INSIDE:

Special Report: A survey of infection control practices in Hemodialysis units in Canada

2006 Conference Preview
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A survey of infection control practices in hemodialysis units in Canada

Bridging Global Partnerships
2006 National Education Conference

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President’s Message
Message de le Président
Industry News

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

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

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As I reflect upon nearly 20 years of practicing in infection prevention and control I am truly amazed at how this field has now become a “growth industry.” There is much to celebrate during Infection Control Week 2005.

The growth in infection prevention and control has been spurred not only by constantly evolving and emerging microorganisms but also by highly motivated and visionary groups and individuals.

There have been sentinel points in the evolution of this vital area of practice including the responses to the development of penicillin-resistant staph aureus, blood borne transmitted organisms such as HIV, and the 1980s SENIC study. Another key event was the acknowledgement of Universal Precautions (or Body Substance Precautions) as key elements of infection control practice. These events continue to form the basis of our practices.

In the past few years, the frequency of sentinel events has dramatically increased and the time between major events is narrowing. In some cases the events have overlapped. A good example of this occurred during the SARS situation when Monkeypox and Canada’s first case of bovine spongiform encephalitis (BSE) all occurred within a very short period of time.

Over the past few months, we have increasingly faced a global flu pandemic, which is likely to evolve from the current avian flu cases in the Far East and Asia.

Although many of these events have caused us to be in “reactive” mode and consume our human and material resources, we continue to be “proactive” in many areas. This proactivity is fostered and led by organizations such as CHICA–Canada, which for over 25 years has promoted excellence and practice and formed a cohesive network for development of infection prevention and control in Canada.

CHICA–Canada leaders and members are to be congratulated for the recent milestones and accomplishments that have put us all on the world stage. These include our website (www.chica.org), our growing membership (currently at record levels), our international involvements (including support for IFIC), our strong membership services office. And lastly, who can forget our hand hygiene mascot Sudsy?

Over the past few months, we have amassed a queue of articles for our journal; which is an important indicator of the evolution of and interest in the field of infection prevention and control in Canada.

As we celebrate the 2005 Infection Control Week, let us all give congratulations to our fellow CHICA members and give ourselves a well-deserved “pat on the back.”

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The volume and scope of CHICA-Canada activities continue to impress on me the impact that CHICA-Canada has and will continue to have as we approach our 30th anniversary.

In June, I attended the APIC 2005, Annual Education Conference and International Meeting in Baltimore, Maryland. The conference theme, “Charting the Course for Infection Control” reflected the changing environment and new challenges facing infection control professionals. APIC President, Sue Sebazco, hosted a breakfast meeting to explore ways in which APIC, CHICA-Canada, IFIC and CBIC could further collaborate. Several innovative ideas were discussed.

I also attended the board meeting of CBIC (Certification Board of Infection Control and Epidemiology Inc.) as the CHICA-Canada liaison. The Board is an impressive group of 15 committed experts led by President Betty Dunaway and includes Sheila MacDonald. Sheila was CHICA-Canada President in 2002 and is presently serving as a CBIC board member as Secretary and Chair of Policy and Procedures Committee. In the current climate of change, it is more important than ever for infection control professionals to be able to demonstrate their knowledge both in practice and through the formal recognition afforded by the certification process. As of April 2005, there were 228 Canadians Certified in Infection Control and I encourage all eligible CHICA members to become certified as a means of providing a standardized measurement of current basic knowledge needed to practice infection control. I’ll remind ICPs in Ontario who are eligible for certification that full funding is available through the SARS Memorial Fund administered by the Registered Nurses Foundation of Ontario and sponsored by the Ontario Ministry of Health and Long-Term Care.

In July, I was asked to represent CHICA-Canada by participating in an Expert Roundtable on Infectious Diseases hosted by the Honourable Carolyn Bennett, Minister of State (Public Health) Government of Canada and the Honourable Theresa Oswald, Minister of Healthy Living, Government of Manitoba. This meeting is part of the process to develop Public Health Goals for Canada. It was a wonderful opportunity to position infection control priorities within the six established health promotion themes. It was also an opportunity to profile CHICA-Canada along side leaders in infectious diseases from across Canada. I encourage you to visit www.healthycanadians.ca to learn more about Public Health Goals for Canada.

I’d like to recognize the work of your CHICA-Canada Board members. They are a group of hard working, talented and committed professionals who represent the association extraordinarily well. Congratulations to Betty Ann Henderson, CHICA-Canada Director of Education, who has been asked to speak on “Complexity and Risk Management in Healthcare: the case of HAI” at the ULSS 20 conference in Verona, Italy.
MESSAGE DE LE PRÉSIDENT

le nombre et l’envergure de ces activités de CHICA-Canada trahissent l’influence qu’exerce et que continuera d’exercer CHICA-Canada à l’approche de son 30e anniversaire. J’aimerais ici partager certains faits saillants avec les quelque 1100 membres de CHICA-Canada.

En juin, j’ai participé à APIC 2005, la 32e conférence annuelle et réunion internationale à Baltimore, Maryland. Le thème, « Charting the Course for Infection Control» reflétait l’environnement changeant et les nouveaux défis que doivent relever les professionnels de la prévention des infections. La sécurité des patients, la divulgation obligatoire des infections liées aux soins de la santé, les infections émergentes et ré-emergentes, la planification d’urgence et la prévention des désastres font toutes partie de cet environnement changeant et revenaient dans plusieurs présentations. La présidente d’APIC, Sue Sebazco, a présidé une réunion afin de voir comment APIC, CHICA-Canada, IFIC et CBIC pourraient travailler ensemble. Plusieurs idées intéressantes sont ressorties : nous vous tiendrons au courant!

J’ai aussi participé à la réunion du conseil du CBIC (Certification Board of Infection Control and Epidemiology Inc.) en tant que représentante de CHICA-Canada. Le conseil se compose de 15 experts dévoués sous la direction de la présidente Betty Dunaway et comprend notamment Sheila MacDon-ald. Sheila était présidente de CHICA-Canada en 2002 et agit présentement en tant que secrétaire et présidente du comité de politique et de procédures. Dans la situation actuelle, il devient de plus en plus important que les professionnels de la prévention des infections puissent démontrer leurs connaissances en pratique et par la reconnaissance de leurs pairs. En avril 2005, on comptait 228 Canadiens certifiés en prévention des infections. J’encourage tous les membres de CHICA admissibles à la certification de s’inscrire en tant que mesure normative des connaissances courantes de base en prévention des infections.


A survey of infection control practices in hemodialysis units in Canada

BACKGROUND

The treatment of end stage renal disease (ESRD) involves pre-dialysis care, renal replacement therapy with several dialysis modality options, and transplantation. The number of patients seen by renal replacement therapy facilities in Canada has increased annually from 1982 to 2001. Information available through the Canadian Organ Replacement Registry (CORR) illustrates that over half of patients with ESRD are managed by dialysis with over 80% of these receiving hemodialysis as the treatment option. \(^1\) Currently there are over 12,000 Canadians receiving hemodialysis.

Canadian clinical practice guidelines cosponsored by the Canadian Society of Nephrology and the Kidney Foundation of Canada do exist for the treatment of patients with chronic renal failure, however specific recommendations regarding infection control practices are limited and deal only with the prevention of clinical infection. In April 2001, the Centers for Disease Control and Prevention (CDC) released Recommendations for Preventing Transmission of Infections Among Chronic Hemodialysis Patients, which specifically addressed the many opportunities that exist in the dialysis setting for the spread of infection. \(^2\) Professionals in the dialysis community have largely accepted the comprehensive document for use especially since there is no Canadian equivalent.

A group of interested infection control practitioners from across Canada conducted a survey to examine current practices in Canadian hemodialysis units. The purpose of the survey was to examine how other Canadian centres managed some of the practices surrounding infection control issues within the hemodialysis setting, to assess adherence to these American-based recommendations and to determine the usefulness of Canadian-based guidelines.

METHODS AND PROCEDURE

Study Design

A questionnaire-based survey was done of all Canadian healthcare facilities that provide hemodialysis for patients with end-stage renal disease. The CHICA Dialysis Interest Group members selected questions from previous chat room discussions. Questions were grouped under related subject headings. Prior to distribution, the prepared questionnaire was reviewed by two other Infection Control practitioners, two nephrology nurse instructors, and one dialysis machine technical coordinator. The questionnaire was five pages in length to capture as much relevant information as possible and was sent with an explanatory cover letter. Respondents were requested to supply the name of their unit and contact information, however all survey responses were coded numerically to respect confidentiality.

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Procedure

The mailing list of Canadian healthcare facilities with hemodialysis programs was compiled from the Directory of Participating Dialysis Centres, Transplant Centres and Organ Procurement Organizations in Canada 2004, a publication of the Canadian Institute for Health Information and matched to the Membership list for CHICA-Canada to identify Infection Control Practitioners (ICP) associated with specific hemodialysis program.

The survey questionnaire was sent directly (via e-mail) to the infection control practitioners associated with the specific hemodialysis program where the infection control practitioner was identified. For hemodialysis programs that do not have an affiliated infection control practitioner, the questionnaire was sent to the director or the manager of the program. In addition, the questionnaire was posted on CHICA-Canada website so that any infection control practitioners affiliated with small or satellite hemodialysis programs could also participate in the survey.

Participants were asked to respond to the survey within four weeks. To ensure adequate representation from all areas of the country, a group e-mail was sent at that time thanking those who had already responded and reminding others of the purpose of the survey.

Results and Discussion

Responses were received from 38 infection control practitioners, 18 hemodialysis nursing staff, two dialysis machine technicians and one nephrologist – representing 48 of the 108 hemodialysis programs in Canada listed in the Directory. Most of the questionnaires were received within four weeks of them being sent.

The questionnaire was divided in 15 sections for the respondents to answer. Results are presented and discussed under individual subject headings below.

Demographics

It is not known how many hemodialysis units actually exist in Canada as the Directory of Participating Dialysis Centres, Transplant Centres and Organ Procurement Organizations in Canada 2004, lists only the participating hemodialysis programs. For this survey, we defined community-based units as units that perform dialysis on outpatients only, regardless whether the units are housed within a hospital.

Overall 44% (48 of 108) of the listed hemodialysis programs participated in the survey. Within the 48 hemodialysis programs, 89 different units responded to the questionnaire. Of the 89 returned questionnaire, 51 (57.3%) were from in-centre units, six (6.7%) were pediatric units and the remaining 36% (32 of 89) were community-based satellite units of same hemodialysis programs. Based on the Directory of Participating Dialysis Centres, Transplant Centres and Organ Procurement Organizations in Canada 2004, participation rate is as follows on Table 1. These 89 participating hemodialysis units reported a total of 1,522 hemodialysis stations, which serviced 7,671 patients and provided 93,897 treatments per month. A profile of the participating units is shown in Table 2. The results showed that there are vast differences in the number of stations, patients and treatments per month among the units polled. Further analysis of the data by the size of the unit would be needed to detect differences in unit design and in the infection control practices used by large, medium and small units.

Table 1. Participation of hemodialysis programs by provinces and territories

<table>
<thead>
<tr>
<th>Hemodialysis programs participated/Hemodialysis programs listed in the Directory</th>
<th>Participation per Hemodialysis programs listed in the Directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta</td>
<td>2/2</td>
</tr>
<tr>
<td>British Columbia</td>
<td>4/11</td>
</tr>
<tr>
<td>Manitoba</td>
<td>1/5</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>3/4</td>
</tr>
<tr>
<td>New Foundland</td>
<td>1/3</td>
</tr>
<tr>
<td>Northwest Territory</td>
<td>1/1</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>3/4</td>
</tr>
<tr>
<td>Ontario</td>
<td>20/44</td>
</tr>
<tr>
<td>Quebec</td>
<td>12/32</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>1/2</td>
</tr>
<tr>
<td>Total</td>
<td>48/108</td>
</tr>
</tbody>
</table>

Table 2. Profile of the participating hemodialysis units

<table>
<thead>
<tr>
<th>Number</th>
<th>In-centre units (n=51)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
<th>Total (n=89)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialysis stations per hemodialysis unit (median)</td>
<td>20 (range: 3 to 76)</td>
<td>5 (range: 2 to 8)</td>
<td>7 (range: 2 to 21)</td>
<td>13 (range: 2 to 76)</td>
</tr>
<tr>
<td>Patients per month (median)</td>
<td>120 (range: 6 to 440)</td>
<td>6 (range: 0 to 8)</td>
<td>33 (range: 2 to 143)</td>
<td>66 (range: 0 to 440)</td>
</tr>
<tr>
<td>Treatments per month (median)</td>
<td>1316 (range: 65 to 7280)</td>
<td>71 (range: 0 to 88)</td>
<td>413 (range: 24 to 1489)</td>
<td>792 (range: 0 to 7280)</td>
</tr>
</tbody>
</table>

(Note: For the 3 in-centre units that did not provide complete data, the number of patients and the number of treatments were extrapolated from the number of dialysis stations)
Unit Design
We looked at unit design to find out how the survey results compared to some pertinent physical design requirement set by the American Institute of Architects Academy 2001 Guidelines for Design and Construction of Hospital and Healthcare Facilities. Additional information pertaining to the set up of isolation rooms and waiting areas are presented in Table 3.

Only 52% of the units polled meet minimum space requirement and 62% meet hand washing sink standards stated in the American Institute of Architects Guidelines for design and construction of hospital and healthcare facilities, 2001. These same guidelines also suggest that an Infection Control Risk Assessment be conducted to determine the need for negative pressure ventilation rooms and the number needed within a hemodialysis unit.

Of the 51 units surveyed, 43% of the in-centre units reported the availability of negative pressure ventilated rooms for airborne isolation. In-centre units have higher percentage of isolation rooms and negative pressure ventilated rooms than the community-based units. Units without isolation rooms and/or negative pressure ventilation indicated that they transfer out patients who require isolation using transfer criteria established by their own hemodialysis program. The practice of transferring patients who require isolation is also common for other problems such as antibiotic resistant organisms, Hepatitis, TB and other selected infections. These are presented later in this report.

Table 3: Design aspects of the hemodialysis units surveyed

<table>
<thead>
<tr>
<th>Units with:</th>
<th>In-centre units</th>
<th>Pediatric units</th>
<th>Community based units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 80 sq ft treatment space</td>
<td>27 (78%)*</td>
<td>4 (67%)</td>
<td>9 (41%)*</td>
<td>40 (52%)*</td>
</tr>
<tr>
<td>Minimum 1 sink per 4 hemodialysis stations</td>
<td>29 (57%)</td>
<td>6 (100%)</td>
<td>20 (62%)</td>
<td>55 (62%)</td>
</tr>
<tr>
<td>Waterless hand hygiene product available</td>
<td>46 (90%)</td>
<td>6 (100%)</td>
<td>23 (72%)</td>
<td>75 (84%)</td>
</tr>
<tr>
<td>Sink in waiting area</td>
<td>24 (47%)</td>
<td>1 (17%)</td>
<td>14 (44%)</td>
<td>39 (44%)</td>
</tr>
<tr>
<td>Waterless hand hygiene product in waiting area</td>
<td>33 (65%)</td>
<td>2 (33%)</td>
<td>11 (34%)</td>
<td>46 (52%)</td>
</tr>
<tr>
<td>Masks in waiting area</td>
<td>8 (16%)</td>
<td>2 (33%)</td>
<td>3 (9%)</td>
<td>13 (15%)</td>
</tr>
<tr>
<td>Kleenex in waiting area</td>
<td>15 (29%)</td>
<td>1 (17%)</td>
<td>10 (31%)</td>
<td>26 (29%)</td>
</tr>
<tr>
<td>Isolation room</td>
<td>43 (84%)</td>
<td>5 (83%)</td>
<td>11 (34%)</td>
<td>59 (66%)</td>
</tr>
<tr>
<td>Isolation room with negative pressure ventilation</td>
<td>22 (43%)</td>
<td>2 (33%)</td>
<td>0</td>
<td>24 (27%)</td>
</tr>
<tr>
<td>Isolation room with anteroom</td>
<td>16 (31%)</td>
<td>2 (33%)</td>
<td>0</td>
<td>18 (20%)</td>
</tr>
</tbody>
</table>

(* Note: only 49/51 in-centre units and 22/32 community based units have provided data for this question.)

Patient Profile: Utilization of Arteriovenous Access Types
Tables 4, 5 and 6 compare the survey results regarding reported use of various types of vascular access to that reported in the Canadian Organ Replacement Register (CORR) published in 2002. Arteriovenous fistula (AVF) access is of interest to Infection Control because the published literature reports significantly lower rates of infection associated with its use. Current recommendations from the American National Kidney Foundation (K/DOQI) support the practice of using native AVF for 40% of prevalent patients in a program. The leading principle of this DOQI guideline is that at least 50% of all new kidney failure patients electing to receive hemodialysis as their initial form of renal replacement therapy have a primary AVF constructed. Corresponding Canadian recommendations from the Canadian Society of Nephrology suggest that more than 60% of prevalent patients should have a native AVF.

Ideally, arteriovenous grafts (AVG) should only be inserted when the patient is not a candidate for AVF. Canadian figures show that AVG are used at a much lower rate as compared to published American data (Table 5). The CDC National Surveillance of Dialysis-associated Disease reported that 48% of patients received dialysis through AVG in 2000. The CORR data from 2000 reported 18.3% of total hemodialysis patients with a synthetic AVG. In a recently published Canadian study of bloodstream infections in hemodialysis patients, the relative risk of a bloodstream infection was 2.5 times higher for an AVG versus an AVF. Although this survey did not request specific data on infection rates, the literature shows that the risk of infection in patients using CVC is significantly higher than in those using AVG and AVF. Recently published Canadian data by Taylor et al shows the relative risk of infection from a tunneled catheter is 15 times that of a native fistula. The survey questionnaire requested information on the percentage of patients using different types (permanent, temporary or femoral) of central venous catheters (CVC), however its specific usage was not defined in the question asked. Many units may have reported patients using a CVC while the fistula is waiting placement or maturing of the fistula. The K/DOQI (guideline #30) recommends that less than 10% of chronic hemodialysis patients be maintained on catheters as their permanent dialysis access. Table 6 only reflect the point prevalence of catheters use within the different types of dialysis units.

Patient Profile: Carriage of MRSA, VRE, HBV and HCV
Table 7 compares survey results for the presence of Methicillin-resistant Staphylococcus aureus (MRSA), Vancomycin-resistant Enterococcus (VRE), Hepatitis B virus (HBV) and Hepatitis C virus (HCV) to that reported by the CDC National Surveillance of Dialysis-associated Diseases in the United States, 2000.

In 2004, the survey results show that the current prevalence of MRSA and VRE in hemodialysis patients in Canada were similar to those reported in 2000 in the United States (Table 7). In-centre units have a significantly higher per-
### Table 4. Use of Arteriovenous Fistula (AVF) as compared to Canadian Organ Replacement Register (CORR) data published in 2002, by provinces and territories

<table>
<thead>
<tr>
<th>Province/Territory</th>
<th>Use of Arteriovenous Fistula (AVF) by Type of Hemodialysis units (% Range)</th>
<th>CORR data 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-centre units (n=50)</td>
<td>Pediatric units (n=6)</td>
</tr>
<tr>
<td>Alberta</td>
<td>17 to 60%</td>
<td>0 %</td>
</tr>
<tr>
<td>British Columbia</td>
<td>30 to 48%</td>
<td>60%</td>
</tr>
<tr>
<td>Manitoba</td>
<td>37%</td>
<td>n/a</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>30 to 65%</td>
<td>n/a</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>54%</td>
<td>n/a</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>60%</td>
<td>n/a</td>
</tr>
<tr>
<td>Northwest Territory</td>
<td>67%</td>
<td>n/a</td>
</tr>
<tr>
<td>Ontario</td>
<td>8 to 84%</td>
<td>25%</td>
</tr>
<tr>
<td>Quebec</td>
<td>25 to 78%</td>
<td>25%</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>39%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### Table 5. Use of Arteriovenous Graft (AVG) as compared to Canadian Organ Replacement Register (CORR) data published in 2002, by provinces and territories

<table>
<thead>
<tr>
<th>Province/Territory</th>
<th>Use of Arteriovenous Grafts by Type of Hemodialysis units (% Range)</th>
<th>CORR data 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-centre units (n=50)</td>
<td>Pediatric units (n=6)</td>
</tr>
<tr>
<td>Alberta</td>
<td>7 to 24%</td>
<td>0</td>
</tr>
<tr>
<td>British Columbia</td>
<td>10 to 19%</td>
<td>0</td>
</tr>
<tr>
<td>Manitoba</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>3 to 15%</td>
<td>n/a</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>15%</td>
<td>n/a</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>1.5%</td>
<td>n/a</td>
</tr>
<tr>
<td>Northwest Territory</td>
<td>17%</td>
<td>n/a</td>
</tr>
<tr>
<td>Ontario</td>
<td>0 to 22%</td>
<td>0</td>
</tr>
<tr>
<td>Quebec</td>
<td>0 to 5%</td>
<td>0</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>23%</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Would you believe they could be putting the baby at risk?

Whooping cough is contagious and can be serious.

And one of the most uncontrolled vaccine-preventable diseases in Canada.1

**Adults and adolescents** are a major reservoir of pertussis and a primary source of transmission to infants.2,4

**Infants** < 1 year have the greatest incidence of pertussis and have the most severe cases with the greatest frequency of complications.2,4

**Adacel offers effective pertussis protection for the rest of the family.**

Adacel (dTap), containing a five-component acellular pertussis antigen, is indicated for the prevention of diphtheria, tetanus and pertussis in adolescents and adults aged 11 - 54 years.3

Adacel is not indicated to prevent the transmission of pertussis to infants.

**NACI* recommends pertussis immunization in adults and adolescents**

A single dose of dTap should be administered to adolescents and adults in place of the current Td booster to help protect against pertussis.3

**Recommend Adacel for your patients.**

---

percentage of patients positive for MRSA and/or VRE. These results are likely a reflection of the practice of some hemodialysis programs to restrict admission of MRSA and/or VRE positive patients from their community based units.

The prevalence of Hepatitis B and Hepatitis C among the hemodialysis units surveyed indicates the need to establish and comply with stringent infection control guidelines to prevent transmission of these blood-borne pathogens within the hemodialysis setting (Table 7).

### Antibiotic resistant organisms

For the most part, community-based units share the same antibiotic resistant organism screening policies as their respective in-centre units. However, the practice of isolation depends on the availability of isolation rooms, or the policy of not accepting positive patients (i.e. transfer out positive patients).

The antibiotic resistant organisms surveyed include MRSA, VRE, extended spectrum beta-lactamase resistance (ESBL) and mupirocin resistant *Staphylococcus aureus*. Survey results pertaining to the isolation practice of MRSA, VRE and ESBL, availability of prevalence screenings and decolonization protocols are presented in Table 8. Details regarding prevalence screening schedules and MRSA decolonization regimen are listed in Appendix A and B.

Of the in-centre units polled, 80% reported practice of isolation or additional precautions for MRSA/VRE despite CDC Recommendations for Preventing Transmission of Infections among Chronic hemodialysis Patients 2001 that such practice is not warranted. A majority (>80%) of the units surveyed also reported screening of MRSA and VRE after patients returned from travel.

Routine prevalence screening of patients for MRSA and VRE was also practiced by some units. Currently, there are no established guidelines regarding the prevalence screening schedule and specimen culture sites. The survey showed there are differences in MRSA decolonization regimens and follow-up screening protocols as reported by the units (Appendix A and B). In this survey, units that practiced decolonization reported endemic MRSA carriage up to 15% of patient population. Further research is needed to determine the usefulness of MRSA decolonization, the optimum decolonization regimen and screening protocols applicable to the dialysis settings.

### Hepatitis B and Hepatitis C

Of the 89 units surveyed, 88 (99%) reported that HBV immunization was provided for patients either by the hemodialysis program, through patient’s family doctors or through public health. One in-centre 1/89 (1%) reported HBV vaccination program was only available to renal transplant patients (Table 10).

For the 87 units that reported new patients screening for HBV, 84 (97%) reported doing the screening prior to or at first dialysis (Table 10). Of the remaining three units (3%), one unit from each of in-centre, community based and pediatric, reported HBV screening of new patients was performed within two weeks of the first dialysis.

For routine HBV and HCV serologic testing, community-based units shared the same protocol as their respective in-centre units (Table 11). Our results showed that HBV and HCV routine serologic testing schedules for HBV-immune patients (annually), HBV-susceptible patients (monthly) and HCV-negative patients (semi-annually) were comparable to those in the CDC Recommendations for Preventing Transmission of Infections Among Chronic hemodialysis Patients, 2001.

The highlighted cells in Table 11 show the percentage of units which follow serologic testing schedule as outlined in

### Table 6. Use of Central Venous Catheter as compared to Canadian Organ Replacement Register (CORR) data published in 2002, by provinces and territories

<table>
<thead>
<tr>
<th>Province/Territory</th>
<th>Use of Central Venous Catheter (CVC) Access by Type of Hemodialysis unit (% Range)</th>
<th>CORR data 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-centre units (n=50)</td>
<td>Pediatric units (n=6)</td>
</tr>
<tr>
<td>Alberta</td>
<td>23 to 82%</td>
<td>100%</td>
</tr>
<tr>
<td>British Columbia</td>
<td>35 to 65%</td>
<td>40%</td>
</tr>
<tr>
<td>Manitoba</td>
<td>65%</td>
<td>n/a</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>20 to 67%</td>
<td>n/a</td>
</tr>
<tr>
<td>New Foundland</td>
<td>35%</td>
<td>n/a</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>40 to 49%</td>
<td>n/a</td>
</tr>
<tr>
<td>Northwest Territory</td>
<td>17%</td>
<td>n/a</td>
</tr>
<tr>
<td>Ontario</td>
<td>16 to 84%</td>
<td>75%</td>
</tr>
<tr>
<td>Quebec</td>
<td>22 to 77%</td>
<td>75%</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>38%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### Table 7. Prevalence of MRSA, VRE, HBV and HCV in one or more patients by Type of Hemodialysis unit: Comparison of survey results to CDC report, 2008

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n=50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
<th>Total (n=88)</th>
<th>CDC report 2000a</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRSA</td>
<td>68%</td>
<td>0</td>
<td>9%</td>
<td>43%</td>
<td>71%</td>
</tr>
<tr>
<td>VRE</td>
<td>28%</td>
<td>0</td>
<td>6%</td>
<td>20%</td>
<td>33%</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>38%</td>
<td>0</td>
<td>3%</td>
<td>24%</td>
<td>26%</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>44%</td>
<td>0</td>
<td>25%</td>
<td>35%</td>
<td>Not available</td>
</tr>
</tbody>
</table>

The highlighted cells in Table 11 show the percentage of units which follow serologic testing schedule as outlined in
Survey respondents reported that the frequency of routine serologic testing of HBV and HCV was largely dependent on the availability (or lack of) lab resources. American data has shown that the independent risk factors for a dialysis patient acquiring HBV infection include the presence of at least one HBV-infected patient within the unit who is not isolated and a <50% hepatitis B vaccination rate among patients. A survey question asking for the proportion of HBV immunized patients had a low response rate (<40%) and was not included in the analysis. One of the reasons for the low response rates could be that patient records of HBV and HCV status were not readily available on these units.

Table 8. Infection control practices for patients positive for MRSA, VRE and ESBL

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n=50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolate or have additional precautions for MRSA+ patient</td>
<td>40 (80%)</td>
<td>4 (67%)</td>
<td>19 (59%)</td>
</tr>
<tr>
<td>No isolation or additional precautions for MRSA+ patients</td>
<td>9 (18%)</td>
<td>2 (33%)</td>
<td>7 (22%)</td>
</tr>
<tr>
<td>Transfer out MRSA+ patients</td>
<td>1 (2%)</td>
<td>0</td>
<td>6 (19%)</td>
</tr>
<tr>
<td>Isolate or have additional precautions for VRE+ patient</td>
<td>40 (80%)</td>
<td>4 (67%)</td>
<td>20 (63%)</td>
</tr>
<tr>
<td>No isolation or additional precautions for VRE+ patients</td>
<td>9 (18%)</td>
<td>2 (33%)</td>
<td>6 (19%)</td>
</tr>
<tr>
<td>Transfer out VRE+ patients</td>
<td>1 (2%)</td>
<td>0</td>
<td>6 (19%)</td>
</tr>
<tr>
<td>Isolate or have additional precautions for ESBL+ patient</td>
<td>25 (50%)</td>
<td>3 (50%)</td>
<td>11 (34%)</td>
</tr>
<tr>
<td>No isolation or additional precautions for ESBL+ patients</td>
<td>25 (50%)</td>
<td>3 (50%)</td>
<td>21 (66%)</td>
</tr>
</tbody>
</table>

No units reported transfer out ESBL+ patients. (Note: due to rounding off, the % reported in the above table may not add up 100)

Table 9. Screening and decolonization of patients positive for MRSA, VRE and mupirocin resistant Staphylococcus aureus

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n=50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen new patients for MRSA</td>
<td>45 (90%)</td>
<td>4 (67%)</td>
<td>30 (94%)</td>
</tr>
<tr>
<td>Screen new patients for VRE</td>
<td>43 (86%)</td>
<td>3 (50%)</td>
<td>30 (94%)</td>
</tr>
<tr>
<td>Screen new patients for Mupirocin resistant Staphylococcus aureus</td>
<td>1 (2%)</td>
<td>1 (25%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Screen travel returns for MRSA</td>
<td>47 (94%)</td>
<td>5 (83%)</td>
<td>29 (91%)</td>
</tr>
<tr>
<td>Screen travel returns for VRE</td>
<td>43 (86%)</td>
<td>5 (83%)</td>
<td>29 (91%)</td>
</tr>
<tr>
<td>Screen travel returns for Mupirocin resistant Staphylococcus aureus</td>
<td>2 (4%)</td>
<td>1 (17%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Prevalence screening for MRSA</td>
<td>29 (58%)</td>
<td>3 (50%)</td>
<td>13 (41%)</td>
</tr>
<tr>
<td>Prevalence screening for VRE</td>
<td>27 (54%)</td>
<td>2 (33%)</td>
<td>12 (38%)</td>
</tr>
<tr>
<td>Decolonize MRSA+ patient</td>
<td>28 (55%)*</td>
<td>2 (33%)</td>
<td>5 (16%)</td>
</tr>
<tr>
<td>Decolonize VRE+ patient</td>
<td>1 (2%)*</td>
<td>0</td>
<td>1 (3%)</td>
</tr>
</tbody>
</table>

(*Note: 51 in-centre units responded to this question.)

Table 10. Isolation practice and screening of HBV and HCV

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n=51)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolate or segregate HBV+ patients</td>
<td>35 (69%)</td>
<td>3 (50%)</td>
<td>20 (63%)</td>
</tr>
<tr>
<td>No isolation or segregation of HBV+ patients</td>
<td>13 (26%)</td>
<td>3 (50%)</td>
<td>4 (13%)</td>
</tr>
<tr>
<td>Transfer out HBV+ patients</td>
<td>3 (6%)</td>
<td>0</td>
<td>8 (25%)</td>
</tr>
<tr>
<td>Isolate or segregate HCV+ patient</td>
<td>5 (10%)</td>
<td>1 (17%)</td>
<td>0</td>
</tr>
<tr>
<td>No isolation or segregation of HCV+ patients</td>
<td>46 (90%)</td>
<td>5 (83%)</td>
<td>32 (100%)</td>
</tr>
<tr>
<td>Transfer out HCV+ patients</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Screen new patients for HBV</td>
<td>51 (100%)</td>
<td>5 (83%)</td>
<td>31 (97%)</td>
</tr>
<tr>
<td>Screen new patients for HCV</td>
<td>48 (94%)</td>
<td>5 (83%)</td>
<td>31 (97%)</td>
</tr>
</tbody>
</table>

(Note: due to rounding off, the % reported in the above table may not add up 100)

CDC Recommendations for Preventing Transmission of Infections Among Chronic hemodialysis Patients 2001. Survey respondents reported that the frequency of routine serologic testing of HBV and HCV was largely dependent on the availability (or lack of) lab resources. American data has shown that the independent risk factors for a dialysis patient acquiring HBV infection include the presence of at least one HBV-infected patient within the unit who is not isolated and a <50% hepatitis B vaccination rate among patients. A survey question asking for the proportion of HBV immunized patient had a low response rate (<40%) and was not included in the analysis. One of the reasons for the low response rates could be that patient records of HBV and HCV status were not readily available on these units.

Tuberculosis

The 2000 Canadian Tuberculosis Standards states that depending on local epidemiology and resources, TB screening should be considered for those with high-risk medical conditions, including patients with chronic renal failure. Table 12 presents survey results pertaining to the prevention and management TB in hemodialysis patients.

A hemodialysis patient who requires airborne isolation may either wear a surgical mask or reside within a negative pressure ventilated room during dialysis. Within the in-centre units over half of the units (57%) accommodate the patient, while in the community based units, most (88%) patients are transferred out. Of the units that offer TB skin testing, it would be interesting to know how many require a follow-up chest X-ray of skin test positive patients.

Influenzae and Pneumococcal Immunization

Hemodialysis patients are in close proximity to other patients and there is a risk of transmission within the hemodialysis unit. In addition, host risk factors for hemodialysis patients include diabetes, immune impairment, iron overload, low
serum albumin, and the need for TPN. As a result hemodialysis patients are at increased risk for community-acquired infections, such as influenza and pneumococcal infections. Hemodialysis patients are also considered to have a high risk of developing post-influenza-related complications. *Streptococcus pneumoniae* is the most common cause of community-acquired bacterial pneumonia. Concomitant bacteremia occurs in approximately 10%-25% of adult patients who have Pneumococcal pneumonia.16 The highest mortality in cases of bacteremia occurs among the elderly and patients who have underlying medical conditions. *Streptococcus pneumoniae* is the most common causative organism of community-acquired pneumonia in dialysis patients. The incidence of pneumonia in dialysis patients has been reported to be as high as 4.9 episodes per 1,000 patient months; of these, 53% were due to *Streptococcus pneumoniae*.15

### Table 11. Schedule of HBV and HCV routine serologic testing

<table>
<thead>
<tr>
<th>Testing Schedule</th>
<th>In-centre Units (N=50)</th>
<th>Pediatric Units (N=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per 12 months</td>
<td>39 (78%)</td>
<td>3 (50%)</td>
<td>1 (17%)</td>
</tr>
<tr>
<td>Per 6 months</td>
<td>7 (14%)</td>
<td>0</td>
<td>3 (50%)</td>
</tr>
<tr>
<td>Per 4 months</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Per 3 month</td>
<td>2 (4%)</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Per 1 month</td>
<td>26 (52%)</td>
<td>0</td>
<td>4 (67%)</td>
</tr>
<tr>
<td>Per 6 weeks</td>
<td>1 (2%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Schedule not provided</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Routine testing not done</td>
<td>8 (16%)</td>
<td>2 (33%)</td>
<td>2 (33%)</td>
</tr>
</tbody>
</table>

### Table 12. Screening and Isolation practices for patients with TB

<table>
<thead>
<tr>
<th>In-centre units (n=51)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolate TB+ patient in negative pressure ventilated room</td>
<td>22 (43%)</td>
<td>2 (33%)</td>
</tr>
<tr>
<td>Isolate TB+ patient in regular single room with or without HEPA filter. Staff or patient wears appropriate masks.</td>
<td>5 (10%)</td>
<td>0</td>
</tr>
<tr>
<td>No isolation. Patient wears surgical mask.</td>
<td>2 (4%)</td>
<td>0</td>
</tr>
<tr>
<td>Transfer out TB+ patient</td>
<td>22 (43%)</td>
<td>4 (67%)</td>
</tr>
<tr>
<td>Mantoux new patient</td>
<td>24 (47%)</td>
<td>1 (17%)</td>
</tr>
<tr>
<td>Mantoux yearly follow-up</td>
<td>7 (14%)</td>
<td>0</td>
</tr>
<tr>
<td>Mantoux using 2-step method</td>
<td>8 (16%)</td>
<td>0</td>
</tr>
</tbody>
</table>
THE 5 Ws of Infection Control

Who? you and your staff

What? creating splatter & risking cross contamination

Where? in the patient's toilet or sink

Why? you use an ARJO flusher disinfector

How? Reduce the risk of nosocomial infections while increasing clinical efficacy with ARJO flusher disinfectors.

Our revolutionary technology allows you to spend more time and effort on patient care and less time with housekeeping.

For more information, call 800-665-4831 or visit us online at www.arjo.com.
Table 13 shows the availability of vaccination programs for the different types of hemodialysis units. Pneumococcal vaccination and annual influenza vaccination is highly recommended for hemodialysis patients. Of the 89 units surveyed, Pneumococcal and annual Influenza vaccination are provided either by the hemodialysis program, through patient’s family doctors or the public health. Units that reported record keeping of these vaccinations were considered having an immunization program. Many in-centre and pediatric units provide a pneumococcal and annual influenza vaccination program for their patients, however, the practice is less common for the community-based units.

<table>
<thead>
<tr>
<th>Table 13. Availability of Pneumococcal and Annual Influenza vaccination programs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Annual Influenza vaccination available</td>
</tr>
<tr>
<td>Pneumococcal vaccination available</td>
</tr>
</tbody>
</table>

Isolation precautions for patients with selected infections
Frequent use of antibiotics rendered hemodialysis patients vulnerable to *Clostridium difficile* associated diarrhea (CDAD). In recent years, CDAD has become epidemic in certain regions in Canada, and increasing severity of CDAD has been reported.\(^1\) Health Canada does not have specific recommendations for isolation practices on hemodialysis units.

Table 14 shows the reported isolation practices of Canadian hemodialysis Units. Of the 89 units surveyed, the majority 63/89 (71%) reported that they initiated isolation or additional precautions to prevent transmission of CDAD. An additional six (7%) units transfer out patients with CDAD. Of the 20 (22%) units who reported that they used no specific isolation precautions for CDAD, all, with the exception for three (6%) in-centre units and two (6%) community-based units, reported using additional precautions for patients with a diarrhea illness.

Health Canada recommends airborne transmission precautions, which require placing the patient in a negative-pressure ventilated room, or in single room with or without HEPA filter for patients with chicken pox and disseminated shingles in an ambulatory care setting.\(^1\) Majority of the hemodialysis units surveyed supported this practice (Table 14). The four (6%) units that reported not practicing isolation or additional precautions did not provide a rationale other than that the units have not had patient with chicken pox or disseminated shingles. This could indicate that these patients are managed elsewhere. Although 22% of the units reported using additional precautions for febrile respiratory illness and diarrhea illness, it is not known what these measures entailed and how they are applied. It may be useful to inquire this information, including how the illnesses are defined.

Infection surveillance
Hemodialysis patients are at highest risk of vascular access related bloodstream infections (BSI). Surveillance of BSI and access site infection was reported by 42/51 (82%) of the in-centre units, 5/6 (83%) of the pediatric units, and 25/32 (73%) of the community-based units. Tables 15, 16 and 17 present the survey results for surveillance of bloodstream infections (BSI) and access site infections, the surveillance definitions used, how blood cultures (BC) are collected and how infection rates are calculated. Over 80% (72 of 89) of the centres reported conducting surveillance of BSI with 60 of the 72 also doing surveillance for access site infections (Table 15). No units reported conducting surveillance on vascular access infection alone. All units reported collecting blood cultures from dialysis lines only or from both dialysis lines and peripheral sites. No units reported collecting blood from peripheral sites alone. The survey results indicated inter-centre comparison of infection rate is not feasible due to differences in applying the surveillance definitions, clinical definition and “spontaneous bacteremia” to explain BSI without focal infection (Table 16). It may be useful information to inquire if units conduct surveillance on adverse outcomes of BSI such as osteomyelitis, epidural abscess, endocarditis and death.

Table 17 shows that the reported denominators used to calculate infection rates varied widely among the hemodialysis units participating in the survey. Of note, since 2000 the CDC Dialysis Surveillance Network has implemented a surveillance system for hemodialysis-associated infections. The denominator used by this new surveillance system for calculating infection rates is based on patient-months.\(^5\) One respondent reported the trial use of this denominator for 18 months. As this denominator was devised to simplify data collection, it may be applicable to units that have trouble collecting traditional denominator data.
Antibiotic utilization
The survey results showed it was common practice within the hemodialysis units to empirically treat hemodialysis access related bloodstream infections. Empiric treatment was given by 47/51 (92%) of the in-centre units, 5/6 (83%) of the pediatric units and 28/32 (88%) in the community-based units. Table 18 shows the primary choice of antibiotics used for empiric treatment of hemodialysis access related bloodstream infections.

Table 18. Antibiotics used for empiric treatment of Hemodialysis access related bloodstream infections

<table>
<thead>
<tr>
<th></th>
<th>In-centre units</th>
<th>Pediatric units</th>
<th>Community based units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=47)</td>
<td>(n=5)</td>
<td>(n=28)</td>
</tr>
<tr>
<td>Use vancomycin alone</td>
<td>5 (11%)</td>
<td>2 (40%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Use vancomycin with gentamicin/tobramycin</td>
<td>7 (15%)</td>
<td>1 (20%)</td>
<td>7 (25%)</td>
</tr>
<tr>
<td>Use Ancef alone</td>
<td>10 (21%)</td>
<td>0</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Use Ancef with gentamicin/tobramycin</td>
<td>13 (28%)</td>
<td>0</td>
<td>11 (39%)</td>
</tr>
<tr>
<td>Use vancomycin and/or Ancef, physician dependent</td>
<td>9 (19%)</td>
<td>0</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Selection of antibiotics is situational</td>
<td>3 (6%)</td>
<td>2 (40%)</td>
<td>3 (11%)</td>
</tr>
</tbody>
</table>

No units reported performing surveillance on access site only (Note: due to rounding off, the % reported in the above table may not add up 100)

Table 16. Surveillance definitions used by the respondents

<table>
<thead>
<tr>
<th></th>
<th>In-centre units</th>
<th>Pediatric units</th>
<th>Community based units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=42)</td>
<td>(n=5)</td>
<td>(n=25)</td>
</tr>
<tr>
<td>Use CDC surveillance definitions</td>
<td>8 (19%)</td>
<td>1 (20%)</td>
<td>12 (48%)</td>
</tr>
<tr>
<td>Use Health Canada surveillance definition</td>
<td>12 (29%)</td>
<td>1 (20%)</td>
<td>8 (32%)</td>
</tr>
<tr>
<td>Use combined CDC/Health Canada or in-house modified surveillance definition</td>
<td>22 (52%)</td>
<td>3 (60%)</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>No information provided on definitions used</td>
<td>0</td>
<td>0</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

Infection rate not calculated (line list only) 10 (24%) 2 (40%) 1 (4%)
Infection rate per number of patients 10 (24%) 1 (20%) 4 (16%)
Infection rate by number of patient days 16 (38%) 2 (40%) 9 (36%)
Infection rate per number of dialysis runs 19 (45%) 1 (20%) 19 (76%)
Infection rate per number of access days 8 (19%) 0 3 (12%)

Table 19 and 20 show the antiseptic agents used by the units.

Antiseptic Agents
The principles of antisepsis apply to many procedures within the hemodialysis units including the management of supplies, handling of contaminated equipment/linen, and the use of clean, aseptic versus sterile techniques for specific procedures. The choices of antiseptic agent used within the hemodialysis units may vary for each procedure and patient. Table 19 and 20 show the antiseptic agents used by the units.
Centers often listed the use of two antiseptic products used for some applications. The primary antiseptic agent chosen by a unit may be most appropriate for one type of application and satisfactory for other applications (Tables 19 and 20). Many units have the availability of 2% chlorhexidine gluconate (CHG) and may have chosen to also use it for fistula access as well. The choice of antiseptic agents around CVC has been complicated by the concern of the presence of alcohol on a catheter containing polyurethane material. Some of the catheter manufacturers warn that the presence of alcohol may lead to the degradation and cracking of the catheter. Despite this, 35% of units chose to use an agent with 70% alcohol. The CDC Guidelines on the Prevention of Intravascular Catheter-Related Infections recommends that the product used for catheter-site care be compatible with the catheter material.

CHG was the overwhelming favorite antiseptic agent despite the American based K/DOQI 2000 recommendations that providone-iodine be used prior to accessing the lumen of the CVC. Similar to the cleansing of AVF and AVG needling sites, information regarding the alcohol content of CHG was not always provided. However, as explained previously, it was apparent that the alcohol content in the CHG used for cleansing was not a concern in many units that prefer to have one product for all applications.

Hemodialysis access management
The Canadian Society of Nephrology recommends that catheter care and accessing the patient’s circulation be carried out as sterile procedures. However, the document states that the evidence for maintaining sterility as opposed to maintaining clean (non-sterile) is inconclusive. Presuming that units using sterile gloves also practice sterile technique for vascular access, the survey results show that the practice

<table>
<thead>
<tr>
<th>Table 19. Antiseptic agent chosen to cleanse skin prior to needling AVF/AVG site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-centre units (n=50)</strong></td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Skin cleansed with 70% alcohol</td>
</tr>
<tr>
<td>Skin cleansed with .5% CHG in 70% alcohol</td>
</tr>
<tr>
<td>Skin cleansed with 2% CHG (alcohol content not specified)</td>
</tr>
<tr>
<td>Skin cleansed with iodophor</td>
</tr>
<tr>
<td>Other agents</td>
</tr>
</tbody>
</table>

* electrolytically produced chlorine based disinfectant (Note. Some units report using more than one agent)

<table>
<thead>
<tr>
<th>Table 20. Antiseptic agent chosen to cleanse skin surrounding CVC site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-centre units (n=50)</strong></td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Skin cleansed with .5% CHG in 70% alcohol</td>
</tr>
<tr>
<td>Skin cleansed with 2% CHG (alcohol content not specified)</td>
</tr>
<tr>
<td>Skin cleansed with iodophor</td>
</tr>
<tr>
<td>Sterile saline</td>
</tr>
</tbody>
</table>
| Other agents | 1 (2%) (Polysporin) | 0 | 3 (9%)* 3 | (3%)

* electrolytically produced chlorine based disinfectant (Note. Some units report using more than one agent)

<table>
<thead>
<tr>
<th>Table 21. Antiseptic agent chosen to cleanse CVC prior to venous access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-centre Units (n=50)</strong></td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>2% CHG in 4 % alcohol</td>
</tr>
<tr>
<td>0.5% CHG in 70% alcohol</td>
</tr>
<tr>
<td>2% CHG (alcohol content not specified)</td>
</tr>
<tr>
<td>CHG (concentration and alcohol content not specified)</td>
</tr>
<tr>
<td>Iodophor</td>
</tr>
<tr>
<td>Other agents</td>
</tr>
</tbody>
</table>
of sterile technique versus clean technique are more or less equal in the adult units (Table 22). It is generally accepted that the nares are a reservoir for *Staphylococcus aureus* colonization of the skin and potential wound infection. The incidence of *Staphylococcus aureus* nasal colonization in the general population is 10-30 %, in the hemodialysis population, the incidence has been documented to be higher than this figure.\textsuperscript{22, 23} Table 23 shows the reported rates of *Staphylococcus aureus* carriage prior to vascular access. Of the units polled, it was not common practice to screen the patient for *Staphylococcus aureus* prior to central venous interventions or hemodialysis vascular access surgery (Table 23). It would be interesting to know the follow-up measures in units that support this screening practice, and whether this practice results in less post-intervention or post-surgical infections. The CDC guidelines for hemodialysis patients recommend that healthcare workers wear disposable gloves when caring for the patient or touching the patient’s equipment at the dialysis station.\textsuperscript{2} Only 44% of the community-based units indicated that this recommendation was followed. Both Health Canada (Routine Practice) and the CDC (Standard Precautions) guidelines recommend that a gown be worn to prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood.\textsuperscript{12,13} Table 24 shows that a low percentage of the adult units reported following the recommended use of gowns as a routine procedure when caring for a hemodialysis patient.

**Table 22. Antiseptic techniques chosen when accessing the CVC**

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n= 50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Sterile Gloves</td>
<td>22 (44%)</td>
<td>4 (66%)</td>
<td>17 (53%)</td>
</tr>
<tr>
<td>Use Clean Gloves</td>
<td>28 (56%)</td>
<td>2 (33%)</td>
<td>15 (47%)</td>
</tr>
<tr>
<td>Mask worn by health care provider</td>
<td>42 (84%)</td>
<td>5 (83%)</td>
<td>30 (94%)</td>
</tr>
</tbody>
</table>

**Table 23. Hemodialysis patient screened for Staphylococcus aureus carriage prior to vascular access intervention**

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n= 50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to CVC placement</td>
<td>5 (10%)</td>
<td>0</td>
<td>3 (9%)</td>
</tr>
<tr>
<td>Prior to guide wire exchange</td>
<td>4 (8%)</td>
<td>0</td>
<td>3 (9%)</td>
</tr>
<tr>
<td>Prior to arteriovenous access creation</td>
<td>5 (10%)</td>
<td>0</td>
<td>3 (9%)</td>
</tr>
</tbody>
</table>

**Table 24. Personal protective equipment chosen by Healthcare Provider**

<table>
<thead>
<tr>
<th></th>
<th>In-centre units (n= 50)</th>
<th>Pediatric units (n=6)</th>
<th>Community based units (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follows CDC guidelines for glove use</td>
<td>37 (74%)</td>
<td>5 (83%)</td>
<td>14 (44%)</td>
</tr>
<tr>
<td>Gown worn by health care provider for dialysis put-on and take-off</td>
<td>7 (14%)</td>
<td>4 (66%)</td>
<td>2 (6%)</td>
</tr>
</tbody>
</table>

**Cleaning and disinfection**

While Health Canada has published guidelines on cleaning, disinfection and sterilization for general application, CDC provides specific recommendation regarding cleaning and disinfection of surfaces and equipment in the hemodialysis units.\textsuperscript{2,24} Tables 25 and 26 summarize the reported agents used for environmental surface cleaning and disinfection, and the internal and external disinfection of the hemodialysis machines within the hemodialysis units surveyed. Due to the nature of a hemodialysis unit, with its rapid and frequent patient turnover, the inherent host risk factors of the patient population such as frequent acute care stays, higher antibiotic exposure and antibiotic resistance, and the risk of blood splashes, all units surveyed reported adherence to recommendation using low level disinfection of the external machine and the patient care environment (Tables 25 and 26).
Although the internal disinfection of a machine is driven by the manufacturer’s recommendations, the vast majority of respondents reported use of a chlorine-based product at some point during the disinfectant process (Table 26). There was a wide range of protocols involving the use of heat and cold sterilants as well as a range for the frequency of disinfection. Some units disinfected the machine between patients while others used a weekly regime combined with heat and/or a cold sterilant. It is not known if all machines were single-pass or re-circulating dialysis machines. With the exception of a few units (11%) the low level disinfectant used on the hemodialysis machine roughly correlated with agent chosen as the low level disinfectant for cleaning and disinfection of the hemodialysis unit environment.

In June 2004, Health Canada issued a notice to hemodialysis units regarding the potential for patient-to-patient cross contamination. Internal components of dialysis machines were reported as contaminated and may have been a result of faulty blood-lines and transducer protectors. Seventy-five of the 89 (84%) units possessed equipment that required a transducer protector. Sixty-nine of these 75 units (92%) indicated there was a protocol in place should there be a breech in the transducer, and 62/75 (83%) of the units had a protocol that involved decontamination of the dialysis machine. It was unclear in four responses whether or not the protocol included disinfection and three units indicated that the development of a protocol was underway.

Water treatment

Potable water must be subjected to a form of water treatment within the dialysis setting. Most hemodialysis units follow the chemical and microbiological standards of CSA (Canadian Standard’s Association) and AAMI (American Association for the Advancement of Medical Instrumentation) to establish an in-house quality assurance program (Table 27). Both the CSA and AAMI recommend monthly bacterial counts, while only the CSA standards specify requirement of monthly endotoxin testing. AAMI recommendations suggest but do not specify monthly endotoxin testing. All units surveyed comply with the CSA recommendation on monthly bacterial monitoring, but not on endotoxin testing (Table 27). The lack of lab resources may be one of the reasons for not able to follow the recommendation.

Hemodialysis waste (dialyzers and tubings)

AAMI offers guidelines to dialysis centres that wish to re-use dialysers although only two (4%) of the incentre units responded that the dialysers are reused (Table 28). This low figure does not correlate with the 2000 American data, which showed that 80% of 3,683 centres surveyed reported the reuse of dialysers. Management of biomedical waste falls under provincial legislation and respondents should consult their appropriate Ministry guidelines. Table 29 shows reported management of hemodialysis waste by province. Some respondents indicated that the dialyzer would be considered biohazardous but the tubing would not, in these cases the answer was defaulted to "handled as biohazardous" (Table 29).

| Table 25. Low-level disinfectant used for environmental surface cleaning and disinfection |
|---------------------------------|-----------------|-----------------|-----------------|
|                                | In-centre units (n=51) | Pediatric units (n=6) | Community based units (n=32) |
| Quaternary ammonium compound   | 24 (47%)          | 3 (50%)          | 13 (41%)        |
| Chlorine based product (bleach) | 7 (14%)           | 0                | 5 (16%)         |
| Electrolytically produced chlorine based disinfectant | 2 (4%) | 1 (17%) | 5 (16%) |
| Accelerated hydrogen peroxide product | 15 (29%) | 1 (17%) | 9 (28%) |
| Other agent                    | 3 (6%)            | 1 (17%)          | 0               |

(Note: due to rounding off, the % reported in the above table may not add up 100)

| Table 26. Hemodialysis machine disinfection |
|-------------------------------------------|-----------------|-----------------|-----------------|
| Internal disinfection involves using chlorine based product | 39 (76%) | 5 (83%) | 14 (44%) |
| Internal disinfection involves using Electrolytically produced chlorine based disinfectant | 14 (27%) | 1 (16%) | 20 (62%) |
| External low level disinfectant using chlorine based product | 6 (12%) | 3 (50%) | 5 (16%) |
| External low level disinfectant using electrolytically produced chlorine based disinfectant | 6 (12%) | 1 (16%) | 8 (25%) |
| External low level disinfectant using quaternary ammonium compound | 21 (41%) | 0 | 12 (37%) |
| External low level disinfectant using accelerated hydrogen peroxide product | 15 (29%) | 2 (33%) | 8 (25%) |
| External low level disinfectant using other agents | 3 (6%) | 0 | 0 |

(Note. Some units report using more than one agent)

| Table 27. Hemodialysis water quality assurance |
|-----------------------------------------------|-----------------|-----------------|-----------------|
| Water monitored by bacterial count | 51 (100%) | 6 (100%) | 32 (100%) |
| Bacterial count done at least monthly | 51 (100%) | 6 (100%) | 32 (100%) |
| Water monitored by endotoxin testing | 31 (61%) | 4 (66%) | 8 (25%) |
| Endotoxin testing done at least monthly | 29 (57%) | 4 (66%) | 6 (19%) |
**CONCLUSIONS**

Since the intent was to request the respondent act as an informant on practice within their hemodialysis unit, a mail questionnaire was selected as the most cost effective option for conducting this survey. It permits the respondent to consult with other persons or records before responding so more complete information can be obtained. A reminder about the questionnaire was sent via e-mail to all potential participants but participation in the survey did not increase significantly. Albeit additional time and cost, perhaps a personal telephone invitation at this point may serve as a more effective reminder.

Although the open-ended questions posted in this survey presented a challenge in the analysis of data, valuable insights were gained by using them. The additional information collected will be useful in the future to refine existing questions and to formulate further questions. For future questionnaires requesting in-depth information, we suggest using the close-ended question design to facilitate data analysis.

Wording in some of the questions failed to deliver clear meaning to the respondents. As a consequence, time-consuming telephone and e-mail follow-ups were necessary in order to clarify or validate the answers provided. In future surveys, we suggest to include explanatory notes and definitions to improve communication.

Some of the questions included in the survey could not be analyzed due to poor response. These items were not commented on in this report. For future surveys seeking in-depth information on practice and statistical data, we would recommend that part of the questionnaire be forwarded to personnel, such as the nephrologists, the vascular access nurses, the dialysis machine technicians and the infection control practitioners who are most knowledgeable in that particular subject matter to ensure accurate and complete response.

This comprehensive survey provides a good general understanding of the practices within the Canadian hemodialysis units and provides a basis for developing Canadian standards and guidelines for practice. Among the respondents, some infection control practitioners commented the survey questionnaire has presented them the opportunity to learn more about operations within their own hemodialysis units.

Others remarked that the questionnaire prompted them to consider hypothetical situations and to examine current practice and plan strategies.

In conclusion, this survey meets its objective in providing preliminary information for hemodialysis units to compare own practice with the polled practice. Insights gained from the survey will be used to develop further questions to gather additional in-depth information. The questionnaire will be modified and repeated in future to provide information on trends and changes within Canadian hemodialysis units.

**ACKNOWLEDGEMENTS**

We gratefully acknowledge Dr. Elizabeth Ann Henderson for her assistance in reviewing the manuscript, and to fellow CHICA members and hemodialysis unit personnel whose participation made this survey achievable. We thank the CHICA Board of Directors and the CHICA Membership Services Office for their support in providing French language translation and distribution of this survey.

**References**

Appendix B. MRSA decolonization and follow-up screening protocols, reported in variations of 5-day, 7-day, 10-day and 14-day regimen

<table>
<thead>
<tr>
<th>Protocol</th>
<th>MRSA decolonization regimen</th>
<th>Post-decolonization screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. QC</td>
<td>Mupirocin tid x 5 days. (Screening sites not mentioned.)</td>
<td>Screen weekly. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>2. SK</td>
<td>Mupirocin bid x 5 days to nares. If ineffective, repeat regimen once.</td>
<td>Requires a total of 3 sets of consecutive negatives screenings one week apart. The first screening starts 72hrs post completion of decolonization regimen. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>3. ON</td>
<td>Mupirocin bid x 5 days to nares. If ineffective, repeat regimen. If still ineffective, repeat regimen and add Rifampin 600mg qd x 7 days.</td>
<td>Screen nasal monthly post completion of decolonization regimen.</td>
</tr>
<tr>
<td>4. QC</td>
<td>Mupirocin x 5 days. CHG bath qd x 7 days. (Screening sites, mupirocin schedule nor % CHG used not mentioned.).</td>
<td>The first screening starts 1-month post completion of decolonization regimen. (Screening sites not mentioned. No additional information provided)</td>
</tr>
<tr>
<td>5. ON</td>
<td>Mupirocin tid x 7days to nares. If ineffective, repeat regimen.</td>
<td>Requires a total of 3 sets of consecutive negatives nasal screenings one week apart. The first screening starts 72hrs post completion of decolonization regimen.</td>
</tr>
<tr>
<td>6. BC</td>
<td>Mupirocin tid x 7days to nares and other applicable wound/device insertion sites. 2% CHG total body wash qd x 7 days.</td>
<td>Screenings include nares, groin and if applicable, wound/device insertion sites. Requires a total of 3 sets of negative screenings 48hrs apart. The first screening starts 48hrs post completion of decolonization regimen.</td>
</tr>
<tr>
<td>7. ON</td>
<td>Mupirocin bid x 7 days to nares. 2% CHG bath qd x 7 days.</td>
<td>Screen nasal weekly x 3 weeks post completion of decolonization regimen. Repeat screening monthly x 3 months.</td>
</tr>
<tr>
<td>8. ON</td>
<td>Mupirocin tid x 7 days to affected areas until evidence of culture negative for MRSA. CHG total body wash qd x 7 days. (% CHG used not mentioned)</td>
<td>Screenings include any affected areas. Requires a total of 3 sets of consecutive negatives screenings one week apart.</td>
</tr>
<tr>
<td>9. ON</td>
<td>Mupirocin bid x 7 days to nares and other applicable wound/device insertion sites. Triclosan bath qd x 7 days. Triclosan shampoo twice a week x 7 days.</td>
<td>Information not provided.</td>
</tr>
<tr>
<td>10. MB</td>
<td>Mupirocin bid x 7days to nares and other applicable wound/device insertion sites. 2-4% CHG bath qd x 7 days. If rectal colonized, add antibiotic to which the organism is sensitive, add Rifampin 300 mg po bid x 10 days. If ineffective, repeat regimen for 10 days, add antibiotic to which the organism is sensitive and add Rifampin 300mg po bid x 10 days.</td>
<td>Screenings include throat, nares, rectal and if applicable, wound/device insertion sites. Requires 5 sets of consecutive negative screenings one week apart. The first screening starts one-week post completion of decolonization regimen.</td>
</tr>
<tr>
<td>11. NB</td>
<td>Mupirocin tid x 7 days to nares. 4% CHG total body wash qd x 7 days. Rifampin 300mg po bid x 7 days. Septra DS bath qd x 7 days.</td>
<td>Screenings include nares, rectal, and if applicable urine, wound/device insertion sites. Requires a total of 3 sets of consecutive negatives screenings one week apart. The first screening starts one-week post completion of decolonization regimen.</td>
</tr>
<tr>
<td>12. ON</td>
<td>Mupirocin tid x 7days to nares and other applicable wound/device insertion sites. 2% CHG bath qd x 7 days. If ineffective, repeat regimen and add Rifampin and Septra (dosage and schedule not mentioned).</td>
<td>Screenings include nares and if applicable, wound/device insertion sites. Requires a total of 3 sets of negative screenings 1 week apart. The first screening starts 48hrs post completion of decolonization regimen.</td>
</tr>
<tr>
<td>13. ON</td>
<td>Mupirocin tid x 7days to nares and open wounds. 0.05% CHG qd x 7 days to clean open wound/device insertion sites. 2% CHG bath qd x 7 days. Systemic antibiotics used where indicated, including Vancomycin 1gm IV x 1 dose, Rifampin and Fusidic acid.</td>
<td>Screenings include nares, groin rectum and if applicable, wound/device insertion sites. Requires a total of 3 sets of negative screenings 1 week apart. The first screening starts 48hrs post completion of decolonization regimen.</td>
</tr>
<tr>
<td>14. ON</td>
<td>Mupirocin tid x 7days to nares and if applicable, wounds/device insertion sites. Rifampin 300mg po bid x 7 days with either Doxycycline 100mg po bid x 7 days or Septra DS bath qd x 7 days. (Mupirocin schedule not mentioned)</td>
<td>Screen monthly. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>15. ON</td>
<td>Mupirocin tid x 7 days to nares and superficial sites. 2% CHG bath qd x 7 days. If infected wound present, add antibiotic treatment. Patient with open ulcers are decolonized at least once. CVC lines are changed if antibiotic treatment fails.</td>
<td>Screenings include all affected sites. Requires a total of 3 sets of negative screenings 1 week apart. If patient is not on Vancomycin, the first screening starts 48hrs post completion of decolonization regimen. If patient is on Vancomycin, the first screening starts 7 days post completion of Vancomycin. Repeat screenings every 1-3 months.</td>
</tr>
<tr>
<td>16. ON</td>
<td>Mupirocin bid x 10 days. (Screening sites not mentioned.)</td>
<td>Requires a total of 3 sets of consecutive negatives screenings one week apart. The first screening starts 48hrs post completion of decolonization regimen. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>17. QC</td>
<td>Mupirocin bid x 10 days (for all Staphylococcus aureus) (Screening sites not mentioned.)</td>
<td>Screen per routine screening monthly. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>18. NS</td>
<td>Mupirocin x 10 days to nares. CHG bath qd x 10 days. (Mupirocin schedule and % CHG used not mentioned)</td>
<td>Requires a total of 3 sets of negative screenings 48hrs apart. The first screening starts 48hrs post completion of decolonization regimen. Repeat screening at 6 months and 12 months. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>19. QC</td>
<td>Mupirocin bid x 10 days to nares. CHG (% used not mentioned) bath qd x 10 days. Rifampin and Septra po x 10 days (dosage and schedule not mentioned).</td>
<td>Screenings include nares, perianal, and if applicable, wound/device insertion sites. Requires a total of 3 sets of consecutive negatives screenings one week apart.</td>
</tr>
<tr>
<td>20. QC</td>
<td>For nasal colonization only, Mupirocin bid x 10 days to nares. 3% Hexachlorophene shower/bath qd x 10 days. If nasal and other sites are colonized, add Rifampin 800mg po qd x 10 days and Septpra po bid x 10 days.</td>
<td>Requires all sets of screenings negative, at Day1, Day3, Day7 and Day10 post completion of decolonization regimen. Repeat screening monthly. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>21. NB</td>
<td>Mupirocin bid x 14 days to nares. 4% CHG bath qd x 14 days. Two oral antibiotics the organism is sensitive x 14 days.</td>
<td>Requires a total of 3 sets of consecutive negatives screenings one week apart. The first screening starts one-week post completion of decolonization regimen. (Screening sites not mentioned.)</td>
</tr>
<tr>
<td>22. NB</td>
<td>Mupirocin bid x 14 days to nares. CHG (% used not mentioned) bath qd x 14 days. Oral antibiotics x 14 days (agent, dosage and schedule not mentioned).</td>
<td>Screen nasal monthly post completion of decolonization regimen.</td>
</tr>
</tbody>
</table>

(Note: CHG = chlorhexidine gluconate)
Introducing the **ECU²**

The increased focus on infection control standards in healthcare today demands a reliable containment solution that can be deployed quickly and consistently. The ECU² offers hospitals a multi-functional containment solution for use in controlling airborne contaminants during everyday operations and maintenance activities or when creating rapid-response patient isolation.

- Combined ceiling AND wall access points for greater flexibility
- 35% larger footprint for more work space
- Unique cuff accessory combines multiple units for larger containment areas
- Increased ceiling height capabilities of 7' to 10'6"
- Upgraded lightweight, flame-resistant fabric
- CSA Z 317.13-03 compliant

---

The Original ECU™

Ideal for contractors looking for a cost effective containment solutions. Both the ECU Anteroom and ECU Ceiling Cavity easily contain airborne particulates during construction and maintenance.

- Easy to assemble, clean, collapse, store and reuse
- Reaches ceiling heights of 7'6" to 9'6"
- CSA Z 317.13-03 compliant

**mintie technologies, inc.**

1114 san fernando road | los angeles, ca 90065

TEL 323.225.4111 | 800.mintie | FAX 323.222.7851 | www.mintie.com
2. Centers for Disease Control, Recommendations and Reports. Recommendations for preventing transmission of infections among chronic hemodialysis patients. *MMWR* 2001;50(RR-5)


20. Health Canada. Infection control guidelines: preventing the spread of vancomycin-resistant Enterococci (VRE) in Canada. (adapted from HICPAC) CCDR 1997;23S8;1-16.


## 2006 Board of Directors

Rick Wray, President of CHICA-Canada, is pleased to announce that the following Directors have been elected for terms commencing January 1, 2006

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>President-elect</td>
<td>Joanne Laalo RN CIC</td>
<td>Kitchener, Ontario</td>
</tr>
<tr>
<td>(one year term)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Finance</td>
<td>Cynthia Plante-Jenkins MLT</td>
<td>Mississauga, Ontario</td>
</tr>
<tr>
<td>(three year term)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician Director</td>
<td>Dick Zoutman MD FRCPC</td>
<td>Kingston, Ontario</td>
</tr>
<tr>
<td>(three year term)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Profiles of the incoming Board members will be published in the Winter 2005 issue.

---

### Enhanced Teleclass Recordings now available on CD

Available exclusively through CHICA-Canada in partnership with Webber Training. Teleclass CD recordings are $55 each.

- Disinfecting patient Care Equipment
- Exploring CDC Hand Hygiene Guidelines
- Airborne Spread of Human Pathogens
- Disinfectants in infection Control
- Hands and the Spread of Human Pathogens
- Current Best Practices in Hand Hygiene
- Hand Sanitizers and their Effect on Viruses
- Innovations in Hand Hygiene
- Influenza Pandemic on the Doorstep
- Controlling MRSA and VRE
- Scientific Solutions to the Norovirus Problem
- Strategies for Norovirus Infection Control on Cruise Ships
- Relative Impact of Hand Hygiene on Healthcare-Associated Infections
- Evidence Behind Control Measures for MRSA and VRE
- Environmental Infection Control in Healthcare Facilities
- Hand Hygiene - Different Approaches
- Infection Control in Day Care
- Infection Control in Long Term Care
- Advances in Global Infection Control, inside IFIC
- Biofilms in our Environment, Human Interface
- Clean Your Hands Campaign
- Clostridium difficile and Environmental Cleaning
- Disinfection in the Home

Visit [www.chica.org](http://www.chica.org) for order form or write chicacanada@mts.net
Avoid a Stick with a Simple Click

New and Improved!

SurGuard2™
The second generation of SurGuard™ is the first choice in needlestick protection.

The SurGuard2 Needle Protection System from Terumo features a unique, hinged needle locking system. This intuitive mechanism requires only one hand to activate and allows you to easily cover the tip of the needle, virtually ensuring protection against needlesticks. Just listen for the “click.” When you hear it, you’ll know you’ve activated a dependable defense against needlesticks.

• Sleek, thin, streamlined sheath
• Ratchet mechanism allows for precise positioning of the sheath so as not to obscure injection site
• Consistently bevel-up, sheath right needle orientation for low-angle injections
• Reduced “dead space”**
• Full compliance with OSHA’s standards for needlestick safety

To learn more about SurGuard2™ or to acquire samples for evaluation, call Winnie Jenkins at 1-800-283-7866 extension 4919 or visit our Web site: www.terumomedical.com.

Terumo’s full line of safety products includes:
SurGuard™ Safety Needles and Syringes
SurGuard™ Safety Allergy Syringes
SurGuard™ Safety Insulin Syringes
Surshield™ Safety Winged Needle Sets

*Reduced dead space compared to SurGuard™. Data on file.
Germs are Everywhere... Deal with it! FeelFresh™

When 90% of the most common infections are spread by the hands, no matter where you go germs are there. On door handles, in elevators, on phones and especially in washrooms – you pick up the germs others leave behind. The fact is germs travel fast and go unchecked unless you stop them. Now you can help your customers do just that with Scott Paper's first line of defence against germs.

Your best defense is a good offense! That’s why you need Scott Paper’s FeelFresh™ Hand Sanitizing System to clean your hands effectively, while reducing the risk of germ transfer. Our FeelFresh Hand Sanitizing Spray is capable of eliminating 99.9% of the most common germs and bacteria on contact, combined with FeelFresh dispensers it is able to reduce usage by 60% due to its unique spray delivery system. Using Scott Paper products proves your commitment to achieving the highest standard of hygiene. Let us show you how affordable and simple it is to maintain a clean and healthier environment.

From food service, healthcare, schools, office buildings, public facilities to manufacturing areas, this waterless system is ideal for any environment.

**FeelFresh™ Hand Sanitizing Spray**

- Using FeelFresh™ can be less drying and irritating to the skin than frequent hand washing
- FeelFresh™ reduces transient germs
- Portable size that is mobile and convenient to use
- Protection where you are

**FeelFresh™ Dispensing System**

- Discreet and attractive
- Unique spray delivery system that has superior cost-in-use advantages
- Small compact units deliver 1,500 sprays per cartridge
- Plastic refills reduce packaging waste and cost
- No dripping, no clogging, no messy countertops
- An easy re-load “Clean – Click” system

### FeelFresh™ Dispensing System

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>COLOUR</th>
<th>DIMENSIONS</th>
<th>WEIGHT (lbs.)</th>
<th>CUBIC (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09260</td>
<td>FeelFresh™ System Dispenser</td>
<td>White</td>
<td>8.5” x 4.5” x 3.75” (21.6 x 11.4 x 9.5 cm)</td>
<td>0.80</td>
<td>0.1</td>
</tr>
<tr>
<td>03470</td>
<td>FeelFresh™ Hand Sanitizing Spray</td>
<td></td>
<td>6 x 300 mL</td>
<td>5.0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### FeelFresh™ Hand Sanitizing Spray

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>DIMENSIONS</th>
<th>WEIGHT (lbs.)</th>
<th>CUBIC (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03474</td>
<td>FeelFresh™ Hand Sanitizing Spray Bottles Master Box (3 x 12 oz. pack)</td>
<td>7.13” x 10.94” x 6.02” (18.11 x 27.79 x 15.29 cm)</td>
<td>6.0</td>
<td>0.3</td>
</tr>
</tbody>
</table>

FeelFresh™ Hand Sanitizing Spray products including small box (12 x 2 oz. bottles) and individual 2 oz. bottles have UPC codes for individual sale.
Through the financial support of the Virox Technologies Partnership, 13 CHICA-Canada members were awarded scholarships to attend the 2005 National Education Conference in Winnipeg, CHICA-Canada and its members thank Virox Technologies and their partners for their initiative to make the national education conference accessible to those who may not have otherwise been able to attend.

Applications for the 2006 Scholarship are to be submitted in writing to the Secretary/Membership Director of CHICA-Canada no later than Jan. 31, 2006. Please mail applications to CHICA-Canada, PO Box 46125 RPO Westdale, Winnipeg MB R3R 3S3, fax to 1-204-895-9595, or email to chicacanada@mts.net.

For more information and the application form, visit the CHICA-Canada website at www.chica.org or the Virox website at www.virox.com, or contact CHICA-Canada.

2005 Scholarship Winners

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard Bedard</td>
<td>Alice Newman</td>
</tr>
<tr>
<td>Nancy Brown</td>
<td>Jacqueline (Jackie) Ratzlaff</td>
</tr>
<tr>
<td>Yasmine Chagla</td>
<td>Pamela Siddall</td>
</tr>
<tr>
<td>Joanne Dow</td>
<td>Merlee Steele-Rodway</td>
</tr>
<tr>
<td>Margie Foster</td>
<td>Linda Stoddart</td>
</tr>
<tr>
<td>Linda Howard</td>
<td>Marion Yetman</td>
</tr>
<tr>
<td>Sharon Kelly</td>
<td></td>
</tr>
</tbody>
</table>

Pall-Aquasafe Water Filters
Disposable Water Filters for 7 Day Use

Features:
- CE marked medical device
- Sterilising grade membrane
- Individually tested
- Protective barrier to waterborne contamination

Benefits:
- Reduces the risk of waterborne nosocomial infection
- Easy to use on all taps and showers
- Provides instantaneous protection
- Cost effective solution

Visit us on the Web at www.pall.com/aquasafe
NEW PRODUCT – CHICA-CANADA INFECTION CONTROL AUDIT TOOLKIT

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

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

The audits currently include:
- Dental Audit Form
- Endoscopy Audit
- Hemodialysis Unit Audit
- High Level Disinfection – Outside SPD Audit
- Infection Prevention and Control Risk Assessment Guide
- Hospital-wide Infection Control and Prevention Audit and Template
- Ophthalmology O.R. Cluster Investigation and Procedure Assessment
- O.R. Audit
- Patient/Resident Service Units Audit
- Renal Unit Infection Control Audit Form
- Respiratory Outbreaks in Long Term Care Facilities Audit

An update to the Toolkit will provide the first year at no additional charge.

Contact the CHICA-Canada office to order or see page 86 of the summer issue for order form.

<table>
<thead>
<tr>
<th>CHICA-CANADA INFECTION CONTROL AUDIT TOOLKIT</th>
<th>MEMBER (ordered after 2005 Conference)</th>
<th>NON-MEMBER (ordered after 2005 Conference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Toolkit</td>
<td>$120.00</td>
<td>$170.00</td>
</tr>
<tr>
<td>Shipping &amp; handling</td>
<td>1 kit - $10</td>
<td>1 kit - $10</td>
</tr>
<tr>
<td></td>
<td>2 kits - $15</td>
<td>2 kits - $15</td>
</tr>
<tr>
<td></td>
<td>3 or more - $20</td>
<td>3 or more - $20</td>
</tr>
<tr>
<td>GST</td>
<td>GST - 7%</td>
<td>GST - 7%</td>
</tr>
<tr>
<td></td>
<td>HST - 15%</td>
<td>HST - 15%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>=$130.00-150.00</td>
<td>=$180.00-210.00</td>
</tr>
<tr>
<td>New Audits – Year 1</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>New Audits – Year 2</td>
<td>$10.00 per audit</td>
<td>$15.00 per audit</td>
</tr>
</tbody>
</table>
Infection Control Professionals: Partners in Prevention!

National Infection Control Week - October 17 to October 21, 2005

Every year brings new challenges to our health care system. Indeed, the challenges of preventing infections are numerous in the face of increasing globalization and newly emerging infectious diseases.

New threats such as avian and pandemic influenza and old familiar ones such as C. difficile and MRSA are providing new challenges and require continuous diligence for their prevention and control.

The practice of infection prevention pervades virtually every aspect of public and community health. The role of infection prevention has never been more critical—it is therefore vitally important that we continually reshape our responses to such challenges.

Infection Control Professionals are working to bridge the gaps between hospitals and the community, health care providers and the public. We are all partners in the prevention and control of communicable diseases.

Incorporating infection prevention and control measures into our daily lives is the key. Hand hygiene, the appropriate use of protective barriers and immunization are three cornerstones in prevention. These measures and other strategies are part of a weeklong campaign sponsored by the Community and Hospital Infection Control Association of Canada.

“Infection Control Professionals: Partners in Prevention!” is the theme of this year’s National Infection Control Week, October 17 to October 21, 2005, as proclaimed in the House of Commons. CHICA-Canada is a national organization comprised of 19 regional chapters providing a forum for information sharing and the development of improved practices in infection prevention and control.
The next generation in terminal sterilization has arrived. The compact STERRAD® NX™ System is the most advanced low-temperature hydrogen peroxide gas plasma sterilizer yet. Through improvements in the delivery of hydrogen peroxide, this innovative system offers the fastest cycle times in terminal sterilization. Its speed and portable size make it ideal for point-of-surgery placement, where rapid instrument turnaround is crucial.

The STERRAD® NX™ System also offers many additional features, including network connectivity, a diagnostics program, and an easy-to-use touch screen. The result? A system that is not only built on proven performance, but also built to improve your performance—now and in the future.

**Fast**
- Exceptional instrument turnaround
  Sterilizes most surgical instruments in 28 minutes, with an advanced 35-minute cycle for single-channel flexible endoscopes and polyethylene/Teflon® tubing

**Convenient**
- Compact, portable size
  Uses minimal space and can be transported on a cart; plus it’s easy to install, requiring only an electrical outlet

**Advanced**
- State-of-the-art software
  Ensures optimal quality control, security, and networking, and includes an optional independent monitoring system

Teflon is a registered trademark of E.I. du Pont de Nemours and Company.
As part of an ongoing initiative to promote innovative infection control and prevention practices in Canadian healthcare, 3M Canada has created a research grant through its Infection Prevention Platform. The research grant is targeted to individual members of the Community and Hospital Infection Control Association – Canada (CHICA–Canada) for use in research studies. The research grant will be a one-time payment offered on an annual basis.

One research grant of $6,000 to the Principal Investigator of the successful application will be presented at the 2006 CHICA–Canada National Education Conference (London, Ontario - May, 2006) (travel, accommodations and meals will be provided by 3M Canada Company for the successful recipient).

An application form will be available at www.chica.org on November 1, 2005. Deadline date for applications: March 1, 2006. Applications must be sent to:

Secretary/Membership Director
CHICA-Canada
PO Box 46125 RPO Westdale
Winnipeg MB R3R 3S3

Or courier to:
Secretary/Membership Director
CHICA-Canada
67 Bergman Crescent
Winnipeg MB R3R 1Y9

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Ecolab Poster Contest

An Annual Poster Contest is sponsored by Ecolab and supported by a Chapter of CHICA–Canada to give ICPs an opportunity to put their creative talents to work in developing a poster which visualizes the Infection Control Week Theme.

The winner of the Annual Poster Contest is announced at the annual CHICA-Canada Conference. Winners receive full registration at the next CHICA-Canada conference.

---

3M Canada
Infection Prevention Research Grant

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Secretary/Membership Director
CHICA-Canada
PO Box 46125 RPO Westdale
Winnipeg MB R3R 3S3

Or courier to:
Secretary/Membership Director
CHICA-Canada
67 Bergman Crescent
Winnipeg MB R3R 1Y9
TABLE 1: RATE (%) OF ADVERSE EVENTS REPORTED AFTER VACCINATION WITH ADACEL® COMPARED TO ADALYS®

<table>
<thead>
<tr>
<th>Adverse Events</th>
<th>Severity</th>
<th>Adverse Event Rate %</th>
<th>ADACEL®</th>
<th>Td Adalys®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Pain</td>
<td>Any</td>
<td>89.6</td>
<td>88.7</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.4</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swelling</td>
<td>16.7</td>
<td>16.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.9</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Redness</td>
<td>Any</td>
<td>11.8</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>3.3</td>
<td>3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic Headache</td>
<td>Any</td>
<td>26.8</td>
<td>25.8</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>Any</td>
<td>9.4</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>6.4</td>
<td>6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decreased Energy</td>
<td>Any</td>
<td>29.4</td>
<td>27.8</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>2.2</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bodyache</td>
<td>Any</td>
<td>2.0</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>1.1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chills</td>
<td>Any</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td>Any</td>
<td>14.7</td>
<td>11.3</td>
<td></td>
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<tr>
<td>Severe</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Any</td>
<td>10.0</td>
<td>11.3</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>1.1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sore Joints</td>
<td>Any</td>
<td>9.1</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.6</td>
<td>0.6</td>
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<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td>Any</td>
<td>0.9</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.9</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In a separate clinical trial with 2,519 adolescents aged 12 to 17 years old, ADACEL® was shown to have a safety profile that is comparable to that seen in the first trial in older adolescents; in addition, when compared to Td Adalys®, ADACEL® was found to be non-inferior to Td Adalys® after 12 months of follow-up. ADACEL®-induced adverse events were generally mild to moderate in severity and were consistent with those observed in previous hepatitis A vaccine studies. ADACEL®-induced local reactions were similar to those observed with Td Adalys® and were not more frequent or severe. ADACEL®-induced systemic reactions were generally mild to moderate in severity and were consistent with those observed with Td Adalys® and were not more frequent or severe. ADACEL®-induced adverse events were generally mild to moderate in severity and were consistent with those observed in previous hepatitis A vaccine studies. ADACEL®-induced local reactions were similar to those observed with Td Adalys® and were not more frequent or severe. ADACEL®-induced systemic reactions were generally mild to moderate in severity and were consistent with those observed with Td Adalys® and were not more frequent or severe.
2006 NATIONAL EDUCATION CONFERENCE
“BRIDGING GLOBAL PARTNERSHIPS”
London, Ontario – May 6-10, 2006

Conference Chair
Margie Foster RN CIC
Director, Infection Control
Grand River Hospital KWHC
Telephone: 1-519-749-4300 Ext. 2441
Fax: 1-519-455-5545
Email: margie.foster@grhosp.on.ca

Scientific Program Chair
Debby Kenny RN COHN(C)
Regional Mental Health Care
Telephone: 1-519-455-5110 Ex. 47121
Fax: 1-519-749-4325
Email: debby.kenny@sjhc.london.on.ca

Conference Planner
Gerry Hansen BA
CHICA-Canada
Telephone: 866-999-7111/204-897-5990
Fax: 204-895-9595
Email: chicacanada@mts.net
http://www.chica.org

IMPORTANT DATES TO REMEMBER
January 27, 2006 Deadline for submission of Abstracts
January 31, 2006 Deadline for application to Virox Partnership Scholarship
April 3, 2006 Deadline for reservations at Delta Winnipeg
April 17, 2006 Early Bird Registration Deadline
May 10, 2006 CHICA-Canada AGM and Town Hall

Watch for the Registration brochure in January 2006
And watch the CHICA-Canada website for conference updates—www.chica.org

Keynote Speaker:
Stephen Lewis
Former Canadian Ambassador to the U.N., and Special Envoy for HIV/AIDS in Africa.
Concerned about nosocomial infections?
Put your mind at ease.

The extra 60 seconds it takes to check the effectiveness of your glut solution prior to each use is vitally important to reducing hospital-related infections that occur each year. As important is the reliability and efficiency of the precleaners and sterilants you use. MetriCide® with its 20+ year history is a tried and true formula recommended specifically for high-level disinfecting and sterilizing scopes and other delicate instruments. To find out more about Metrex products, call 800.841.1428 or visit www.metrex.com.

A Complete Product Line for Reprocessing

Metrex offers powerful dual-enzymatic detergents and sponges for quick removal of debris. MetriCide is specifically recommended for scopes. Reusable up to 14 days. No dilution required. MetriTest® is recommended prior to each use.

Put your mind at ease by testing MetriCide using MetriTest strips

PASS
FAIL
FAIL

Saturated with MetriZyme® dual-enzymatic detergent, MetriSponge® has a specially contoured shape to preclean scopes and other delicate instruments.
### Registration Fees (Plus GST – 118833201RT0001)

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<tr>
<th>To April 17</th>
<th>Member</th>
<th>Non-Member</th>
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<tr>
<td>Novice ICP Day</td>
<td>$50.00</td>
<td>$75.00</td>
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<tr>
<td>PreConference – Half Day</td>
<td>$75.00</td>
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<tr>
<td>PreConference – Full Day</td>
<td>$100.00</td>
<td>$150.00</td>
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<tr>
<td>Conference, not including PreConference Day or novice</td>
<td>$350.00</td>
<td>$450.00</td>
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<tr>
<td>Daily, not including PreConference Day, each day</td>
<td>$150.00</td>
<td>$200.00</td>
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<tr>
<td>Student, Daily, each day*</td>
<td>$75.00</td>
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<td>Silver(^1), Daily, each day</td>
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</tr>
</tbody>
</table>

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

\(^1\) Retired and not seeking employment in infection control.

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

### Cancellation Policy

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

### Conference Hotel

**Hilton London**  
300 King Street  
London ON N6B 1S2  
Website: [http://www.londonontario.hilton.com](http://www.londonontario.hilton.com)

**Telephone:** 1-800-210-9336  
or 1-519-439-1661  
or – 1-800-HILTONS (445-8667)

**Room Rate:** $149.00 single/double  
(plus 12% taxes)  
**Deadline for reservations:** April 3, 2006

### EXHIBIT AND SPONSORSHIP OPPORTUNITIES

An Industry Showcase will be held to give attendees the opportunity for further knowledge and education through viewing and discussion of products and services in the field of infection prevention and control. Exhibit Information packages will be available in the Fall of 2005. Booth Rentals are $1,750 each (8’x10’ booth) plus GST.

Guidelines for Sponsorship of the conference are available from CHICA-Canada. Sponsors of the conference benefit from additional promotion of their company as well as direct benefits through discounted booth fees, complimentary registration, and the opportunity to hold a Mini Symposium with specific product information. For more information, contact CHICA-Canada.
Advanced
Hard Surface
Disinfection &
Hand Hygiene is
Just a Wipe Away!

Désinfection perfectionnée des surfaces dures
et hygiène des mains grâce
à nos serviettes!

- Bactericidal, tuberculocidal, and virucidal.
- Cleans, disinfects, and deodorizes non-porous hard surfaces.
- Low and high alcohol-based formulas for every situation.

SANI-CLOTH® – Serviettes jetables préhumidifiées
- Bactéricide, tuberculocide, et virucide.
- Nettoie, désinfecte et désodorise les surfaces dures non poreuses.
- Formules à haute et à basse concentration d'alcool pour toutes les situations.

SANI-DEX® – Essuie-mains antimitrobiens
- Efficace contre les bactéries Gram positif et Gram négatif (y compris le SARM et l’ERV) et contre les champignons.
- Contient 0,5 % de chloroxylène pour une action désinfectante persistante.
- Enlève les débris et la saleté.
- La formule émolliente aide à garder la peau hydratée.

Convenience, Compliance, Control
Commodité, Conformité, Contrôle

Call 1-800-263-7067 for more information on the Sani-System® Program, or visit us at www.pdpdi.com

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Composez le 1 800 263-7067 pour de plus amples renseignements au sujet du programme Sani-SystemMD, ou consultez notre site Web www.pdpdi.com
Deadline for submission: January 27, 2006

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

Abstract Preparation and Guidelines for Acceptance

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

B. Format
Abstracts should be submitted in one of the following formats:

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

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

Abstract Title: (CAPITAL LETTERS)
Authors: The presenter must be denoted with an asterisk, e.g.: Rivers, T*, General Hospital, London, Ontario
Background/Objectives: Outline study objectives, the hypothesis to be tested, or description of the problem.
Methods: Report methods used or approach taken.
Results: Indicate essential results obtained in summary form with appropriate statistical analysis (p value, confidence intervals, odds ratio, etc.)
Conclusions: Provide a summary of findings as supported by results with implications and conclusions.

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

Abstract Title: (CAPITAL LETTERS)
Authors: (The presenter must be denoted with an asterisk, e.g.: Sauvignon, C*, Shakespeare, W. General Hospital, London, Ontario
Issue: Identify the specific problems or needs addressed.
Provide brief introduction of the proposed topic. Include important background and current information on issues.
Project: Description of the intervention/program
Results: Specific results in summary form.
Lessons Learned: Summary of the lessons learned and implications.

C. Major Interest (select one)
- Clinical Infectious Diseases
- Infection Prevention and Control

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

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

E. Preferred method of Presentation if abstract selected (select one only)
- Poster
- Oral presentation
- No preference

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

Submission of Abstracts

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

Not only does Ansell produce high-quality gloves - it’s also committed to offering you high-quality services, such as a clinical consultant. For info or assistance, call 1 800 363-8340.
**Fresh tackles keyboard contamination**

The average telephone carries over 25,000 microorganisms, while the average keyboard carries more than 3,200 per square inch. These organisms can live on surfaces for days or even months. Cleaning of these surfaces and devices is often overlooked. When cleaned, effective disinfection is often difficult. Hand washing is the best way to keep those bug numbers down, but some contamination is inevitable.

In response, Fresh Communications has recently introduced a line of single-use patient phones, and telephone and keyboard “gloves” that can be easily cleaned and disinfected. Other devices such as PDAs, cordless phones, cellular phones, tablets, cash registers and remote controls can have custom gloves made to fit, all of which allow for easier cleaning. All “gloves” are latex free.

Single-use phones, which can be purchased by the patient, eliminate ongoing telephone maintenance and replacement costs. Regular keyboard and phone “gloves” are easy to install and remove and they can be disinfected with any anti-bacterial spray. The covers also protect against spills, dirt, dust and other contaminants. Fresh maintains over 3,000 styles and models to fit most keyboards, laptops and phones.

Fresh has also introduced disposable covers for single-use requirements, which are geared for use within highly infected areas were products should be discarded after use, and a new range of non-porous rubber disinf ectable keyboards and mouse, which are ideal for hospital and lab settings.

For information on the full range of products contact Fresh Communications at 905-426-9134 or e-mail info@freshcommunications.ca

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**Microsan hand rub introduced by Deb Canada**

Alcohol hand rubs and lotions are proving to be more effective at maintaining hand hygiene than simple handwashing alone. This fall, Deb Canada is launching Microsan, an instant foaming alcohol hand rub.

The product dispenses quick-breaking foam without the use of aerosols, an industry first. The product is dermatologist tested, dye and fragrance free and contains a broad-spectrum antimicrobial formula.

In addition to time saving and warding off infection, Microsan’s moisturizers have received positive responses from those that have used the product in Canadian hospitals. Repeated handwashing can cause skin irritation in some healthcare providers, the foaming hand rub reduces irritation and dryness.

For more information on Microsan and Deb Canada visit the website at www.debcanada.com or call 888-DEB-SOAP (332-7672)
Can You Identify the Risks?
Nine Areas Where 3M Can Help

When it comes to finding Infection Prevention Solutions, we can all make a difference.

For information on 3M Infection Prevention products and services, contact your 3M Health Care representative or visit www.3M.com/CA/IP

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Strike the perfect balance with Endure 320 Advanced Care. This new alcohol-based hand rinse is fast and effective at killing germs, plus contains advanced moisturizers and conditioners to protect and leave the skin feeling soft and smooth.

In fact, our proven antimicrobial hand rinses, along with our “Go Ahead, Rub It In” in-service training and on-line CEU program, are all part of a system that works together to improve hand-washing compliance and utilization.

Learn more today. Call your Ecolab/Huntington representative at 1-800-352-5326.