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Summer 2005



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intensive care unit at  
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**On jumping outside the  
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**Case study on construction  
infection control**

**2005 Conference Review**

**The Canadian Journal of  
Infection Control**

**Revue canadienne de  
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<sup>2</sup> Chaiyakunapruk N, Veerstra DL, Lipsky BA, Saint S. Chlorhexidine compared with povidone-iodine solution for vascular catheter-site care: A Meta-Analysis. Ann Intern Med. 2002;136:792-801.



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### VISION

CHICA-Canada will lead in the promotion of excellence in the practice of infection prevention and control.

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CHICA-Canada is a national, multidisciplinary, voluntary association of professionals. CHICA-Canada is committed to improving the health of Canadians by promoting excellence in the practice of infection prevention and control by employing evidence-based practice and application of epidemiological principles. This is accomplished through education, communication, standards, research and consumer awareness.

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1. Canadian National Report on Immunization, 1999. *Respiratory Health* Vol 7 Suppl 2 March/April 1998. 2. Health Canada. National Consensus Conference on Pertussis. Canada Communicable Disease Report 2003;29:31 - 33. 3. Health Canada. National Advisory Committee on Immunization. Prevention of Pertussis in Adolescents and Adults. Canada Communicable Disease Report 2003;29:1 - 9. 4. Vaccine Preventable Diseases - Pertussis. Health Canada. Available at [www.hc-sc.gc.ca/cp/cp/immunisation/immunisation/immunisation.html](http://www.hc-sc.gc.ca/cp/cp/immunisation/immunisation/immunisation.html), accessed on January 13, 2005. 5. Adacel Product Monograph, Aventis Pasteur Limited, September 2003.

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Pat Piaskowski RN, HBSn, CIC  
Clinical Editor,  
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## Pandemic flu... have we learned the lessons from SARS?

**O**n May 29, 2005, like many other Canadians, I turned the television to CTV and watched the television movie entitled *Plague City: SARS in Toronto*. Although many areas outside of Toronto did not see SARS patients, in Ontario we were all affected by the Code Orange alert that was declared. We all dealt with the numerous directives issued by the Ministry of Health and other agencies. We all watched as this dire situation unfolded in our province, our country and in the world. Colleagues across Canada were faced with preparing for potential spread of the deadly disease.

The most striking moment of the movie, for me, was watching the tragic story of the nurse who contracted SARS and was cared for by her colleagues and then died with no family allowed to be at her bedside. I recalled the many teleconferences where we listened to the infection control, infectious disease and public health specialists reviewing the cases of SARS. These anonymous cases included doctors and nurses and other healthcare professionals who had contracted SARS in their workplace. We later learned the names and stories of the two nurses and one physician who died after contracting SARS. We now had to consider that, as healthcare professionals, we could die in the line of duty.

Watching this movie and recalling the events of over two years ago, one can't help but think about the next pandemic. The next pandemic, if current

events unfold, could be caused by the H5N1 strain of avian flu. This strain is now considered endemic in bird populations and has affected humans in many parts of the Far East and Asia. This strain, according to the CDC, is proving to be far more deadly than SARS with an estimated case fatality rate of at least 50%.

Pandemic flu will not strike in just one area of our country or province; we will all be affected. There will be no ability to bring in experts and resources from outside our area to help us cope.

Unlike SARS, which did not spread in the community in Canada, pandemic influenza will affect large proportions of our population. Perhaps hospitals and other health care facilities will, in fact, be the safest places to be with our array of personal protective equipment.

Once again, infection control professionals will be called upon to provide leadership and expertise for a crisis unlike any the global health care system has faced since the 1918-19 Spanish influenza pandemic.

As healthcare organizations, communities, provinces, and countries around the world prepare for the impending pandemic, we can consider SARS a dress rehearsal, although on a much smaller scale.

How will the infection control and health care community respond? The answer to this may be reflected in a quote from the late John Wayne: "Courage is being scared to death—but saddling up anyway." ●



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Rick Wray, RN, BA, CIC

## Conference offered unique opportunity

It was a pleasure to attend the 2005 National Education Conference, *Charting New Horizons*, which was held in Winnipeg May 7-11. I would like to acknowledge the hard work, skill and hospitality of the individuals who helped to make it a great success; Ilana Warner, Conference Chair; Dr. John Embil, Scientific Program Chair; committee members, Nancy Gates, Leslie Klass, Elizabeth Omeniuk and Faye Penner; Conference Planner, Gerry Hansen; and Conference Assistant, Kelli Wagner. Thanks to the members of the Manitoba Chapter who hosted the conference and whose hospitality made us feel welcome in Winnipeg. Thank you to the Patron Members,

Sponsors and Exhibitors who helped to make the conference possible.

The intent of the Scientific Program Committee as stated by Dr. Embil was "to highlight the exciting and challenging times in which we as professionals in infection prevention and control find ourselves, and to also bring forth the opportunities that lie ahead." Throughout the conference, I heard from delegates that they had a sense of anticipation and new energy with regard to challenges in our field.

The conference location offered a unique opportunity to access local expertise. The virtual tour of the National Microbiology Laboratory, Canada's only level four lab was fascinating. Dr. Frank Plummer, Scientific Director General of the National

Microbiology Laboratory, gave us further insight into global infection control challenges in his keynote address.

The Novice ICP day was well received by a large number of new ICPs and by experienced ICPs who wanted to learn how to teach and mentor new colleagues. There is clearly an ongoing need for educational programs for new ICPs. This pressing need is also being met by two CHICA-Canada endorsed entry to practice on-line courses at Centennial College and Queen's University. It was announced that the on-line entry to practice program developed by CHICA-Canada and supported by funds contributed by CHICA-Canada members will be launched as a pilot through the University of Calgary in the near future.

The extremely well attended pre-conference education day focusing on oncology and paediatrics demonstrates the growing complexity and specialized needs within the field of infection prevention and control. It was impressive to see the commitment to share expertise by those who attended the growing number of special interest groups. Karen Hope, President-elect, was kept very busy in her role as CHICA Board liaison to the interest groups and met with the chairs to look at ways to best support their needs.

I had the opportunity to attend the Chapter President's meeting, chaired by Karen Hope, at which each of the presidents highlighted the tremendous work done by the chapters. A number

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Rick Wray, RN, BA, CIC

## Site du Congrès nous a donné accès à l'expertise locale

Cela a été très agréable de participer au congrès de formation 2005, *Charting New Horizons*, tenu à Winnipeg du 7 au 11 mai. Je tiens à souligner le travail, la compétence et l'hospitalité des personnes qui en ont fait un succès retentissant : Ilana Warner, présidente du congrès; le Dr John Embil, président du programme scientifique; les membres des comités Nancy Gates, Leslie Klass, Elizabeth Omeniuk et Faye Penner; l'organisateur, Gerry Hansen; et l'adjointe, Kelli Wagner. Merci aux membres de la filiale du Manitoba, organisateurs du congrès dont l'hospitalité nous a permis de découvrir Winnipeg. Merci aussi aux patrons, aux commanditaires et aux exposants qui ont aidé à la réalisation de ce congrès.

Tel qu'énoncé par le Dr Embil, le comité du programme scientifique voulait « faire ressortir l'époque fascinante et remplie de défis dans laquelle les professionnels en prévention des infections évoluent aujourd'hui et dégager les avenues futures. » Tout au long du congrès, les délégués m'ont dit qu'ils sentaient un nouveau dynamisme par rapport aux défis de notre secteur.

Le site du congrès nous a donné accès à l'expertise locale. Notre visite virtuelle du Laboratoire national en microbiologie, le seul laboratoire de niveau quatre au Canada, était fascinante. Le directeur général scientifique du Laboratoire national en microbiologie, le Dr Frank Plummer, nous a donné un aperçu des défis en prévention des infections à l'échelle mondiale.

De nombreux nouveaux ICP ont participé à la journée des novices ICP, de même que des ICP d'expérience qui voulaient apprendre comment enseigner à leurs nouveaux collègues et les encadrer. Il existe un besoin continu de programmes de formation pour les nouveaux ICP. Deux cours d'entrée à la pratique reconnus par CHICA-Canada et offerts en ligne par Centennial College et l'université Queen's répondent à ces besoins. Un pilote du cours d'accès à la pratique mis au point par CHICA-Canada et financé par les membres de CHICA-Canada sera lancé bientôt par l'Université de Calgary.

La journée de formation pré-congrès sur l'oncologie et la pédiatrie a connu un vif succès, démontrant la

complexité grandissante et les besoins spéciaux en prévention des infections. Il était impressionnant de voir le désir de partage d'expertise de ceux qui ont participé au nombre grandissant de groupes d'intérêt particulier. La présidente désignée, Karen Hope, a été très occupée en tant que liaison entre le conseil CHICA et les groupes d'intérêt et a rencontré les présidents afin de voir comment le mieux répondre à leurs besoins.

J'ai eu l'occasion de participer à la réunion des présidents de filiales, présidée par Karen Hope, réunion à laquelle les présidents ont mis en valeur l'important travail accompli par les filiales. Nous avons discuté de

*continué à la page 70*

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of valuable ideas were discussed to improve communication between the chapters and the Board. We will work hard to implement those ideas over the upcoming year. A valuable education session, facilitated by Joyce Groote, gave us all new insight into lobbying government, and it challenged our conceptions about who we are and what we do.

I'd like to congratulate and to thank each of the presenters who took the time to share their expertise with us through excellent quality oral and poster presentations. Attending the presentations and reviewing the posters is always my favorite part of the conference.

At the end of the week, when I thought my brain was full and there was nothing left to inspire me, we met to discuss the 2006 National Education Conference, *Bridging Global Partnerships*. It will be hosted by the SOPIC Chapter in London, Ontario, May 6-10, 2006. You won't want to miss it! •

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façons d'améliorer les communications entre les filiales et le conseil, idées que nous mettrons à l'œuvre au cours de l'année prochaine. Un excellent atelier animé par Joyce Groote, nous a donné de nouvelles perspectives sur les relations gouvernementales et a remis en question nos idées préconçues sur qui nous étions et ce que nous faisons.

J'aimerais féliciter et remercier tous les conférenciers qui ont pris le temps de partager leur expertise avec nous lors d'excellentes présentations orales et de présentations d'affiches. Participez aux présentations et revoir les affiches sont mes moments préférés du congrès.

À la fin de la semaine, alors que je pensais que mon cerveau ne pouvait plus en prendre et qu'il n'y avait plus rien pour me surprendre, nous avons tenu une réunion sur le congrès 2006, *Bridging Global Partnerships*. Il sera organisé par la filiale SOPIC à London, Ontario, du 6 au 10 mai 2006. Incontournable! •

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**International Federation of Infection Control (IFIC)**  
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# *Bacillus cereus* in the intensive care unit at an acute care hospital

## ABSTRACT

### Issue

The genus *Bacillus* is comprised of aerobic, spore-forming rods that are ubiquitous in nature. Even though *Bacillus* species have a wide range of distribution in the environment, including normal skin flora, they rarely cause true disease. One exception is *Bacillus cereus*, a well-known cause of food poisoning. *Bacillus cereus* can also cause opportunistic infections, mainly in the immunocompromised host.

Until recently, the Providence Health Care, St. Paul's Hospital, Microbiology Laboratory infrequently identified *Bacillus cereus* from respiratory specimens of patients in the Medical Surgical Intensive Care Unit (ICU). Between the months of April and May 2002, the St. Paul's Hospital, Microbiology Laboratory identified *Bacillus cereus* with increasing frequency in the respiratory specimens of ICU patients. The increasing incidence of *Bacillus cereus* was reported to Providence Health Care's Infection Control Team.

### Project

From June 17 to July 30, 2002, a cluster of nine sputum specimens from four ICU patients grew *Bacillus cereus*. The organism was not isolated from blood or any other sites. From June 17 to December 31, 2003, there were 44 patients with *Bacillus cereus* recovered from respiratory specimens.

### Results

A focused investigation consisted of environmental culturing of: (i) pasteurizer machines in the Central Supply Department, (ii) ventilator temperature probes, and (iii) Laerdal resuscitators. Positive cultures were obtained from one ventilator temperature probe and two resuscitators.

### Lessons Learned

Although the respiratory circuit was exposed to high-level disinfection, low-level disinfection of the temperature probe may have been a source of contamination leading to colonization of the respiratory tract with *Bacillus cereus*.

As a result of the investigation, Infection Control recommended cleaning and process changes, which included: (i) at a minimum high-level disinfection of the ventilator temperature probes, and (ii) reprocessing of the Laerdal resuscitators in the Sterile Supply Department after use.

Infection Control believes that these changes will be effective in reducing the potential transmission of *Bacillus cereus* as well as more serious respiratory pathogens.

## INTRODUCTION

The genus *Bacillus* is comprised of aerobic spore-forming rods that are ubiquitous in nature<sup>1,2</sup>. *Bacillus* spp. has a wide range of distribution in the environment, including normal skin flora. Despite this organism's wide range of distribution, *Bacillus* spp. rarely causes disease. One exception is *Bacillus cereus*, a well-known cause of food poisoning<sup>3</sup>. *Bacillus cereus* can also cause opportunistic

infections, mainly in the immunocompromised patient<sup>4,5</sup>. Infections in patients from high-risk areas such as Intensive Care Units and Neonatal Intensive Care Units may occur as a result of contaminated respiratory equipment<sup>6,7,8</sup>.

### Background

St. Paul's Hospital (SPH) is part of Providence Health Care. Saint Paul's Hospital is a 400-bed acute academic and research hospital located in downtown Vancouver. The Medical/Surgical Intensive Care Unit (ICU) is an 18-bed unit with four, four bed pods and two single rooms. Virtually all patients are ventilated during their ICU stay.

Between April and May 2002, the SPH Microbiology Laboratory identified *Bacillus cereus* with increasing frequency from the sputum specimens of ICU patients. This increasing incidence of *Bacillus cereus* was reported to the Infection Control Team. In May 2002, a single technologist was assigned to monitor and record *Bacillus cereus* in ICU respiratory samples and report clusters of *Bacillus cereus* to the Infection Control Team.

From June 17, 2002 to July 30, 2002, a cluster of nine sputum specimens from four ICU patients grew *Bacillus cereus*. As a result of the cluster, an investigation was launched with targeted environmental sampling.

## METHODS

*Bacillus cereus* was isolated and identified according to standard laboratory methods using a 5% sheep blood agar (BBL Columbia Agar Base, Becton, Dickinson and Company, Sparks, MD, USA). Egg yolk agar (PML Microbiologicals, Wilsonville, OR, USA) was used to help identify the *Bacillus* species. Motility was checked using semisolid agar (Oxoid agar, Oxoid LTD, Basingstoke, Hampshire, England).

### Literature review

For the literature review the key words "*Bacillus cereus*" and "respiratory" were used in the PubMed search engine to identify related articles.

### Investigation

Targeted environmental culturing of the Central Supply Department and the ICU started in August 2002. Specimens were collected with a pre-packaged collection kit (Starplex Scientific, Ontario, Canada), labeled and sent to SPH Microbiology Laboratory for processing.

The environmental cultures in Central Supply Department were taken from two Olympic Pasteurmatic Systems<sup>®</sup> (Olympic Medical, Seattle, Washington, model number 52636). The Pasteurmatic System<sup>®</sup> consists of two components (Figure 1). The washers, which were cultured at four sites: (i) the exit drain; (ii) overflow drain above water line; (iii) water in the bottom of the washer; and (iv) water at the edge of the washer basin. The second component, the pasteurizer, was cultured at three sites: (i) overflow drain above the water line; (ii) water at the edge of the basins; and (iii)

the inlet pipe. In addition, one small and large instrument rack were cultured at the processing site.

In the ICU, two ventilators (Servo-ventilator 300, Siemens International, Elema Sweden) were cultured. Two ventilators (1) and (2), with the same five sites for each ventilator, were cultured: (i) along the ventilation tubing; (ii) ventilation tubing heater wire; (iii) humidifier canister; (iv) terminal end of the temperature probe, model number 900 MR 560, Fischer & Payker, Auckland New Zealand (Figure 2); and (v) ventilator circuit endotracheal tube connection.

During the ICU equipment screening the respiratory technologists raised a concern that the Laerdal resuscitators could act as reservoir for contamination of the patient's respiratory tract. Each patient in the ICU is assigned a resuscitator, positioned behind the head of the patient's bed. The recommendation is to use high-level disinfection on hand-powered resuscitation bags between patients<sup>10</sup>. There is no recommendation regarding cleaning for concurrent uses on the same patient<sup>10</sup>. Eight Laerdal resuscitators were cultured at the endotracheal connection of the resuscitator (Figure 3).

## RESULTS

### Literature review

Reports of *Bacillus cereus* outbreaks associated with pasteurizing equipment and contaminated respiratory equipment have been published. Bryce et al reported an outbreak of *Bacillus cereus* in respiratory equipment in the ICU at Van-

Figure 1. Olympic Pasteurmatic Systems<sup>®</sup>, washer (#58) pasteurizers (#12 and #88) ▼



Figure 2. Temperature Probe and Insertion Site in the Ventilation Circuit ▼



Figure 3. Laerdal Resuscitator ►

couver General Hospital<sup>6</sup>. Pasteurizers used for high-level disinfection of respiratory equipment were implicated as the source of the *Bacillus cereus* outbreak. Van Der Zwet discussed an outbreak of *Bacillus cereus* in a neonatal ICU associated with respiratory equipment used for manual ventilation<sup>7</sup>. The exterior of the respiratory equipment was regularly cleaned with detergent that had limited sporicidal activity. Health Canada and Centers for Disease Control Guidelines recommend high-level disinfection for respiratory equipment<sup>9,10,11</sup>.

### Investigation

The ventilators cultured had been cleaned with a quaternary ammonium disinfectant and were ready for use. The respiratory equipment had been pasteurized using the Olympic Pasteurization System. The temperature probes were routinely cleaned with a quaternary ammonium compound, which is a low-level disinfectant<sup>9</sup>. As the temperature probes are inserted through the breathing circuit in close proximity to the endotracheal tube the Infection Control Team felt they

were an integral part of the respiratory system and must be subjected to high-level disinfection (Figure 2).

There was no growth of *Bacillus cereus* from the washers, pasteurizers or racks in the Central Supply Department (Table 1). One of two ventilator temperature probes, which had been cleaned and was ready for use, was positive for *Bacillus cereus* (Table 2). Two of eight resuscitator connections were positive for *Bacillus cereus* (Table 3).

From June 2002 to December 2003 the number of isolates of *Bacillus cereus* identified in the respiratory specimens of ICU patients, ranged 0 to 5 per month for a total of 44 patients (Figure 4).

## DISCUSSION

The culture results indicated that the ventilator temperature probes and the resuscitators were colonized with *Bacillus cereus*. The culture results indicated that the Pasteurmatic System and the respiratory tubing, which had been pasteurized, were not contaminated. The Infection Control goal was to attain a minimum of high-level disinfection for the resuscitators and the temperature probes. Strategies to achieve the goal were discussed with the Respiratory Services Leader and Supervisor.

In August of 2002, the action agreed upon was to subject the temperature probes to a one-time sterilization with Sterrad. Thereafter the probes would be cleaned and soaked for 10 minutes in 70% alcohol between patient uses, which would provide an intermediate level of disinfection<sup>9</sup>. Probes would not be steam sterilized or pasteurized between patient uses because the Fischer & Payker representative confirmed the temperature probes would only tolerate low temperature high-level disinfection/sterilization processing systems. There were not enough temperature probes to send the probes to Central Supply Department at once and the Respiratory Services Supervisor stated there were no funds available to purchase extra temperature probes in order to ensure routine high-level

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Figure 4. Timeline of Patients With Positive Respiratory Specimens

Number of ICU patients with *B. cereus* identified in respiratory specimens from June 2002 - December 2003.

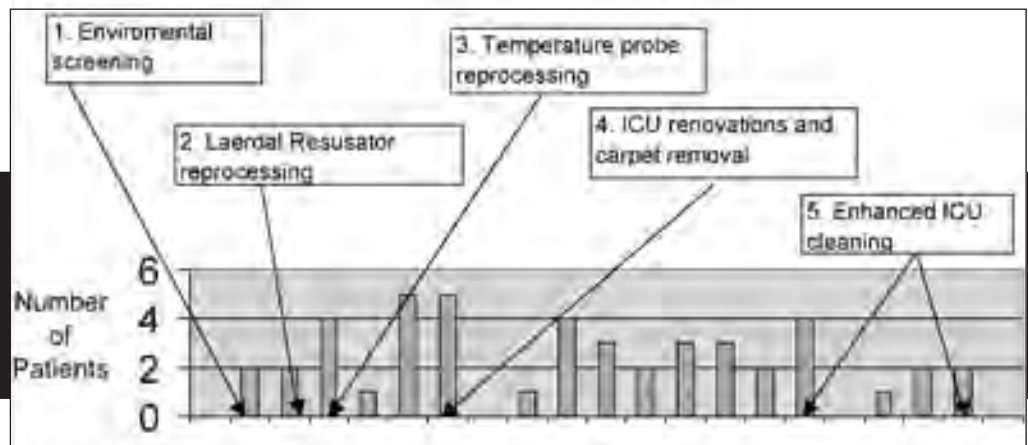


Table 1. Screening Results for the Pasteurization System® in Central Supply Department

| Site cultured         | Washer 58 | Washer 12A | Pasteurizer 12 | Pasteurizer 88 | Racks    |
|-----------------------|-----------|------------|----------------|----------------|----------|
| Drain                 | Negative  | Negative   |                |                |          |
| Hole above water line | Negative  | Negative   | Negative       | Negative       |          |
| Water bottom          | Negative  | Negative   |                |                |          |
| Water edge            | Negative  | Negative   | Negative       | Negative.      |          |
| Basket                | Negative  | Negative   |                |                |          |
| In pipe               |           |            | Negative       | Negative       |          |
| Large                 |           |            |                |                | Negative |
| Small                 |           |            |                |                | Negative |

Table 2. Screening Results for Ventilators in ICU

| Ventilator                       | Number 1 | Number 2               |
|----------------------------------|----------|------------------------|
| Ventilator tubing                | Negative | Negative               |
| Heater wire                      | Negative | Negative               |
| Top canister                     | Negative | Negative               |
| Temperature probe terminal end   | Negative | <i>Bacillus cereus</i> |
| Ventilation circuit terminal end | Negative | Negative               |

Table 3. Screening Results for Laerdal Resuscitators In the ICU

| Laerdal Resuscitator | Number 1 | Number 2 | Number 3 | Number 4               | Number 5 | Number 6               | Number 7 | Number 8 |
|----------------------|----------|----------|----------|------------------------|----------|------------------------|----------|----------|
| Results              | Neg*     | Neg      | Neg      | <i>Bacillus cereus</i> | Neg      | <i>Bacillus cereus</i> | Neg      | Neg      |

\* Neg refers to; Negative results, no growth of *Bacillus cereus*

disinfection or sterilization after each patient use. Recently released Central Supply Department Guidelines recommend that respirometers and ventilator thermometers be subjected to sterilization or high-level disinfection between use on different patients.<sup>11</sup>

The Laerdal resuscitators were not disinfected after concurrent patient uses by the same patient. The action agreed on was that the mouthpiece and flex extension tubing would be reprocessed within 24 hours after use on the same patient. The reservoir bag would be reprocessed when the patient left ICU or when the exterior parts became visibly soiled.

Further changes in the ICU may have helped to reduce the burden of *Bacillus cereus* in the environment. In December of 2002, all carpet in the ICU was removed and replaced with sealed linoleum. In September of 2003, the ICU unit was subjected to enhanced cleaning where patients were reassigned in order to empty the single and four-bed patient care pods allowing the cleaner full and unencumbered access to clean all areas of the pod. In December of 2003, each patient care pod was painted and subjected to enhanced cleaning (Figure 4).

In March of 2004, the leaders of the Providence Health Care Respiratory Department purchased a sufficient number of ventilator temperature probes to ensure that each ventilator temperature probe was subjected to low temperature sterilization (Sterrad®) before patient use. The Respiratory Department leaders described the benefits of increasing the number of temperature probes as: reducing the time respiratory therapists spend cleaning temperature probes, assuring a sterile temperature probe is available for each patient use and improving the Respiratory Department's quality of patient care.

## CONCLUSION

An investigation was launched as a result of an increased number of isolates of *Bacillus cereus* in respiratory specimens from ICU patients. *Bacillus cereus* was isolated in one ventilator temperature probe in the ICU. Although the other parts of the system had received pasteurization, the probes had only been cleaned with a quaternary ammonium disinfectant between uses on different patients. The temperature probe is part of the respiratory circuit and as such the Health Canada Guidelines recommend high-level disinfection. The identification of this practice resulted in a change in the processing of the temperature probe. A low temperature method (Sterrad®) was used to sterilize all probes at the time of the investigation. However, due to an insufficient number of probes, as an interim measure the probes were cleaned and then soaked in 70% alcohol for 10 minutes.

As of March 2004, the Providence Health Care, Respiratory Department purchased a sufficient number of ventilator temperature probes to ensure that each probe is subjected to low temperature sterilization (Sterrad®) before it is

used in each patient's ventilation circuit.

*Bacillus cereus* was also isolated from two Laerdal resuscitators. Resuscitators are pasteurized between patients, but not on concurrent uses for the same patient. The practice has been changed so that the mouthpiece and flex tubing is changed within 24 hours when it is used. The reservoir and external parts are changed when visibly soiled.

Since the investigation was commenced, the number of cases of *Bacillus cereus* in respiratory samples has been reduced, but has not been eliminated. As of March 2004, the laboratory-based *Bacillus cereus* surveillance is broadened from focusing on ICU sputum specimens to specimens from blood, tissue and sputum from throughout Saint Paul's Hospital. There continues to be no cases of bacteremia or other infections with the *Bacillus cereus* organism. ●

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# On jumping outside the box: Infection control education for the 21<sup>st</sup> Century

## ABSTRACT

The recent emphasis on safety in healthcare has highlighted the importance of professional behaviours in affecting patient care outcomes, but behaviour change remains a great challenge to the infection control community. Traditional educational modalities such as didactic lectures and printed materials have failed to stimulate sustained behaviour change, and educators need to think outside the box. This report describes an infection control workshop delivered to nurses that was based on the unconventional educational methods of storytelling, dramatic performance, problem-based learning, and multimedia. Although behavioural outcomes were not measured, the response to the workshop was exceptionally positive. The educational strength of these methods resides in their appeal to imagination, their integrative tendencies, and the promotion of dialogism.

Key words: infection control, education, storytelling, dramatic performance, dialogism

## INTRODUCTION

Increasing awareness of adverse events in Canadian healthcare facilities,<sup>1</sup> and the threat posed by the nosocomial transmission of infectious agents such as *Clostridium difficile*<sup>2</sup> and SARS-associated Coronavirus,<sup>3</sup> have highlighted the importance of basic infection control practices. However, observation of patient care practices and feedback from staff, educators, and nursing unit managers revealed that infection control practices were not well understood or practiced in the Calgary Health Region. Nursing staff were uncertain about which kind of isolation practices to use, when to use them, and what to teach patients and visitors regarding necessary precautions. This unsatisfactory situation existed despite numerous educational opportunities, newsletters, patient education materials, policy and procedure manuals, and signage. It was concluded that familiar material should be presented in new ways to influence behaviour change. Therefore, nursing educators and infection control professionals collaborated on a joint educational workshop that is described in this report.

## METHODS

“The Bug Stops Here Workshop” was a collaboration of the Acute Medical Nursing Specialty Program and the Regional Infection Prevention and Control Program. A total of nine nurse educators and infection control professionals planned and conducted the four-hour workshop which was held on two occasions ten days apart. Senior medical nurses were invited to attend and there was a nominal registration fee. The goal of the workshop planners was to influence nursing behaviour in relation to appropriate implementation of infection control isolation precautions and hand hygiene. The content of the workshop is shown (Table 1). Traditional didactic presentations were abandoned in favour of dramatic performance, storytelling, problem-based interactive sessions, and multimedia presentations. A brief evaluation questionnaire was administered to the attendees at the conclusion of the workshop.

**Table 1. Content of the workshop**

A play about hand hygiene – Two bacteria, “MR. Stafford Aureus” (MRSA) and “Collette Difficile,” join forces to cause a hospital outbreak. They converse about how poor hand hygiene practices have given them a foothold in the facility.

A story about safety – A telling of Leo Tolstoy’s short story “The Three Questions.” Health care behaviour is reflective action with ethical concerns. Tolstoy’s story conveys the ethical imperative of doing good to the patient I am with right now.

Problem-based interactive session on interpreting microbiology laboratory reports – Examples of microbiology laboratory reports were shown, with interactive discussion of their interpretation.

Questions and answers about infection control – Questions from the audience were requested on the workshop registration form. Infection Control practitioners answered these questions during three short sessions. Further questions were generated during the discussion.

A play about isolation precautions – Three micro-organisms representing contact, droplet, and airborne transmission, assail the audience, while two nurses garbed in personal protective equipment recite a poem mimicking a Dr. Seuss children’s story.

Stories about risk perception – By recounting stories about health care worker experiences with Ebola virus in Uganda, the concept of risk perception was conveyed.

A patient’s story – Presentation of a videotaped interview with a patient who required leg amputation following infection of a joint prosthesis with antibiotic-resistant bacteria.

Multimedia presentation: “Imagine” – A slideshow of images and words depicting a world where health care-related infections and the need for protective isolation are a thing of the past. Background music is John Lennon’s song “Imagine.”

**Table 2. A sampling of audience responses to the workshop**

“I enjoyed the different modes of teaching.”

“Maintains your attention.”

“Incredible, powerful – it must have been quite a coordination of storytelling, people, and specialists.”

“Excellent, refreshing learning; great ways to engage audience.”

“Very fun and enjoyable way to learn and present an important issue.”

“Other professionals should have this presentation.”

“Visual memories are great triggers.”

“This has been the most educational and entertaining workshop I have ever attended.”

“I am involved with teaching students. Will certainly raise the bar for standard practice.”

“Will enhance practice.”

“Powerful statement about being visible, re: washing hands.”

“The skits were very practical.”

“Include the plays in everything.”

“Enjoyable—often something like your play teaches or reinforces without the observer even realizing it.”

“The actor and actress are having fun and it’s contagious.”

“Humour is always an effective learning tool.”

“Plays are very effective in helping people learn and remember new concepts.”

“Questions and answers very good.”

“More time for questions.”

“Personal perspectives are inspiring.”

“Very touching, effective, good to have the personal experience; really makes us think about what we are doing; life changing.”

## RESULTS

One-hundred-nineteen senior medical nurses attended the workshop and all of them completed the evaluation survey. Comments about the workshop were generally highly favourable (Table 2). Sixty-six percent of the respondents believed that the workshop presentations were a helpful way to learn (Figure 1) and 62% stated that the content of the workshop would change their nursing practice (Figure 2).

## DISCUSSION

Traditional modalities for influencing behaviour change among healthcare professionals include didactic lectures, printed educational materials, and practice audit with feedback. In the context of continuing medical education, scientific evidence suggests that such modalities have only weak or moderately

strong effects on improving professional practice or patient health outcomes.<sup>4,6</sup> However, educational interventions that enhance learner participation—such as interactive workshops, academic detailing, or computer-based decision support—have strong or moderately strong behavioural effects.<sup>4,7,8</sup> In addition, the use of multiple educational modalities together is more effective than single interventions.<sup>9</sup>

The presented report describes an innovative attempt to influence behaviour change through the use of multiple, unconventional, educational modalities including storytelling, dramatic performance, interactive problem-solving, and multimedia presentation. Such an approach involved considerably more preparatory effort than a series of didactic lectures, but our gambit was well-received and a majority of workshop attendees stated that they would make changes in their professional practice as a result of what they had experienced. Of course, expressing an intention to change practice is not the same as actually changing one’s practice, and a shortcoming of the present study is that actual adherence with infection control practices was not subsequently observed and documented. However, it is difficult to obtain such documentation because it would entail surreptitious observation of specific

*continued on page 84*

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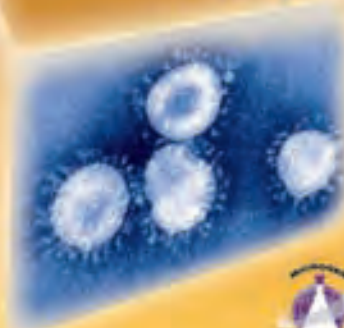
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Figure 1. Audience appraisal of the value of the workshop learning format

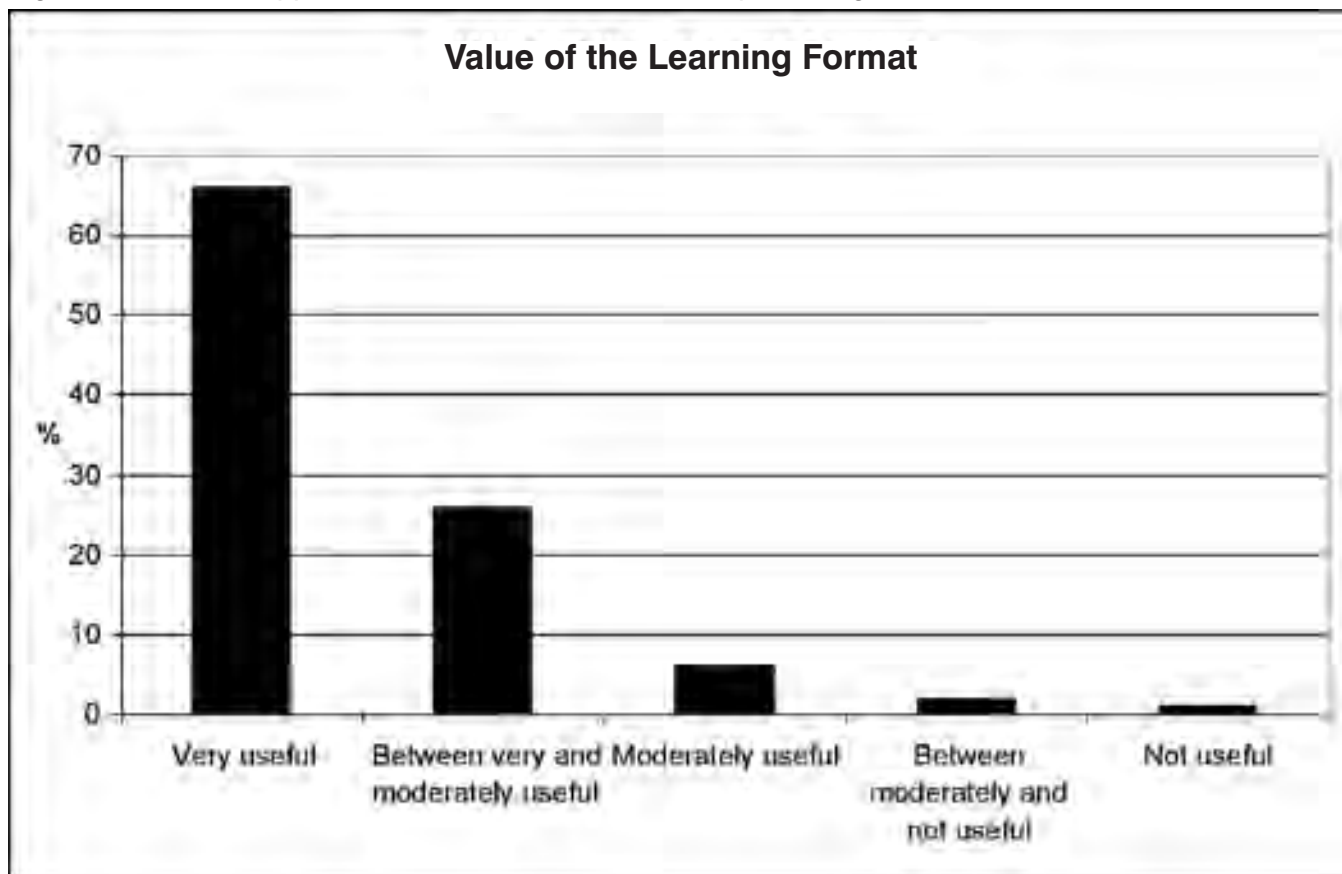
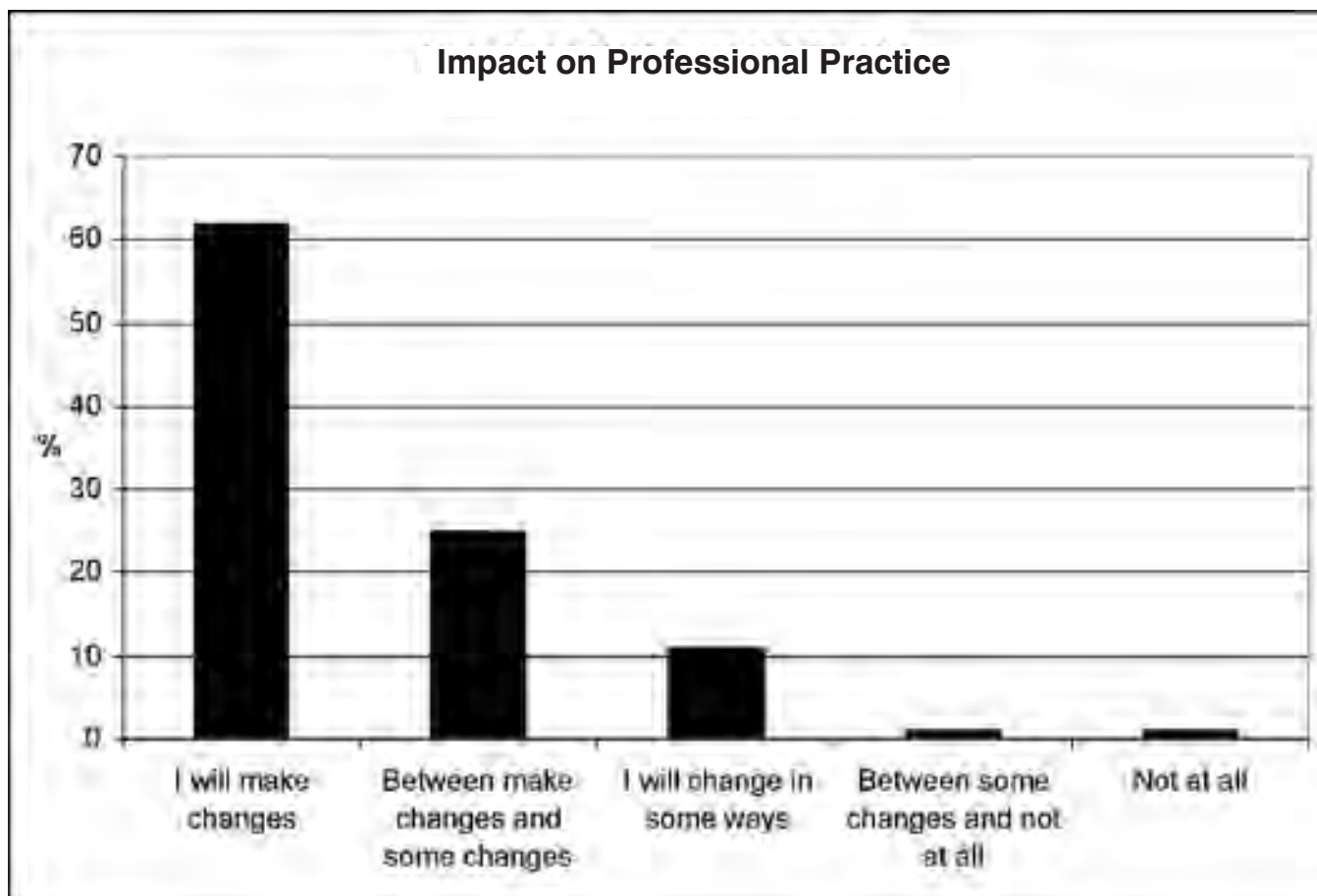


Figure 2. Audience perceptions of the impact of the workshop on professional practice



individuals to measure adherence in workshop attendees versus non-attendees. It may also be naive to assume that a single workshop can stimulate long-term behavioural change; sustained change is likely to depend on repeated educational interventions as pointed out in the social marketing literature.<sup>10</sup>

Why was the workshop appealing, and why should infection control professionals seriously consider the adoption of these unconventional educational methods? We believe that the answer lies in the participative, integrative, and imaginative nature of these modalities. Storytelling is one of the oldest forms of human communication, and the capacity to understand stories appears to be innate. Children can listen to stories as early as two years of age, and continue to delight in them until they enter grade school at which time they are taught that knowledge is expressed not in narratives but in abstract principles.<sup>11</sup> As a result, adult organizational life is “denarrated” in favour of abstraction, logic, and “the argument culture.”<sup>12</sup> But the polemic against storytelling is in fact ancient: when the Greek philosopher Plato described the ideal city in his dialogue *The Republic*, he excluded poets (the storytellers of his day) from living there because of their ability to persuasively communicate ideas that were disagreeable to him. As stated by Havelock in his *Preface to Plato*, “...what Plato is pleading for could be shortly put as the invention of an abstract language of descriptive science to replace a concrete language of oral memory.”<sup>13</sup> Plato’s legacy is evident in our contemporary belief that behaviour change in healthcare is best stimulated by rational arguments and the presentation of scientific evidence. But people within organizational cultures are not very rational and knowing “the facts” may not change behaviour.<sup>14</sup>

Storytelling has numerous educational and leadership benefits: it is easy and natural to do, captures the attention, facilitates thinking, changes perception, aids memory, links theory to practice, and engages emotions and values.<sup>15-19</sup> These benefits reflect the ability of stories to “render whole” as they portray the actions of characters within settings. In other words, stories naturally provide the contexts that interpret the meaning of human behaviours. In addition, storytelling can influence behaviour because it requires the storyteller and audience to co-participate in the creation of an imagined world with new possibilities and new ways of living and acting.<sup>15</sup> It turns out that this connection between imagination and behaviour change is crucial: the French philosopher Paul Ricoeur posits that behaviour change is bounded not by knowledge or rationality, but by imagination. It is through imagination that people “try out” possible courses of action, compare and evaluate their motives, and decide if they have the power to act.<sup>20</sup> But there is a deeper significance to storytelling than its utility for behaviour change. As Alasdair MacIntyre states, “...man is in his actions and practice, as well as in his fictions, essentially a story-telling animal. He is not essentially, but becomes through his history, a teller of stories that aspire to truth. But the key question for men is not about their own authorship; I can only answer the question ‘What am I to do?’ if I can answer the prior question ‘Of what story or stories do I find myself a part?’”<sup>21</sup> Thus MacIntyre asserts that people do not tell stories to explain their actions in the real world: they tell stories because their life in the real world unfolds as a story, and the meaning of that story

guides their actions. The preceding insights inform us that narratives are profoundly connected to human motivation and action, and therefore infection control professionals who lead change should consider storytelling as an alternative educational modality to scientific argument. Those who are interested in trying out storytelling are encouraged to seek further information (see references), attend a storytelling workshop (check with your organization’s Learning and Development program or a local college), and just plain do it (this requires some courage). Great rewards are in store for those who dare to risk.

Much of what has been said about storytelling applies equally to dramatic performance, which is essentially storytelling with the addition of bodily movements that enhance visual communication and the appeal to imagination. But the bodily dimension does more than merely augment communication because human beings depend entirely on their bodies to experience and know the world. Thus, dramatic performance resonates with the “embodied” nature of human existence. Dramatic performance also draws its participants into a mutual interaction that allows them to explore complex or difficult issues in a safe, non-threatening context: as the participants identify with fictive roles and situations encountered in health care, and as they join knowledge with memories and feelings, meanings are acquired which motivate and define action.<sup>22</sup> How practical is it to ask infection control programs to conduct dramatic performances for the sake of education? As our report demonstrates, it is possible to rely on amateurs (health care professionals) to do plays, but such an endeavour is very time-consuming, and the quality of the educational product would be greatly enhanced by involving drama professionals in script development, performance coaching, or the performance of the play itself. This of course poses financial challenges to infection control and educational/training programs. We suggest that financial restraints could be overcome by partnering with other agencies (for example nursing education, learning and development programs, quality improvement or safety initiatives, or innovation grants) to find funding and talent. In our own institution, we have obtained an innovation grant to implement a social marketing program to promote hand hygiene, and we intend to include dramatic performance by professional actors as one of the communication channels within that program.

A third educational modality used in our workshop was problem-based learning. Workshop participants were provided with real-life patient microbiology reports and asked to interpret their clinical significance. The audience worked as a team, pooling knowledge to achieve a consensus interpretation. A facilitator provided hints when the audience lacked crucial knowledge to achieve consensus. Problem-based learning requires learners to engage in a group process that requires them to think aloud, collaborate, integrate old and new knowledge, and critically reflect on the meaning of what they have learned.<sup>23</sup> Problem-based learning can transform the superficial learning of “what?” and “how?” into the deep learning of “why?” Infection control educators are encouraged to seek additional resources on problem-based learning.<sup>24</sup>

In conclusion, infection control educators in the 21<sup>st</sup> century can choose to be either “monologic” or “dialogic” in their approach. In an essay entitled “Methodology for the Human Sci-

ences,” the Russian cultural theorist Mikhail Bakhtin writes:

The exact sciences constitute a monologic form of knowledge: the intellect contemplates a *thing* and expounds upon it. There is only one subject here – cognizing (contemplating) and speaking (expounding). In opposition to the subject there is only a *voiceless thing*. Any object of knowledge (including man) can be perceived and cognized as a thing. But a subject as such cannot be perceived and studied as a thing, for as a subject it cannot, while remaining a subject, become voiceless, and consequently, cognition of it can only be *dialogic*.<sup>25</sup>

Thus, traditional educational modalities such as didactic lectures, posters, and written materials are monologic, and reflect the assumption that knowledge is something “out there” ready to be poured into the empty vessel that constitutes the learner’s mind.<sup>26</sup> In the monologic context, the learner is passive and “voiceless,” in effect an object receiving action, while the educator is the sole subject who knows and acts. Is it conceivable that the disappointing impact of some educational modalities<sup>4-6</sup> on professional behaviours reflects the inadequacy of a monologic approach? The alternative approach is to be dialogic, to engage learners not as objects but as subjects, independent knowers and doers who possess their own voice, and whose words must be taken into account. In this sense, dialogism is not a method but a relationship between educators and learners built on participation and interaction. Storytelling, dramatic performance, and problem-based learning are social learning methods that offer the hope of resolving the intractable behavioural challenges of the past as we enter a new century of infection prevention and control.

“The play’s the thing wherein I’ll catch the conscience of the king.” (Shakespeare’s *Hamlet* Act II, scene ii) •

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# NEW PRODUCT – CHICA-CANADA INFECTION CONTROL AUDIT TOOLKIT

The Infection Control Audit Toolkit is intended to be a resource that provides templates for infection control audits that you can use in your practice. The audits were designed by CHICA-Canada members to be used in a variety of health care settings. All audits have been reviewed by the CHICA-Canada Standards and Guidelines committee and are provided with permission from the developers.

To date, there are 11 audits that have been submitted and reviewed. We encourage you to send any additional audits that you have developed for use in your facility. Permission to use the audits must be provided in writing from the developer(s) and/or facility.

The audits currently include:

- Dental Audit Form
- Endoscopy Audit
- Hemodialysis Unit Audit
- High Level Disinfection – Outside SPD Audit

- Infection Prevention and Control Risk Assessment Guide
- Hospital-wide Infection Control and Prevention Audit and Template
- Ophthalmology O.R. Cluster Investigation and Procedure Assessment
- O.R. Audit
- Patient/Resident Service Units Audit
- Renal Unit Infection Control Audit Form
- Respiratory Outbreaks in Long Term Care Facilities Audit

The Toolkit will go into production in June 2005 with a June 30<sup>th</sup> publication date. The final product will be a binder with copies of the audits both as a printed copy and on CD. Pre-orders are welcomed. The Toolkit was introduced at the 2005 conference in Winnipeg with an invitation to pre-order at a special conference rate.

The special conference rate will be extended to all purchasers to **July 31, 2005**. An update to the Toolkit will be provided for the first year **at no additional charge**.

## CHICA-CANADA INFECTION CONTROL AUDIT TOOLKIT

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|                     | <b>MEMBER</b> (ordered after 2005 Conference)     | <b>NON-MEMBER</b> (ordered after 2005 Conference) |
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CHICA-Canada is pleased to announce an exciting new opportunity for our members. We have established a research fund. A maximum grant of \$50,000 is available to CHICA members to support research projects designed to demonstrate the value and importance and improve the practice of infection prevention and control in all health care settings.

Distribution of the grant money will be based on the number of successful applicants and the merit of the proposals received.

The application deadline is September 1, 2005. Please see the Application form and guidelines on page 89 or on the CHICA web site [www.chica.org](http://www.chica.org).

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Director, Programs & Projects

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I, the undersigned, certify that the statements in this proposal are true and complete to the best of my knowledge and accept, if a grant is awarded, the obligation to comply with the terms and conditions in effect at the time of the award.

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Please contact the Director of Programs and Projects (Bruce Gamage at 604-660-6076 or [bruce.gamage@bccdc.ca](mailto:bruce.gamage@bccdc.ca)) with any questions.

### Application Guidelines

1. This form is to be completed by individuals requesting support from the CHICA-Canada research fund.
2. Research grants are for studies designed to demonstrate the value and improve the practice of infection prevention and control in all health care delivery settings.
3. Use of the CHICA-Canada research fund will be restricted to members of CHICA-Canada in good standing.
4. A maximum of \$50,000 is available for research awards. Distribution of those funds will be based on the number of successful applicants and the merit of the proposals received.
5. Funds are granted for research studies to be completed and published within 2 years. A progress report will be required to be submitted to the Director of Programs and Projects at the end of the first year.
6. A letter of support from the agency where the research will take place should accompany the proposal.
7. A notice of approval from a Research Ethics Board should accompany the proposal if applicable.
8. Competitions will be once a year. The applications deadline is September 1 (must arrive by midnight on September 1), any Year. Submit completed applications to CHICA-Canada Research Fund, c/o CHICA-Canada MSO, PO Box 46125, RPO Westdale, Winnipeg MB R3R 3S3. [chicacanada@mts.net](mailto:chicacanada@mts.net). Please submit 3 paper copies and an electronic version.
9. The Director of Programs and Projects will appoint a committee to review all applications. The Principal Investigator (or Co-Investigator) will be given two weeks to respond to questions on the grant submission from the review committee. Responses to questions may be done by electronic or paper mail. A final decision on funding a project will be made by the CHICA-Canada Board. Successful applicants will be notified through a letter from the Director of Programs and Projects by December 1. As per the decision of the Board, a part or none of the funds may be distributed.
10. Successful applicants are required to submit a report to the CHICA Board on completion of the project and to submit an abstract on the results

at the CHICA-Canada National Conference and an article to the Canadian Journal of Infection Control.

Applicants should prepare a written proposal that includes the following sections. Proposals should be a maximum of 10 pages (typed and double spaced, using a minimum 12 point font), excluding references and résumés and appendices.

### Background and Significance:

Describe the current state of knowledge and significance of the topic. State concisely the importance and relevance of the research described in this application by relating the specific aims and objectives.

### Objectives:

List the broad, long term objectives of this work and the specific aims of this project. Be clear in the specific aims and state what the specific research proposed in this application is intended to accomplish.

### Research Design and Methods:

Describe the research design and procedures to be used to accomplish the specific aims of the project. Include study design, target population and sample, instruments and data collection tools, procedures for collecting and managing data and data analysis and interpretation.

### Timeline:

Present and outline of the sequence of planned research tasks along with an estimated duration for each task. Give proposed start date and completion date for the project.

### Budget:

Provide a realistic budget, including cost estimates for supplies, services and other direct costs. Describe the rationale for why funding support is needed from this source. Mention any constraints in obtaining this support from other sources. If the project will be partially funded by another grant or by the institution this should be specified.

### References:

All references listed should be cited in the body of the research plan.

### Résumés:

Résumés of the principal and co-investigators should be included. Maximum 2 pages for each person.

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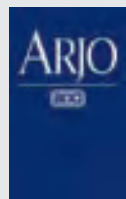


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## Membership and Expert Resource Information

Please complete all applicable sections. This information will provide accurate demographics for our Association and assist in our planning for the future. It also provides a resource of experts in the field of Infection Control, Epidemiology and associated disciplines.

### Membership Categories

Please check one (see reverse for category definitions):

ACTIVE - \$100     Renewal     New Member    ASSOCIATE - \$100     Renewal     New Member  
 INSTITUTIONAL \$150     Renewal     New Member    SILVER/RETIRED - \$50     Renewal     New Member  
 STUDENT - \$50     Renewal     New Member

I am replacing the following CHICA-Canada Member: \_\_\_\_\_

This section to be completed only by new members or if information has changed since last application.

Name: \_\_\_\_\_ Academic Designations \_\_\_\_\_

Position: \_\_\_\_\_

Place of Employment: \_\_\_\_\_

Address of Employer: \_\_\_\_\_

Office Tel: (    ) \_\_\_\_\_ Street Address \_\_\_\_\_ City \_\_\_\_\_ Prov/State \_\_\_\_\_ Code \_\_\_\_\_  
 Extension: \_\_\_\_\_ Office Fax: (    ) \_\_\_\_\_

Email: \_\_\_\_\_ Send information to my:     Office     Home address (below)

The employment information given above will be included in the CHICA-Canada Membership Directory. If you do not wish to have your information printed in the Directory, advise the Membership Services Office in writing by December 31<sup>st</sup> each year.

Home Address (optional) \_\_\_\_\_

Home Tel (optional): (    ) \_\_\_\_\_ Street Address \_\_\_\_\_ City \_\_\_\_\_ Prov/State \_\_\_\_\_ Code \_\_\_\_\_  
 (please list if no employer listed above, for contact info only)

DISCIPLINE:     RN     Microbiologist     MD     Technologist     Other \_\_\_\_\_  
 EDUCATION     Diploma     Bachelor     Master     Doctorate     Other \_\_\_\_\_  
 CERTIFICATION  CIC - Year of Exam \_\_\_\_\_  Other \_\_\_\_\_  
 INSTITUTION:     Hospital     Long Term Care     Community Health     Industry     Other \_\_\_\_\_  
 # OF BEDS:     1 to 99     100 to 249     250 to 499     500 to 699     700 to 999     1000 or more     N/A  
 COMMUNICATION:  English     French

### Chapter Membership

Chapter membership is not compulsory for membership in CHICA-Canada; however, Chapter members **must** be members of CHICA national (CHICA-Canada Policy 8.60). There are 19 local Chapters of CHICA-Canada (see list below). Membership in your local Chapter provides invaluable networking, education and communication opportunities. **Individual Chapter Membership Fees (see below) will be collected at the national level, and should be remitted with this application.** To contact your nearest chapter, a list of Chapter Presidents is available on line at [www.chica.org](http://www.chica.org)

I am a member of \_\_\_\_\_ Chapter     I am not a member of a local Chapter. Please send me more information

\*Newfoundland and Labrador - \$20.00  
 \*New Brunswick/PEI - \$20.00  
 \*Infection Control Association of Nova Scotia (ICANS) - \$20.00  
 \*Montreal P.I. - \$20.00  
 \*Eastern Ontario Professionals in Infection Control (EOPIC) - \$20.00  
 \*Renfrew County Organization for Professionals in Infection Prevention and Control (RCOPIC) - \$20.00  
 \*Central Ontario Professionals of Infection Control (COPIC) - \$20.00

\*Ottawa Organization for Professionals in Infection Control (OOPIC) - \$20.00  
 \*Southern Ontario Professionals in Infection Control (SOPIC) - \$25.00  
 \*Toronto and Area Professionals in Infection Control (TPIC) - \$30 (\$40 after January 31)  
 \*Hamilton and Neighboring Districts Infection Control Group (HANDIC) - \$20.00  
 \*Huronia Professionals of Infection Control (HUPIC) - \$20.00

\*Northwestern Ontario Professionals in Infection Control (NWOPIC) - \$30.00  
 \*Manitoba Chapter - \$15.00  
 \*Saskatchewan Professionals in Infection Control (SASKPIC) - \$15.00  
 \*Southern Alberta Professionals in Infection Control (SAPIC) - \$20.00  
 \*Northern Alberta Professionals in Infection Control (NAPIC) - \$20.00  
 \*British Columbia Professionals in Infection Control (BCPIC) - \$20.00  
 \*Vancouver Island Professionals in Infection Control (VIPIC) - \$20.00

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## 2005 Membership Application and Payment Verification

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### Membership Benefits

- Subscription to The Canadian Journal of Infection Control
- Annual Membership Directory
- Professional exchange of ideas
- Access to CBIC certification
- Local Chapter activities and support
- Development of infection control standards
- Reduced registration fees for annual conference and other education offerings
- Access to Members Only section of website, [www.chica.org](http://www.chica.org)
- Push emails, providing timely infection control updates

### Membership Categories

**Active/Professional:** Individuals occupationally or professionally involved in the practice of Infection Control and/or Epidemiology. May vote, hold office and serve on committees.

**Associate/Business:** Industry representatives, as well as those not actively involved in the practice of infection control and/or epidemiology. May not vote or hold elected office.

**Institutional:** Health care related institutions or agencies interested in fostering the purposes and objectives of the Association.

**Student:** Full-time student attending an infection control related program. May not vote or hold elected office. Applications for Student membership must be accompanied by a letter of attestation that you are a full-time student attending an infection control related program.

**Silver Membership – Retired:** Neither employed nor seeking employment. May not vote or hold elected office.

The membership year is the calendar year, January 1<sup>st</sup> to December 31<sup>st</sup> of the same year. New membership application and dues received prior to November 1<sup>st</sup> are effective immediately and expire December 31<sup>st</sup> of the same year. Those received after November 1<sup>st</sup> are effective immediately and expire on December 31<sup>st</sup> the following year. Memberships are transferable during the membership year with a \$25.00 administrative fee. Fees will not be refunded after 30 days of receipt. There will be a \$15.00 charge for all returned cheques. Payment must accompany application. No post-dated cheques.

### Section 1: APPLICATION FOR CHAPTER MEMBERSHIP – For your nearest Chapter, see reverse

I am a member of/ I am joining \_\_\_\_\_ Chapter. Chapter Fee: \$ \_\_\_\_\_ (Sub Total A)

### Section 2: APPLICATION FOR INDIVIDUAL MEMBERSHIP (Active, Associate or Student)

Individual Membership fees: \$100.00 (CAD\$) or Retired or Student fees \$50.00 \$ \_\_\_\_\_ (Sub Total B)

### Section 3: APPLICATION FOR INSTITUTIONAL MEMBERSHIP (Active or Associate)

This category will be beneficial to those agencies which have two or more representatives in the Association and/or a turnover of representatives in any calendar year. An "institution" is defined as one physical site with representatives to the Association employed at that site. If any agency has more than one physical location throughout the province or the nation, each site would be designated an "institution" for purposes of membership.

An annual fee of **\$150.00** for the first representative of the institution and an annual fee of **\$50.00** for each additional representative from the institution. If one representative leaves during the calendar year and the institution names another representative, the \$50.00 fee would again apply and the previous membership would be cancelled. **At least one representative must be named.**

**Additional representatives:** List on a separate page and return a completed Membership Application Form for each name on the list.

Facility/Agency \_\_\_\_\_ First Representative: \_\_\_\_\_

Address: \_\_\_\_\_  
Street City Prov/State Code

Tel: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ Email: \_\_\_\_\_

Institutional Membership fees: \$150.00 Institutional Fee: \$ \_\_\_\_\_

Additional Representatives: \$ 50.00 each x \_\_\_\_\_ = Additional Reps: \$ \_\_\_\_\_

Total Institutional Membership Fee: \$ \_\_\_\_\_ (Sub Total C)

### Section 4: TOTAL MEMBERSHIP FEES DUE

Sub Total of Membership Fees (from sections 1 through 3, above) \$ \_\_\_\_\_ (Sub Total D)

Enclosed is my additional donation to CHICA-Canada in the amount of \$ \_\_\_\_\_ (Sub Total E)

**TOTAL AMOUNT ENCLOSED:** \$ \_\_\_\_\_ (TOTAL F)

Please charge my VISA or MASTERCARD. Card Number: \_\_\_\_\_ Expiry Date: \_\_\_\_/\_\_\_\_

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# 2006 Board positions available for nomination

The Board of Directors of CHICA-Canada is seeking nominations for Board positions in 2006. Being on the Board of CHICA-Canada is an excellent way to participate at the national level. Personally and professionally, it offers you 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 of Finance (3 year term)**  
**Physician Director (3 year term)**

These terms commence January 1, 2006. Position descriptions and nomination forms are found in the CHICA-Canada Policy and Procedure Manual or may be obtained from the Membership Services Office or downloaded from [www.chica.org](http://www.chica.org).

Signatures of two active members are needed 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:

Pearl Orenstein, RN, BA, DIA, CIC  
CHICA-Canada Secretary/Membership Director  
c/o Membership Services Office  
PO Box 46125 RPO Westdale  
Winnipeg, MB R3R 3S3

**Deadline for nominations is August 15, 2005**

## Be an author for the Journal

If you wish to  
contribute articles  
on research or  
general interest  
please contact the  
Clinical Editor

**Pat Piaskowski**  
**807-684-6040**  
**[piaskowp@tbh.net](mailto:piaskowp@tbh.net)**



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# Case study on construction infection control

## Active Blood and Marrow Transplant Unit, Health Sciences Centre — Winnipeg, MB

By Vince D'Angiolo CET. Pinchen Environmental Ltd., Winnipeg.

The first of its kind in Canada and possibly North America, the Construction Infection Control Project was completed within a nursing station serving an active Blood and Marrow Transplant (BMT) Unit at the Health Sciences Centre (HSC) in Winnipeg, Manitoba while it remained fully operational. Pinchen Environmental Ltd. acted as the infection control consultant and through a team approach with HSC's Maintenance Services Department, Infection Control Department, unit staff and Winnipeg Regional Health Authority, was successful in renovating the station whilst patient care in the BMT unit continued.

The unit serves patients receiving blood and marrow transplants and other organ related treatments. In most cases their immune systems are artificially suppressed. These patients are at a greater risk of developing nosocomial infection compared to most other patients; therefore any activities resulting in the generation of dust must be carefully monitored. Particulate generated during construction or renovation activities can contain mould known as *Aspergillus*.

As nosocomial aspergillosis is often associated with construction activities, isolation of the work area and monitoring activities become key components of construction in these and similar areas.

Numerous published reports have linked construction activities in hospitals to outbreaks of aspergillosis which have had fatal outcomes to multiple patients.

The BMT unit's nursing station was in need of an upgrade, which required demolitions, new construction as well as electrical and mechanical upgrades. In reference to the CSA Guideline Z317.13-03 "Infection Control during Construction or Renovation of Health Care Facilities" and Health Canada's

document titled, "Construction-related Nosocomial Infections in Health Care Facilities," the construction work was classified as a Type D activity, which required Class IV procedures and precautions to protect the patients classified as a Group 4 (highest risk) population.

Prior to the start of any dust-generating activities, baseline air samples were collected. These included measurements for airborne particulates and mould respectively by use of a portable aerosol monitor and an N6 multi-hole impactor, high flow pump and suitable growth media. The analysis of mould air samples identified the total concentrations and mould species by culturing of viable spores.

The samples were analyzed at the Pinchen Environmental Microbiology Laboratory, in Mississauga. The laboratory is accredited for culture and direct microscope fungal analysis by the American Industrial Hygiene Association (AIHA) Environmental Microbiology Laboratory Accreditation Program and participates in the AIHA Environmental Microbiology Proficiency Analytical Testing Program.

Each sample was cultured for five days after which colonies were counted. Representative colonies were then transferred to secondary media and then incubated for seven to 10 days after which they are identified to the genus or species level based upon current fungal taxonomic keys. Upon receipt of the laboratory report, the results were interpreted and made available to HSC.

Based on the above published standards, Pinchen developed site specific procedures for the isolation of the construction area and inspected all phases of the work until completion.

The construction portion of the work was performed by the HSC In-House team and was completed over

a six-week period. Pinchen provided on-site training and advice to the HSC team on establishing containment and minimizing particulate generation during performance of the work. BMT unit staff and HSC's Infection Control department also provided valuable input and were kept informed on all phases of the project.

Containment included installation of slab-to-slab hoarding walls to isolate the work area, negative air pressure to 0.035 inches water column in the work area relative to adjoining patient areas and isolation of the HVAC system. To assist in evaluating the effectiveness of the containment during the construction phase, particulate measurements, with instantaneous results, were collected on a daily basis within the construction area, the active BMT unit (both inside and outside of patient care rooms), and outside the BMT unit. Pinchen's findings indicated that concentrations measured outside of the construction area remained similar to those of the baseline measurements. Mould air samples for viable spore analysis were collected on a weekly basis in the same locations as those of the particulate measurements. Analytical results of the mould samples did not identify any *Aspergillus* in the patient care rooms. The total concentrations of mould within the occupied BMT unit were similar to that of the baseline measurements. The controls and procedures implemented (hoarding walls, HVAC isolation, negative pressure, etc.) was found to be effective in minimizing the risk of nosocomial infection by containment and prevention of particulate from the construction area migrating into the high risk patient area.

The team approach of developing infection control strategies, inspecting the construction area during all project phases, combined with air monitoring

(particulate and airborne mould) ensured and demonstrated the success of this project. This approach is becoming widely recognized as necessary in all health care construction. It is the standard expected of construction when hospitals remain operational during renovations. ●

*Vince D'Angiolo CET, is a Senior Project Manager with Pinchin Environmental Ltd. For additional information call 204-452-0983 or write vdangiolo@pinchin.com*



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# 2006 NATIONAL EDUCATION CONFERENCE

## "BRIDGING GLOBAL PARTNERSHIPS"

London, Ontario – May 6-10, 2006

### 2006 Conference

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Margie Foster RN CIC  
Director, Infection Control  
Grand River Hospital KWHC  
Kitchener ON

#### Scientific Program Chair

Debby Kenny RN COHN(C)  
Regional Mental Health Care - London  
London ON

**Conference Planner** Gerry Hansen BA, CHICA-Canada  
Kelli Wagner, Conference Assistant

### Scientific Program Committee

#### 2006 Conference Chair

Margie Foster RN CIC  
Grand River Hospital  
Kitchener ON

#### 2006 Scientific Program Chair

Debby Kenny RN COHN(C)  
Regional Mental Health Care - London  
London ON

#### 2006 Scientific Program Committee

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London ON

Joanne Dow RN BScN  
Middlesex-London Health Unit  
London ON

#### CHICA-Canada Conference Planning Office

Gerry Hansen BA, Conference Planner  
Kelli Wagner, Secretarial Support







## Registration Fees (Plus GST – 118833201RT0001)

### To April 17

|   | Member   | Non-Member |
|---|----------|------------|
| Novice ICP Day  | \$50.00  | \$75.00    |
| PreConference – Half Day                              | \$75.00  | \$100.00   |
| PreConference – Full Day                              | \$100.00 | \$150.00   |
| Conference, not including PreConference Day or novice | \$350.00 | \$450.00   |
| Daily, not including PreConference Day, each day      | \$150.00 | \$200.00   |
| Student, Daily, each day*                             | \$75.00  | \$75.00    |
| Silver <sup>1</sup> , Daily, each day                 | \$75.00  | \$75.00    |

### After April 17

|   |          |          |
|---|----------|----------|
| Novice ICP Day  | \$50.00  | \$75.00  |
| PreConference – Half Day                              | \$100.00 | \$150.00 |
| PreConference – Full Day                              | \$200.00 | \$300.00 |
| Conference, not including PreConference Day or novice | \$450.00 | \$600.00 |
| Daily, not including PreConference Day, each day      | \$200.00 | \$300.00 |
| Student, Daily, each day*                             | \$75.00  | \$75.00  |
| Silver <sup>1</sup> , Daily, each day                 | \$75.00  | \$75.00  |

\*Registration must be accompanied by a letter of attestation by the teaching institution that the applicant is a full time student in a field related to infection control.

<sup>1</sup> Retired and not seeking employment in infection control.

Fees include Continental Breakfast (Sunday, Monday, Tuesday, Wednesday), Lunch (Sunday, Monday and Tuesday) President's Reception, Sunday, May 7, included in registration. Non-registered guests: \$25.00 per person, plus GST. Gala Anniversary Celebration, Tuesday, May 9. Not included in registration. \$75.00 per person, plus GST

## Cancellation Policy

Cancellation request must be submitted in writing. Those received by March 17, 2006 – 70% refund; those received by April 7, 2006 – 50% refund; those received after April 7, 2006 cannot be refunded. Registrations may be transferred **at any time without penalty**.

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# CALL FOR ABSTRACTS

## Deadline for submission: January 27, 2006

Abstracts for presentation at the 2006 National Education Conference of the Community and Hospital Infection Control Association Canada will be accepted until the close of business January 27, 2006. The Abstract Committee reserves the right to select papers for presentation on the basis of relevance and interest, and to choose the types of presentation.

## Abstract Preparation and Guidelines for Acceptance

### A. Content

1. Abstracts should be based on results that have not or will not be published or presented before the meeting date.
2. The potential significance of the observations, as well as the scientific and/or educational quality of the work will influence which abstracts are accepted. Where possible, the author(s) should emphasize the features of the project that are new or different.
3. All concepts and abbreviations must be defined at first use in the body of the abstract.
4. Any corporate assistance must be acknowledged.
5. Any sources of funding must be acknowledged.

### B. Format

Abstracts should be submitted in one of the following formats:

**Format 1:** This format is intended for abstracts involving the presentation of scientific research findings, such as those involving randomized clinical trials, case-control, observational or descriptive studies, or outbreak investigations where appropriate comparisons or analysis of data has been performed.

**NOTE:** The abstract should disclose primary findings and not include statements such as "experiment in progress" or "results will be discussed."

**Abstract Title:** (CAPITAL LETTERS)

**Authors:** The presenter must be denoted with an asterisk, e.g.: Rivers, T\*, General Hospital, London, Ontario

**Background/Objectives:** Outline study objectives, the hypothesis to be tested, or description of the problem.

**Methods:** Report methods used or approach taken.

**Results:** Indicate essential results obtained in summary form with appropriate statistical analysis (p value, confidence intervals, odds ratio, etc.)

**Conclusions:** Provide a summary of findings as supported by results with implications and conclusions.

**Format 2:** The format is intended for abstracts involving the description of educational or performance improvement programs, observations, or other infection prevention activities, including descriptions of facility or community-based programs or interventions, discussions or infection prevention policy, and descriptions of a particular prevention model or method.

**Abstract Title:** (CAPITAL LETTERS)

**Authors:** (The presenter must be denoted with an asterisk, e.g. Sauvignon, C\*, Shakespeare, W, General Hospital, London, Ontario

**Issue:** Identify the specific problems or needs addressed. Provide brief introduction of the proposed topic. Include important background and current information on issues.

**Project:** Description of the intervention/program

**Results:** Specific results in summary form.

**Lessons Learned:** Summary of the lessons learned and implications.

### C. Major Interest (select one)

- Clinical Infectious Diseases
- Infection Prevention and Control

### D. Subject Categories (select only one)

The author(s) should select the one subject category that best categorizes the submissions. This will assist conference planners in organizing the program. If the presenting author prefers a poster presentation, that preference must be indicated at the time of submission.

- Antimicrobial Resistance
- Ambulatory Care
- Antisepsis/Disinfection/Sterilization
- Cost Effectiveness
- Device Related Infections
- Emerging Pathogens
- HIV/AIDS/Hepatitis
- Home Care
- Infection Control Programs
- Infections in the Immunocompromised host
- Long-term care
- Molecular Epidemiology
- Occupational Health
- Outbreak Investigation
- Pediatrics
- Product Evaluation
- Quality/Process Improvement/Adverse Events
- Surveillance
- Site Specific Infections (SSI, Pneumonia, UTI, Bloodstream)
- Tuberculosis
- Other

### E. Preferred method of Presentation if abstract selected (select one only)

- Poster
- Oral presentation
- No preference

### F. Guidelines for Abstract Selection

Abstracts not meeting the stipulations outlined under both A(Content) and B (Format) above will not be considered for acceptance.

## Submission of Abstracts

1. Emailed submissions are preferred. The file must be compatible with Word or WordPerfect for Windows. Email to [chicacanada@mts.net](mailto:chicacanada@mts.net).
2. Mailed submissions must consist of one paper copy plus a floppy disk or CDROM containing the abstract on a file compatible with Word or WordPerfect for Windows. Mail to 2006 National Education Conference, c/o CHICA-Canada, PO Box 46125 RPO Westdale, Winnipeg MB R3R 3S3. Courier deliveries to 67 Bergman Crescent, Winnipeg MB R3R 1Y9
3. Abstracts must be postmarked or received by email by January 27, 2006
4. Abstracts should be typed single spaced, of a finished size not more than 7" w x 6" h. Do not include borders in your submitted abstract. Indent the body of the abstract five spaces. Use no less than 10 and no more than 12 characters per inch.
5. Abstracts will be reproduced and submitted for inclusion in the pre-conference issue of the Canadian Journal of Infection Control. Presenters must be registered at the conference.
8. Include the following information with the abstract:
  - Full name, professional mailing address, telephone and email address of the author who will present the paper.
  - Preference: Oral Presentation, Poster Presentation, or No Preference
  - Indicate if the presenter is a First-time Presenter.
  - Indicate if the authors are interested in authoring an article for publication in either journal.

# Infection Control called up from the minors, again

By Anne Matlow and Dick Zoutman

Those of us in the field have known for years that infection control should be playing in the major leagues, but obviously this fact has not been apparent to all. A few years ago, during SARS, government, administration and the public started to see the light. But that trip to the majors was not sustained. Now Patient Safety (PS) has come along, again bringing infection control to the big leagues. Is this finally our ticket to a long and glorious career in the sun, or is PS just a passing fling?

Check out the past year. Last May in Canada, PS got some publicity with the publication of the Canadian adverse events study (1). In a review of 3,745 charts from 20 hospitals, 7.5% of patients were found to have suffered an adverse event, defined as unintended injury or complication resulting in disability at the time of discharge, death, or prolonged hospital stay, unrelated to the primary diagnosis. Of those adverse events, 37% were deemed preventable. Hospital acquired infection or sepsis was the third most common criterion used to identify adverse events associated with hospitalization.

Next, the Canadian Council on Health Services Accreditation let PS score some goals with release of the 2005 PS Goals and Required Organizational Practices (ROPs). These goals and ROPs came into effect and will be recognized as part of the accreditation process starting in 2006. The sixth of six PS goals is to reduce the incidence of healthcare acquired infections through:

- Adherence to provincial or federal infection control guidelines and recommendations,
- Education of hospital staff, other providers, and volunteers around hand hygiene,
- Monitoring infection rates across the organization and sharing them with staff, and

- Examining and where indicated improving processes for sterilization and disinfection of medical equipment.

In Canada, the latest acknowledgement of the integral relationship between PS and Infection Control has come with the launching of the 'Canadian Safer Healthcare Now!' (www.saferhealthcarenow.ca) campaign. Mirroring the American 100,000 Lives campaign, Safer Healthcare Now! aims to reduce the incidence of preventable mortality by application of evidence based practices in six key areas. Three of the six interventions being targeted are infection control related, including:

- Preventing central line infections
  - Preventing surgical site infections,
  - Preventing ventilator-associated pneumonia.
- (Participation in this campaign is optional.)

The accreditation process is perhaps our strongest weapon. In the US, many states require hospital accreditation through the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in order for the hospital to be licensed, while hospitals not regulated by this legislation go through the process for other reasons, including demonstrating their commitment to quality and safety and thereby improving patient care. In Canada, hospital accreditation is optional, and is done for many reasons, including those cited above.

For 2005, one of JCAHO's National Patient Safety Goals is to reduce the risk of health care-associated infections, by the following interventions: Complying with current Centers for Disease Control and Prevention (CDC) hand hygiene guidelines, and by managing as sentinel events all identified cases

of unanticipated death or major permanent loss of function associated with a health care-associated infection.

Recently, the following question regarding the survey process for hand hygiene compliance was posted on JCAHO's website (www.jcpatientsafety.org).

**Question:** How will this "hand hygiene" requirement (7a) be surveyed and scored?

**Answer:** Compliance with the "CDC guidelines" requirement will be surveyed through interviews with caregiver staff and direct observation. Caregivers should know what is expected of them with regard to hand hygiene and should practice it consistently.

- A minimum of 90% compliance will be expected.
- Surveyors will score by counting observations.
- One occurrence equals one observation of non-compliance with CDC category I recommendations.
- Three occurrences equal a Requirement for Improvement.

A colleague in the US has shared her experience with a recent JCAHO accreditation. The surveyors go to the wards and ask the staff: "when is it acceptable to use foam?" or "can you use foam all the time?" To be able to answer the question, it is clear that the staff need to be educated. To do so, there must be a two pronged institutional commitment to infection control: allocation of resources (time and money) to both teaching and learning.

It is just the beginning. We may yet sit some games out on the bench, but there is no doubt that in everyone's eyes, infection control has the ability to pitch a perfect game. Certainly, it's better to be playing in the big leagues, and as they say, it's never over till it's over. ●



# Looking back at the

## 2005 National Education Conference Winnipeg Convention Centre • May 7-11, 2005

WINNIPEG, MANITOBA

### 2005 Conference Award and Prize winners

#### Early Bird Draw

Complimentary 2006 Conference registration  
– Stephanie Trowbridge, Ontario

#### Exhibit Passport Winners

Digital Camera – Linda Heimbach, Yukon Territories  
MP3 – Gwen Connor, Manitoba

#### Strut Your Stuff! Breakfast

Complimentary 2006 Membership  
– Berlee Penny, New Brunswick

#### Conference Evaluation Draw

Complimentary 2006 Conference Registration  
– Pam Siddall, Ontario

#### 2006 – 30<sup>th</sup> Anniversary Logo

Co-winners Pamela Armstrong, Alberta and Bill Walker, British Columbia each receive a complimentary 2006 Conference Registration.

#### 2005 Poster Contest, sponsored by Ecolab

– Lori Jessome, Nova Scotia

#### 3M Chapter Achievement Award

– CHICA-Canada – Southern Alberta

#### CBIC Chapter Achievement Award

– CHICA-Canada – Southern Alberta



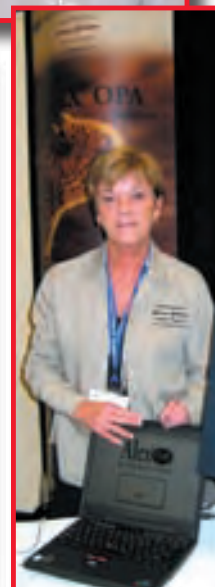
#### Southern Alberta Chapter

– Dual winners in Winnipeg! CHICA-Canada – Southern Alberta has won two major chapter achievement awards. The 3M Chapter Achievement Award is a \$1,500 award for an educational project presented to the chapter which has best demonstrated significant chapter activities in education, membership recruitment and retention, and networking. The Certification Board of Infection Control presents an annual Chapter Achievement Award to a Canadian chapter of CHICA-Canada that promotes certification and demonstrates an increase in certification of members. The prize is a plaque from CBIC and a cash award. The members of CHICA-Canada – Southern Alberta have had an exciting year with many projects centred on education and promotion of infection prevention and control. Noteworthy was their hosting of the 2004 Conjoint Conference in Calgary.

#### Awards of Merit presented in Winnipeg

Awards of Merit were presented to Ilana Warner (left) and Brenda Dyck (right) for their support in the development of the ARO video: *Across the Spectrum of Care*. Answering a nation-wide call for assistance from Bruce Gamage, Director of Programs and Projects, Ilana and Brenda assisted in the development and production of the video, which was sponsored by Wyeth Ayerst. A complimentary copy of the video was sent to all 2004 CHICA-Canada members. Additional copies are available from CHICA-Canada at \$25.00 each (plus s&h, plus GST).





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# *Mini Folklorama Banquet*



*Guests enjoyed an evening of cultural entertainment from Winnipeg's Folk Arts Council and even learned a few dance steps!*





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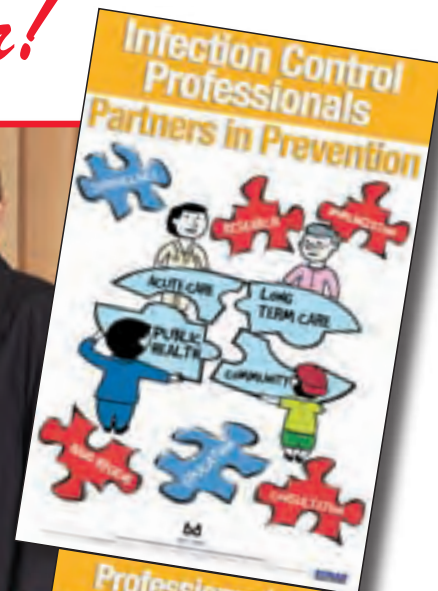
  
atlas graham

# 2005 Poster Contest Winner!

Lori Jessome of Halifax, Nova Scotia has won the 2005 Poster Contest with her submission themed “Infection Control Professionals – Partners in Prevention.” The winning poster was unveiled at the Opening Ceremonies of the 2005 National Education Conference in Winnipeg. The 2005 contest was hosted by the Hamilton and Neighbourhood Districts Infection Control Group (HANDIC) Chapter of CHICA-Canada and sponsored by Ecolab Healthcare.

The 2005 poster is available for downloading from [www.chica.org](http://www.chica.org) (Members Only).

The 2006 Poster Contest will be hosted by the Toronto Professionals in Infection Control (TPIC) and sponsored by Ecolab Healthcare. Watch for an announcement of the 2006 Poster Contest in the fall 2005 issue.





### Protecting Healthcare Professionals and Patients from infection can be as simple as slipping on a “glove”.

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to arrange a demonstration

**Flexi-Seal® FMS is an effective fecal diversion and containment system designed to reduce the risk of skin breakdown and spread of infection due to fecal containment both of which can extend the length of hospital stay.<sup>1</sup>**

Created by ConvaTec, a Bristol-Myers Squibb Company with a long history of developing innovative skin, wound, and ostomy products that respond to the needs of the caregiver and patient alike.

Please see package insert for full product information, including instructions for use.

1. Clinical evaluation of a flexible fecal incontinence management system. Phase II clinical results (n=10), July 2004. Data on File, ConvaTec.

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## gelFAST: increasing hand hygiene compliance

Gelfast is a wearable dispenser of antiseptic alcohol gel, designed from the ground up for one purpose only: to improve hand hygiene frequency among Health Care Workers (HCWs).

The importance of increased hand hygiene among HCWs is widely recognized, but numerous studies have concluded that HCWs disinfect hands on average 40% as often as required. Because Gelfast is worn on the body and ergonomically designed, hand hygiene is made very convenient and always accessible, and a consistent habit of frequent handwashing quickly develops.

Developed by a team of designers, physicians, and scientists as a way to equip caregivers with the tools they need, Gelfast was designed to create a strong habit of hand hygiene, removing systemic barriers to clean hands and a safer hospital environment.

Gelfast cartridges contain 50ml of 70% ethyl alcohol gel with emollients. The gel product is clear and unscented. Each disposable Gelfast cartridge was designed to last even the most intense user a full shift.

Increased hand hygiene compliance rates are associated with reduced infection rates, and trials have shown that Gelfast's ergonomic design allows near-instant initiation of hand hygiene, facilitating the development of instinctive handwashing habits and increased compliance rates.

Medonyx of Toronto, Ontario introduced Gelfast at this year's CHICA-Canada conference in Winnipeg.

Gelfast won gold in Canada's top product design competition, the National Post Design Exchange Award 2004. For more information visit the Medonyx website at [www.medonyx.com](http://www.medonyx.com) or call 866-633-6699.



## Convatec launches fecal incontinence management system

ConvaTec, introduced its new Flexi-Seal Fecal Management System (FMS) for patients with episodic fecal incontinence at this year's CHICA-Canada conference.

Flexi-Seal FMS, a new advanced alternative to more traditional diversion and containment, is designed to improve fecal incontinence management. The system is indicated for patients with liquid to semi-liquid stool.

Ineffective fecal incontinence management can lead to serious skin breakdown, which can increase a patient's per hospital stay an average of four days. Resulting hospital-acquired infection may result in an added cost of nearly \$39,000 USD. Ineffective fecal incontinence management is reportedly associated with high incidence of dermatitis and ulceration. More traditional fecal incontinence management systems can demand up to 50 % of an Intensive Care Unit (ICU) nurse's patient care time.

"The Flexi-Seal® FMS is designed to reduce the risks of skin breakdown and the spread of infection related to fecal incontinence," says Franco Di Clemente, ConvaTec Senior Product Manager. "In addition, Flexi-Seal FMS protects wounds, surgical sites and burns through the containment of fecal matter, helping to reduce the risk of complications that can extend the length of a patient's hospital stay. This system is designed to improve patient comfort, restore patient dignity and reduce the cost of managing fecal incontinence."

Flexi-Seal® Fecal Management System contains a soft silicone catheter assembly. The soft catheter is inserted into the rectum and retained using a low pressure retention balloon. The unit then diverts and contains fecal waste, protecting the patient's skin, to help decrease the risk of skin breakdown and infection from fecal matter.

For more information about ConvaTec and Flexi-Seal visit the company's web site at [www.convatec.com](http://www.convatec.com).



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