

The Canadian Journal of INFECTION CONTROL

Revue canadienne de PRÉVENTION DES INFECTIONS

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

INSIDE:

Protect your hands; optimize gloving practice

Utilization of additional precautions
at a Canadian tertiary care centre

The audit process: Part III Closing the loop

The experience of source isolation for
Clostridium difficile in adult patients and their families



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EDITORIAL OFFICE

Patricia Piaskowski, RN, HBScN, CIC, Network Coordinator
 Northwestern Ontario Infection Control Network
 289 Munro Street, Thunder Bay, ON P7A 2N3
 (807) 683-1747 Fax: (807) 683-1745
 E-mail: piaskowp@tbh.net

WEB COMMUNICATION MANAGER

Shirley McDonald, ART chicawebmaster@mts.net

CHICA CONNECTIONS - WEB DISCUSSION BOARD

Jim Gauthier, MLT, CIC chicacconnections@mts.net

POSTING EMPLOYMENT

OPPORTUNITIES/OTHER INFORMATION

CHICA-Canada Membership Services Office
 chicacanada@mts.net



PUBLISHER



3rd Floor, 2020 Portage Avenue
 Winnipeg, MB R3J 0K4
 Tel: (204) 985-9780 Fax: (204) 985-9795
 www.kelman.ca E-mail: info@kelman.ca

EDITOR - Cheryl Parisien

DESIGN/PRODUCTION - Tracy Toutant

SALES MANAGER - Aran Lindsay

ADVERTISING COORDINATOR - Lauren Campbell

Send change of address to:

CHICA Canada
 P.O. Box 46125, RPO Westdale,
 Winnipeg, MB R3R 3S3
 chicacanada@mts.net



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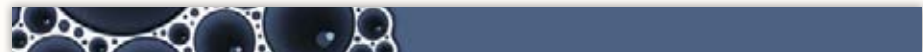
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CHICA-Canada will be a major national and international leader and the recognized resource in Canada for the promotion of best practice in infection prevention and control.

MISSION

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

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



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Network Coordinator
OAHPP Central South Infection Control Network
St. Joseph's Villa
56 Governor's Road, Dundas, ON L9H 5G7
Tel: 905-627-3541 ext 2481 Fax: 905-627-6474
bialach@hhsc.ca

President-elect

Donna Wiens, RN, BN, CIC
Director Infection Prevention & Control
St. Paul's Hospital
1702 20th Street W, Mail Box 23
Saskatoon, SK S7M 0Z9
Tel: 306-655-5034
Fax: 306-655-5555
donna.wiens@saskatoonhealthregion.ca

Past President

Cathy Munford, RN, CIC
Infection Control Practitioner
Victoria General Hospital
1 Hospital Way, Victoria, BC V8Z 6R5
Tel: 250-727-4021 Fax: 250-727-4003
cathy-munford@shaw.ca

Secretary/Membership Director

Bern Hankinson, RN, BN, CIC
Infection Prevention & Control Practitioner
Wetaskiwin Hospital
6910 47th Street, Wetaskiwin AB T9A 3N3
Tel: 780-361-4398 Fax: 403-361-4107
bhankinson@dthr.ab.ca

Director of Finance

Judi Linden, RN, BN, COHN(C), CIC
Infection Control Practitioner
Portage General Hospital
524 5th Street Southeast
Portage La Prairie, MB R1N 3A8
Tel: 204-239-2211 ext 264 Fax: 204-239-2298
jlinden@rha-central.mb.ca

Directors

Director of Education

Donna Moralejo, PhD
Memorial University School of Nursing
300 Prince Philip Drive, St. John's NL A1B 3V6
Tel: 709-777-6527 Fax: 709-777-7037
moralejo@mun.ca

Director, Programs & Projects

Karen Clinker, MEd, BScN, CCOHN, CIC
Infection Control Consultant
OAHPP Northwestern Ontario IC Network
100 Casimir Ave, Suite 217, Box 116
Dryden ON P8N 3L4
Tel: 807-223-4408 Fax: 807-223-4139
clinker@tbh.net

Director, Standards & Guidelines

Jennifer Grant, MDCM, FRCP(S)
Clinical Assistant Professor/Lab Medicine
Vancouver Hospital/HSC
JPN 1110-855 West 12th Ave
Vancouver, BC V5Z 1M9
Tel: 604-875-4111 ext. 69503 Fax: 604-875-4359
jennifer.grant@vch.ca

Physician Director

Michael Gardam, MSc, MD, CM, MSc, FRCPC
Director Infection Prevention/Control Unit
University Health Network
200 Elizabeth Street, Toronto, ON M5G 2C4
Tel: 416-340-3758 Fax: 416-340-5047
Michael.gardam@oahpp.ca

Other Positions

Archivist

Mary LeBlanc, RN, BN, CIC
RR#2, Civic #11763
Tyne Valley, PE COB 2C0
nanaandpapa@route2.pe.ca

Clinical Editor – Canadian Journal of Infection Control

Pat Piaskowski, RN, HBSCh, CIC
Network Coordinator
OAHPP Northwestern Ontario IC Network
289 Munro Street
Thunder Bay ON P7A 2N3
Tel: 807-683-1747
Fax: 807-683-1745
piaskowp@tbh.net

Distance Education Coordinator

Karen Dobbin-Williams, MN, RN
28 Dalhousie Crescent
Mount Pearl NL A1N 2Y4
Tel: 709-745-7341
kdobbinw@mun.ca

Web Master

Shirley McDonald, ART
RR 3, 4759 Taylor-Kidd Blvd
Bath ON K0H 1G0
Tel: 613-389-9810
Fax: 613-389-8468
chicawebmaster@mts.net

Professional Agents

Legal Counsel

Elliot Leven, LLB
Elliot Leven Law Corporation
204-100 Osborne Street
Winnipeg MB R3L 1Y5
Tel: (204) 944-8720
Fax: (204) 944-8721
leven@levenlegal.com

Auditor

Philip Romaniuk, CA
Stefanson Lee Romaniuk
1151 Portage Avenue
Winnipeg MB R3G 0S9
Tel: (204) 775-8975
promaniuk@slrca.ca

Membership Services Office

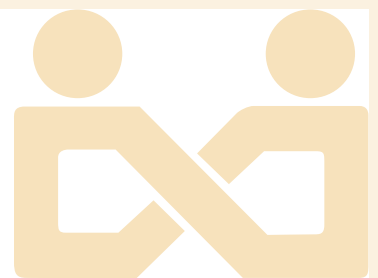
Executive Director/ Conference Planner

Gerry Hansen, BA
PO Box 46125 RPO Westdale, Winnipeg MB R3R 3S3
Tel: 204-897-5990/866-999-7111
Fax: 204-895-9595
chicacanada@mts.net

Deliveries only:
67 Bergman Crescent, Winnipeg MB R3R 1Y9

Administrative Assistant

Kelli Wagner
kelli_wagner@mts.net





Pat Piaskowski, RN, HBS, CIC

Clinical Editor, *Canadian Journal of Infection Control*

Lessons from the airline industry

It has been said that flying is a very safe way to travel. In fact, the probability of a person being killed in an airline accident on a single flight is eight million to one. If a person were to randomly board one flight per day it would be over 21,000 years before they would be killed.¹

This is an extremely low risk compared to the often quoted 5-10% (or 1 in 10 to 20 risk) risk of acquiring an infection from a healthcare encounter or stay.

Why is flying so safe in contrast to healthcare?

Perhaps it is due to the fact that when there is an airline accident there is instant media and public attention drawn to the fatalities and injuries, especially when there are numerous casualties. After each accident there is also an immediate investigation with a special team brought in to scour the wreckage and review cockpit voice recordings and other “black box” data. After extensive review recommendations are made which are communicated throughout the airline industry in an effort to prevent similar occurrences. In addition, as a preventative measure, there are scheduled maintenance routines for all aircraft and regular inspections. Also each flight crew and cabin crew follows a preset mantra of safety protocols before and during each take-off and landing. The public would be reluctant to fly if these actions were not in place and flying would likely not be as safe in the absence of these measures.

When you compare the attention given to flight accidents there is very little public attention drawn to healthcare acquired infections (HAI). Currently very few provinces mandate or encourage public reporting of HAI. It is usually only

when there are outbreaks, occurrences of new diseases (such as pH1N1) or clusters of deaths that there is any form of public attention.


Other differences include a few of key actions taken by the airline industry which may or may not consistently take place in health care.

- Standardized protocols for routine practices and activities – in the airline industry there are numerous checklists that each flight and cabin crew goes through before the plane leaves the ground. These are not set by each airline but are industry standards. It is notable on every flight on every airline the protocols and checks are the same: “seat belts on, seat backs and tray tables in upright and locked position and carry-on baggage safety stowed.” This does not vary regardless of the airline, point of departure or crew. This is in contrast to the protocols taken to control and prevent infections in Canadian healthcare settings. The fact that there is variation among provinces and various healthcare settings is due, in part, to only a few provinces or regions which have current standards or protocols for key aspects of infection prevention. In addition, some current national infection prevention and guidelines are well over 10 years old or must be purchased. This leaves ICPs in areas which lack standardized protocols to come up with their own protocols based on resources they can easily access. This results in varied protocols across the country and an uneven application of infection prevention measures.
- Review and analysis of each accident along with development of recommendations and consistent follow-up to ensure compliance across the industry.

This happens after each airline accident. While it would be next to impossible to do this for every infection, there are some key tools available to ICPs which could assist with this. Tools such as root cause analysis and failure modes effect analysis (FMEA) can assist ICPs to further analyze infections and determine critical points for intervening to prevent future infections.

- Unlike the airline industry, there are no “black boxes” or cockpit voice recorders in healthcare. In healthcare there are some methods to review the actions or processes that may have led to an infection. These include audits of healthcare processes, reviews of patient/client/resident health records and review of quality improvement tool data including audits. The key is to take the information gathered through these methods, analyze it and then ensure that any needed actions are incorporated into practice. In addition there should be a mechanism to ensure that this information is shared more widely to assist other settings to prevent similar occurrences.

Even the most nervous airline passenger does not have to ask the pilot and crew if they have followed their checklists. They entrust their well-being and safety to the crew in the assurance that, regardless of which airline or crew, the checks are in place and that they will ultimately have a safe voyage.

Can Canadian healthcare recipients be assured of the same level of infection prevention regardless of which Canadian healthcare facility they visit and that everything possible will be done to ensure they will be safe from HAI? 

¹ <http://www.planecrashinfo.com/rates.htm> (accessed September 13, 2010)



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- 2 Recommended practices for positioning the patient in the perioperative practice setting. In: *Perioperative Standards and Recommended Practices*. Denver, CO: AORN, Inc; 2008.



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National Clinical Consultant,
Ansell Canada
Louellet@ansell.com

Address for correspondence:

Ansell Canada
105 Lauder,
Cowansville, QC J2K 2K8
Phone: 450-619-6938
Fax: 450-619-6939

ABSTRACT

Issue

The impact of glove induced contact dermatitis is a concern for occupational health professionals and infection prevention professionals. According to the literature, many factors are responsible for contact dermatitis. This review will focus on the role of gloves in causing contact dermatitis.

Literature review

Adverse reactions to gloves may range from a mild irritation to a serious allergic response (1,2). The four major types of skin reactions associated with gloves are: immediate hypersensitivity (Type I allergy or latex allergy), delayed hypersensitivity (Type IV allergy or contact dermatitis), irritant contact dermatitis or a combination of the above.

Properly designed and conducted studies to determine prevalence of dermatitis are rare. Surveys indicate that up to 70% of hospital staff self-report hand dermatitis (3), and 30% of healthcare workers report contact dermatitis to natural rubber latex and synthetic rubber products (4). Sensitization is attributed to the latex proteins and other chemical products used in gloves manufacturing (5).

Conclusion

This review provides readers with scientific and medical evidence related to glove induced contact dermatitis. It also is intended to enhance health care personnel understanding of the issues related to glove induced contact dermatitis.

PROTECT YOUR HANDS; OPTIMIZE GLOVING PRACTICE

Intact skin is the best barrier against microorganisms. Medical examination gloves cover an average of 1,500 cm² of skin and prevent 77% of hand contamination (2). The impact of glove induced contact dermatitis is a concern for occupational

health professionals and infection prevention professionals. According to the literature, many factors are responsible for contact dermatitis. This review will focus on the role of gloves in causing contact dermatitis.

Adverse skin reactions associated with glove use

Adverse reactions to gloves may range from a mild irritation to a serious allergic response (1,2). The four major types of skin reactions associated with gloves are: immediate hypersensitivity (Type I allergy or latex allergy), delayed hypersensitivity (Type IV allergy or contact dermatitis), irritant contact dermatitis or a combination of the above.

Properly designed and conducted studies to determine prevalence of dermatitis are rare. Surveys indicate that up to 70% of hospital staff self-report hand dermatitis (3) and 30% of healthcare workers reported contact dermatitis to natural rubber latex and synthetic rubber products (4). Sensitization is attributed to the proteins and other chemical products used in gloves (5).

A Type I hypersensitivity response is a reaction to residual latex proteins found in natural rubber latex. The reaction is immediate, typically occurring 5-30 minutes after the initial contact. The symptoms include swelling and redness localized to the site of exposure as well as non specific symptoms of itching and burning. The symptoms can spread to areas remote to the site of contact with the glove, and may be accompanied by conjunctivitis, rhinitis and/or bronchial obstruction. In rare cases, symptoms of anaphylaxis can occur (6). In 2002, an immediate Type I response latex allergy represented up to 33% of all glove-induced dermatitis (5). To limit the transfer of latex proteins, manufacturers now produce dip-molding polyurethane and silicone inner coating in powder-free latex gloves.

A Type IV allergy is a reaction to a specific allergen, such as the chemical residue from the glove manufacturing process. A

Type IV allergy represents up to 20% of all glove-induced dermatitis (5). Reactions are typically induced by chemical accelerators used in natural rubber latex, nitrile, polyisoprene, polychloroprene and polyurethane gloves. Studies present positive patch-test readings to accelerators for fragrance mix (13%), thiurams mix (8%), carbamate mix (4%) and mercapto mix (1%) (7). Other hand dermatitis is sparked by polyvinyl chloride or vinyl gloves made of plastic composites. Phthalates in these gloves induce delayed contact dermatitis (8). Other causes of sensitivity include lanolin used as a glove softener, poly-oxy-propylene-glycol used as a coagulant in the manufacturing process, and coloring pigments (9). The response is delayed rather than immediate, and usually occurs 6-48 hours after the initial contact. Symptoms can last for up to four days and may include swelling, cracking, itching, weeping, and dryness of the skin at the site. Although dermatitis can extend beyond the area of contact, a Type IV response begins when the antigens, such as residual chemicals leached from the glove, penetrate the skin and trigger the formation of T-cells sensitized to specific antigens. Repeated exposure to the antigen in allergic individuals can re-activate sensitized T-cells and produce an inflammatory response, causing Type IV allergy symptoms (1).

Irritant contact dermatitis is the most common factor, representing up to 40% of all glove-induced dermatitis (5). Irritant contact dermatitis is a non-immune reaction, which affects some surgical glove users (1).

Wearing gloves for long periods can also damage the skin barrier and present symptoms such as skin dryness (10,11). Long-term glove occlusion can increase trans-epidermal water loss of the skin and affect the skin's barrier function (11). In addition, the occlusion nature of gloves will keep breakthrough chemicals in contact with the skin (12). Under occlusion, the permeation of chemicals and the response of irritants and allergens in the skin can be heightened several-fold (12,13). Therefore it is important to select a glove based on the length of time it will be worn and its durability. Controlling the extent of glove usage will limit trans-epidermal water loss,

and a better resistant glove material will prevent high leakage rates.

Alkaline gloves alter the normal skin surface pH level of 5.5. Studies demonstrate that the pH average of powder-free gloves is 5.8, where powdered gloves average a pH of 7.5. Alkaline gloves demonstrated increased skin dryness and irritation (14). In addition, mechanical irritation is mainly created by glove powder. Studies have also shown that glove powder significantly alters the skin's roughness (15). Finally, endotoxin levels differ between gloves. It has been shown that glove endotoxin contamination may alter the skin's integrity (16).

In practice, it is not uncommon for endogenous irritant and allergic etiologies to coexist in the development of certain eczema. It is important to seek in the history, or by a home or workplace visit, any recreational and occupational factors that may exacerbate any of the above described symptoms. The management of irritant contact dermatitis principally involves the protection of the skin from the irritants. The most common irritants are soaps and detergents, although water itself can be an irritant. The principles of management involve avoidance, protection and substitution.


Some recommendations from occupational health officials to minimize the impact of glove-induced contact dermatitis are:

- Purchase powder-free, low protein, natural rubber latex gloves.
- Purchase powder-free, low accelerator and low chemical content synthetic gloves.
- Refer persistent eczema to a specialist contact clinic in the diagnosis of contact dermatitis.
 - Identify causal agents through patch testing.
 - Avoid allergens.
- Reduce exposure to skin-damaging substances.
- Remove gloves carefully - do not flip, snap, or toss gloves.
- Clean and dry hands before and after glove use.
- Change gloves between patients, tasks, and after each procedure
- Limit the length of time that gloves are used

- Apply water-based hand moisturizers regularly, ensuring the product is compatible with gloves.
- Use cotton glove liners which may help prevent the exacerbation of skin dermatitis.

In conclusion, several studies have confirmed that long-term prognosis for occupational contact dermatitis is poor (17,18). A Swedish study showed that 25% of 555 patients investigated for occupational contact dermatitis, over a 10 year period, maintained permanent symptoms. In a large study in Western Australia, 55% of 949 patients showed consistent dermatitis after two years. Milder cases of contact dermatitis were treated successfully upon the ease of avoidance and early interventions. Studies in the USA (19) have shown a decline in the number of worker's compensation claim for natural rubber latex related illness following institutions transitions from powdered to powder-free gloves. This effect could have been due to decreased skin and mucosal exposures of employees to latex allergens.

Countries with guidelines for low protein, powder-free, natural rubber latex glove use, have seen dramatic decline in the incidence of latex induced responses in end-users (20,7).

Preventing skin dermatitis by different measures of avoiding the irritants still represents our best therapeutic solution. 

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Utilization of additional precautions at a Canadian tertiary care centre

Victoria R Williams, BSc, BASc, CIC¹,
Neera R Kumar²,
Andrew E Simor, MD, FRCPC^{1,2}

¹Infection Prevention and Control,
Sunnybrook Health Sciences Centre
²Department of Microbiology,
Sunnybrook Health Sciences Centre

Corresponding author:

Victoria R Williams, BSc, BASc, CIC
Sunnybrook Health Sciences Centre
2075 Bayview Ave, Office B112
Toronto, ON M4N 3M5
Phone: 416-480-6100 x7970
Fax: 416-480-6845
e-mail: Victoria.Williams@
sunnybrook.ca

ABSTRACT

The objective of this study was to describe the utilization of infection prevention and control (IP&C) additional precautions at a Canadian teaching hospital. The use of additional precautions was recorded for all acute care inpatients from January 1 to March 31, 2009. Data collected included: medical service, duration, type, and indication for additional precautions. Measures calculated included: total and mean number of isolation days, and rates per acute care admissions and inpatient days. All values were compared by medical service, time from admission to initiation, and type of additional precautions. 514 patients were managed in additional precautions for a total of 5084 isolation days (13% of total inpatient days). Contact precautions accounted for the largest proportion of isolation days (4324 days, 85%), followed by droplet (548 days, 11%) and airborne precautions (170 days, 3%). The mean duration of additional precautions was nine days (range 1-104 days) and was greatest for patients in contact precautions (11 days) as compared to airborne (9 days) or droplet precautions (five days) ($p < 0.001$). 68% of additional precautions were initiated ≤ 48 hours of admission and the mean duration was longer when initiated >48 hrs as compared to ≤ 48 hours after admission (12 vs. 8 days; $P < 0.001$). Total isolation days were most frequent in the ICU (171.6 per 1000 ICU days), but the distribution by type and mean duration of additional precautions were similar across the three services. Additional precautions are frequently implemented for hospitalized patients, and are associated with a significant use of hospital resources.

KEY WORDS

Additional precautions; surveillance

INTRODUCTION

Increasing application of syndromic surveillance and screening for antibiotic resistant organisms (AROs) may affect the use of infection prevention and control (IP&C) additional precautions (contact, droplet and airborne) in healthcare facilities. Implementation of addition or transmission-based precautions based on the clinical presentation is recommended at the time a patient arrives at a healthcare facility in order to reduce the opportunity for transmission (1-3). Current guidelines also recommend active surveillance to detect colonization and infection with AROs in high risk populations and the subsequent use of contact precautions to prevent transmission from infected and colonized patients (4,5).

Adherence to recommended IP&C precautions have been shown to be effective in decreasing the nosocomial transmission of infectious diseases spread through different routes in the healthcare setting (6-9). While the utility of additional precautions in preventing transmission is recognized, they have been associated with adverse effects in the healthcare setting including inefficient utilization of hospital resources such as increased nursing workload and the attributable economic costs of managing a patient colonized or infected with an ARO (10,11). In addition, patient health and safety is a concern as the use of additional precautions has been documented to affect the quantity and quality of care a patient receives and have detrimental effects on their physical and psychological well-being (12-16).

The objective of this study was to describe the utilization and impact of additional precautions at a Canadian teaching hospital.

METHODS

Sunnybrook Health Sciences Centre is an 1100 bed tertiary care teaching hospital in Toronto, Canada with approximately

Table 1 Burden of additional precautions from 1 January to 31 March 2009 by type of and indication for additional precautions

Additional Precautions		Number of Patients (%)	Total Isolation Days (%)	Rate per 1000 Patient Days ³
Type	Indication			
Airborne	Total	22 (4%)	170 (3%)	4.4
	Tuberculosis ¹	18 (82%)	142 (84%)	3.7
	VZV	4 (17%)	28 (16%)	0.7
Contact	Total	361 (70%)	4324 (85%)	111.9
	MRSA	107 (30%)	1880 (43%)	48.6
	VRE	3 (1%)	87 (2%)	2.3
	ESBL	33 (9%)	738 (17%)	19.1
	ARO contact	78 (22%)	593 (14%)	15.3
	<i>Clostridium difficile</i> ¹	26 (7%)	323 (7%)	8.4
	Other Acute Diarrheal Illness	114 (32%)	703 (16%)	18.2
Droplet	Total	124 (24%)	548 (11%)	14.2
	Pneumonia	79 (64%)	338 (62%)	8.7
	Other Acute Respiratory Infection	43 (35%)	205 (37%)	5.3
	Meningitis	2 (2%)	5 (1%)	0.1
Combined ²	Total	7 (1%)	42 (1%)	1.1
Total		514	5084	131.5

¹Confirmed or suspected

²Patients in additional precautions for greater than one indication

³Inpatient days 1 Jan - 31 Mar 2009 = 38 655

VZV – Varicella Zoster Virus

MRSA – Methicillin Resistant *Staphylococcus aureus*

VRE – Vancomycin Resistant Enterococci

ESBL – Extended Spectrum Beta-Lactamase Producing Organism

ARO – Antibiotic Resistant Organism

18,000 admissions annually. All acute care inpatients from January 1 to March 31, 2009 were eligible for inclusion in the study. Additional precautions (airborne, contact and droplet) were defined and applied as per “Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care” published by Health Canada (3). Active surveillance swabs for methicillin resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant enterococci (VRE) were obtained on admission for patients identified as high-risk. This included patients transferred directly from or with a history of admission to any healthcare facility within the last year, those receiving home healthcare services, hemodialysis or currently living in a communal living situation (e.g. shelter), or patients with a history of ARO infection or colonization. Direct transfers from an institution outside of Canada and patients exposed

to a carrier of an ARO during the current or a previous admission were also placed in additional precautions pending negative cultures (17). Patients colonized with an ARO were not routinely decolonized and contact precautions were utilized from the date of identification, or admission for those with a previous history, to the date of discharge from the facility. Patients were screened for febrile respiratory illness (FRI) and gastrointestinal illness at point of entry to the facility and inpatients were assessed daily for new onset of symptoms that required the patient to be placed in additional precautions. Any physician or nurse could initiate additional precautions but discontinuation required IP&C approval. Patients requiring additional precautions were reassessed on a daily basis in-person (Monday to Friday) or by the IP&C coordinator on-call at the request of a physician or nurse (evenings, weekends, and

holidays). All patients requiring additional precautions were placed in a private room during the study period.

Inpatients requiring additional precautions were identified through a real time daily surveillance tool developed and managed by IP&C as part of a Microsoft SharePoint® portal. All patients placed in additional precautions; those identified either through routine screening at presentation to the facility or by ongoing surveillance throughout the admission, were entered into the secure surveillance spreadsheet by an IP&C coordinator and patient tracking and updates were made on a daily basis. A copy of the spreadsheet was downloaded daily and reviewed to identify any additions, changes or deletions. Data collected on each patient in additional precautions during the study period included: medical service, date of initiation and discontinuation, type, and indication for additional precautions.

Data recorded for all patients requiring additional precautions, both those detected through screening on admission and those whose indication developed or was identified at a later date, were included in analysis. Measures calculated included: total and mean number of isolation days and patients in additional precautions, and the utilization rates of additional precautions. All calculated values were compared by medical service (intensive care, medical or surgical), time from admission to initiation (greater or less than 48 hours), type (airborne, contact, or droplet) and indication for additional precautions. In calculating the total number of isolation days only those isolation days falling between January 1 and March 31, 2009 were included. For those patients who were placed in additional precautions prior to the commencement of the study period and those whose additional precautions were not discontinued prior to the study end date, January 1 and March 31 were designated as the additional precautions start and end dates, respectively. The utilization rate of additional precautions was calculated based on the total number of acute care inpatient days during the study period for the entire facility and the individual medical services.

The mean duration of additional precautions was based on the recorded initiation and discontinuation dates for each patient and in some cases extended beyond the study period (additional precautions started before January 1 (n=31) and additional precautions stopped after March 31 (n=50)). Patients placed into additional precautions greater than 30 days prior to the start (n=12) or removed from additional precautions 30 days after the end of the study period (n=13) were excluded from the calculations of mean duration.

RESULTS

From January 1 to March 31, 2009, 514 patients were managed in additional precautions for a total of 5084 isolation days (13% of total acute care inpatient days during this time). Of the 514 total isolated patients, additional precautions were initiated after January 1 for 483 (94%). Contact precautions accounted for the largest proportion of isolation days (4324 days, 85%), followed by droplet (548 days, 11%) and airborne precautions (170 days, 3%) (Table 1). Infection or colonization with an ARO was the most frequent indication for contact precautions (2705 days, 63%) with MRSA accounting for 1880 contact isolation days (43%). Exposure to a patient colonized or infected with an ARO also resulted in a patient requiring additional precautions and was the indication for 593 (14%) contact isolation days. 323 (7%) contact isolation days were associated with a confirmed or suspected diagnosis of *Clostridium difficile* while an additional 703 (16%) of contact isolation days were due to acute diarrheal illness suspected to be infectious. Pneumonia (338 days, 62%) and suspected influenza or another acute respiratory infection (205 days, 37%) were the indication for the majority of droplet isolation days. Seven patients were in additional precautions for greater than one indication and accounted for 42 (1%) of the total isolation days.

Table 2 Duration of additional precautions by type of and indication for additional precautions

Additional Precautions		Mean	SD	Median	Range
Type	Indication				
Airborne	Total	9	8.5	6	1-32
	Tuberculosis ¹	9	9.3	6	1-32
	VZV	7	2.6	7	4-10
Contact	Total	11	11.0	7	1-104
	MRSA	15	14.4	10	2-104
	VRE	34	11.1	33	24-46
	ESBL	18	17.5	12	4-66
	ARO contact	8	4.4	8	1-25
	<i>Clostridium difficile</i> ¹	14	10.0	12	3-40
	Other Acute Diarrheal Illness	6	4.2	5	1-22
Droplet	Total	5	2.7	4	1-18
	Pneumonia	4	2.2	4	1-12
	Other Acute Respiratory Infection	5	3.5	3	1-18
	Meningitis	3	2.1	2	1-4
Combined ²	Total	6	4.4	5	2-15
Total		9	9.8	6	1-104

¹Confirmed or suspected

²Patients in additional precautions for greater than one indication

SD – Standard Deviation

VZV – Varicella Zoster Virus

MRSA – Methicillin Resistant *Staphylococcus aureus*

VRE – Vancomycin Resistant Enterococci

ESBL – Extended Spectrum Beta-Lactamase Producing Organism

ARO – Antibiotic Resistant Organism

Additional precautions for multiple indications were most frequently a combination of contact and droplet precautions (71%).

The mean duration of additional precautions was nine days (range 1 to 104 days) and was greatest for patients in contact precautions (11 days) as compared to airborne (nine days) or droplet precautions (five days) ($p < 0.001$) (Table 2). Patients infected or colonized with an ARO had the longest mean duration of additional precautions at 16 days followed by those patients diagnosed with *C. difficile* infection (14 days), while the shortest duration of isolation days was observed in patients in droplet precautions for meningitis (three days) and pneumonia (four days).

The utilization of isolation days also differed across medical services (Table 3). Although the medical service experienced the largest absolute

number of isolation days (2548 days, 50%) isolation days were most frequent in the ICU (171.6 per 1000 ICU days), followed by the medical (145.1 per 1000 medical days) and surgical services (93.5 per 1000 surgical days). On each service contact precautions accounted for the greatest number of isolation days, followed by droplet and airborne reflecting the overall pattern for the facility. The mean duration of additional precautions was greatest for patients in the ICU (11 days) followed by the surgical (nine days) and medical services (eight days) ($P = 0.049$).

Additional precautions were initiated in less than 48 hours of admission for 349 (68%) patients as a result of surveillance and screening activities carried out on arrival to the facility. The mean duration of additional precautions was longer when initiated > 48 hrs as compared to ≤ 48 hours after admission (12 vs. 8 days; $P < 0.001$).

DISCUSSION

The results of this study indicate that additional precautions, primarily contact precautions, are required frequently in our healthcare facility. During the three month study period, additional precautions were initiated for 483 patients, corresponding to approximately five new isolated patients per day, and isolation days totaled 5084, accounting for 13% of total acute care inpatient days. Extrapolating to a one year period at our facility, approximately 2000 patients would be placed in additional precautions and there would be greater than 20 000 isolation days. This is despite relatively low nosocomial incidences for MRSA, VRE and *C. difficile* during the study period (6.3, 0 and 4.3 per 10 000 patient days, respectively).

The use of additional precautions has implications for patient care and hospital management. Previous studies have demonstrated that placing patients in additional precautions can

have detrimental effects on both their physical and psychological health. Patients in isolation for infectious diseases are examined by physicians less often, experience more preventable adverse events, complain about the quality of their care more frequently and are more likely to experience anger, anxiety and depression (12-16). Additional precautions are also associated with extra costs to a healthcare facility including lost revenue from use of private rooms, excess workload, additional screening, and the need for personal protective equipment (PPE) such as masks, gowns, and gloves (10,11). The costs associated with the PPE required for one healthcare worker contact with a patient in additional precautions was determined to be \$4.26 for droplet (high-efficiency mask, eye protection, gown and gloves), and \$1.18 for contact (gown and gloves) precautions based on costing information at our facility. Assuming an average of 60 healthcare worker-patient contacts for each day in isolation,

based on previous observation in our facility, the cost of personal protective equipment for one day of care in additional precautions would total \$255.37 (droplet) and \$70.88 (contact) (11). For the three month study period the additional costs due to PPE requirements would total \$139,942.76 and \$306,485.12 for providing care to patients in droplet and contact precautions, respectively.

Assuming that additional precautions were initiated for a legitimate reason, there remains a number of ways in which the utilization of additional precautions can be decreased. The use of more rapid diagnostic testing for the detection of AROs would permit faster reporting and decrease the number of isolation days attributed to preemptive isolation and experienced by exposed patients awaiting negative results (18,19). As 14% of contact isolation days were due to ARO exposure in our facility, a review of our exposure follow-up was undertaken. Between 2004 and 2008, 47 exposed patients received follow-up during their admission and were identified as colonized with a strain of MRSA indistinguishable by pulse-field gel electrophoresis from that of their roommate. Of the 47 exposed patients 27(57%) were identified on the first specimen obtained after the exposure was detected and the median time from the end of exposure to the first positive specimen was three days. As a result, the decision was made to change the screening schedule from three specimens obtained on days zero, five and 10 after exposure to only obtaining specimens on days zero and five. Limiting contact precautions to the duration of symptoms for patients with confirmed *C. difficile* infection as opposed to waiting 48 hours after symptoms resolve would also decrease the utilization of additional precautions (20). Prompt and ongoing assessment of the continuing need for additional precautions also impacts on the duration of additional precautions and is a variable that is well addressing through daily IP&C surveillance activities.

Table 3 Burden of additional precautions from January 1 to March 31, 2009 by medical service and type of additional precautions

Additional Precautions		Number of Patients (%)	Total Isolation Days (%)	Rate per 1000 Patient Days ¹
Type	Indication			
ICU	Total	104 (20%)	1239 (24%)	171.6
	Airborne	3 (3%)	8 (1%)	1.1
	Contact	77 (74%)	1095 (88%)	151.6
	Droplet	24 (23%)	136 (11%)	18.8
	Combined ²	-	-	-
Medical	Total	282 (55%)	2548 (50%)	145.1
	Airborne	12 (4%)	90 (4%)	5.1
	Contact	185 (66%)	2098 (82%)	119.5
	Droplet	79 (28%)	321 (13%)	18.3
	Combined ²	6 (2%)	39 (1%)	2.2
Surgical	Total	128 (25%)	1297 (26%)	93.5
	Airborne	7 (6%)	72 (6%)	5.2
	Contact	99 (77%)	1131 (87%)	81.5
	Droplet	21 (16%)	91 (7%)	6.6
	Combined ²	1 (1%)	3	0.2
Total		514	5084	131.5

¹Inpatient days for the specified service 1 Jan – 31 Mar 2009


ICU = 7222

Medical = 17 561

Surgical = 13 872

²Patients in additional precautions for greater than one indication

Limitations to the study include: the short duration of the study period, inaccuracies or deficiencies in the patient records, and generalizability to other settings. Data collected during the winter months (January to March), may not reflect the utilization of additional precautions in other seasons and may differ from that observed over the course of a year. There may be potential inaccuracies in the recorded indication for additional precautions, particularly where multiple indications were present concurrently or changed over time. Patients with an indication for additional precautions but who were not placed in additional precautions were also not considered. The results might not be generalizable to other facilities which are non-tertiary care hospitals or that adhere to different infection prevention and control policies regarding the utilization of additional precautions.

In conclusion, additional precautions are frequently implemented for hospitalized patients and even when appropriate they are associated with a significant use of hospital resources and have the potential to impact patient care. 

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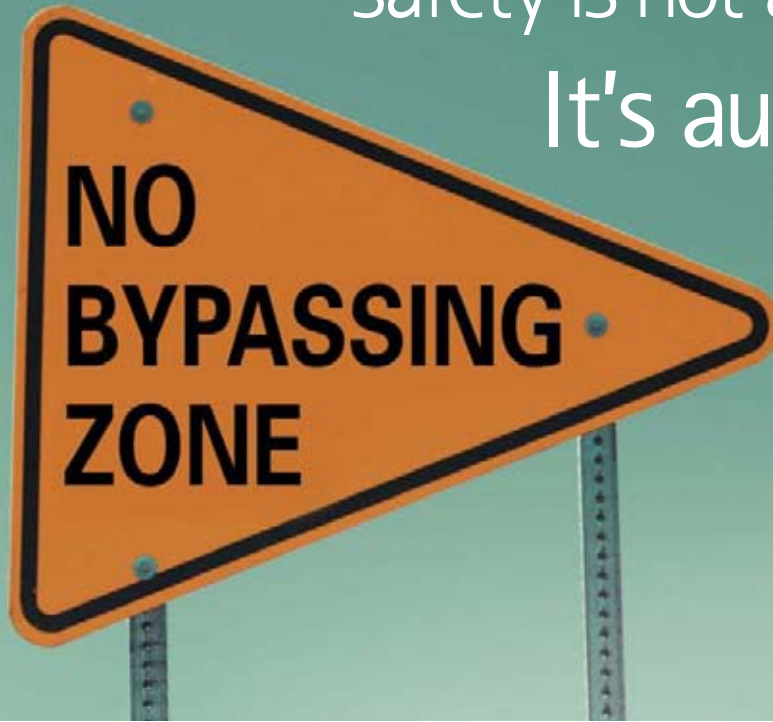
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SHARING EXPERTISE

The audit process: Part III – Closing the loop

CHICA-Canada Audit

Toolkit Working Group:

Bialachowski, Anne, BN, MSc, CIC,

President CHICA-Canada

Clinker, Karen, BScN, MEd, CCOHN/

CM, CIC, Director of Programs &

Projects, CHICA-Canada

LeBlanc, Mary, RN, BN, CIC,

Infection Prevention and Control

Consultant

McDonald, Shirley, ART, Medical

Writer, Webmaster CHICA-Canada

Corresponding author:

Anne Bialachowski

Network Coordinator

Central South Infection Control

Network

St. Joseph's Villa

56 Governor's Road

Dundas, Ontario L9H 5G7

Email: bialach@hhsc.ca

Phone: 905-627-3541 ext. 2481

Fax: 905-627-6474

ABSTRACT

The audit process fills the gap between policy and practice. Providing audit results and constructive feedback to those audited, correcting practice where improvements are required and re-testing to ensure that standards are now being met are important final steps in “closing the loop” on the audit process. In this third and final component of the audit process, suggestions for managing the post-audit follow-up are discussed.

Key Words

Audit; infection control; quality; patient safety; closing the loop; risk management; risk level matrix.

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INTRODUCTION

Identifying and analysing infection risks associated with health care is an integral part of a successful infection prevention and control (IP&C) program. Monitoring and reviewing are essential components of this process. The audit process identifies new risks, analyses risks against established norms and effectively implements risk management activities. Key elements of this process are communication and consultation. An interactive exchange of information between IP&C, management, health care workers and other stakeholders provides the basis for increased awareness of the importance of IP&C, identification of risks before they arise and prompt management of risks as they occur.

In Part I of this series, *The Audit Process: Part I Pre-audit Preparation* (1), the need for process audits in IP&C and the initial preparation that is required was discussed. In Part II, *The Audit*

Process: Part II Setting the Audit Criteria, discussion focused on choosing audit criteria or elements, designing a data collection form or tool and validating the audit tool (2). In this final instalment in the series, the execution of the audit and actions to be followed after carrying out the audit are described.

METHODS

Once an IP&C audit has been administered, the results of the audit are assessed or scored. Both a verbal and a written report are prepared in a timely manner. A meeting with stakeholders to develop an action plan for improvement will ensure departmental commitment to the action plan, address the implications of deficiencies and suggest timelines for completion. Following the audit, modification of practice and subsequent demonstration of improvement in practice through re-auditing “closes” the audit “loop” (Figure 1). This cycle is repeated until the chosen criteria are fulfilled, outcomes are satisfactory and deficiencies are addressed.

Conducting the audit

Prior to conducting the audit, IP&C advises the area manager that a formal audit of their work area is to be conducted and a meeting is arranged to review the audit process (3). Auditing practice is accomplished with document review, staff interviews and observational tours (see Part I of this series, *Pre-Audit Preparation*, for more information) (1).

Scoring the audit and setting targets for achievement

Audit criteria/elements are marked **Yes**, **No** or **Not Applicable (N/A)**. If a standard is not achievable because a facility does not use the equipment, or the practice is not undertaken in the facility, the option to score N/A (Not Applicable) will eliminate the element/statement from the audit. All audit criteria are given equal weighting

Figure 1: The audit cycle: Closing the loop



for scoring (4). Compliance scores are calculated by adding the total number of Yes responses, dividing this by the total number of Yes and No responses and multiplying this result by 100:

$$\frac{\text{Total number of 'yes'}}{\text{Total number of 'yes' and 'no'}} \times 100 = \% \text{ compliance (compliance score)}$$

Achievement of a *target score* reflects the care or practices that are required to comply with the target. The compliance score indicates whether the area/department/service meets, exceeds or is deficient compared to best practice and national or provincial standards. Compliance less than the chosen target score requires follow-up. Management in collaboration with IP&C of each facility determines the target score for the IP&C audits in their facility. For example, a target score of 75% compliance is not appropriate for an audit dealing with reprocessing medical devices.

Summarizing audit deficiencies: The audit summary report

Rapid analysis of data and generation of timely reports are essential to improvement. Data are most useful when the time between data collection and reporting is short (5). Summarizing deficiencies captured by an audit that are not immediately addressed during the audit and sharing these with stakeholders affected by the audit are essential before an action plan is formulated.

Following the audit, both a verbal and a written report are prepared in a timely manner. At the completion of the audit and prior to leaving the area, the auditor gives an initial verbal report to the clinician/manager in charge of the area being audited, outlining any areas of concern as well as identifying good practice. A written report on the audit is then developed and given to the area clinician/manager for action within one week of completing the audit. The written report clearly identifies the deficiency areas requiring action. A well-

written report guides decision-makers in the corrective action(s) required to address deficiencies. A separate report may be prepared for each audit tool used, or a single report might be completed for all audits done in a given time period. See Figure 2 for a sample audit summary report.

The audit summary report:

- states the time period during which the audit(s) occurred
- states the area audited and overall impression of the audit
- describes the audit process used (e.g., review of documents, interviews with staff, observational tours in the area)
- includes positive highlights as well as negative findings
- highlights any area that requires immediate response (i.e., if not corrected, the situation will have a negative impact on client/patient/resident care or on staff safety).

If an unsafe situation is detected that warrants work stoppage, the auditor takes this action and informs the manager immediately (e.g., construction without proper hoarding; unacceptable sterilization processes or practices used for reprocessing medical equipment).

Implementing change: Assigning level of risk and preparing an action plan

The auditor meets with the manager from the audited area within a week of completing the audit to discuss the summary report and to assign a risk level to each deficiency that will guide corrective action(s). The risk level is based on the negative impact and/or severity that a deficiency will have on client/patient/resident or staff safety and on the likelihood that an adverse event will occur or re-occur if uncorrected. Using the Risk Level Matrix (Figure 3) will help determine the urgency of the required corrective action(s) and level of administrative involvement that is required. Involving the manager from the audited area and working through the process of assigning a risk level to each deficiency assists the manager in understanding the importance of the

Figure 3: Action planning risk level matrix

STEP 1: Categorize the audit tool deficiency in terms of its impact on staff or patient safety and the likelihood of the impact occurring if corrective action is not taken.

IMPACT DEFINITIONS:

Extreme:

- ⇒ patient death related to infection or infectious disease
- ⇒ large/widespread environmental contamination
- ⇒ staff death related to infectious disease exposure
- ⇒ legal action

Major:

- ⇒ patient or staff suffers life-altering outcome related to infection or infectious disease exposure
- ⇒ infectious disease outbreak affecting large numbers of patients and staff
- ⇒ environmental contamination involving a high risk area or population
- ⇒ Canadian or provincial standards of practice breached
- ⇒ regional policy breached

Moderate:

- ⇒ deep or organ space infections substantially increased in number, severity or over time (from the usual pattern)
- ⇒ infectious disease outbreak affecting patients and staff
- ⇒ situation with potential for life-altering outcome to patient or staff related to infection or infectious disease exposure

Minor:

- ⇒ superficial or deep infections increased in number, severity or over time (from the usual pattern)

Insignificant:

- ⇒ no adverse patient or staff or system outcome
- ⇒ no change from historical pattern/incidence

LIKELIHOOD DEFINITIONS:

Almost Certain:

- ⇒ will happen again if recommendation/process not followed
- ⇒ known to happen regularly (common event)

Likely:

- ⇒ good chance of recurrence
- ⇒ has happened several times before
- ⇒ frequent occurrence published in the literature

Possible:

- ⇒ has happened a few times
- ⇒ has been reported in the region

Unlikely:

- ⇒ has only happened once or twice before
- ⇒ reported in the province or in Canada, not locally

Rare:

- ⇒ has never happened
- ⇒ reported in the literature

STEP 2: Using the Impact and Likelihood definitions above, assign a Risk Level to each element of the audit tool that indicates a deficiency

LIKELIHOOD	IMPACT				
	Insignificant	Minor	Moderate	Major	Extreme
Almost Certain	Moderate Risk	Moderate Risk	High Risk	Critical Risk	Critical Risk
Possible	Low Risk	Moderate Risk	High Risk	Critical Risk	Critical Risk
Likely	Low Risk	Moderate Risk	Moderate Risk	High Risk	High Risk
Unlikely	Low Risk	Low Risk	Moderate Risk	Moderate Risk	High Risk
Rare	Low Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk

STEP 3:

Required action, level of involvement and action timeline will be based on the Risk Level

Critical Risk: STOP ACTIVITY!

- ⇒ Risk management must be informed to initiate senior administrative notification
- ⇒ Requires immediate written recommendations presented in person to Director and Manager
- ⇒ Written action plans with timelines must be set
- ⇒ ACTION TIMELINE: Immediate action required

High Risk: STOP ACTIVITY!

- ⇒ Risk management must be informed to initiate senior administrative notification as required Requires written recommendations, preferably presented in person to Director and Manager within 48 hours
- ⇒ Written action plans with timelines must be set
- ⇒ ACTION TIMELINE: 48 hours

Moderate Risk:

- ⇒ Written recommendations to Director and Manager
- ⇒ Written action plans with timelines set
- ⇒ ACTION TIMELINE: 3 months

Low Risk:


- ⇒ Written recommendations to Manager
- ⇒ Written action plans with timelines set
- ⇒ ACTION TIMELINE: 6 months or longer

STEP 4:

Record the Risk Level on the Audit Summary Report (Figure 2)

the audit process. Feedback of audit results has been identified as having the potential to change the practice of health care professionals (6). Involvement of staff throughout the audit process facilitates acceptance and completion of recommendations in a timely fashion (3). Sustaining improvement is achievable through continued monitoring, evaluation and reinforcement within a supportive environment, where staff are confident that the process will result in meaningful system changes without targeting individual performance.

Auditing IP&C practices in health care has been shown to raise IP&C standards when the audit program is well-designed with explicit, evidence-based criteria and multifaceted interventions. Audits are also an

opportunity to highlight areas of excellence. Staff must be involved in both the audit itself and in the interventions, if barriers to change are to be overcome. Re-auditing after implementing interventions, correcting processes and educating and/or re-training staff to adjust behaviour is an important final step in closing the loop in the audit cycle. 

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Figure 4: Recommendations and action plan process flow chart

1. Prepare recommendations (Audit Summary Report):

- State corrective action(s) required
- Prioritize corrective actions based on Risk Level Matrix (Figure 3)
- Base action on best practices and include references where available
- Attach to summary report

2. Present findings (Audit Action Plan):

- Meet with area manager, clinical department head and others who facilitate improvements
- Involve key stakeholders in the completion of this action plan to ensure that:
 - there is departmental commitment to the action plan;
 - there is access to resources required to implement the action plan; and
 - audit results are communicated to a wider group.
- Present scope of audit, audit findings, references consulted and recommendations

3. Prepare action plan:

- Work with leaders to prepare an improvement action plan that includes:
 - assigned authority for completion of corrective action item(s);
 - timelines for completion; and
 - feedback from those observed.

4. Follow-up:

- Determine process for tracking completion of action item(s)
- Establish dates for follow-up audits
- Maintain records of audits and follow-up
- Report results to Infection Prevention and Control Committee and other departmental meetings

The experience of source isolation for *Clostridium difficile* in adult patients and their families

Monica Pacheco, N., BScN, M.Sc (A)^a,
Vanessa Spyropoulos, N., BScN,
M.Sc(A)

Il^a & Isabelle Caron, N., M.Sc. N^b
(Clinical Project Advisor) Nursing
director of Medicine, Geriatrics and
Psychiatry

^aSchool of Nursing, McGill University,
3506 University Street,
Montreal, Quebec, H3A 2A7, Canada

^bSMBD Jewish General Hospital,
3755 Côte-Ste-Catherine Road,
Montréal (Québec), H3T 1E2, Canada

Corresponding author:

Sir Mortimer B. Davis
Jewish General Hospital
3755 Cote-Ste-Catherine Road
Montreal, Quebec H3T 1E2
514-340-8222 local 4232
Fax: 514-340-8739
icaron@nurs.jgh.mcgill.ca

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ABSTRACT

Study purpose: To explore the isolation experience for *Clostridium difficile* positive patients and their families on an in-patient unit.

Sample/setting: Convenience sample of 10 (five patients-five family member dyads) recruited from in-patient units of a university affiliated teaching hospital.

Methods: A qualitative, descriptive design with semi-structured interviews.

Results: Loneliness was experienced by patients due to lack of visitation. Uncertainty regarding illness trajectory was felt by patients and family members. Both groups described different modes of bacterial transmission. Hypervigilance of the transmission process was also noted. Bedside nurses provided most of the teaching regarding the infection and isolation. Inconsistencies in the provision of information and implementation of the isolation protocol were experienced by the patients and their family members and were linked to emotional distress. Both groups expressed concern when *C. difficile* positive patients were cohorted in multi bedded rooms.

Implications for practice: Health care professionals, and more specifically nurses, need to be informed on the impact of isolation for *C. difficile* and hospital-acquired infections (HAI) and explore the psychological impact of isolation and HAI on patients and families, in order to help them adapt and address their concerns. In order to minimise inconsistencies a standardized process for the provision of information regarding *C. difficile* infection and isolation measures needs

to be implemented at time of diagnosis and throughout the illness trajectory. This process may help to mitigate some of the uncertainty and emotional distress experienced by patients and families. Isolation measures must be consistently observed by hospital personnel and visitors. When departure from best practice occur, such as cohorting infected patients, health care providers need to provide clear and consistent information to patients and families explaining the rationale for the change and the precautions that will be taken to ensure their safety.

Key words: Isolation experience, *Clostridium difficile*, family, adult patient, source isolation

INTRODUCTION

Definition, risk factors, and complications of *Clostridium difficile*

Clostridium difficile, commonly known as *C. difficile*, is a bacterium that may result in serious or life threatening intestinal conditions for hospitalized patients (1,2). *C. difficile* is a spore-forming Gram-positive anaerobic bacillus which may cause diarrhea and is shed in feces, thus any surface contaminated with stool can act as a reservoir for this microbe, which is transferred to patients via the hands of healthcare personnel (3,4). Risk factors associated with *C. difficile* associated disease (CDAD) are advanced age, co-morbidities, immunocompromising therapy, gastrointestinal surgery, prolonged hospital stay, and, most importantly, antibiotic consumption (5-10). Complications associated with *C. difficile* include pseudomembranous colitis, toxic megacolon, perforations of the colon, sepsis and possibly death (1).

Incidence and prevalence of *Clostridium difficile*

C. difficile is the most commonly reported hospital-acquired infection (HAI) in health care settings (6,10,11). In fact, between 2002 and 2004, there was a marked increase in the incidence of CDAD in Québec health care institutions ranging from 12.8-45.0 per 1000 admissions, which is approximately 4-5 times the rate two years previously (8). In Québec, 7004 cases of *C. difficile* were reported between April 2003 and March 2004, (double the cases four years prior), during which 1270 people died after contracting the infection (12). As a result of this outbreak, the Québec government provided \$30 million to hospitals in the province to buy additional equipment and hire infection control personnel (13).

Hospitalized patients discovered to be infected with this bacterium are placed on isolation precautions, due to the ease of transmission of the spores that may lead to serious or perhaps life-threatening infection. Such precautions will be described in greater depth in a subsequent section, yet it is necessary to first review previous research on the isolation experience to appreciate the impact of these precautions.

Past literature on the isolation experience

The literature reveals that adult patients under isolation precautions have identified diverse features of the isolation experience. Positive aspects cited included privacy (14-16), solitude and increased control over daily activities (e.g. sleep, watching television and talking to visitors) (14), whereas negative aspects included stigmatization (14,17), and decreased attention from staff (14,15,18). Descriptions of isolation as prison-like, traumatic (17) and confining (16,19) also have been reported.

Several studies examining the psychological impact of isolation on adult patients with a range of infections have revealed that anxiety and depression are common (5,19-22). Moreover, a quasi-experimental study found statistically significant higher levels of anxiety and depression and lower levels of self-esteem and sense of control in isolated patients than in non isolated patients, and several of the patients under study were *C. difficile* positive (23). The two patient groups were similar in age and sex, thus ensuring comparable groups.

Impact of isolation procedures for *Clostridium difficile* on patients and families

In order to prevent the spread of this microbe via contact transmission, hospitalized patients infected or suspected of infection with this microbe are placed on source isolation, which involves being placed in a single room. Thorough hand washing has been recognized as the most effective means of preventing contact transmission. Furthermore, protective barriers (masks, gloves, gowns), must be worn by staff and visitors before entering the patient's room and a sign is posted on the patient's door detailing the use of protective barriers (3,7,11,22,24,25). Very few studies have explored the experience of source isolation for *C. difficile* infection in adult patients. Furthermore, the families' perspective has received little or no attention. A study which includes the family perspective will reflect the central tenet of the McGill Model of Nursing in which the family is the unit of care (Gottlieb & Sherrard, 2004; unpublished work).

Isolation precautions hinder patients' ability to communicate with staff and loved ones (14), and friends and family are hesitant to visit (19), perhaps due to fear and lack of understanding of *C. difficile*.

Nursing perspective and study purpose

The isolation experience for *C. difficile* infection constitutes an important area of inquiry, as this disease is becoming a large scourge in the health care setting and can be life-threatening. Nurses can actively collaborate with these patients and their families to alleviate suffering and improve coping, thus advancing knowledge and guiding practice.

The review of the literature revealed only two studies that included patients with *C. difficile* infections, yet the search failed to yield articles with a primary focus on adults with *C. difficile* infection. In addition, no studies specifically explored the experiences of family members. The high levels of anxiety and depression demonstrated in *C. difficile* patients in the above research, coupled with the potentially life-threatening course of this infection, suggest that these patients are suffering. The central role of the nurse is to promote the health of patients and families by easing physical and psychological suffering, thus a study examining the experiences of *C. difficile* infected patients and their families while under isolation precautions will provide information to fulfill this role and further understanding of how nurses can minimize the suffering of these individuals. Therefore the proposed study sought to improve patient and family care by answering the following research question: What is the isolation experience of *C. difficile* positive adult patients and their families on an inpatient unit?

METHODS

Design

A qualitative descriptive design permitted the understanding of the isolation experience of *C. difficile* positive patients and their families. Such an approach allows one to obtain

rich holistic illustrations of this poorly understood phenomenon (26).

Sample

A convenience sampling method was used to obtain a sample of 10 participants, that is, five adult hospitalized patients with *C. difficile* infection and five family members (one family member per patient). (See tables 1 and 2 for demographic information.) Only pairs of individuals, that is, one patient and his or her family member, were accepted into the study. If one member of the pair declined to participate the other was deemed ineligible. If several family members wished to participate, the patient was asked to choose one to take part in the study. The latter was one whom the patient recognized as a primary support individual, such as a spouse, sibling, caregiver or friend, and who agreed to take part in the study. This family member regularly visited the patient (i.e. at least once per week) and experienced isolation procedures for *C. difficile* infection. Further criteria included ability to speak English or French.

The sample was recruited from various inpatient units, (i.e., medicine, geriatrics, cardiac, stroke) of a university affiliated teaching hospital. The head nurses and resource nurses of the units approached patients and families to determine their interest to participate. The student researchers spoke with interested individuals to inform them of the study. The study received ethical approval from the institution.

Data collection

Data were collected via semi-structured interviews. Patient interviews were conducted in the patients' rooms, as the infection requires isolation, hence another setting would not be feasible. The timing of the interview was negotiated between the hospital staff and patients. Family members were interviewed separately from patients, as either party may have felt uncomfortable disclosing information in the presence of the other. A separate private location on the hospital unit, such as a conference room, was used for the interviews with family members.

Data collection took place from July to October 2008. The interviews were conducted on the same day or within the same week for each patient/family member dyad. Data transcription took place following the interviews. Due to time constraints, only one interview was conducted with each participant.

The interviews were conducted by one of the researchers and audio-taped. Patients and family members were questioned about their experience with isolation measures for *C. difficile* and their understanding of the infection and the isolation procedures. Each interview lasted approximately 30 minutes, use of open-ended questions encouraged participants to share their experiences.

Trustworthiness

The trustworthiness of qualitative research is based on credibility, confirmability, dependability, and transferability (26,27). Credibility was achieved by validation of the data and interpretations throughout the

interview. Investigator triangulation also contributed to credibility. This entailed analysis of the transcripts by the two researchers independently, followed by a comparison of individual results, as collaboration enhanced the validity of the interpretation (26). Confirmability and dependability were ensured via an audit trail (28), as a record book of decisions regarding data collection, analysis, and the overall study was maintained. A clear description of the study sample and the setting enhanced the transferability of the findings (29,30).

Data analysis

Colaizzi's analysis method was used throughout the study (26,31). Each interview was transcribed verbatim, and field notes were written by the student researchers after each interview. The transcripts and field notes were reviewed frequently in order to become immersed in the data. The patient data were handled separately from the family data, although the analysis of each group was conducted concurrently.

First, line-by-line coding of the raw data involved highlighting text related to the research questions and assigning a label that remained as close to the original data as possible. Each researcher conducted line-by-line open coding for their interviews. The data codes were then clustered into larger categories. The categories were reviewed by the senior member of the team and the results of the preliminary analysis were discussed until a consensus was reached. This reduced the chance for bias and enhanced the credibility of the findings. A back-and-forth process of analysis ensued whereby new categories that emerged from later interviews guided the reanalysis of the data that had been collected at the outset of the study.

Ethical considerations

Ethical approval was obtained from the Ethics Review Board of the participating institution prior to initiation of the study. The study purpose, expectations of participants, and potential risks and benefits were explained by one of the student researchers to each potential

Table 1: Patient demographic data

Patient	Age	Sex	Ethnic origin
1	69	M	Russian
2	52	F	French-Canadian
3	80	F	Jewish
4	80	F	Italian
5	52	F	Jamaican

participant. Additionally, participants were informed that study participation was voluntary, that they had the right to end their involvement at any time, without impact on their own care or that of their family member, and that interviews would be audiotaped. The patients were interviewed separately in their rooms, whereas the family members were seen in another room in the hospital. If concerns arose during the interviews that were beyond the study's scope, the researcher, with the participant's permission, informed the appropriate personnel for follow up.

Confidentiality was maintained by storing any identifying information in a locked cabinet at the hospital, and by replacing data identifiers with a code. Code lists are currently kept separately from the consent forms. The audio recordings and data transcriptions will be kept in a separate locked cabinet in a locked room for a period of five years and will then be destroyed.

RESULTS

Four emergent themes in the patients' and families' experiences with isolation for *C. difficile* infection became apparent during the interviews. Patient and family data were analyzed separately, and, interestingly, three themes were common to both groups, however, each group had a unique perspective. Loneliness related to isolation measures was a central feature of the patient experience, but not the family member. Shared experiences for patients and family members included: uncertainty related to the illness trajectory, the transmission process, which included understanding transmission and hypervigilance, and the lack of consistency, which included inconsistencies regarding provision of information, and the implementation of the isolation protocol by health care providers HCPs.

Loneliness related to isolation measures

C. difficile infection and its isolation measures contributed to a feeling of

Table 2: Family member demographic data

Patient	Age	Sex	Ethnic origin	Relation to patient
1	83	F	Romanian/Austrian	Partner
2	25	M	French-Canadian	Son
3	52	F	Jewish	Daughter
4	52	M	Italian	Son
5	16	F	Jamaican-Canadian	Daughter

loneliness due to lack of visits from friends and loved ones. When asked to describe the experience of being in isolation for *C. difficile*, one patient immediately responded with the statement: "I get lonely, you know... lonesome." Several patients reported few visitors. The lack of visitation may have been linked to visitors' fears of contracting the infection, as noted by one of the patients: "Some did not visit because I had *C. diff.* They were scared." This sense of loneliness arose primarily from decreased contact with loved ones. Patients reported no perceived change in the frequency of interaction with HCPs. Most did not feel that the care they received from HCPs was reduced by isolation measures. On the other hand, isolation procedures sometimes resulted in the use of single rooms, and according to one patient, this created a sense of "being cut off from the usual."

Uncertainty related to illness trajectory

The feeling of uncertainty related to the trajectory of *C. difficile* infection was evident for both patients and family members. This sentiment was expressed by patients with respect to their own health status. When asked if he had any specific questions about *C. difficile*, one patient participant immediately asked, "How long does this disease last?"

For family members, their uncertainty became apparent when they questioned the length of the illness trajectory. One participant repeatedly asked about the trajectory: "How long does it go on? How long does it

take? No one can give you a definite answer... But how long does it go on? You know this is the third week? Doesn't that send you like a message if it's over three weeks? So what does that mean? And here it is like three weeks later, he's still on isolation."

The repetition of such questions highlighted the significance of this concern for the participant. These sentiments were echoed by another family member, who also asked, "How long does it (infection) last? I thought it was resolved... There's no such thing as a relapse? Like a couple of days later?"

The uncertainty of the illness trajectory led to a great deal of concern for patients and family members.

Understanding of the transmission process

The understanding and a hypervigilance of the transmission process were also central themes in the experiences of both groups. There was considerable variation in patients' understanding of the process of transmission of *C. difficile*. One participant described the infection as one that is spread from contact with an ill individual: "You can pick up germs from contact with someone who is not well." In contrast, another believed that the infection was transmitted to patients from HCPs or other infected patients, that is, hospital acquisition of the infection: "There was a lack of asepsis between the circulating nurses and other personnel." This participant felt that HCPs "Did not pay attention to the (isolation) measures when they entered the room... I know that someone was not careful."

Another patient described becoming infected with “a hospital sickness.” She expressed her frustration in the hospital acquisition of the infection in the following statements: “When I came here I didn’t have it! So I got it here!” The remaining two patients were unable to articulate how the infection was transmitted.

Similarly, family members also spoke about the transmission process of *C. difficile*. A family member expressed her family’s frustration with the hospital-acquired infection: “They were saying that it’s bad ... they said that she came to the hospital to get better, not to catch a disease.”

Family members were particularly focused on the issue of transmission and how likely the infection could be spread from the patient to the family member and then to others. In contrast, some family members were concerned about spreading their own “germs” to patients. As a result, family members became engaged in an active process of attempting to understand the transmission process. For instance, one family member asked: “How did he get this? From how, from where?” Another family member felt that isolation measures warranted careful attention by visitors, so as not to “bring other germs into the room.”

Hypervigilance of the transmission process

Regardless of their focus, family members exhibited a hypervigilance of the transmission process that was manifested in their questions and increased focus on HCPs adherence to isolation measures. Family members expressed doubt as to whether the current isolation practices were adequate in preventing overall bacterial transmission: “I often wonder is that [the gown, gloves and mask] enough? They should give you little covers for your shoes at the same time, like they do in the surgery ... I often think to myself, there’s the gown, and there’s the mask, and there’s the gloves, but what about headwear? What about footwear? I mean, they could carry little bugs too?”

Similarly, another family member was worried about transferring the bacterium to others: “It makes me nervous because I work in a preschool, and I’m wondering, like I bring my jacket into the room (refers to patient’s room), and I hang it up on either the doorknob or the hook; am I doing something that’s putting my children at risk? I could actually give my kids *C. diff*? From my coat? I’m wearing my coat, and they’re in preschool, I mean they sit on my lap.”

This hypervigilance of the transmission process was a central theme to the family members’ experiences, and some patients also raised this issue. For example, one patient was keenly focused on reminding her family to follow the proper isolation measures: “I tell them to keep it (gown) on, put on the gloves, wash your hands... must take precautions. You have to follow what they say, because you don’t want to catch nothing.”

Clearly, the issue of transmission for *C. difficile* was an important topic for both patients and family members.

Lack of consistency in information provided

Almost all family members noted a lack of consistency in the information provided by HCPs. Both patients and family members described a lack of consistency in the implementation of the isolation protocol by HCPs. Bedside nurses were described as the main information providers regarding *C. difficile* infection and isolation procedures in most units, doctors were also mentioned. Although family members were satisfied with the information they received, they did not feel that HCPs were forthcoming with information. For instance, one family member questioned the reported laboratory results in the statement, “They said the preliminary (report) was positive, but I haven’t heard anything about the other two (i.e., the final results).” Family members also reported inadequate provision of information regarding diagnosis and

test results, as indicated in the following statements: “It hasn’t been a great experience, we’re sort of finding out things just incidentally...it was like, did I miss something along the way? What happened?”

In answer to what, if anything, should be changed about the isolation process, this family member responded: “To be informed a lot better than we are now. I can’t imagine that I’m that dumb, and I don’t listen that poorly.”

Lack of consistency in the implementation of the isolation protocol

The lack of consistency in the relaying of information was raised exclusively by family members. However, both patients and family members were concerned about the lack of consistency and adherence to the isolation protocol. One family member reported discrepancies between the protocol for isolated patients and actual practices. She related the scenario in which a doctor told her that the usual isolation measures stipulate that the patient cannot leave the hospital. On the other hand, this professional did not strictly enforce this policy: “The doctor said, you’re not really supposed to take them (patients) out, that’s the hospital policy. [But if you do go out] you should wipe things down.”

Similarly, another patient shared the following experience: “I would tell them (HCPs) that I would like it if they put on gloves...I think it would solve a lot of problems if everyone mimics each other (i.e., everyone follows the same isolation measures)...To be careful with all (isolation) measures.”

The ideal practice of physically isolating patients in single rooms was not always possible due to lack of private rooms across the institution. Patients were placed in multi-bedded rooms with others who were also infected with *C. difficile*. This led to concern and a state of confusion for one of the family members who explained: “When it was discovered that he had *C. difficile*, they rushed him out; he was before in another room, a semi-private.

So they rushed him out right away and they put him into an isolation room. Then all of a sudden, he's back in a semi-private room...if it's supposed to be isolation, isolation is isolation!"

The strict adherence to the ideal practice of single rooms provided reassurance to participants of both groups. When asked what changes should be made to isolation measures, one family member stated, "I'd put him back in a single room, because to me that's what isolation means." This concern was verbalized by one patient who affirmed her preference for single-bed isolation rooms.

One family member/patient pair expressed great concern when in a clinical area that did not allow for proper isolation measures, specifically the emergency department. This concern was captured by the following family member statement: "They let a lot of things go, especially in the emergency room...the first day she spent in the emergency room my mom was having diarrhea and they didn't know where to put it (stool). They had to put it on the floor. That, I believe, is very dangerous for the whole emergency room. That's my opinion, very, very sad and very, very dangerous."

These perceptions of lack of consistency regarding information provided and in the adherence and the ability to implement the isolation protocol undermined the above participants' sense of reassurance with the care provided.

DISCUSSION

The findings of the current study illustrate the isolation experience for *C. difficile* positive patients and their families. Loneliness stemming from the isolation measures and reduced contacts with loved ones was central to the patient's experience, a finding consistent with previous research (14-16,19). Uncertainty regarding the illness trajectory was expressed by patients and family members, which reflects the general literature on uncertainty

in the illness experience (32). The continual questioning of the illness trajectory may be viewed as information seeking, which is a common response to uncertainty and may be considered a useful coping strategy (33).

Some patients and family members did speak about the hospital acquisition of the infection, which led to emotional distress. They viewed the hospitalization as a way of treating underlying illness for which they were admitted, and not as a means of acquiring a novel infection. Indeed, the literature demonstrates the physical, social and psychological impact of hospital-acquired infections for patients and their families, such as fear, stigma and social isolation (35,36).

Patients and family members exhibited a hypervigilance in the adherence to the isolation measures by HCPs, possibly as an attempt to find a rationale for the hospital acquisition of the infection. The hypervigilance may also reflect efforts by the two groups to protect themselves from acquiring the infection and as a protective coping mechanism. The increased vigilance could indicate a lack of trust in the HCPs and in the hospital, since this is where acquisition of the infection occurred. Newton established that patients with methicillin-resistant *Syaphylococcus aureus* (MRSA) believed that isolation measures prevented transmission of the infection, yet they did not indicate increased focus in HCPs' adherence to isolation practices (15).

The increased vigilance is a new finding that may potentially be unique to *C. difficile* infection, since this microbe has overt symptomatology (i.e. frequent episodes of diarrhea), as compared to other infectious agents. Patients and family members are witness to the symptoms of *C. difficile* and this observation, coupled with the potentially life-threatening course of this infection, may increase their guard against its transmission. They repeatedly questioned the effectiveness of the isolation measures, which appeared to elicit a sentiment of anxiety, although this emotion was not

validated with the participants.

The lack of consistency in the information provided emerged only in the family members' experience. Perhaps the HCPs had inadequate knowledge regarding *C. difficile* infection, a phenomenon encountered in a small study. It found that infection control personnel had poor understanding of *C. difficile* despite an adequate knowledge of infection transmission (37), which may have led to inconsistencies. Perhaps patients had less informational needs or were more focused on their own illness management, other than *C. difficile*, and did not question the information provided, and were thus satisfied with it. This may be due to patients receiving their information primarily from HCPs, whereas family members had access to several information resources, such as HCPs and electronic and print media. Surprisingly, the opposite was illustrated in past research. Studies found that patients with diverse infections had information needs that were not adequately met by HCPs (16,17,35).

Lastly, patients and family members observed differing isolation practices performed by HCPs. The inconsistent use of isolation measures has been documented in previous literature (7,14,38). This inconsistency likely creates confusion, as the proper measures to follow become unclear, and their importance is called into question. A strict adherence to the isolation protocol will likely increase the patients' and families' reassurance with personnel and will concomitantly enhance patient coping with *C. difficile* infection.

The physical layout of the hospital resulted in differing isolation practices. For instance, the Emergency Room (ER) did not have physical barriers and bathroom facilities necessary for proper isolation precautions, which was worrisome for both patients and family members. Hospital wards remain antiquated as they contain few single or isolation rooms (8). As a result, cohorting is prevalent. Multi-bedded rooms created anxiety and concern for patients and family members due to

the close proximity to other infected patients and led to emotional distress. There is thus a clear link between physical environment and coping with the illness, a phenomenon that has not been scrutinized in any depth in past literature.

Both groups were afraid of possible re-infection from the other patients. Very little research has looked at this issue of re-infection secondary to cohorting. However, a study noted that patients who shared a room with another *C. difficile* positive patient acquired the organism after an estimated hospital stay of 3.2 days when compared with a hospital stay of 18.9 days for other patients (39). Another study found that moving a patient from the intensive care unit (ICU) into a single room did not reduce the rate of cross infection for MRSA (40). The inconsistencies in previous research thus merit further exploration.

Single-bedded rooms are advocated as the gold standard in isolation measures, yet they stipulate that multi-bedded rooms are permissible only after consultation and approval by the institution's infection control department (3,24,41).

The most profound effect on patients and their families was the emotional impact of isolation for *C. difficile*. Given the resultant distress experienced by the patients and family members, there is a clear need to explore their coping in order to intervene therapeutically. The McGill Model of Nursing views the family as the unit of care. This model regards nurses as having a pivotal role in collaborating with families to assist them to cope with their concerns, hence it is ideally suited for working with *C. difficile* positive patients and their families (Gottlieb & Sherrard, 2004; unpublished work). As the above findings demonstrate, the intervention of providing information is inadequate to address their emotional needs. Nurses need to be attuned to the distress and anxiety felt by the patients and family members in order to better facilitate their coping.

CONCLUSION

Implications for practice

HCPs, and especially nurses, need to be aware of the psychological impact of the isolation measures and the acquisition of HAI, so that they may intervene accordingly. Relevant interventions to promote adaptive coping include active listening to understand the extent of the concern, providing emotional support and reassurance, reframing cognitions, and referral to appropriate personnel as needed (42). Based on the above findings, it is clear that nurses have a vital role in anticipatory guidance in preparing the patients and families for the experience beyond understanding the infection. For instance, nurses can describe the isolation measures such that patients and families will have an increased awareness of what to expect. Consequently, any questions or concerns can be addressed.

Bedside nurses were described as one of the main information providers. It is necessary to determine any gaps in nurses' knowledge regarding *C. difficile* and its isolation measures. Additional teaching should then be provided to nurses, such that they possess adequate knowledge to be shared with patients and families. Moreover, there is a need for a proper assessment of both patients and families to determine ability to process the information provided, as emotionally charged and serious health situations are well known for not being conducive to learning and subsequent recall of information. The literature emphasizes the positive effect that the provision of information has on patient satisfaction and reduction of anxiety (7,16,43). Consequently coping may be facilitated for patients and families (43). Improved communication by HCPs via a standardized teaching process will ameliorate patients' and family members' experience (17).

Bedside nurses may use resources available to them, such as printed documentation and infection control personnel. The latter can be made available to patients and families to answer questions and provide

information regarding the infection and the need for isolation.

Nurses and physicians need to collaborate and develop a standardized teaching tool to be put into practice with patients and families regarding *C. difficile* infection and isolation measures. This teaching process should begin at diagnosis and continue on throughout the infection's course. This standardized method of information giving may reduce anxiety, uncertainty, and confusion for patients and families. Furthermore, these professionals are in an ideal position to provide teaching, such that patient outcomes will likely improve. HCPs should be sensitized to the impact of their actions on patient and family anxiety regarding inconsistencies in their practice.

The health care institution's infection prevention and control guidelines should be strictly followed and implemented. There must be consistency of isolation measures across hospital personnel and visitors, in order to diminish cross-contamination and confusion regarding proper practices. Lastly, hospital administrators should make every effort to organize units in a manner that promotes the use of single isolation rooms. However, given the current physical layout of hospitals, cohorting should only be implemented with the guidance of infection control personnel.

Future directions

It would be interesting to compare patient and family members' isolation experience in single versus multi-bedded rooms, in order to determine the effect of physical environment on individual experience. As a result, the physical and human resources necessary to properly implement isolation measures will become apparent, and current practices will likely improve.

Previous literature did not examine the family experience for other infectious agents, such as MRSA or vancomycin-resistant enterococcus (VRE), thus such studies are needed, in order to gain a broader understanding of the patients and families' experience

of source isolation. Patients in the present study were satisfied with information provided. This is in contrast to previous studies, where their informational needs were not adequately met, thus constituting a phenomenon that requires further exploration. It would also be worthwhile to explore whether family members' fears linking cohorting with re-infection are justified. Future studies should examine the incidence of re-infection of cohorted patients, in order to determine whether family members' fears are valid or unfounded. Future studies exploring staff nurses' perceptions regarding nursing patients and their families in isolation, would inform practice.

Limitations

Study findings were not validated with the participants in a second interview, due to time constraints. This would have been useful, in terms of gaining a more in-depth understanding of their experience. Furthermore, the sample size of five patient/family member pairs was relatively small, hence the study should be repeated with a larger sample in different institutions in order to ensure a range of experiences. Specific demographic data such as education level and length of time in isolation were not collected, since the purpose of the study was an exploratory overview without the intention of identifying associations between the demographics and experience. However, these factors may have played a role in the participant's isolation experience, and therefore should be included in further studies of the subject.

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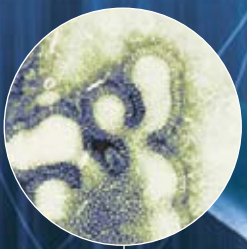
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Anne Bialachowski, RN, BN, MS, CIC

President, CHICA-Canada

Global Focus

Sadly our glorious summer is drawing to an end. I have just returned from the IPCAN/IFIC conference in South Africa. What an amazing conference it was. Infection Prevention and Control Africa Network (IPCAN) was founded in 2008 with the mission of supporting training, research and healthcare best practice in African healthcare facilities. This was their first conjoint conference with the International Federation of Infection Control (IFIC). The aim of the conference was to address the diseases and infection prevention and control issues for the African continent.

The disease profiles in Africa differ from those in well resourced nations and are concentrated in diseases of poverty and healthcare-associated infections. High rates of HIV, MDRTB and enteric diseases place tremendous strains on resources and the ingenuity of the healthcare workers who are charged with preventing their transmission.

The topics of discussion at the conference were diverse and because the requirements for infection prevention and control in healthcare are universal there were topics of interest for delegates from around the world, regardless of the resources available to them.

At the opening ceremonies it was heartening to hear one of the local politicians speak eloquently about the need for effective infection prevention and control programs and the impact of healthcare-associated infections. It rapidly became quite clear, at least to the Canadian delegates, that our CHICA website had provided her with a great deal of information. How did we know this, you ask? The use of the term "routine practices" was the clue. As far as I know, Canada is the only nation in the world to use this terminology when describing basic practices for IP&C. This was a proud moment to see how our excellent

website was being used in other countries.

Unfortunately, we still do not have a truly common language for basic practices.

Many nations have moved to using the term "standard precautions" but there are others who continue to use the term "universal precautions." Carol Goldman, IFIC Secretary, Gayle Gilmore, IFIC board, and I were asked to present a series of lectures on the components of standard precautions. I was unsure about the amount of interest there would be in the session but it was extremely well attended and there were numerous questions and discussion at the end. One of the challenges that all delegates appear to face is the gap between staff knowledge and their actual practice when it comes to IP&C best practices. The presentations by other delegates on the knowledge-practice gap were very interesting.

During the meeting, the presidents from IFIC, IPS, APIC and CHICA met to discuss possible joint ventures. These

discussions began in Montreal in 2008 and have continued with meetings at each of the societies' main conferences since then. As presidents we agreed to focus on IP&C week this fall and share resources that could be posted on the IFIC website. This would provide an opportunity for networking broader than our individual organizations and provide access to resources for low income nations. These meetings with the presidents are informal but strengthen the connections between our organizations. Previously there was a committee focused on joint initiatives but in 2009, IPS, APIC and CHICA agreed to sunset the group called the International Infection Control Council that had been formed in 2000 as it was felt that the group had achieved their original mandate. APIC and IPS have signed over the copyrights to two toolkits created by this group to CHICA so that revisions can be made. Announcements about these projects will be made at a future date. ☺☺

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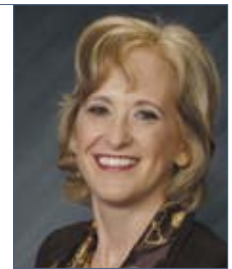
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Anne Bialachowski, RN, BN, MS, CIC
Présidente, CHICA-Canada

Perspective mondiale

Malheureusement, notre splendide été tire à sa fin. Je reviens tout juste du congrès IPCAN/IFIC, qui a eu lieu en Afrique du Sud. Quel congrès fascinant. L'IPCAN (Infection Prevention and Control Africa Network) a été fondé en 2008 et a comme mission de promouvoir la formation, la recherche ainsi que les pratiques exemplaires dans les installations de soins de santé africaines. Il s'agissait du premier congrès que ce réseau organisait conjointement avec l'IFIC (International Federation of Infection Control). L'objectif du congrès était de s'attaquer aux problèmes entourant les maladies ainsi que la prévention et le contrôle des infections sur le continent africain.

En Afrique, les profils de maladies sont fort différents de ceux que l'on observe dans les pays bien nantis. Il y a une forte concentration de maladies liées à la pauvreté et d'infections associées aux soins de santé. Le taux élevé de VIH, de TB-MR et de maladies entériques sollicite considérablement les ressources de même que les travailleurs de la santé chargés de prévenir la propagation de ces infections.

Les sujets abordés dans le cadre du congrès étaient diversifiés et, étant donné que les besoins en matière de prévention et de contrôle des infections dans les soins de santé sont universels, les délégués de partout dans le monde pouvaient y trouver leur compte, quelles que soient les ressources dont ils disposent.

À l'occasion de la cérémonie d'ouverture, il était encourageant d'entendre une politicienne de l'endroit parler avec éloquence de

« À ma connaissance, le Canada est le seul pays au monde à employer cette terminologie lorsqu'il est question de décrire les pratiques de base en prévention et contrôle des infections. Nous avons éprouvé de la fierté en constatant que notre excellent site Web est utilisé dans d'autres pays. »

la nécessité de mettre en place des programmes efficaces de prévention et de contrôle des infections ainsi que des répercussions des infections nosocomiales. Il est rapidement devenu assez évident, du moins pour les délégués canadiens, que le site Web de CHICA avait fourni à l'oratrice une grande quantité d'information.

Comment avons-nous pu le savoir, me demanderez-vous? L'emploi de l'expression « pratiques de routine » (*routine practices*) constituait un indice clé. À ma connaissance, le Canada est le seul pays au monde à employer cette terminologie lorsqu'il est question de décrire les pratiques de base en prévention et contrôle des infections.

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Hélas, nous ne disposons pas encore d'un vocabulaire véritablement uniformisé pour ce qui est des pratiques de base.

De nombreux pays ont adopté l'expression « précautions standards », mais d'autres emploient encore le terme « précautions universelles ». Carol Goldman, secrétaire de l'IFIC, Gail Gilmore, du conseil d'administration de l'IFIC, et moi-même avons été invitées à donner une série de présentations sur les composantes des précautions standards. Je ne savais trop quel intérêt cette séance allait susciter, mais nous avons eu une bonne participation et il y a eu de nombreuses questions et discussions à la fin. L'un des obstacles que tous les délégués semblent devoir

surmonter est le décalage entre les connaissances du personnel et leur pratique, dans la réalité, lorsqu'il est question de pratiques exemplaires en prévention et contrôle des infections. Les présentations effectuées par d'autres délégués sur ce décalage ont été très intéressantes.

Au cours du congrès, les présidents de l'IFIC, de l'IPS, de l'APIC et de CHICA se sont réunis pour discuter d'éventuels projets conjoints. Ces discussions avaient commencé à Montréal en 2008 et se sont poursuivies par la suite à l'occasion des congrès de chacune de ces organisations. Les présidents ont convenu de cibler la semaine nationale de la prévention et du contrôle des infections, qui aura lieu cet automne, et de mettre en commun des ressources qui pourraient être versées sur le site Web de l'IFIC.

Cela permettrait de constituer un réseau plus vaste, qui dépasserait nos organisations individuelles, et donnerait à des pays à plus faibles revenus la possibilité d'accéder à de telles ressources. Les réunions où se retrouvent les présidents sont informelles, mais elles renforcent les liens entre nos organisations. Auparavant, il existait un comité responsable des initiatives communes, mais en 2009, l'IPS, l'APIC et CHICA ont décidé d'abolir le groupe connu sous le nom d'International Infection Control Council, qui avait été constitué en 2000, car on estimait qu'il avait accompli son mandat d'origine. L'APIC et l'IPS ont cédé leurs droits d'auteur sur deux troupes d'outils créées par ce groupe afin que CHICA puisse en faire la mise à jour. De l'information sur ces projets sera transmise en temps opportun. 



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The SARS Memorial Fund for Infection Control Practitioners is a tuition/certification/professional development reimbursement program funded by Molson Canada SARS Concert (2003) and supported by the Ontario Ministry of Health and Long Term Care.

RNFOO manages the SARS Memorial Fund, initiated in January 2005. The fund provides grants to Infection Control Practitioners **from any discipline** to support them in advancing their knowledge to lead infection control practices within their healthcare settings. Grants can be applied to continuing education, certification/re-certification and professional development.

The fund of \$175,000 is to be administered over three years, allowing for the allocation of approximately \$58,000 per year in support of individual pursuing formal education and certification in the area of infection control. •

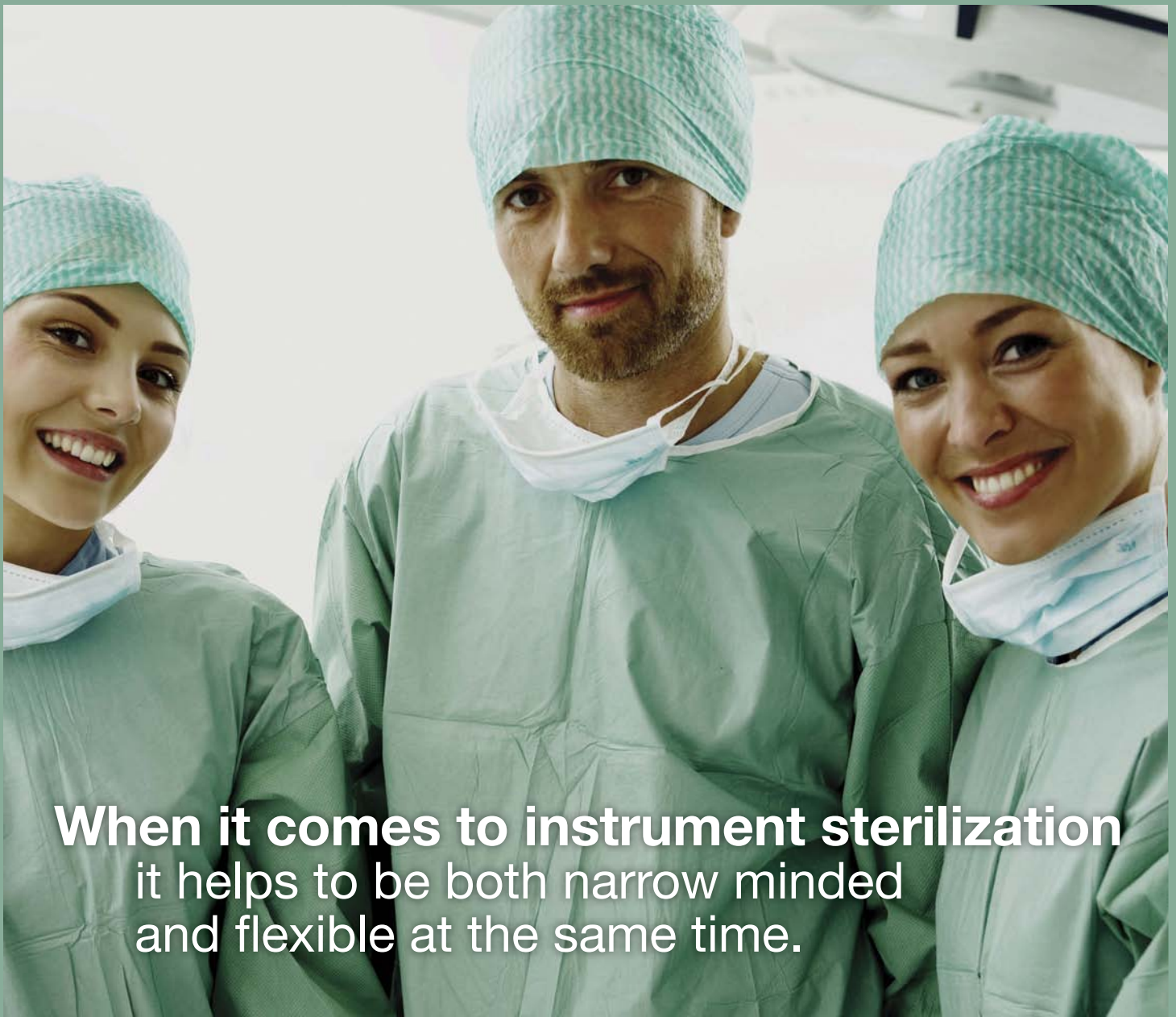
See www.rnfoo.org for details.

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Encounters of the closer kind



Gerry Hansen, BA

Executive Director, CHICA-Canada

First, a little bit of history. The Public Health Agency of Canada (PHAC) is an agency of the Government of Canada that is responsible for public health, emergency preparedness and response, infectious and chronic disease control, and infection prevention. It was formed by Order in Council in 2004 and subsequently by legislation in December 2006. In 2006, CHICA, PHAC, the Canadian Patient Safety Institute, and Accreditation Canada signed a Memorandum of Understanding with a goal of collaboration in matters of patient safety. PHAC has developed numerous IP&C guidelines and draws from CHICA's membership to complete its panel of experts for this work.

CHICA and PHAC do not have a mechanism in place for formal communication and consultation. This mechanism is needed on an urgent basis given the mutual interest of both parties that will be met through improved ongoing dialogue.


In mid-August, President Anne Bialachowski and I met with PHAC representatives in Ottawa, at PHAC's invitation. It was a full day of discussion, questions, and suggestions.

Among the more important information items and next steps for consideration are:

- PHAC and CHICA will maintain a dialogue regarding the status of IP&C guidelines. A process will be developed to determine the most pressing issues requiring guidelines. CHICA-Canada will consider development of webinars around each completed guideline.
- PHAC is in the process of reviewing the format of all new and revised

guidelines, toward a more user-friendly format, including the possibility of shorter documents and a summary of guideline revisions.

- PHAC will consult with CHICA-Canada and other organizations about the renewal process for nominees to the Infection Control Steering Committee.
- PHAC will increase linkages with the Network of Networks Interest Group.
- It was suggested that the national standardized definitions group readdress the *MRSA/Clostridium difficile* definitions and come to consensus on the agreed wording and publication of the definitions.
- PHAC representatives, the CHICA-Canada President, and the CHICA-Canada Executive Director to meet by conference call twice per year; once in April prior to the spring CHICA Board meeting and once in October prior to the fall Board meeting. Issues of mutual interest and concern will be discussed and the group will meet more frequently if required.
- PHAC to submit articles updating on its activities for publication in the *Canadian Journal of Infection Control* (starting with the winter 2010 issue).
- When possible, a "PHAC Update" to be scheduled in the program of the CHICA-Canada annual conference.
- The Memorandum of Understanding will be reviewed with all parties.

We came away with a better vision of PHAC's role alongside CHICA and several mutual action items that will hopefully create a new, more open and collegial relationship. 

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With the effects of SARS, *Clostridium difficile* (C. difficile) and last year's H1N1 crisis still fresh in the minds of many Canadians, infection prevention and control continues to be a key area of interest for patients and professionals alike.

To build on this interest, the Ontario Ministry of Health and Long-Term Care created a provincial "Just Clean Your Hands" program to help hospitals and individuals overcome the barriers to proper hand hygiene and improve compliance with hand hygiene best practices. While great strides have been made to improve hand hygiene across Ontario, the province continues to offer information and other resources to help healthcare providers with compliance.



With the opportunity to reach out to hundreds, if not thousands, of healthcare providers in one place at one time, the Infection Control session at **HealthAchieve**, one of the most respected healthcare events in the country, has become a popular venue for presentations and discussion around the latest information and trends in infection control.

At this year's session on Monday, November 8, 2010, Infection Control experts from across Ontario will team up with Occupational Health Nurses to offer "Hand Hygiene Challenges for Health Care Workers," a panel discussion designed to

provide participants with lessons learned on improving the hand hygiene workplace culture, as well as information about how to keep healthcare providers' hands safe with a good skin care program.

HealthAchieve has become the largest event of its kind in Canada, and it continues to grow, attracting more than 9,400 healthcare professionals and over 350 exhibiting companies from across the country and beyond. Taking place this year from **November 8-10**, HealthAchieve provides a dynamic and cutting-edge showcase of the latest innovations in technology, offers dynamic learning opportunities, and allows for networking among today's top healthcare and business leaders.

In addition to the Infection Control session at the 2010 show, HealthAchieve is also offering a number of other thought-provoking sessions featuring renowned speakers and entertainers including Retired Lieutenant-General The Honourable Roméo Dallaire; best-selling author, Clayton Christensen; Olympian Clara Hughes; and comedian, Shaun Majumder. Additional prominent speakers will be announced in the weeks to come.

To learn more about HealthAchieve's Infection Control session, or about the award-winning event itself, go to **www.healthachieve.com**.  





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MEDIA RELEASE

The following media release is provided to assist with any National Infection Control Week activities that may require a media release in your area. Add the local contact information at the bottom of the release.

Infection Control – It's Simple!

National Infection Control Week – October 18-22, 2010

'Infection Control – It's Simple!' is the theme of this year's National Infection Control Week, October 18-22, 2010. Infection Prevention and Control programs have been widely recognized to be both clinically effective and cost-effective in preventing and controlling the spread of infections in healthcare settings. However, ultimately the most effective way to prevent the transmission of infection is through hand hygiene and effective environmental cleaning.

Washing your hands is an ordinary procedure and does not take a lot of time and effort or thought. You can use soap and water or alcohol based sanitizers. It takes only 20-30 seconds of your time to wash your hands.

Now that's simple!

National Infection Control Week will provide Infection Prevention and Control Professionals within healthcare facilities and community settings the opportunity to promote the 'Infection Control – It's Simple!' theme. Infection Prevention and Control Professionals will

be providing multi-modal education and collaborating with other organizations in order to deliver the message that infection prevention and control can be very simple.

Keep in mind that National Infection Control Week is just the beginning. This invaluable lesson is one that must continue to be taught so that the impact of infections can be minimized.

CHICA-Canada is a national, multi-disciplinary, voluntary association of Infection Prevention and Control Professionals (ICPs) with 21 chapters across the country dedicated to the health of Canadians by promoting excellence in the practice of infection prevention and control.

Contact the Infection Prevention and Control Professional in your hospital or community for further information on activities planned for National Infection Control Week. Visit CHICA-Canada's web site (www.chica.org) for infection prevention and control information. For additional information or to contact your local CHICA-Canada

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COMMUNIQUÉ DE PRESSE

Le communiqué de presse ci-dessous vous est fourni pour vous aider si vous planifiez des activités dans le cadre de la semaine nationale du contrôle des infections et que vous souhaitez émettre un communiqué dans votre région. Ajoutez les coordonnées de votre section régionale à la fin du communiqué.

Le contrôle des infections – C’est simple!

Semaine nationale du contrôle des infections – 18 au 22 octobre 2010

« Le contrôle des infections – c’est simple! », voilà le thème de la prochaine semaine nationale du contrôle des infections, qui aura lieu du 18 au 22 octobre 2010. Il est largement reconnu que les programmes de prévention et de contrôle des infections constituent un moyen rentable et efficace sur le plan clinique de prévenir et de contrôler la propagation des infections dans les milieux de soins de santé. Toutefois, ultimement, le moyen le plus efficace de prévenir la transmission des infections constitue l’hygiène des mains et le nettoyage efficace de l’environnement.

Le lavage des mains est une procédure ordinaire, qui n’exige pas beaucoup de temps, d’effort ni de réflexion. On peut utiliser du savon et de l’eau ou un assainissant à base d’alcool. Se laver les mains ne prend que de 20 à 30 secondes de votre temps.

Ça, c’est simple!

La semaine nationale du contrôle des infections donne aux professionnels de la prévention et du contrôle des infections qui travaillent dans des établissements de soins de santé l’occasion de promouvoir le thème « Le contrôle des infections – c’est simple! ». Ces professionnels offriront des formations multimodes et collaboreront avec d’autres organismes afin de véhiculer l’idée que

la prévention et le contrôle des infections peut s’avérer très simple.

Gardez à l’esprit que la semaine nationale du contrôle des infections ne constitue qu’un début. Il faut continuer d’enseigner cette leçon inestimable afin de réduire au minimum les effets des infections.

CHICA-Canada est une association nationale et multidisciplinaire qui regroupe des professionnels en prévention et contrôle des infections (PCI) sur une base volontaire. Elle compte 21 sections régionales un peu partout au pays, qui veillent à la santé des Canadiens en prônant l’excellence dans la pratique relative à la prévention et au contrôle des infections.

Communiquez avec le professionnel en prévention et contrôle des infections de votre hôpital ou de votre communauté pour en apprendre davantage sur les activités proposées pendant la semaine nationale de contrôle des infections. Visitez le site Web de CHICA-Canada (www.chica.org) pour obtenir de l’information sur la prévention et le contrôle des infections. Si vous avez besoin de plus de renseignements ou pour communiquer avec votre section régionale de CHICA-Canada :
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Fran Feltovich, RN, MBA, CIC, CPHQ,
2010 CBIC President

Certification in Infection Control: Then and now

The idea of establishing a certification process for infection prevention and control professionals began in 1977 through the work of a local chapter of the Association for Professionals in Infection Control and Epidemiology, Inc (APIC), APIC – New England. In 1978, the APIC Board of Directors formed the APIC Certification Association and in 1979 this association established an independent certification board, contracted with a certification testing company, developed the certification process and performed the first task analysis.

There were 12 very committed infection prevention and control professionals who had a vision, a purpose and a goal that laid the foundation for certification of infection control and prevention professionals. These individuals were responsible for creating the first certification and recertification process. They developed the certification exam questions, ensured there was a suitable question bank, developed the weighting structure for the questions and developed and administered the first practice analysis. All of the members took the certification exams and analyzed the results. Articles about the certification process including the results of the practice analysis were published in APIC's official publication, the *American Journal of Infection Control and Epidemiology (AJIC)*.

In 1982, the APIC Certification Association became known as the Certification Board of Infection Control and Epidemiology, Inc (CBIC). CBIC administered the first certification exam in 1983.

Members of the original CBIC Board of Directors included, Trish Barrett, Julie Garner, Marguerite Jackson, Pat Lynch,

Barbara McArthur, Bob Shannon, Barb Soule, Maureen Spencer and Steve Weinstein from the United States. Shirley Chewick, the first CHICA President, and Nolène McGuire, Montreal, were the founding CBIC members from Canada. A community liaison also served on the board. Some of the early board members served a three-year term and others served a partial term in order to provide for staggered elections.

So, here we are 33 years after the certification process was first conceptualized. Many changes have taken place but some things have remained the same. Just as the early practice analyses were published in *AJIC* and the *CHICA-Canada* journal, so will the practice analysis (PA) that CBIC conducted in 2009. The purpose of the practice analysis survey was to identify the current responsibilities of infection prevention and control professionals and to ensure the certification exams reflect the current practice of infection prevention and control. For purposes of the survey, an infection prevention and control professional was defined as one who is responsible for the:

- Planning, implementation, and evaluation of infection prevention and control measures.
- Collection, analysis, and interpretation of epidemiologic data relative to infections.
- Investigation and surveillance of suspected infection outbreaks.

The response rate of the survey was 27.53%. The responses were analyzed and were used to determine the test specifications for the certification exams. The executive summary of the PA survey with the revised content outline can be found on the CBIC website: www.cbic.org.

The CBIC Board is grateful to all the respondents of the survey for their valuable contribution.


The results of the 2009 PA survey identified the following areas or domains of practice:

- Identification of infectious disease processes
- Surveillance of epidemiologic investigation
- Preventing/controlling the transmission of infectious agents
- Employee/occupational health
- Management and communication (leadership)
- Education and research

CBIC revised the content outline of the certification exams to reflect the above domains. In addition to being on the CBIC site, the revised content outline will be published in CBIC's *Candidate Handbook*.

CBIC also revised the exams to reflect the responses to the 2009 survey and began administering the revised proctored computer-based exam in July 2010. The revised Self Achievement Recertification Exam (SARE) based on the findings of the 2009 PA survey will be administered beginning January 2011. I encourage you to review the revised content outline if you plan to soon take either the proctored computer-based exam or the SARE.

CBIC welcomes comments and questions about the certification process.

Please feel free to pose your questions to info@cbic.org or to me at ffeltovich@cbic.org. 



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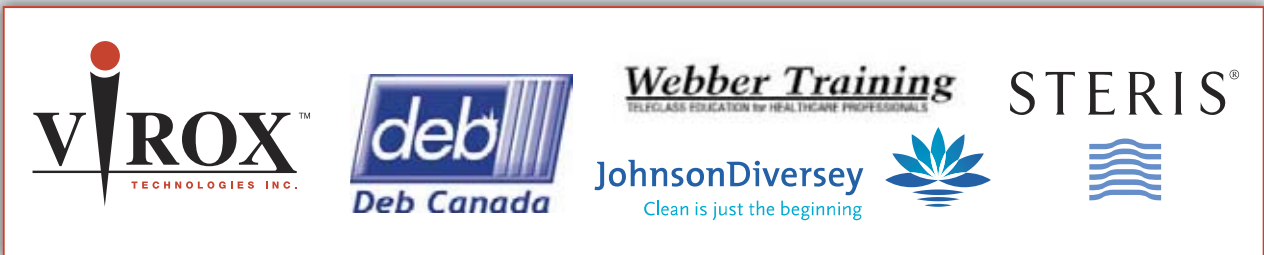


2011 **VIROX**™ Technologies Partners Scholarship

Through the financial support of the Virox Technologies Partnerships, 18 CHICA-Canada members were awarded scholarships to attend the 2010 CHICA Education Conference in Vancouver. CHICA-Canada and its members thank Virox Technologies and their partners Deb Canada, JohnsonDiversey, Steris Corporation, Virox Technologies, and Webber Training for their initiative to make the national education conference accessible to those who may not have otherwise been able to attend.

The Virox Technologies Partnership will again provide a scholarship to assist CHICA-Canada members with attending the 2011 Education Conference in Toronto, Ontario. The 2011 Virox Technologies Partnership Scholarship application is available on www.chica.org.

The deadline date for applications is January 31, 2011.



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of transmission”

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Environmental Services Survey

INFECTION
PREVENTION
TEAMS

Scope of Investigation

- Assess environmental cleaning and disinfection resources and practices
- Reduce impacts of various protocols in effort to control Hospital Acquired Infections (HAI)
- Examine interaction between Environmental Services (ES) and Infection Prevention and Control (ICP)
- Provide strategies for improving environmental services to help reduce HAI's
- Ultimately reduce morbidity, mortality and health care costs

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Dr Dick Zoutman

ENVIRONMENTAL
SERVICE/
HOUSEKEEPING
TEAMS

Creating new links to help break the chain of transmission

The Canadian Hospital Environmental Services Study (CHES)

Keith Sopha

Manager Housekeeping Linen and Space, Homewood Health Centre • 150 Delhi Street, Guelph, ON
sophkeit@homewoodhealth.org • 519-824-1010 ext. 2380 • Fax: 519-824-1824

The Canadian Association of Environmental Management (CAEM), Queens University and Sani Marc Group launched the Canadian Hospital Environmental Services Study (CHES) research project at the 2010 Community and Hospital Infection Control Association's (CHICA) national conference in Vancouver, BC.

The objective of our presence at this conference was to stimulate interest and excitement about this innovative and greatly needed research project.

This CHES study will involve the participation of more than 280 acute care hospitals across Canada (all with more than 80 beds). Its objective is to collect and analyze data related to environmental services and infection prevention practice within health care facilities.

Our objective in attending the CHICA conference was met. Delegates were interested in helping this project get started, expressing great enthusiasm and interest in participating by providing data for this study.

The study will assess environmental cleaning and disinfection resources and practices in Canadian acute care hospitals comparing them to the evidence-based guidelines. It will also consider the influence infection prevention and control programs have on environmental services.

These factors and their relationship to hospital-acquired infections (HAI) levels will be examined.

We will be able to ascertain whether ES has sufficient resources to clean and disinfect to standards and whether ES standards and disinfection practices are consistent with the guidelines.

We will examine the interaction between ES and Infection Prevention and Control (IPC) services, as they work together to create an effective working relationship between the services.

The influence of Infection Prevention and Control programs on ES will be examined on a macro scale to provide insights into the impact cleaning and disinfection has on HAIs.

The study results should provide new strategies for improving the provision of environmental services and reduce the incidence of HAI in acute care hospitals.

Ultimately, this will help to reduce morbidity, mortality, and health care costs.

We will be creating a steering committee with representatives



Keith Sopha, Dr Dick Zoutman,
Patrick Couture - Sani Marc Group, Barry Colpitts - WoodWyant

from Environmental Services Management, Infection Prevention Professionals and Cleaning Industry Suppliers to develop specific surveys for environmental services and infection prevention within the health care environment.

The steering committee will be led by Dr. Dick Zoutman Department of Pathology and Molecular Medicine Queens University and Infection Control services, Kingston General Hospital, Douglas Ford medical researcher, Department of Pathology and Molecular Medi-

cine Queens University and Keith Sopha Manager of Housekeeping Linen a Space Homewood Health Centre, President of the Canadian Association of Environmental Management (CAEM) and will be comprised of ES and ICP representatives from across Canada.

The surveys will have a consistent format; however, some questions will specifically apply to the field in which the service is provided.

In developing the survey for environmental services, the committee will look at hospital characteristics, such as hospital size, square footage, number of beds and whether it is new or old.


The surveys will include a human resources component, such as number of Infection Control Professionals or ES managers, the number of support staff by units and the process used to maintain the cleaning and disinfection of the facility. We will also examine the interactions and influence infection control programs have on environmental services.

Once the committee develops the survey content, the surveys will be administered on line; however, paper copies will be available for those who prefer to respond by paper copy.

The project is expected to take three years to complete and final reports will be published in various journals and shared with our CAEM members and health care facilities throughout Canada.

This study may demonstrate that housekeeping services continues to be an essential part of infection prevention and control in our health care facilities and beyond.

In closing, I would like acknowledge the outstanding support of our sponsor Sani Marc Group and WoodWyant for donating 100% of the three-year funding required to drive the project.

We encourage and welcome all ES and ICP professional to participate in completing the surveys which will be available in early 2011. 

CHICA-CANADA board of directors elections

The following candidates for the CHICA-Canada Board of Directors have been elected by acclamation. Each term is effective January 1, 2011.

Secretary/Membership Director

Marilyn Weinmaster, RN, BScN, CIC
(three-year term)

Regina Qu'Appelle Health Region
Wascana Rehabilitation Centre
Regina, Saskatchewan

Director of Education

Donna Moralejo, PhD
(three-year term)

Memorial University School of Nursing
St. John's, Newfoundland Labrador

Profiles of each of the above will be published in the winter 2010 edition of the *Canadian Journal of Infection Control*.

There are three nominees for the position of President-elect (one-year term, followed by the positions of President and Past President (one-year term each). An election will be held online at www.chica.org. Profiles of the candidates follow. Instructions for voting are below.

CANDIDATE PROFILES



BRENDA DYCK, BScN, CIC is Program Director, Regional Infection Prevention and Control Program at the Winnipeg Regional Health

Authority (WRHA). She has been in infection prevention and control (IP&C) and has been a CHICA-Canada member for 30 years. In her career in IP&C, she has developed and implemented an infection prevention and control program at Seven Oaks General Hospital in Winnipeg (1980-1987) and was an ICP for adult medicine, rehabilitation, medical intensive care, coronary care and

dialysis units at the Health Sciences Centre (1987-2004). In 2004, she became the Program Director of the Regional Infection Prevention and Control Program at the WRHA.

Ms. Dyck was responsible for the development of Infection Prevention and Control guidelines within WRHA and Manitoba. She is currently a member of the Public Health Agency of Canada Infection Control guidelines Steering Committee and a current member of the Public Health Agency of Canada Annex F Working Group. She has presented education sessions and posters at local and national CHICA-Canada conferences and has been involved with numerous publications regarding IP&C.

Ms. Dyck received a Bachelor of Science in Nursing at the University of Saskatchewan; Certificate in Infection Control from the Continuing Education Division of the University of Manitoba; Certificate of Infection Control and Epidemiology from the CDC, Atlanta; Certificate of Epidemiology from LCDC, Ottawa; and Certificate in Infection Control from the Certification Board of Infection Control.

A member and Past President of CHICA Manitoba, she is also a member of the CHICA-Canada Dialysis Interest Group, Community Interest Group and PreHospital/First Responders Interest Group. She has experience on the Board of CHICA-Canada having held the position of Treasurer (1990-1992).

Philosophy: Since I began to practice in infection prevention and control I have seen many positive changes which are the reason I have stayed in this profession. Infection prevention and control is a very challenging and rewarding profession and it is always on the forefront of new and emerging issues. I have also seen CHICA-Canada and its chapters expand and become more visible, respected and influential throughout the provinces, territories and country. I feel I can bring many assets to the

organization. I have many years of experience in infection prevention and control, completed courses and additional training in infection prevention and control, and have a commitment to ongoing education. I also have previous experience on the CHICA-Canada board and interest groups, previous and most recent experience serving in CHICA Manitoba positions as well as my experience locally, provincially, nationally with the planning and development of infection prevention and control guidelines. My management experience as Program Director for the regional Infection Prevention and Control Program for Winnipeg Regional Health Authority would provide me with the skills to work with the board on the future direction of the organization. As president-elect I would continue to work to further increase the profile and knowledge of infection prevention and control as well as to continue to work to generate more partnerships between government, CHICA Canada's stakeholders and the public. With the current economic climate and the funding challenges that many of us face, I would also ensure that CHICA Canada would be a fiscally responsible organization as it moves forward with its goals and objectives.



JIM GAUTHIER, MLT, CIC is an Infection Control Practitioner at Providence Care in Kingston, Ontario. He has held that position

for 11 years and has been a CHICA-Canada member for 21 years. His responsibilities are day-to-day infection control practice with 2.5 other FTE. His responsibilities include surveillance, presenting education, developing and updating policies and outbreak control. He also acts as a resource for a long term care facility and other ICPs across Canada. Mr. Gauthier was

a Laboratory Manager for two years and a section head of Microbiology for 11 years in British Columbia. He was also an Assistant Section Head at the Provincial Labs in Alberta.

He has lectured locally, provincially, nationally and internationally both live and through teleconferences. In addition he has presented to schools, dental offices, funeral personnel, home care, public health staff and industry (both medical and non-medical).

Mr. Gauthier has been a member of the CHICA-Canada National Scientific Program Committee since 2006, having most recently held the position of Scientific Program Chair of the CHICA-Canada 2010 National Education Conference. He was the lead in development of both the Long Term Care and Mental Health Interest Groups. He has Board experience as Technologist Representative (1992-1994). Currently, he is Manager of the CHICA Chats discussion board at www.chica.org.

Mr. Gauthier holds a diploma in Medical Laboratory Technology (1980, Mohawk College), and Certification in Infection Control (2005 recertification).

Philosophy: I have been a strong advocate for infection control in all healthcare settings for over 20 years. I believe CHICA-Canada is at the forefront of infection control, and is becoming well recognized worldwide as a leader in this field. The members ARE CHICA-Canada, and each and every member brings new strength to the organization. Every CHICA-Canada member should be proud to belong to such a vibrant and forward-looking organization. I will help guide CHICA-Canada to meet its vision statement, and I will make sure, by the end of my three years, that the five major goals set in our 2010-2015 strategic plan are met, or well on the way to being met. I like to think I live all of CHICA-Canada's value statements, and I would represent these values locally, nationally, and internationally.



TERI MURDUFF, RN, BScN, CIC is Infection Control Consultant at Lakeridge Health in Oshawa, Ontario. She has held been in infection

prevention and control for eight years and has been a member of CHICA-Canada for eight years. Lakeridge Health is a four-campus acute care/complex continuing care and regional cancer centre. She is one of eight ICPs whose portfolio encompasses one acute care campus as well as maternal child and orthopedic surgical programs for another campus. She participates in surgical site surveillance for total knee replacements and is active in providing education and consultation at all campuses. Previously, Ms. Murduff was at the University Health Network in Toronto and was an Infection Control Consultant with the Central East Infection Control Network in Ontario.

Since graduating from Niagara College in 1982 with a diploma in nursing, Ms. Murduff has expanded her nursing career to include 15 years in the operating room, two years as the educator of

the Sterile Processing Department and part-time instructor at Centennial College for the Sterile Supply Processing Program. She completed a bachelor of science in nursing (cum laude) at Atkinson College/York University and became certified in infection control in 2004, recertifying in 2009.

Ms. Murduff is past president of the CHICA Central East Ontario chapter and also a current member of the Toronto Professionals in Infection Prevention and Control chapter. She is a member of the Healthcare Facility Design and Construction Interest Group and the Surveillance and Applied Epidemiology Interest Group. She has been a speaker and poster presenter at CHICA-Canada National Education Conferences and has collaborated on a Healthcare Careers4Ontario Handbook article on infection prevention and control.

Philosophy: Reviewing my learning goals, objectives and methods of achieving them, I have been drawn to ways of becoming more involved at the national level but never felt that I could contribute enough to seek election to any position. Upon returning from the National Conference in Vancouver,



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Elections *continued*

I began to imagine ways of soaring to new heights. I have come to the “can I, will I do this” moment and yes, I am ready to enter into new opportunities and do everything I can to become even more involved in infection prevention and control. I am a lifelong learner and I am confident not only in my IPAC knowledge; I am secure with how I share knowledge, contribute feedback and mentor IPAC colleagues. Seeking election at the national level is a logical progression and I will be honored to serve for the next three years if elected president-elect. 📺

ONLINE VOTING INSTRUCTIONS

1. Go to the Members Area of www.chica.org. You must use the 2010 user name and password to access the Members Area.
2. Click on **2010 Elections**.
3. Insert your CHICA-Canada Membership Number where requested.*
4. The position to be filled on the Board of CHICA-Canada is:
One (1) President-Elect
Click beside the candidate of your choice.
 - Brenda Dyck
 - Jim Gauthier
 - Teri Murduff
5. **SUBMIT** your vote

*Scrutineers will not know who has voted; the membership number is to assist technical support to ensure there is no duplicate voting and to send out reminders to vote.

The deadline for voting is 6:00 p.m. Central Time, **Friday, October 15, 2010**.

An announcement of election results will be broadcast and posted to www.chica.org on Tuesday, October 18, 2010.

If you require a mailed ballot, please inform CHICA-Canada at chicacanada@mts.net no later than September 30, 2010.

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2011 Host Chapter – Toronto and Area Professionals in Infection Control (TPIC)



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Cathy Munford, RN, CIC
Victoria General Hospital
Victoria, British Columbia

2011 Scientific Program Chair

Zahir Hirji, RN, BScN, MHSc, CIC
Bridgepoint Hospital
Toronto, Ontario

2011 Scientific Program Co-Chair

Molly Blake, BN, MHS, GNC(C), CIC
Health Sciences Centre
Winnipeg, Manitoba

2011 Scientific Program Committee

Susan Cooper, MLT, CIC
OAHPP South Eastern Ontario Infection Control Network
Kingston, Ontario

Colette Ouellet, RN, BN, CIC
OAHPP Champlain Infection Control Network
Ottawa, Ontario

Pamela Kibsey, MD, FRCPC
Royal Jubilee Hospital
Victoria, British Columbia

Amanda Knapp, BAsC, CPHI(C), CIC
Kingston Frontenac and Lennox & Addington Public Health
Kingston, Ontario

Marilyn Weinmaster, RN, BScN, CIC
Regina Qu'Appelle Health Region
Wascana Rehabilitation Centre
Regina, Saskatchewan

Victoria Williams, BSc, BAsC, MPH, CIC
Sunnybrook Health Sciences Centre
Toronto, Ontario

CHAIRS, DESIGNATE DAY

PreConference Full Day, Monday, May 30

Nora Boyd, RN, MEd, CIC
OAHPP Erie St. Clair Infection Control Network
Windsor, Ontario

Madeleine Ashcroft, RN, BScN, CIC
OAHPP Mississauga Halton Infection Control Network
Mississauga, Ontario

CHAIRS, HEALTHCARE FACILITY DESIGN AND CONSTRUCTION

PreConference Half Day, Monday, May 30

Maja McGuire, BSc, MLT, CIC
Sunnybrook Health Sciences Centre
Toronto, Ontario

Barbara Shea, MLT, ART, CIC
OAHPP Central East Infection Control Network
Whitby, Ontario

CHAIR, SURVEILLANCE AND EPIDEMIOLOGY

PreConference Half Day, Monday, May 30

Zahir Hirji, RN, BScN, MHSc, CIC
Bridgepoint Hospital
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REFERENCES: 1. Darouiche R, Wall M Jr, Itani M, et al. Chlorhexidine-alcohol versus povidone-iodine for surgical-site antisepsis. N Engl J Med . 2010;362:18-26.

2. Saltzman MD, Nuber GW, Gryzlo SM, Marecek GS, Koh JL. Efficacy of surgical preparation solutions in shoulder surgery. J Bone Joint Surg Am. 2009;91 A(8):1949–1953.

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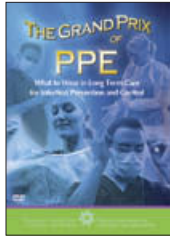


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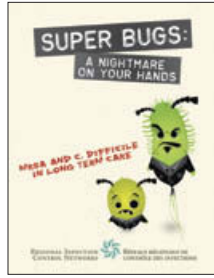
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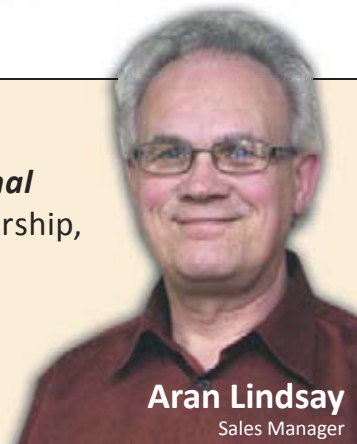
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*As tested against Norovirus

Selected by **Approvisionnement Montréal** for **high level hand disinfection**



Descoderm^oV

Antibacterial Hand Sanitizer

For more information, contact your
AMG representative at: 1-800-363-2381





We're taking hand hygiene dispensing to the next generation

We know one of your biggest challenges to hand hygiene compliance is effective dispensing. We set out to address these challenges by delivering new solutions that take convenience, versatility and performance to the next level. Our next-generation manual and touch-free options allow you to dispense our comprehensive product line of foams, gels or liquids without changing the dispenser, and now you can get Quik-Care® Foam Hand Sanitizer as a non-aerosol. Backed by the personal service and support you've come to expect, Ecolab's latest dispensing technology delivers advances unlike any other you've seen.

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