

**Results:** The collaboration between the regional DOs and Public Health through the Working Group resulted in increased communication and implementation or enhancement of infection control training in all ES. As a result, there has been a significant reduction in after-hours calls to Public Health and the program has been successful in mitigating the fear of front-line ESWs in responding to IPAC issues. A DO-specific training manual is currently in development, with plans to roll-out in the fall of 2010.

**Lessons Learned:** Going beyond the minimum requirements of the Provincial DO program by creating a collaborative DO Working Group between Public Health and regional emergency services is an effective way to increase capacity building and solve mutual IPAC issues.

#### DECOLONIZATION OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) DURING ROUTINE HOSPITAL CARE: EFFICACY AND LONG-TERM FOLLOW-UP

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**Background:** MRSA colonization is associated with risks of subsequent MRSA infection in the hospital setting. The use of decolonization remains highly controversial.

**Methods:** A retrospective cohort study to assess the efficacy and subsequent outcome for patients with new MRSA.

**Results:** 241 patients were identified with MRSA colonization or infection during the study period. Eighty-nine MRSA positive patients were decolonized according to a standardized regimen and 98 received an alternative decolonization regimen. No attempt at decolonization was made for 54 patients. The standardized regimen group demonstrated superior overall successful decolonization compared to the alternative regimen group (67/84; 80%) vs. (48/89; 54%) (OR, 3.3; 95%CI, 1.6-7.1; p=0.0004) and the No Treatment group (4/43; 9%) (OR, 36.9; 95%CI, 11.2-161.7; p<0.00001). The mean observed duration of culture negativity for the subgroup who remained MRSA culture negative long-term was 419 days ± 398 (range 1 - 1817). Successful decolonization occurred in 115 patients and permitted release from contact isolation for 4530 patient-days. The rate of clinical infection with MRSA was significantly lower in the standardized regimen group (16/89; 18%) vs. the alternative regimen group (37/98; 38%) (OR, 0.38; 95% CI, 0.18-0.78; p = 0.003).

**Conclusion:** This study supports reports indicating that MRSA decolonization can be successful both in the short-term and long-term. Decolonization appeared to be effective in a relatively unselected population. Inability to decolonize was most closely associated with failure to use a standardized decolonization protocol. Selective MRSA decolonization may have merits as part of a holistic infection control intervention in hospitalized patients.

#### ANALYSIS OF VENTILATOR-ASSOCIATED PNEUMONIA RATES OVER ONE YEAR IN A TERTIARY-CARE HOSPITAL ICU IN INDIA TO FOCUS ON LABOUR AND COST-EFFECTIVE IC MEASURES

Namita Jaggi

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VAP (ventilator associated pneumonia) supervision programmes involving bundled infection control practices in ICUs do bring the rates of VAP down but are there other factors which also come into play? Is there a uniform diagnostic criteria followed for VAP diagnosis by all clinicians in the ICU. Further, are the infection control practices cost and labor effective?

The VAP rates in the ICU were studied monthly over an entire year from January 2009-December 2009 in a young corporate hospital in India. They varied between 0 and 30.9/1000 ventilator days. The VAP rate for the entire year was 9.7 (22 cases of VAP /2263 ventilator days). The rates per month were correlated with the patient's risk factors, the diagnostic criteria employed for VAP diagnosis and the adherence to the VAP check lists by the ICU staff. In 2 out of the 22 total cases of VAP (9%) in the entire year the duration of ventilation was inappropriate. Average mortality was 8 out of 22 (36.36%). The most effective infection control strategies analyzed were head of bed elevation, subglottic suction and chlorhexidine mouthwashes. It was observed that VAP rates fell to 0 after supervision programmes. The impact of bundled behavioural infection control interventions on VAP rates in the ICU are tremendous. However, risk stratification of patients and establishing uniform diagnostic criteria for the diagnosis of VAP in the ICU for all treating clinicians is essential.

#### SURVEILLANCE MODEL TO EVALUATE PREVALENCE PATTERN OF DIARRHEAL DISEASES RELATING TO ENTAMOEBA HISTOLYTICA IN INDIA

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Diarrheal diseases have been a serious concern in the developing countries where this illness has historically caused numerous deaths, severe health conditions and constraints on economic, health services and social constructs. Various factors play major roles in such a health disaster and among these, and Entamoeba histolytica infection is considered a primary cause. Its prevalence patterns vary by

geographical regions; though confined compartments with sporadic occurrence are observed as well. Around 100,000 deaths and 500 million people being infected annually have been reported by World Health Organization as an outcome of Entamoeba epidemiology. Present available data has not been sufficiently developed for evaluating the infection prevalence and factors associated with it. Study has been conducted to develop a surveillance model for the Indian States based on demography, gender, age groups, community hygiene level, environment, education program; and healthcare services as key parameters to compare Entamoeba prevalence. GIS, national health data, regional health reports and statistical methodologies have been utilized for data evaluation. Recent investigation demonstrated significant revisions of annual disease occurrence trends with population and economic shift, deficient healthcare state in particular areas, susceptible age groups. A model has been developed to demonstrate representative Entamoeba prevalence pattern with significant regional factors. This model provides comparative information for disease prevalence to improvise intended preventive and healthcare resources. This model is being further assessed to broaden the coverage and be utilized for surveillance in wider regional and geographical segments with locally prevailing events.

#### EARLY ENVIRONMENTAL INFECTION CONTROL RISK ASSESSMENT MAKES HEALTH CARE FACILITIES SAFER PLACES DURING CONSTRUCTIONS AND RENOVATIONS

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The center of disease control guideline for Environmental Infection Control (EIC) in healthcare facilities indicated that environmental disturbance caused by construction and/or renovation and repair activities (e.g. removing ceiling tiles, structural repairs) in and around healthcare facilities markedly increase the airborne Aspergillus species. Renovation, refurbishment, remodeling or constructional maintenance activities are taking place almost in every running hospital in the Middle East region now a day in order to meet emerging robust regulations mandate and accreditations requirements. EIC is a methodology used as a key performance indicator to protect different patient risk groups, workers, and visitors and foster multidisciplinary team approach. The purpose of this project was to review literature, accreditations requirements, identify benchmarks and stakeholders, collect data, introduce EIC risk assessment tool, design EIC database, monitor progress, analyze data and highlight lesson learned.

#### QUALITY INITIATIVE AT THE OTTAWA HOSPITAL: STRIVING FOR SUSTAINABLE IMPROVEMENT IN INFECTION PREVENTION AND CONTROL PRACTICES

Michele Larocque-Levac<sup>1</sup>, Virginia Roth<sup>1</sup>, Kathryn Suh<sup>1</sup>, Alison Dugan<sup>1</sup>, Linda Hunter<sup>1</sup>, Glendon Farley<sup>1</sup>, Danielle Jussiaume<sup>1</sup>, Elaine Lariviere<sup>1</sup>, Pascal Lavigne<sup>1</sup>, Judy Macleod<sup>1</sup>, Kelly Meikle<sup>1</sup>, Shawn O'Grady<sup>1</sup>, Diane Paquette<sup>1</sup>, Alain Prud'Homme<sup>1</sup>, Teresa Seguin<sup>1</sup>, Josee Shymanski<sup>1</sup>

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**Issue:** From 2004-2008, 2 medical units experienced 7 MRSA outbreaks and involving 79 patients, and 4 C. difficile outbreaks involving 15 patients.

**Project:** A quality improvement project was undertaken by a multidisciplinary group. Priorities were identified and an affinity exercise determined three goals: 1. Identify areas for improvements related to existing infection control practices. 2. Develop processes to improve these practices. 3. Reduce nosocomial transmission of these pathogens. Members worked in subgroups to identify objectives, tasks and activities, and indicators for success.

**Results:** The subgroups developed a systematic method to estimate isolation gowns required over a 24-hour period for in-patient units, Standard Operating Procedures for cleaning and storing rolling stock with an audit process, a process to identify adequate supply and cleaning of reusable equipment for all in-patient units, a staff and visitor friendly poster to demonstrate donning and removal of personal protective equipment, and improved communication to off unit services of the patient's isolation status through electronic systems. A screening tool with criteria for isolation is now completed prior to the patient's transfer from the emergency department. There have been no further MRSA or C. difficile outbreaks on these units.

**Lessons Learned:** Participation of a multidisciplinary group and support from senior management were crucial for the success of this project. Creating a color picture base poster demonstrating donning and removal of PPE facilitated interdisciplinary comprehension and compliance for all staff. Allowing for self directed improvements in the Emergency Department lowered barriers to changing practices.

#### APPLICATION OF TINCTURE OF CHG AND CARE BUNDLE REDUCES SSI RATES IN CARDIAC SURGERY

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**Issue:** Despite optimal antibiotic prophylaxis and povidone iodine surgical site antiseptics, SSI rates remained in the 2-3 % range during 4 years of surveillance. Chlorhexidine, Tincture of Chlorhexidine and a care bundle were introduced to determine if rates could be further reduced.

**Project:** The Cardiac Surgery Program at the Foothills Hospital performs ~950 cardiac surgery procedures/year. A multi-faceted approach was taken, including: 1) audit of the clinical environment 2) adoption of protocol using a Sage Product 2% chlorhexidine gluconate impregnated Preoperative



Preparation cloth; 3) change to 2% chlorhexidine gluconate tincture as OR skin prep, 4) change to post-operative patient bathing with Sage Comfort Bath while in CVICU, on the ward a clean basin each day, or a low level disinfected sink, and; 5) wound care practice changes including daily dressing change using aseptic technique until all invasive lines are out, and wound is healed. Targeted staff education, based on the audit's identified areas for improvement, and monthly SSI reports were produced for timelier feedback.

**Results:** Prior to the tincture of CHG bundle, over a 4 year period, the mean sternal deep/ organ space infection rate / 100 procedures was 139/4420 procedures (3.1%); after the introduction of the bundle, the rate was reduced to 6/818 procedures (0.8%),  $p=0.0002$ .

**Lessons Learned:** Standard prior accepted SSI rates can be further reduced by better pre, intra and post-operative interventions. Tincture of CHG pre, intra and post operatively is associated with lower SSI rates.

#### CONGENITAL RUBELLA EXPOSURE IN A NEONATAL INTENSIVE CARE UNIT (NICU)

Victoria Williams, Sandra Callery, Mary Vearncombe  
Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

**Background:** Congenital rubella syndrome is rare in Canada since immunization became routine in the 1970's. In August 2009 a premature infant in the NICU at Sunnybrook Health Sciences Centre (SHSC) tested positive for rubella specific IgG and IgM on day 37 of life with reporting to Infection Prevention and Control (IP&C) delayed to day 45.

**Methods:** Representatives from the perinatal program, IP&C, occupational health and safety, risk management, public affairs and public health (PH) collaborated to determine the extent of the exposure and implement the necessary steps to protect susceptible patients, staff, and family members. Actions taken included: droplet and contact precautions for the infected infant, cohorting of exposed infants, review of staff rubella immunity, and development of a communication strategy.

**Results:** Exposure occurred for seven days in the level two, and 39 days in the level three units before precautions were instituted. 39 infants were exposed; 17 remained in the unit and were cohorted until 21 days after the last exposure. Additional exposed infants had been discharged home (11) or to another facility (11). No symptoms of rubella were reported in exposed infants during the follow-up period. Record review confirmed that all potentially exposed staff had rubella immunity. Communication included direct conversations between neonatologists and IP&C at SHSC and receiving facilities and a letter to families prepared jointly by PH and SHSC.

**Conclusion:** Earlier testing for congenital rubella and prompt reporting to IP&C would have minimized the extent of exposure. Coordinated communication issued by SHSC and PH minimized anxiety.

#### PPE, PERSONNEL AND PANDEMICS: IMPACT OF H1N1 ON PERSONNEL AND FACIAL PROTECTIVE EQUIPMENT USE

Melanie Murray<sup>1,2</sup>, Jennifer Grant<sup>1,2</sup>, Elizabeth Bryce<sup>1,2</sup>, Paul Chilton<sup>2</sup>, Leslie Forrester<sup>1,2</sup> <sup>1</sup>University of British Columbia, Vancouver, BC, Canada, <sup>2</sup>Vancouver Coastal Health, Vancouver, BC, Canada

**Background:** Estimates for stockpiling of facial protective equipment (FPE) and impact on personnel during a pandemic varied prior to pandemic H1N1 (pH1N1). This report describes the impact of pH1N1 on FPE use and hospital employee absenteeism.

**Methods:** Data was collected on all persons with influenza like illness (ILI) admitted to Vancouver Coastal Health Region facilities (VCH) between June 28 and December 19, 2009. Patient data and FPE use were recorded prospectively. Salaried employee absenteeism and reason for absence was recorded from August 1, 2009 until December 19, 2009.

**Results:** During the study period, 853 patients with ILI were admitted to VCH of whom 180 (21%) were laboratory confirmed pH1N1 cases. Confirmed patients stayed 8.90 days on average, (average stay in ICU = 9.2). A total of 134 281 masks and 173 145 N95 respirators were used during the 24 week epidemic; double the weekly consumption of both items compared to the previous flu season. A ratio of 3 masks to 4 respirators was observed. Disposable eyewear consumption also doubled. Absenteeism mirrored the community epidemiologic curve with a 260% increase in sick calls at the epidemic peak when compared with the nadir.

**Conclusion:** Overall FPE use more than doubled compared to the previous influenza season, with respirator consumption exceeding literature estimates. A significant proportion of FPE resources were used while managing suspect cases. Planners should prepare for at least a doubling in mask and respirator use, and a 3.6 fold increase in staff sick calls.

#### CLEAN HANDS ARE CARING HANDS

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

**Issue:** Each year 250,000 Canadians contract a Healthcare Associated Infection (HAI) and of those 8000 to 12,000 die. The objectives of the Hand Hygiene Initiative were to remove barriers of hand hygiene (HH), to increase HH compliance rate of health care providers (HCPs) and reduce healthcare associated infection (HAI) rates within the Interior Health (IH) region in British Columbia, Canada.

**Project:** An internally conducted literature review of HH practices helped to inform the initiative and develop an observational tool to audit HH practices among HCPs. During the first year, infection control staff monitored audit results conducted before and after staff education strategies (new HH posters, on line education, on site education sessions) were implemented. In the second year, a "train the trainer" module helped nurses and respiratory staff in ICUs facilitate the audit tool and

implement additional education to peers.

**Results:** The HH compliance rate in the first year started at 45% and increased by 12%. HH was still only being done appropriately 57% of the time. During the second year, ICUs were targeted due to the greater risk the patients had of acquiring HAIs. The pre audit HH compliance rate averaged 40% and increased to 70% by the end of the 6 month imitative implementation.

**Lessons Learned:** By building on the capabilities the staff already have through peer to peer observations, education and feedback, the barriers to HH practices have been reduced and resulted in a significant increase in HH compliance rates through a "changed practice culture".

#### RIBOTYPE 27 AS A DISCRIMINATING MARKER FOR THE SEVERITY OF CLOSTRIDIUM DIFFICILE INFECTIONS

Faraan Khan, J Swart, C Hettiaratchi, H El-Mugamar, R D'Souza  
Barnet and Chase Farm Hospital, London, United Kingdom

Between 1982 and 1992, laboratory reports to the Communicable Disease Surveillance Centre (CDSC) in England and Wales increased from 121 to 1681 cases per year. The emerging Clostridium difficile (CD) Ribotype 027, has been reported across the world and thought to be a more virulent strain associated with a more severe infection. We looked at whether Type 027 was associated with severe CD infections (CDI) according to the British Department of Health severity score.

We retrospectively collected epidemiological data from the medical records of patients confirmed to have stools positive with CD toxin from 20 February to 10 August 2009 admitted to a London District General Hospital with ribotyping performed on the stool specimens.

27 patients were included in this study, 63% female and 37% male. 19% of patients had mild CDI, 59% had moderate CDI and 22% had severe. 44% of patients had type 027. 50% of patients with type 027 were classified as severe disease according to the DHSS. 42% were classified as moderate and 8% were classified as mild. Of the Non-027 cases, 0% were severe, 73% were moderate and 27% were mild in severity.

Type 027 is a virulent strain in patients seen in the UK, but larger studies need to be performed to validate this finding. If this is confirmed, then ribotyping should be performed in all patients diagnosed with CD and this subset of patients treated more aggressively.

#### HEALTHCARE ASSOCIATED INFECTIONS AT BC CHILDREN'S HOSPITAL: 2004-2009

Jun Chen, Bonnie Anderson, Rita Dekleer, Marney Hunt, Ghada Al-Rawahi, Simon Dobson, Louise Holmes, Maja Horgas, Robyn Hunter, Eva Thomas  
PHSA Infection Prevention and Control Service, Provincial Health Service Authority, Vancouver, Canada

**Background:** Monitoring trends of healthcare associated infections (HAI) helps to inform decision makers and drive prevention strategies. Recent years the focus has been on MRSA and *C. difficile* as target performance indicators. However, other HAIs associated with considerable morbidity and mortality may also be important quality indicators.

**Objectives:** This study is aimed at (1) describing the overall trends of occurrence of HAIs at BC Children's Hospital and (2) describing these events with respect to the nature of organisms and sites of infection.

**Method:** We used the CDC definitions for HAI and all cases were identified by ICPs through daily rounds and significant laboratory findings. Additional patient information was collected and entered into an ACCESS-based palm system.

**Results:** During the 2004-2009 periods, 1193 HAIs were recorded from 694 admitted patients. The HAI occurrence rate per 100 hospitalization days had declined by 25% from 0.8 in 2004 to 0.5 in 2009. Among all HAIs, bacteraemia (34%) was the most common cause, followed by UTI (15%), SSI (15%), and respiratory tract infections (15%). Coliforms account for 24% of all reported HAI; MSSA and *Staph. epidermidis* are responsible for a further 24%, and *C. difficile* and MRSA represent 9% and 1% respectively.

**Conclusion:** Our data shows a reduction in HAI rates over the last 5 years. However, it should be recognized that surveillance can only provide limited information and that well-designed epidemiological studies are required to improve our understanding of the factors underlying HAIs trends and identify effective prevention strategies.

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## MAKING THE MOST OF YOUR EXHIBIT HALL EXPERIENCE

By Judi Linden, Cathy Munford, and Sarah Kipling

### TIME MANAGEMENT

Once you have registered for a conference, organizing your time at the event will ensure that you get the most out of your experience. Before you leave home, review the conference agenda and outline a schedule for yourself including the following:

- Registration
- Must-attend official events, including social events
- Must-attend presentations; where and when
- Committee meetings if you have any
- Private meals or meetings
- Must-see exhibits/exhibitors.

### PLAN AHEAD

Prior to the conference, do some investigation. For example, are any contracts coming up soon at your facility? Are you having any issues with certain products or procedures that a company might be able to help you with? Are there some new technologies you'd like to learn about? Have you been trying to find a particular product or service? Ask your colleagues who are unable to attend the conference if there's any information they'd like you to gather for them or perhaps they've heard of something new that might be valuable.

In terms of vendors, it's important to find out who will be there in advance, and prioritize where you would like to spend your time. Consider visiting vendors you already know to find out if they have any new products or services you may be able

Once you've seen all of your prioritized companies, take the time to at least briefly visit all other exhibitors. Even if you are not interested in the product now, it is good to get the information and have it on file. You may find be able to use this information to solve a problem long after the conference is over.



to benefit from, as well as visiting vendors you'd like to know more about. Dedicate several blocks of time to visit the exhibit hall to cover all the bases.

### THE EXHIBIT HALL

Don't forget about comfort and practicality. Wear comfortable shoes. You will do a lot of walking and will spend much of the day on your feet. Carry a practical bag that can be worn over the shoulder to keep your hands free. Bring several pens and a highlighter as well as a small notepad. Carry a supply of business cards – you never know who you will meet. Consider bringing a wallet insert or business card organizer to file the cards you gather. A great tip is to make notes directly on each card when you receive it. Bring some sticky notes to write notes to yourself on literature as you receive it. Bring a water bottle to refresh yourself as you may find yourself talking a lot.

We recommend that your first trip into the exhibit hall starts with a complete walk through, without stopping. Get a feel for where things are, and which companies you definitely want to visit. Make a mental map of the route to cover everything of interest as well as others that you may not know much about.

On your second trip visit your list of must-see exhibitors. When you visit each vendor, take the time to find out who your local representative is, and get their contact information, as you may realize you've forgotten to ask something when you get home. Take the time to fill in a lead form, as this can be a great way to find out about new technologies when vendors communicate to their customers.

Once you've seen all of your prioritized companies, take the time to at least briefly visit all other exhibitors. Even if you are not interested in the product now, it is good to get the information and have it on file. You may find be able to use this information to solve a problem long after the conference is over.

### TALKING WITH EXHIBITORS

Plan a list of questions for exhibitors in advance. Be sure to raise any concerns you have about specific products or services. This is an excellent opportunity to meet with some of the management and other head office personnel you would not typically see at your facility.





Don't forget to thank these companies for coming to the conference and supporting CHICA-Canada. Without them we could not do many of the things that we do including putting on wonderful educational events.

Remember that companies truly value your questions and feedback. Do not hesitate to ask vendors for help with issues you are experiencing. Many of them have resources available that you may not be aware of.

Be prepared to discuss your needs including who your clients are. Describe your problems. Mention price points if they are applicable. Ask for references

where their products are used. Providing this background information will assist the exhibitor to frame their responses to meet your needs.

Many companies send the same representative each year. Make sure you say hi to those you recognize. Also let the companies know that you have had their reps into your office and that they represented the company well. Don't forget to thank these companies for coming to the conference and supporting CHICA-Canada. Without them we could not do many of the things that we do including putting on wonderful educational events.

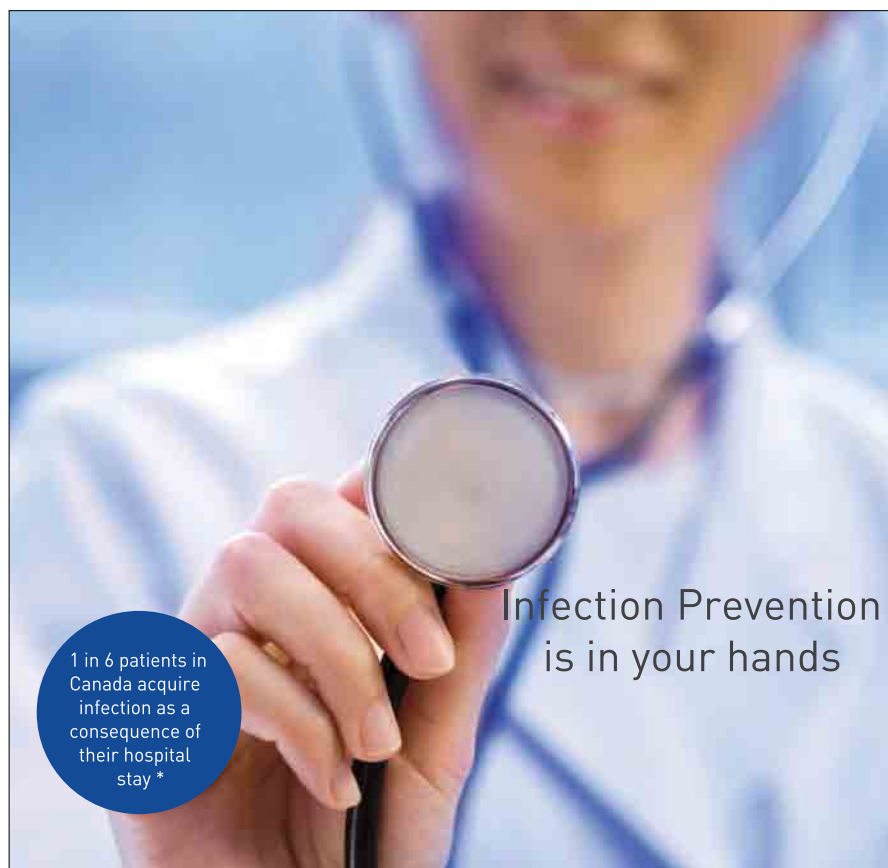
#### SAMPLES AND LITERATURE

Do not take brochures that you know will be promptly discarded. Between 60-85% of all material picked up at exhibits is discarded! Take with you only the most important brochures, or request that information be mailed to you after the conference. This will also save room in your luggage. The same goes for samples. Also beware that some products may not be suitable for taking on an airplane. Unless it is something small that you are certain can travel well, it is probably best to ask exhibitors to send you a sample of something you are interested in.

#### BREATHING ROOM

Leave yourself some breathing room. You will meet new people, make new relationships and your opportunities will be endless – enjoy the experience. Remember, you don't need to see everyone the first day. Plan well, take your time and have fun. Exhibit halls can be just as educational as the conference sessions.

Have you set your goals yet? If they're in your head and not on paper, you haven't done it.



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\* McGeer, A (in press). (2008). Hand Hygiene by habit. *Ontario Medical Review*, 75(3).

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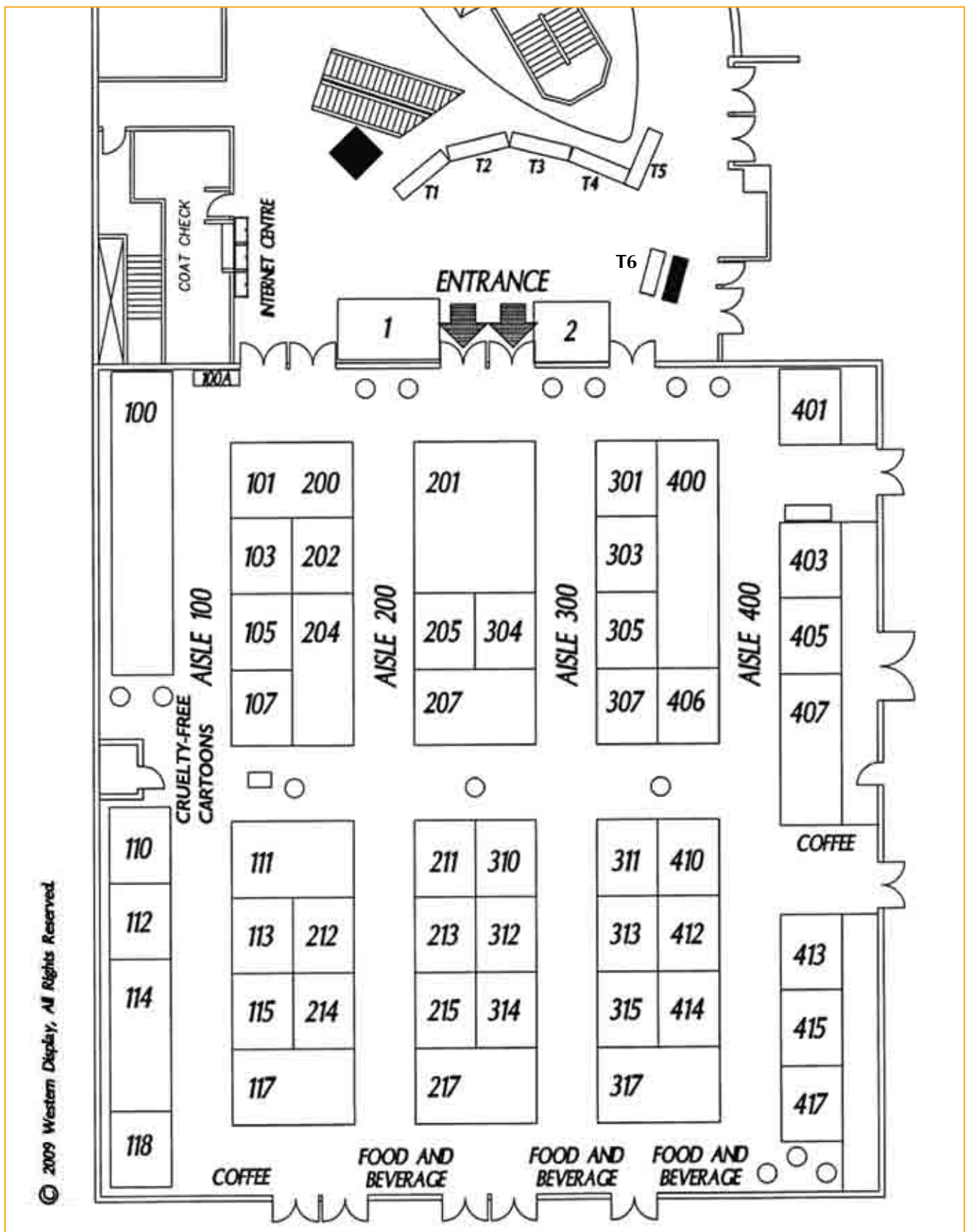


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110	<b>Provincial Infection Control Network of British Columbia (PICNet)</b>
304	<b>Professional Disposables International, Inc. (PDI)</b>
R13	<b>Public Health Agency of Canada</b>
R14	<b>Regional Infection Control Networks of Ontario (RICNs)</b>
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# The audit process: Part I Pre-audit preparation

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## ABSTRACT

Infection prevention and control audits are an important element in the achievement of a health care setting's patient safety goals. The successful audit can result in enhanced partnerships between infection control professionals and other departments and services in the organization, implement change and lead to continuing improvement in outcomes for patients/residents and staff. In this first part of the *audit process*, the preparation leading up to the actual administration of the audit is described.

**Key words:** Audit; infection control; quality; patient safety

## Acknowledgements

All images reproduced in this series of articles are original designs developed by the CHICA-Canada Audit Toolkit Working Group.

## INTRODUCTION

The current health care environment has placed increased emphasis on the use of audits to measure the implementation of policies and procedures relating to infection prevention and control. Key indicators form part of the monitoring of safer healthcare (1-3). Government agencies that develop infection prevention and control guidelines (4), as well as accreditation bodies (5), have highlighted the value of audit tools.

The data derived from audits can be used to direct the infection prevention and control (IP&C) program's annual goals and objectives. It also will assist in meeting the needs of the health care setting in relation to IP&C standards and safer health care practices. The infection control professional (ICP)

The infection control professional who undertakes audits will act as a role model and change agent.

who undertakes audits will act as a role model and change agent (6).

The Community and Hospital Infection Control Association-Canada (CHICA-Canada) developed and published an IP&C audit toolkit for use in healthcare settings in 2005 (7). Additions and revisions to the original 14 audits were deemed to be of utmost urgency to address changes relating to IP&C practice. The CHICA-Canada Programs and Projects Committee led the development and revisions of the original audit tools, as well as tools donated by CHICA-Canada members and interest groups for addition to the toolkit.

During the re-development of the audit toolkit, it became apparent that the actual *audit process* required definition and development, as a guide to ICPs when carrying out the audits. This series of articles will document the steps required before an infection prevention and control audit is administered.

In this first instalment of the *audit process*, the initial steps required prior to administering the audit are reviewed. Subsequent instalments will look at the selection of elements to be used in the audit tool (the criteria to be audited) and the follow-up process once the audit has been completed.



## METHODS

### The audit process

An IP&C audit is a systematic, quantified comparison of practice against established standards of current best practice in order to improve patient care and outcomes (8). The requirement for auditing IP&C in healthcare has always been present but has become critical in recent years as programs strive to achieve their patient safety goals. It is envisioned that IP&C teams will plan and prioritize the use of the audit tools based on a review of their program goals and objectives, specific policies and in response to clinical incidents.

The *audit process* fills the gap between policy and practice (9). Stages in this process include setting standards, testing practice against these standards, providing results and constructive feedback to those audited, correcting practice where it falls short and re-testing to ensure that the standards are now being met. Modification of practice and subsequent demonstration of improvement in patient outcomes “closes” the audit “loop”. This cycle is repeated until the chosen criteria are fulfilled and outcomes are satisfactory. The *closing the loop* process will be discussed in more detail in Part 3 of this series.

### Planning the audit program

Pre-audit preparation is essential to the success of the *audit process* (Figure 1). Before carrying out the audit, an auditor must be chosen (and trained if necessary) and the area/department to be audited is determined; an approved audit method is established; and the criteria to be audited are selected. Criteria (or *elements* of the audit tool) are based on accepted standards and best practices in the area to be audited. Once these steps have been completed, the audit may be administered.

An IP&C audit includes three components: document reviews, staff interviews and observational tours. The CHICA-Canada audit tools evaluate these components individually, but it is understood that they all function collaboratively to improve the quality of client/patient/resident care and

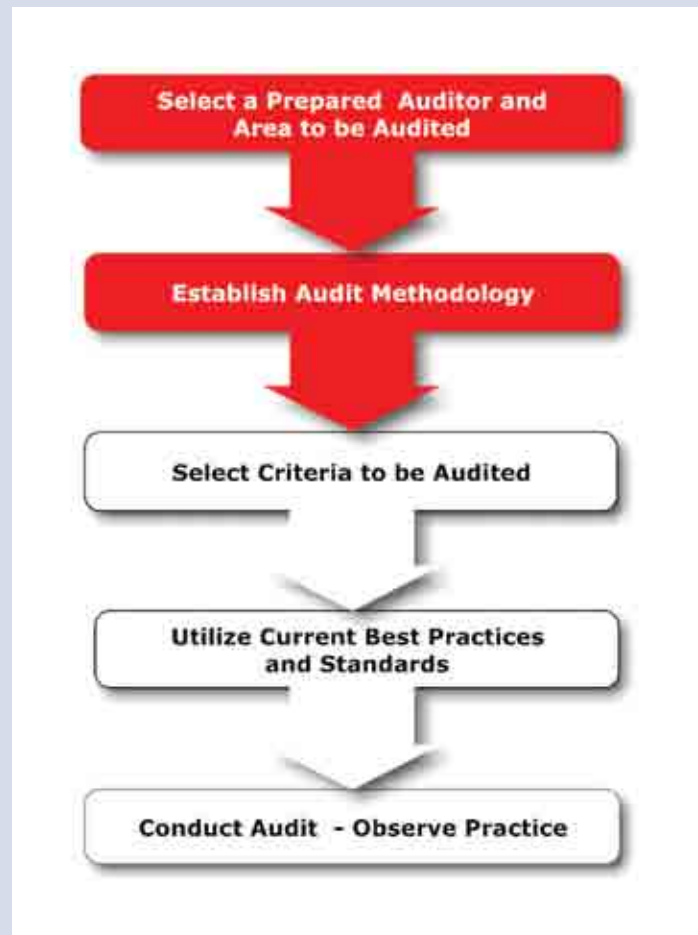
occupational health and safety issues for staff. All three components serve to ensure that staff are aware of the documentation and, in fact, perform their duties in accordance with all of these components:

**1. Document review:** Audit tools can be used to focus on performance targets and practice standards that have been set in the practice setting. The document review ensures that there are appropriate, current policies, procedures and processes in place relating to IP&C. If the facility’s guidelines are inadequate, short comings should be addressed and rectified before the audit proceeds.

**2. Staff knowledge assessment:** Prior to any observations in the workplace, there should be an assessment of staff knowledge regarding the application of IP&C principles while carrying out their duties. The auditor may collect this information with a questionnaire or from staff interviews.

**3. Observational tours:** An audit is not an inspection that looks for specific hazards, rather it is a review designed to identify strengths, weaknesses and opportunities for improvement. The auditor will objectively gather information by directly observing practice, validate the facts, and then compare them to standards used to measure infection

Figure 1: Initial steps in pre-audit preparation



prevention and control practices. If practice is faulty, an educational programme should be introduced to improve training and awareness before re-auditing (8).

### The auditor

The auditor will objectively gather information, validate the facts and then compare them to the standards used to measure infection prevention and control practices. The primary goal is to help improve the infection prevention and control program. The auditor must ask specific questions and obtain knowledge about a health care setting/service provider.

The auditor must possess the following skills:

- good interpersonal communication
- knowledge and understanding of the elements of the audit tool
- ability to analyze data
- ability to observe and assess practice
- possess a strong code of conduct: confidentiality, completeness, accuracy and disclosure

### The audit method

The steps in carrying out a successful audit include:

#### 1. Prepare for the audit:

- a. contact key participants to coordinate activities
- b. obtain background information, e.g., infection prevention and control manual, work practices/procedures
- c. organize a preparation meeting to discuss the audit process

#### 2. Audit procedure:

- a. utilize an audit tool
- b. review documentation
- c. perform an observational tour
- d. interview staff
- e. compare activities to best practices

#### 3. Post audit:

- a. complete summary score sheet
- b. determine recommendations
- c. retain a completed copy for reference purposes
- d. meet with stakeholders and provide draft copies
- e. discuss findings and recommendations


- f. revise as required for final approval
- g. prepare a final report including all recommendations

#### 4. Follow-up:

- a. forward a copy of the final report to the appropriate person(s)
- b. prioritize action items with management endorsement
- c. ensure action items have timelines for completion
- d. set a date to re-audit

## DISCUSSION

It has been noted that the scope of the infection control practitioner's activities must change from a traditional task orientation to facilitation of a problem-solving process (10). This goal may be accomplished through process surveillance(9) and the use of audit tools.

IP&C audits present an opportunity to promote IP&C activities in partnership with the facility's multidisciplinary teams. For IP&C departments with limited resources, auditing, in combination with effective education, is a practical way of monitoring standards and influencing change (11). With its focus on patient and health care worker safety, infection prevention and control is very well positioned to promote and carry out IP&C audits as part of a program of process surveillance in the health care setting, leading to continuing improvement in client/patient/resident outcomes. 

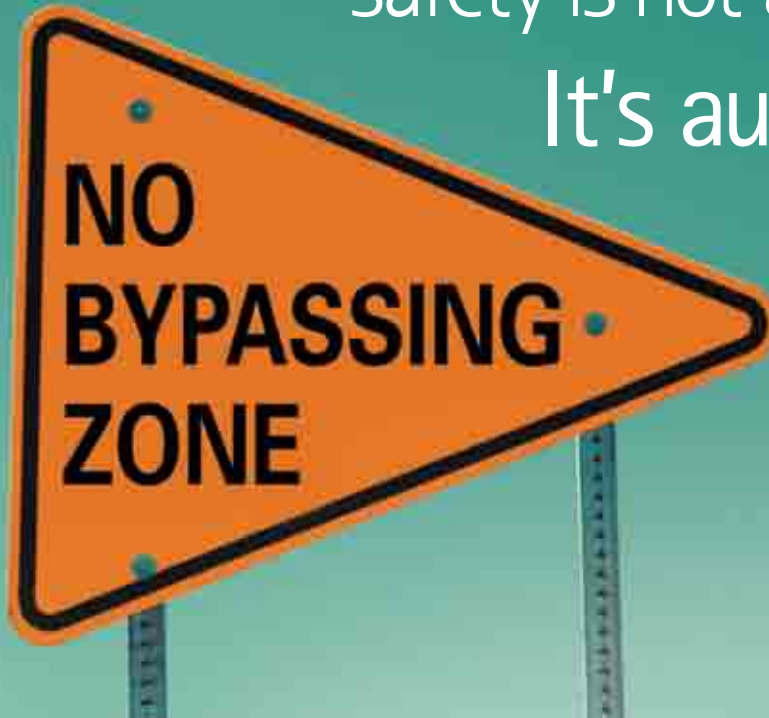
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CHICA-CANADA

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<sup>1</sup> Keshava A, Benwick A, Stewart P, Pilley A. A nonsurgical means of fecal diversion: the Zassi Bowel Management System. *Dis Colon Rectum*. 2007; 50:1017-1022.

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Anne Bialachowski, RN, BN, MS, CIC

President, CHICA-Canada

## Achieving gold in infection prevention and control

**W**e have come to expect the unexpected in infection prevention and control (IPAC) and 2009 did not disappoint.

It was an eventful year with the long-anticipated influenza pandemic that began in the spring and a concurrent major economic downturn affecting nations around the world. In January 2010, I found myself reflecting on the amazing work of presidents who have come before me. They have set the bar high and I know that 2010 will be a challenging and rewarding year. I will work with the board to continue to operationalize the strategic plan developed last year and ensure that CHICA-Canada is a strong and vibrant organization that can easily meet the challenges that will surely come our way.

Our annual conference this year will be held in Vancouver, the host city of the Olympic and Paralympic Winter Games. The Olympics were an amazing spectacle and I was captivated by the performances of our Canadian athletes who made us so very proud to be Canadian. Listening to their interviews, we heard of their personal sacrifices and the tremendous effort required to achieve success. Many spoke of the support of their teammates, coaches, family, and sport organizations that were critical to achieving their goals.


Many of the requirements needed to become a top athlete are similar to those required to be an excellent ICP. They need preparation, opportunities for on-going development, support of their organization, access to mentors and connection to a strong national organization. At its annual conference, CHICA-Canada attracts the best in IPAC to share knowledge, research and best practices. The 2010 National Education Conference with the theme of *Golden Opportunities... Soaring to New Heights*, offers infection prevention

and control professionals (ICPs) golden opportunities to learn and share with one another, celebrate successes, discuss opportunities for improvement and network with their Canadian and international peers.

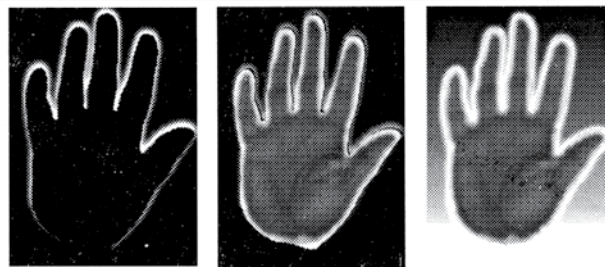
I would like to thank the conference planning committee who has developed a dynamic schedule of education sessions and networking opportunities that incorporate the many facets of IPAC while meeting the diverse needs of our membership. The Network of Networks interest group will hold its first meeting as an official interest group during the interest group and committee meeting day. This year the Novice and Advanced Practitioner days will include an interactive lunch. Participants in the workshops will have the opportunity to enjoy lunch and one-on-one discussions with CHICA-Canada's leadership team. The board of directors, chapter presidents and scientific program committee will be available to share their experiences and encourage discussion with

attendees who join them at their tables. A new award sponsored by 3M called, "Champions of Infection Prevention and Control", will be launched.

We are certain to have a wide variety of oral and poster presentations from numerous healthcare sectors. We have also had a tremendous response from industry this year and the exhibit hall is completely booked.

Last but not least there are some excellent special events planned. After the enormous success of the "Rally in the Alley", last year in St John's there was tremendous pressure to top that. The main event this year is a Sock Hop and early reports say that it will match or top last year's main event. Come prepared with your best *Happy Days* outfit. For those among you who are skeptics about the networking opportunities that these social events provide I encourage you to attend. You won't be disappointed. I look forward to seeing you at the conference! 

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Anne Bialachowski, RN, BN, MS, CIC

Présidente, CHICA-Canada

## Décrocher l'or en prévention et contrôle des infections

**E**n prévention et contrôle des infections (PCI), nous sommes habitués de prévoir l'imprévu. À ce chapitre, 2009 ne nous a pas déçus. Ce fut une année fort remplie, notamment en raison de la pandémie de grippe tant attendue, qui a commencé au printemps, et d'un ralentissement économique marqué, qui a affecté les nations du monde entier. En janvier 2010, lorsque j'ai entrepris mon mandat à titre de présidente de CHICA-Canada, j'ai pris un temps d'arrêt et pensé au travail extraordinaire qui avait été accompli par mes prédécesseurs. Ils et elles ont placé la barre bien haut et je sais que 2010 sera une année à la fois exigeante et valorisante. Je travaillerai de concert avec le conseil d'administration pour continuer de concrétiser le plan stratégique élaboré l'année dernière à Terre-Neuve-et-Labrador et de voir à ce que CHICA-Canada soit une organisation

J'aimerais remercier le comité de planification du congrès qui a concocté un calendrier comprenant des séances de formation stimulantes et des activités de réseautage sur les nombreuses facettes de la PCI tout en répondant aux besoins variés des membres.

dynamique qui pourra facilement relever les défis qui ne manqueront pas de se présenter en 2010 et après.

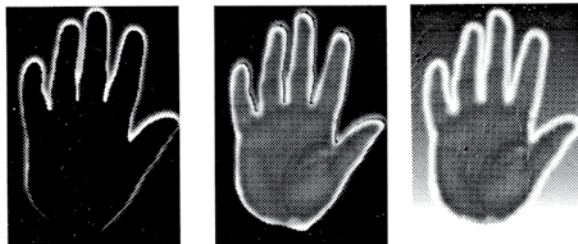
Cette année, notre congrès annuel aura lieu à Vancouver, ville hôte des Jeux olympiques et paralympiques d'hiver. Ces Olympiques ont offert un spectacle formidable et j'ai été captivée par les performances de nos athlètes canadiens. Ils nous ont rendus vraiment très fiers d'être Canadiens. En les écoutant en entrevue, nous avons découvert les sacrifices

personnels et les efforts incroyables qui ont mené à leur réussite. Nombre d'entre eux ont évoqué le soutien des coéquipiers, des entraîneurs, de la famille et des organisations sportives, autant d'éléments essentiels à l'atteinte de leurs buts. L'excellence et les qualités de ces compétiteurs de haut niveau ont encouragé d'autres athlètes moins expérimentés à tendre vers de nouveaux sommets de performance.

Bon nombre des critères à remplir pour devenir un athlète de haut niveau ressemblent à ceux qui font un excellent professionnel en PCI. Il faut de la préparation, des occasions de perfectionnement continu, le soutien d'une organisation, l'accès à des mentors et l'appartenance à un organisme national. À son congrès annuel, CHICA-Canada attire les meilleurs professionnels en PCI afin qu'ils mettent en commun leurs connaissances, leurs travaux de recherche et leurs pratiques exemplaires. Le congrès national de formation 2010 a pour thème Golden Opportunities... Soaring to New Heights (Occasions en or... vers de nouveaux sommets). À cette occasion, les professionnels en PCI auront des occasions en or d'apprendre les uns des autres, d'échanger, de célébrer leurs réussites, d'envisager des possibilités d'amélioration et de tisser des liens avec leurs pairs, qu'ils viennent du Canada ou d'ailleurs.

J'aimerais remercier le comité de planification du congrès qui a concocté un calendrier comprenant des séances de formation stimulantes et des activités de réseautage sur les nombreuses facettes de la PCI tout en

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répondant aux besoins variés des membres. Le groupe d'intérêt Réseau des réseaux (Network of Networks) tiendra sa première réunion à titre de groupe d'intérêt officiel dans le cadre de la journée de réunions de groupes d'intérêt et de comités. Cette année, la journée des novices et la journée des experts incluent un lunch interactif. Les participants aux ateliers auront l'occasion de manger tout en échangeant directement avec l'équipe de direction de CHICA-Canada. En effet, les membres du conseil d'administration, les présidents des sections régionales ainsi que les membres du comité du programme scientifique seront à la disposition des participants pour témoigner de leur expérience et encourageront les échanges avec ceux et celles qui se joindront à eux, à leur table. Un nouveau prix commandité par 3M, celui des champions en prévention et contrôle des infections, sera remis pour la première fois. Pour prendre connaissance du programme détaillé, consultez le site Web de CHICA, à [www.chica.org](http://www.chica.org).

Nous avons reçu un nombre sans précédent d'abrévés cette année. Un comité d'étude les examine actuellement. Nous sommes persuadés que nous aurons un large

éventail de présentations orales et de présentations sur affiche portant sur de nombreux secteurs de la santé. L'information qu'on peut tirer de ces abrégés et l'occasion d'échanger avec les auteurs sont extrêmement profitables. Nous avons également reçu des réactions très enthousiastes de l'industrie cette année : les stands du salon des exposants ont tous trouvé preneur.

Enfin, ce qui n'est pas à négliger, d'excellentes activités spéciales sont prévues au programme. Après le succès retentissant de la journée « Rally in the Alley », l'année dernière à St John's, la pression était forte pour offrir quelque chose de mieux. L'activité principale, cette année, est une danse rétro du genre « Sock Hop ». D'après ce qu'on en dit, cela sera à la hauteur de l'activité de l'année dernière, sinon mieux encore. Apportez un costume typique des années 1950, comme dans l'émission de télévision populaire Happy Days. Certains et certaines d'entre vous sont plutôt sceptiques quant aux possibilités de réseautage qu'offrent ces activités sociales? Je vous encourage à y participer. Vous ne serez pas déçus. Au plaisir de vous rencontrer au congrès! 



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Gerry Hansen, BA

Executive Director, CHICA-Canada

## Corporate partners


CHICA-Canada is very appreciative of the support of both its Industry Members and Corporate Members. Both membership categories provide us with tremendous expertise and financial support at local/chapter levels and nationally. Industry membership is approximately 10 per cent of the total membership and our list of Corporate Partners is strong and growing.

CHICA-Canada has always welcomed industry membership. We recognize that this is a mutually beneficial situation. For both the national organization and the local chapter, this means additional membership revenue, a source of product and service information, and financial support of projects and conferences. For the industry representative, CHICA-Canada membership is a source of education in all aspects of infection prevention and control, and networking opportunities to create a good industry/practitioner relationship.

The status of Industry Members has transitioned over the years. Although always welcomed to membership, Industry Members at one time were categorized as Associate Members and were therefore non-voting. At the time this seemed sensible perhaps out of a fear of industry representatives having too much influence in the operation of the organization and its chapters. Right or wrong, it was the temperature of the times. Very quickly, we realized that Industry Members were in fact extremely interested in becoming true, active members and participating selflessly at all levels of the organization, from leading projects to working hard on committees, from delivering education sessions to providing financial support. Industry Members are often amongst the hardest working of our members. With the new bylaws of 2009, all CHICA members are now considered active and voting members. For our Industry Members, this came out of

respect for their demonstrated interest in CHICA-Canada as the national voice of infection prevention and control (IP&C) and their recognition of CHICA's members as the leaders in healthcare and IP&C initiatives.

CHICA-Canada has always had a category of membership for companies (not individual industry representatives) that is intended to foster productive and mutually beneficial relations between industry and CHICA-Canada. This relationship is based upon an understanding of each other's goals and is of the highest ethical standards. Firstly recognized as Patron Members, then Industry Members, and now known as Corporate Members, this membership category functions as an advisory panel to CHICA-Canada on industry and government issues. It is also the primary source of funding for many of CHICA-Canada's projects, member services and initiatives. For the Corporate Member, the benefits of this category of membership greatly outweigh the annual fee but at the same time CHICA-Canada benefits tenfold or twentyfold from the support of this elite group. Our Corporate Members are elected on a rotating basis to the Corporate Relations Committee (CRC) that works closely with the board to address issues of mutual importance. From that membership, one Corporate representative is appointed by their peers to work directly with the executive officer and conference planner during day-to-day requests for information and advice.

All our Corporate Members, and indeed our Industry Members, are very important to CHICA-Canada. All have a valuable role to play in the association and in the quest for better healthcare through infection prevention and control. 



For the industry representative, CHICA-Canada membership is a source of education in all aspects of infection prevention and control, and networking opportunities to create a good industry/practitioner relationship.

# Call For Applications

## 2012 Scientific Program Committee

### Background

The CHICA-Canada 2012 Scientific Program Committee is a national committee whose mandate is to plan, develop and ensure completion of the scientific program for the 2012 National Education Conference. The 2012 National Education Conference will take place in Saskatoon (June 16-21, 2012).

The 2012 committee is comprised of the following representatives of various practice settings:

- 2012 Conference Chair – Anne Bialachowski, RN, BN, MSc, CIC
- 2012 Scientific Program Chair – Molly Blake, BN, GCN(C), MHS, CIC
- 2012 Scientific Program Co-Chair – Vacant
- 2011/2012 Acute Care Representative – Colette Ouellet, RN, BScN, CIC
- 2011/2012 Long Term Care Representative – Marilyn Weinmaster, RN, BScN, CIC
- 2012/2013 Community/Public Health Representative – Vacant
- 2012/2013 Medical Microbiology/Infectious Disease Physician – Vacant

### Call for Applications

CHICA-Canada is seeking three candidates to fill the positions of:

- Scientific Program Co-Chair (will become Scientific Program Chair for 2013 conference)
- Community/Public Health Representative (for 2012 and 2013 conferences)
- Medical Microbiology/Infectious Disease Physician Representative (for 2012 and 2013 conferences)

### Meeting Schedule and Expenses

The Scientific Program Committee meets twice in-person (for each conference) and then communicates through email or conference calls. The first meeting of the 2012 Scientific Program Committee is scheduled for November of 2010 (location TBA). The first meeting of the 2013 Scientific Program Committee will be scheduled for the fall of 2011 (location TBA).



CHICA-Canada pays the expenses of committee members to attend in-person meetings. CHICA-Canada pays the expenses of committee members to attend the conferences they have planned.

### Qualifications

Applicants must possess the following qualifications and agree to the following terms:

- A current (2010) member of CHICA-Canada, having held membership for at least five years.
- Must have a Certification in Infection Control & Epidemiology (CIC) or specialty training in epidemiology, infectious diseases or community medicine.
- A minimum of five years' experience in Infection Prevention and Control and/or Infectious Diseases with specific expertise in the setting for which a representative is sought.
- Good team participation as well as interpersonal and communication skills.
- Professional involvement with CHICA-Canada, for example in a Board or Chapter Executive role, as Chair of an Interest Group, or on a CHICA-Canada Committee.
- Experience in the planning of scientific programs for professional conferences (local, regional or national) would be an asset but is not mandatory.
- Has the time, personal commitment and support of their institution

to serve CHICA-Canada through this position.

### Application Must Include:

- A letter from applicant indicating the position of interest, and demonstrating suitability for the position.
- A curriculum vitae that includes details as to the candidate's background in Infection Prevention and Control/ Infectious Diseases
- Professional expertise and education, specialty training and expertise, and CHICA-Canada involvement such as service as a CHICA-Canada Board Member, as a Chapter Executive, or on a CHICA-Canada Standing Committee, Interest Group or Conference Planning Committee. ☺

**Applications must be received no later than April 30, 2010.**

**Applications should be forwarded to:**

Executive Director/  
Conference Planner  
CHICA-Canada

PO Box 46125 RPO Westdale  
Winnipeg, MB R3R 3S3

By courier to:  
67 Bergman Crescent  
Winnipeg, MB R3R 1Y9

By fax 1-204-895-9595  
By email: [chicacanada@mts.net](mailto:chicacanada@mts.net)

# 2010 VIROX™ Technologies Partners Scholarship Winners

Through the financial support of the Virox Technologies Partnership, 18 CHICA-Canada members have been awarded scholarships to attend the 2010 National Education Conference in Vancouver. This year the scholarship became more accessible to the new

infection prevention and control practitioner who would benefit from the education and networking available at the annual CHICA-Canada conference. CHICA-Canada and its members thank Virox Technologies and their partners Deb Canada, JohnsonDiversey, Steris

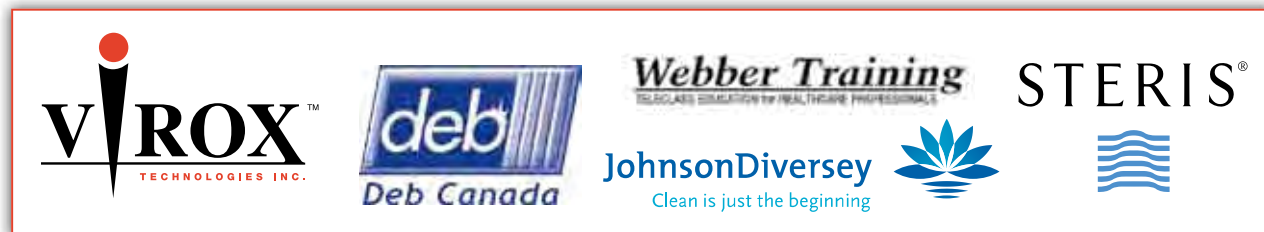
Corporation, and Webber Training for their initiative to make the education conference accessible to those whose accomplishments should be recognized and who may not have otherwise been able to attend.

## THE WINNERS ARE:

**Janice Briggs**, Winnipeg, MB  
**Cassandra Brubacher**, London, ON  
**Susan Cooper**, Kingston, ON  
**Debbie Demizio**, Fonthill, ON  
**Sylvia Eaton**, Prince George, BC  
**Debra Foster**, Prince Rupert, BC

**Lola Gushue**, Gander, NL  
**Danielle Henry**, Berwick, NS  
**Sally Martin**, Tillsonburg, ON  
**Bev Morgan**, Hanover, ON  
**Lyndsay O'Hara**, Vancouver, BC  
**Kathie Pender**, Yellowknife, NWT

**Patsy Rawding**, Halifax, NS  
**Shelly Rempel**, Steinbach, MB  
**Alexis Silverman**, Brampton, ON  
**Angela Thomas**, Halifax, NS  
**Mary Vachon**, Nanaimo, BC  
**Amber-Leah Wolfe**, Edmonton, AB



## 2011 Board positions available for nomination

The Board of Directors of CHICA-Canada is seeking nominations for board positions that will be open in 2011. Being on the board of CHICA-Canada is an excellent way to participate at the national level. Personally and professionally, it offers the opportunity to meet a wide range of CHICA-Canada members, network with allied professional groups, and work with other motivated and experienced board members.

### Nominations are invited for the following positions:

- President Elect (1-year term)
- Director, Education (3-year term)
- Secretary/ Membership Director (3-year term)

These terms commence January 1, 2011. Position descriptions and nomination forms are found in the CHICA-Canada Policy and Procedure Manual, or may be obtained from the Membership Service Office or downloaded from [www.chica.org](http://www.chica.org) (Members Login).

Signatures of two active members are required for each nomination. If you know someone who would be qualified and interested in one of the above positions, send a completed nomination form to:

Bern Hankinson, RN, BN, CIC  
 CHICA-Canada Secretary/Membership Director  
 c/o Membership Service office  
 PO Box 46125 RPO Westdale  
 Winnipeg MB R3R 3S3

Or by courier to:  
 Bern Hankinson, RN, BN, CIC  
 CHICA-Canada Secretary/Membership Director  
 c/o Membership Service office  
 67 Bergman Crescent  
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**Deadline for nominations: August 15, 2010.**





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# Immunization: Get the facts



**H**ealth professionals often get questions from parents about vaccine safety and vaccine contents. Below are some common questions and simple, evidence-based answers to help convey the facts.

## **IMMUNIZATION FACT #1:**

### **The MMR vaccine does not cause autism.**

Evidence-based reviews have rejected any causal associations between the measles-mumps-rubella vaccine and autism spectrum disorders in children. Some speculation has tried to link thimerosal in the MMR vaccine to autism, but the MMR vaccine routinely used in Canada has never contained thimerosal. DTaP, polio and Hib vaccines have not contained this preservative since 1997-98.

## **IMMUNIZATION FACT #2:**

### **Multiple injections do not overwhelm the immune system.**

Every day our bodies come into contact with millions of germs. Exposure to a few antigens (parts of weak or dead viruses or bacteria) in vaccines is easily handled by our immune systems. Modern biotechnology has reduced the number of antigens in today's vaccines. For example, in 1980 the DTaP vaccine alone had 3017 antigens. Today, at the two-month visit, there are only 34 antigens in all the recommended vaccines for that age.

## **IMMUNIZATION FACT #3:**

### **Vaccines do not contain harmful additives.**

Some vaccines contain formaldehyde, aluminum or thimerosal.

Formaldehyde may be used early in the manufacturing process to inactivate



some viruses and toxins. Purification removes almost all of the formaldehyde. Formaldehyde occurs naturally in the human body and helps with metabolism.


Aluminum salts are used as adjuvants (substances added to a vaccine to enhance and strengthen the immune system's response). Adjuvants make it possible to reduce the amount of antigens in a vaccine. Monitoring of vaccines over seven decades has proven adjuvants are safe.

An ethyl mercury derivative called thimerosal is used as a preservative. No vaccine made in Canada since 2001 for routine use in children contains thimerosal, except the influenza vaccine.

## **IMMUNIZATION FACT #4:**

### **Vaccines do not contain cells from aborted fetuses.**

Vaccines do not contain human cells or tissue. During purification of the vaccine all cells are removed. Human cell lines are used in the early stages of production of some vaccines because viruses need a living cell to grow. The virus for the vaccine is grown in a human cell line, then killed or damaged so it cannot cause disease. The cell line comes from legal abortions in the early 1960s and continues today from the original source. The abortions were not conducted for vaccine discovery or vaccine production.


This information, in a pamphlet called *Immunization: Get the Facts*, is available from the Canadian Coalition for Immunization Awareness & Promotion. See also *Immunization Information on the Internet: Can you trust what you read?* 



# The Registered Nurses' Foundation of Ontario Molson Canada SARS Memorial Fund providing grants to ICPs

The SARS Memorial Fund for Infection Control Practitioners is a tuition/certification/professional development reimbursement program funded by Molson Canada SARS Concert (2003) and supported by the Ontario Ministry of Health and Long Term Care.

RNFOO manages the SARS Memorial Fund, initiated in January 2005. The fund provides grants to Infection Control Practitioners **from any discipline** to support them in advancing their knowledge to lead infection control practices within their healthcare settings. Grants can be applied to continuing education, certification/re-certification and professional development.

The fund of \$175,000 is to be administered over three years, allowing for the allocation of approximately \$58,000 per year in support of individual pursuing formal education and certification in the area of infection control. 

See [www.rnfoo.org](http://www.rnfoo.org) for details.



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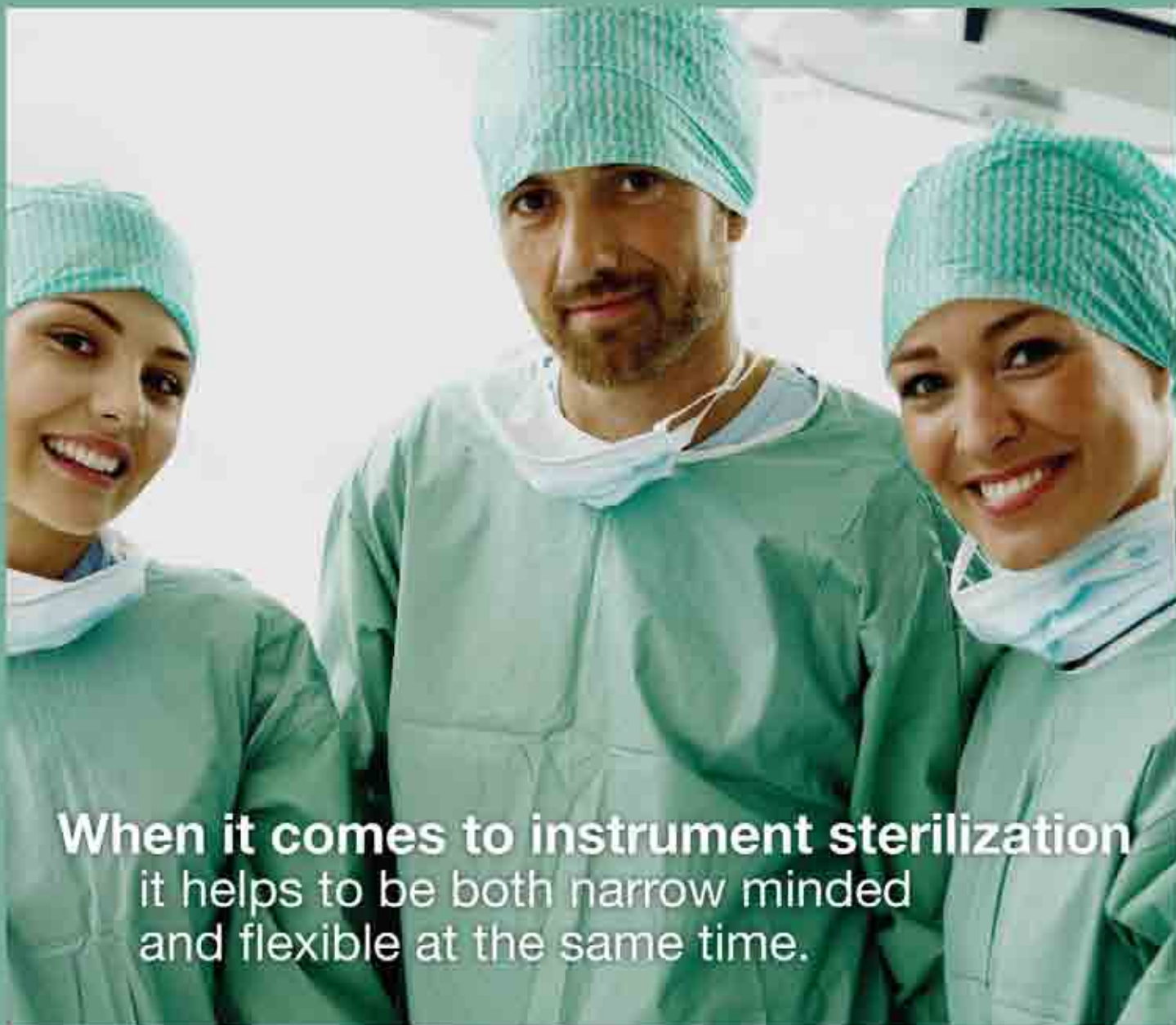
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## Dick Zoutman, MD, FRCPC Receives honorary membership

CHICA-Canada is pleased to announce that Dr. Dick Zoutman has received Honourary Membership in CHICA-Canada.

Dr. Zoutman has been practicing medicine for over 25 years and specializes in Internal Medicine, Infectious Diseases and Medical Microbiology at Queen's University at Kingston. A primary focus of his investigative work has been understanding the prevention and control of healthcare associated infections and related medical quality issues.

Dr. Zoutman's work and collaborations have spanned the globe from North America, South America, the Balkans, the Middle East and Africa in the areas of infectious diseases surveillance, prevention and pandemic preparedness. He is the past Physician-Director of the Board of the Community and Hospital Infection Control Association of Canada, having served in this role for 12 years to advance and promote its mission.

During the 2003 outbreak of SARS in Toronto Dr. Zoutman chaired the Ontario SARS Scientific Advisory Committee responsible for advising the Ontario Government on management strategies of the SARS outbreak. As of 2004 Dr. Zoutman was appointed Co-Chair of the Ontario Provincial Infectious Diseases Advisory Committee (PIDAC) by the Minister of Health and Long Term Care to develop broad policies on infection prevention across all health care sectors. Dr. Zoutman has advised the Federal Government of Canada as the Chair of the National Bioterrorism Contingency Task Force for Hospitals and as a member of




CHICA-Canada is indebted to Dr. Zoutman for his incredible service to its members and to the profession of Infection Prevention and Control.

the Infection Control Guidelines Steering Committee and the Canadian Nosocomial Infection Surveillance Program. He is also a consultant to the WHO on Pandemic Disease Control strategies. Dr. Zoutman is also Chief of the Department of Medical Microbiology and Medical Director of Infection Prevention and Control at the South Eastern Ontario Health Sciences Center in Kingston, a tri-hospital regional healthcare organization providing tertiary and quaternary services in Southern Ontario. Dr. Zoutman is Professor of Pathology & Molecular Medicine, of Community Health & Epidemiology, and of Medicine in the Faculty of Health Sciences at Queen's University. He

is Past President of the Joint Medical staff of Kingston General and Hotel Dieu Hospitals and is a past member of the Board of Directors for both of these hospitals. Dr. Zoutman directs the Infectious Diseases course for the School of Medicine, as well he developed and is co-coordinator of a very successful on line infection prevention and control course and participates in many continuing medical education programs for the school. Dr. Zoutman created and manages the PandemicPortal.ca project, an online pandemic preparedness webportal. A frequent invited speaker at medical conferences across Canada and internationally, Dr. Zoutman's work has been profiled extensively in the press by the *Globe and Mail*, the *National Post*, *Kingston Whig Standard*, the *Montreal Gazette*, the *Ottawa Citizen*, the *Vancouver Providence*, *Reader's Digest*, as well as TVO's *Studio 2*, CTV's *Canada AM*, the CBC's *Disclosure* and *The National News*. Dr. Zoutman is a Black Belt in Lean and Six Sigma for Health Care. In 2008 Dr. Zoutman was appointed a Fellow of the Center for the Study of Democracy at Queen's.

After 12 years as CHICA-Canada's Physician Director, Dr. Dick Zoutman continues to support CHICA through his work as CHICA-Canada's representative at Accreditation Canada, and other projects for which he graciously represents our organization. CHICA-Canada is indebted to Dr. Zoutman for his incredible service to its members and to the profession of Infection Prevention and Control.

Dr. Zoutman will be inducted as an Honourary Member at the Opening Ceremonies of the 2010 Conference, Monday, May 31, Sheraton Vancouver Wall Centre. 



# Ode to Infection Control

Community Health Nurses are we  
That care for 8 Wing Military  
We teach, guide and vaccinate  
No chance to procrastinate  
For germs are very sneaky

The dust bunnies we keep in check  
If it is too dirty we will give you heck  
Good housekeeping skills  
Prevents many ills  
It's teamwork, all hands on deck!

Sanitizer we have everywhere  
Our reason? Because we care  
Our soldiers are tough  
Working hard is enough  
And hand hygiene works we swear!

And now a natural disaster  
We are working faster and faster  
Preparing troops for Haiti  
So they can go safely  
Flying out in the Mighty Globemaster

H1N1 we watched and we waited  
Until the Surgeon General stated  
Needle parade is about to begin  
Active declination is the new IN!  
Herd immunity will be created!

We will stand on guard  
And work very HARD  
To make sure we have full compliance  
Education, vaccination, cleaning and reliance  
Will be our very best playing card!

*Photo Caption (L-R):  
Glennis Newton, RN  
Seated: Belinda Raycraft,  
Reception (not an RN)  
Doll 1: The Maj (another  
story for another time)  
Doll 2: FluDoo Doll (a whole  
other H1N1 story there)  
Michele Edwards, RN  
Standing: Capt. Christine Perrault, RNB  
The picture is located in the Immunization and Allergy  
clinic office in our medical clinic.*

**Written by:**

Community Health Nursing Team,  
24 Canadian Forces Services Centre,  
Trenton, Ontario: Michele Edwards,  
Glennis Newton, Capt. Christine  
Perrault and their fabulous clinic  
receptionist Belinda Raycraft

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# Hand protection products help keep relief workers safe



**A**s aid pours into Haiti for victims injured and displaced by the recent earthquakes, the massive cleanup is just beginning. Ansell is assisting with the relief effort by shipping gloves for medical workers and work crews involved in the search for victims and removal of debris.

In January, Ansell shipped exam gloves to Haiti, working with Direct Relief International (<http://directrelief.org/>) and Health Partners International of Canada ([www.hpicanada.ca](http://www.hpicanada.ca)), both nonprofit humanitarian medical relief organizations with trusted partners on the ground in Haiti.


The gloves are being used in hospitals and at other sites to examine and treat patients.

Based on specific needs expressed by workers in Haiti, Ansell has now donated additional disposable (both exam and non-exam grade) gloves as well as occupational work gloves. The medical gloves will help protect workers from bodily fluids and assist in the treatment of injured victims, while the occupational gloves will allow for protection against cuts and scrapes while moving rubble and other objects.

"Ansell is proud to help protect members of the medical teams and work crews involved in disaster relief efforts throughout Haiti," said Doug Tough, CEO Ansell Limited. "With so many people injured and countless buildings destroyed or severely damaged, the need for assistance

is tremendous."

Ansell has responded to other major disasters in the past, including Hurricane

Katrina, the fires in Australia and the tsunami in Southeast Asia. The company routinely provides Direct Relief with medical gloves for charitable use. 

**Information on Ansell and its products can be found at [www.ansell.com](http://www.ansell.com).**

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