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Spring 2008



INSIDE:

Standard for patient
care and related areas
during construction,
maintenance and
renovation

Hand washing
in Peru

**The Canadian Journal of
Infection Control**

**Revue canadienne de
prévention des infections**

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May 29 - June 5

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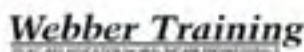
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VISION

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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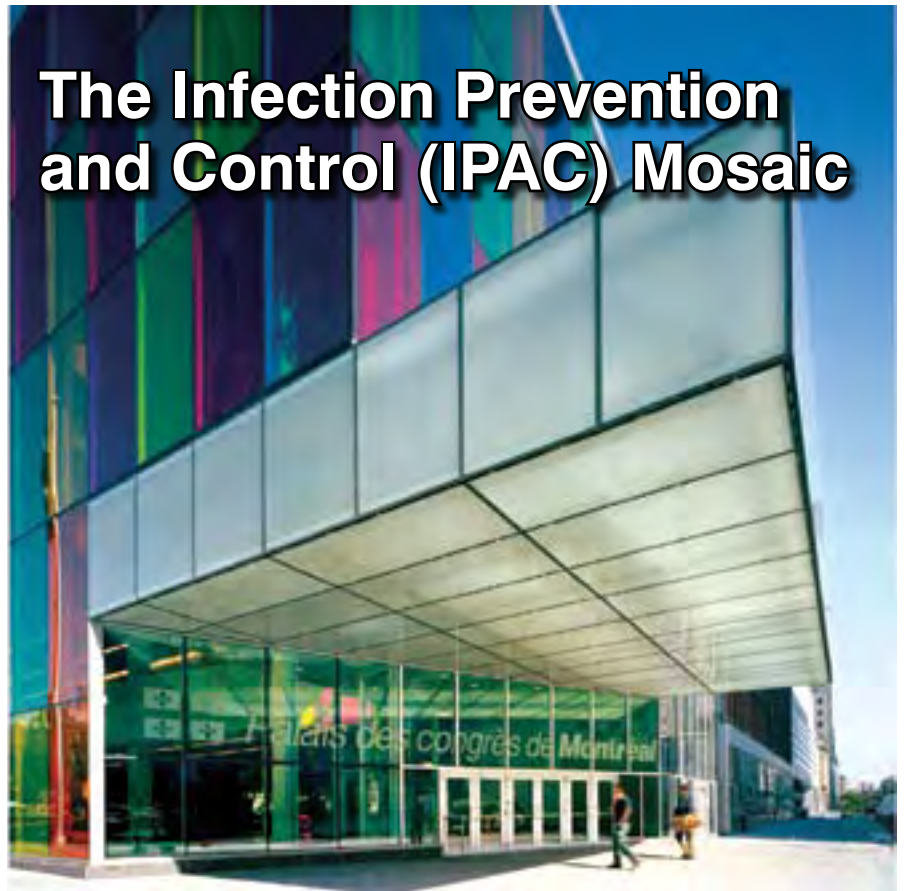
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The Infection Prevention and Control (IPAC) Mosaic



Once again we are nearing the annual conference. This year the conference returns to Quebec and is being held in the beautiful and historic city of Montreal. This conference is co-hosted by the Association des infirmières en prévention des infections (AIPI).

Another innovative and exciting program awaits attendees. The conference program features include an Advanced Practitioner Day and Novice Practitioner Day and an afternoon concurrent session on PreHospital/First Responders which are popular features and reflect the diversity of our membership.

It is interesting to compare the program from this conference to the last annual conference held in Quebec which took place in Quebec City in April 1997. The 1997 conference topics included: Infection risks associated with new technologies, new construction and renovation, viral challenges for the ICP,

role of the microbiology laboratory in surveillance and outbreak and emerging global pathogens.

Now, 11 years later, we have moved on from topics dealing with the growing science of IPAC to topics dealing with development of business cases, project evaluation, career advancement, dynamic leadership and risk assessment to name a few. Although we still address issues related to the science of IPAC, we are now moving toward the development of the infection control professional and, in turn, development of our profession.

It will be interesting to look back another 10 years from now to see how much we will have changed and evolved the IPAC mosaic.

“Change is the only thing that remains constant.”

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Marion Yetman, RN, BN, MN, CIC
President, CHICA-Canada

Montréal Mosaic

But first of all, I look forward to Montreal in May. CHICA-Canada is extremely happy to be co-hosting the 2008 Education Conference with our CHICA Montreal chapter and l'Association des infirmières en prévention des infections (AIPI). The last conference held in Quebec was in Quebec City in 1997 and we are excited about returning to that wonderful province, especially with the support of our planning partners.

With the theme of "Mosaic/Mosaïque", the conference organizers have done an amazing job of incorporating the various facets of infection prevention and control into a dynamic schedule of education and networking opportunities. The beautiful conference logo symbolizes the coloured glass façade of the Palais des Congrès, site of the 2008 conference. With such a contemporary setting, the program itself is creative and thought-provoking. You can see the full program

on the websites of CHICA and AIPI – www.chica.org and www.aipi.qc.ca.

The support of industry for the 2008 Education Conference has been extraordinary. You will see the current list of exhibitors on page 41 and sponsors on page 35. This is an additional source of education in understanding more about the products and services available to assist Infection Prevention and Control Professionals in their recommendations for patient and staff safety.

How does one prepare for such a full conference? Certainly if you are a first-time attendee, the prospect of a large conference with so many choices may seem daunting. Even those of us who have attended many CHICA-Canada and similar conferences have to think ahead to organize ourselves and our schedules to incorporate as many of the valuable, and fun, events.

As described in the spring 2007 issue, one should prepare by:

- Setting goals and objectives – plan your days well in advance of the conference.
- Establishing priorities – what are your primary goals in obtaining education and information?
- Printing out handouts that you may want at the conference – they are on www.chica.org and www.aipi.qc.ca
- Mapping out the exhibit hall – so much valuable information to be gained in the exhibit hall; plan your time there thoroughly and carefully.
- Wearing comfortable shoes – needs no explanation!
- Having fun! – attend the fun networking events; eat well; rest; take care of yourself

Enjoy Montreal. Enjoy the conference. À bientôt! ●

At the commencement of my term as resident of CHICA-Canada, I feel I have started off running. There are so many worthwhile projects that CHICA-Canada has embarked upon and so many strengths that support our membership. During this year, I will be reviewing several of projects led by the CHICA board and committees and giving you as much information as I can about the issues facing CHICA in 2008.

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Marion Yetman, Inf., B. Sc. inf., M. Sc. inc., CIC President
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J'ai le sentiment d'avoir commencé mon mandat à titre de présidente de CHICA-Canada au pas de course. Il y a tant de projets pertinents et intéressants auxquels CHICA-Canada prend part, et tant d'énergie canalisée sur nos membres. Au cours de la prochaine année, je passerai en revue les divers projets pilotés par le conseil d'administration et les comités de CHICA, et vous transmettrai autant d'information que possible au sujet des défis qui attendent CHICA en 2008.

Mosaïque Montréal

Mais avant tout, j'attends avec impatience le mois de mai et le congrès de Montréal. CHICA-Canada a l'extrême plaisir d'agir comme hôte conjoint du congrès de formation 2008, avec la section de Montréal de CHICA-Canada et l'Association des infirmières en prévention des infections (AIPI). La dernière fois qu'un congrès a eu lieu au Québec, c'était à Québec en 1997. Nous sommes enthousiastes à l'idée de retourner dans cette belle province et nous apprécions spécialement l'appui de nos partenaires de planification.

Exploitant le thème « Mosaic/Mosaïque », les organisateurs du congrès ont fait un travail remarquable pour incorporer les diverses facettes de la prévention et du contrôle des infections, et dresser un calendrier dynamique rempli d'occasions de perfectionnement et de réseautage. Le magnifique logo du congrès symbolise la façade de verre coloré du Palais des congrès, où se déroulera le congrès 2008. À l'image de ce cadre très contemporain, le programme est créatif et invite à la réflexion. Vous pouvez consulter le programme détaillé sur les sites Web de CHICA et de l'AIPI

– www.chica.org et www.aiqi.qc.ca.

L'appui de l'industrie au congrès de formation 2008 a été extraordinaire. Vous trouverez à la page 41 la liste des exposants ayant confirmé leur participation à ce jour et à la page 35, celle des commanditaires. L'exposition constitue une source supplémentaire de formation en ce qu'elle permet aux professionnels en prévention et contrôle des infections d'en apprendre davantage sur les produits et services offerts, et d'en tenir compte dans leurs recommandations relatives à la sécurité des patients et du personnel.

Comment se préparer à un congrès aussi chargé? Certes, si c'est votre première participation à un congrès d'envergure offrant tant de choix, vous vous sentez peut-être submergé. Même ceux et celles d'entre nous qui ont participé à de nombreux congrès de CHICA-Canada et à d'autres congrès semblables doivent réfléchir et planifier leur horaire de façon à intégrer le plus d'activités utiles et divertissantes.

Tel qu'il est décrit dans le numéro du printemps 2007, voici quelques conseils :

- Fixez vos buts et objectifs – planifiez vos journées longtemps avant le début du congrès.
- Établissez vos priorités – quels sont vos principaux buts en matière de formation et de collecte d'information?
- Imprimez les documents qui vous intéressent pour les apporter au congrès; ils se trouvent sur les sites www.chica.org et www.aiqi.qc.ca.
- Étudiez le plan du salon des exposants – il y a beaucoup d'information pertinente à recueillir au salon; planifiez votre visite minutieusement.
- Portez des chaussures confortables – rien à ajouter sur ce point!
- Amusez-vous! – Participez aux activités de divertissement propices au réseautage; mangez bien; reposez-vous; prenez soin de vous.

Profitez bien de Montréal. Profitez bien du congrès. À bientôt! ●

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A practical approach to address infection prevention and control issues in acute care health facilities during construction, maintenance and renovation projects

Policies and standards have been developed to limit the transmission of infectious agents (fungal, bacterial, and viral) to patients and clients during construction, maintenance and renovation (CMR) projects in patient care areas and patient care-related areas in acute health care facilities because transmission of infectious agents to patients has been documented to occur during these activities. Members of the departments of Infection Prevention and Control (IPC), Engineering and Maintenance, and Planning and Capital Development in the Calgary Health Region (the Region) met to revise the documents we use during CMR projects in the acute health care facilities in the Region. Our aim was to update the Region's document so that the responsibilities of all stakeholders were clearly outlined and to create a quick and easy to follow assessment tool. We began by comparing our current Regional policy with documents published by the Canadian Standards Association¹ and the Public Health Agency of Canada². We established several basic principles, developed a three stage process to guide the CMR projects and revised our assessment tool (Appendix I and II).

The basic principles:

1. IPC needs to be involved in each phase of CMR projects occurring in patient acute care areas and patient acute care related areas. IPC involvement starts at the initial design phase and continues until the project is complete. IPC

will review issues only as they relate to Infection Prevention and Control.

2. All CMR projects must be carried out in accordance with the relevant engineering/building standards/codes/procedures.
3. When a new area is being built or an area is being renovated, the most recent Infection Prevention and Control (IPC) General Design Guidelines/Standards for Calgary Health Region Capital Projects must be followed. This applies whether the CMR project is to be completed in-house or tendered for contract [see Planning (Schematic Design)] Stage.
4. The Infection Prevention & Control Construction Checklist (CMR Checklist: see Appendix I) must be completed and followed for all physical work projects. After completion of CMR Checklist, Table 4 must be included as part of the Tender Package.
5. When required, the Commissioning Checklist (Appendix II) must be completed.

We agreed upon a process to plan, implement and complete CMR projects.

A. Planning (Schematic Design) Stage for New Building Projects or Renovation of Existing Space

All stakeholders involved in designing

or changing physical building structure in the Region must follow the most recent version of the Infection Prevention and Control (IPC) General Design Guidelines/Standards for Calgary Health Region Capital Projects. IPC will review and provide input into each phase of the project including the final schematic design document related to infection prevention and control issues. IPC has a stake in the following issues:

- Design of patient care areas (room size, corridors, sinks, support areas (i.e., clean and soiled utility areas, etc.).
- Design of patient rooms (bathrooms, areas for personal hygiene, types of finishing surfaces etc.).
- Hand washing stations/sinks and facilities for personal hygiene within the facility.
- Design of facility/institution cleaning and processing areas, linen management areas, equipment and storage areas, etc.
- Ventilation requirements including special air handling issues.
- Temporary or permanent changes to water supply.

B. Implementation Stage: Construction, Maintenance and Renovation (CMR) Checklist

1. Initiating the Project: Complete the CMR Checklist:

- a) The Project Manager/Coordinator from Engineering and Maintenance or Planning and Capital Development will initiate, complete and sign the Infection Prevention & Control Construction Checklist (CMR Checklist: see Appendix I) for all physical work projects.
- b) All CMR Class III and Class IV (Appendix I, Table 4) projects must be reviewed by IPC prior to project initiation or tender. Projects in Risk Group 4 (Appendix I, Table 2) must also be reviewed.
- c) When projects are sent for tender, the completed Table 4 of the CMR

Checklist must be included as part of the Tender Package for all projects.

2. Construction Start-Up Phase:

Prior to the start of the job, the Project Manager/Coordinator will organize a meeting with representatives from relevant stakeholders to discuss deconstruction and construction issues. Stakeholders include but are not limited to Engineering and Maintenance, Planning and Capital Development, IPC (who will review the CMR Checklist to verify that the CMR Project Class is correct) and the users of the area. Topics to discuss include but are not limited to:

- Expected alterations of the ventilation and water systems
- Plans to eliminate/control dust production
- Changes required in movement patterns of patient or equipment
- Where construction supplies will be stored
- How demolition materials will be removed
- Discussing whether alternative accommodations for patients may be needed

3. During Construction, Maintenance and Renovation:

All stakeholders will review the project on an ongoing basis to ensure compliance with measures required to limit the transmission of infectious agents. Stop work orders may be issued if there is non-compliance to the CMR Checklist (Appendix I, Table 4).

C. End of Project Inspection: Commissioning Checklist:

Prior to the re-opening of the area, the Project Manager/Coordinator will organize a post-project or move meeting with representatives from relevant stakeholders (includes but are not limited to IPC, Housekeeping, the Project Manager/Coordinator's Department

and users of the area). Topics to discuss include but are not limited to when:

- The ventilation and water systems will be verified as functional and meets standards.
- What changes may be required by housekeeping to ensure the cleaning of the new or reopened area.
- The settle time⁴ will be completed.
- The terminal cleaning will be performed.
- The final walk-through will occur.
- The area can be re-opened. IPC will indicate on Appendix I, Table 4 if a "Commissioning Checklist" (Appendix II) must be completed and sent to IPC re CMR Class IV projects.

DEFINITIONS

1. Construction, maintenance and renovation (CMR) includes activities by any person(s) who breach(es) the integrity of ceilings, walls, floors, and ventilation systems including activities related to installation of wiring, cables, plumbing, and air handling or maintenance.
2. Patient care areas in acute care facilities include areas where individuals (in-patients and out-patients) receive medical care. This includes areas such as waiting rooms, clinics, emergency rooms and diagnostic areas. Areas assigned as "Over Capacity" and "Temporary Occupancy" are also considered to be patient care areas.
3. Patient care-related areas in acute care facilities include areas proximal to patient care areas² (i.e., above, below, adjacent or within). This includes areas such as supply, equipment processing, distribution, pharmacy and medication rooms.
4. Settle time is the length of time required to have particles that were suspended in the air removed. Settle time is dependent on the type and number of air changes per hour (ACH) in the area. Settle time is 90 minutes if ACH > 6 (6 ACH is the minimum number of ACH required in patient care areas in acute care patient facilities).

Appendix I: Infection Prevention and Control

Construction Checklist Directions

Use Table 1 to determine what type of work will be performed (ACTIVITY TYPE). Then use Table 2 to determine where the job will occur (GROUP). Calculate the construction, maintenance and renovation (CMR) class (Table 3) by using the information from Table 1 and Table 2. IPC must review all jobs that are found in shaded areas of Tables 1, 2 and 3 i.e., job ticket has shaded color.

Table 4 must be included in the Tender Package. Table 4 provides detailed information about the procedures required to limit the transmission of infectious agents to patients.

Table 1: CONSTRUCTION ACTIVITY TYPES (modified from Table 3 CSA z317.13.07)				
Activity	Identify the Type of Work			
	Type A	Type B	Type C REVIEW Checklist with IPC unless occurring in GROUP 1	Type D REVIEW Checklist with IPC
Dust level	Essentially no dust	Minimal dust	Moderate dust	High levels of dust
Time of work	Inspection/non-invasive	Minor repair(s)	Major repairs	Major demolition and construction
Time to complete	Brief, < 4 hours	< 1 shift	> One shift	Multiple shifts
Wall	Wall and ceiling not cut	Cut wall or ceiling (limit 1 sq foot) to install or repair minor electrical work, ventilation components, telephone wires, or computer cable	-Building new walls or -Removal of casework	-Removal of wall(s)
Ceiling tile	May remove no more than one -ceiling tile or -access hatch at a time	May remove 1 tile per 10 linear feet, replace as quickly as possible	-Removal of multiple ceiling tiles or -Electrical work above ceilings	Tiles/ceiling removed and opened to true ceiling
Wall preparation i.e., painting or wall covering	Does not require sanding	Damp sanding method i.e., no dry sanding	Requires dry sanding	Building walls
Plumbing	Minor plumbing work that disrupts the water supply to a localized patient area* (i.e., one room) for less than 15 min	Plumbing work that disrupts the water supply of more than one patient area* (i.e., two or more rooms) for less than 30 min	Plumbing work that disrupts the water supply of more than one patient area* (i.e., two or more rooms) for more than 30 min but less than 1 hour	Plumbing work that disrupts the water supply of more than one patient area* (i.e., two or more rooms) for more than 1 hour
Other activities	Electrical trim	Activities which require access to chase spaces	-Minor duct work or -Removal of floor coverings or -Major cabling or -Assembly of countertops, cupboards -Removal of a fixed building component	Removal of cable systems

*patient area = patient care related areas and patient related care areas
This project is TYPE _____



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IDENTIFY THE APPROPRIATE RISK GROUP

**Table 2: INFECTION PREVENTION AND CONTROL RISK GROUPS
(modified from Table 2 CSA z317.13-07)**

Group 1 Least (green*)	Group 2 Medium (yellow*)	Group 3 Medium/High (pink*) REVIEW Checklist with IPC	Group 4 Highest (red*) REVIEW Checklist with IPC
<ul style="list-style-type: none"> • Laundry and soiled linen cleaning areas • Office areas (non clinical) • Physical plant workshops and housekeeping areas • Public entrances • Unoccupied units 	<ul style="list-style-type: none"> • Ambulatory clinics (non-invasive) i.e., Cardiac Rehabilitation, Neurophysiology <p>Invasive ambulatory clinics are found in Group 3 or 4</p> <ul style="list-style-type: none"> • Autopsy and morgue • Clean linen handling and storage areas • Discharge lounges • Office area adjacent to patient care areas • Occupational therapy areas remote from patient care areas • Physical therapy: non-wound areas 	<ul style="list-style-type: none"> • Day surgery • Echocardiography • Emergency room • Food preparation, serving, and dining areas • Patient Care Units except those noted in Group 4. Group 3 units include <ul style="list-style-type: none"> -General medicine -General surgical -Geriatrics -Labour and birthing rooms (non-operating) -Newborn nurseries (healthy) -Pediatrics (not ACH* units) -Post anaesthesia care units • Laboratories (Specimen) • Nuclear medicine • Physiotherapy - tank areas and wound care • Radiology/MRI (non-invasive) • Resident areas in continuing care • Respiratory therapy 	<ul style="list-style-type: none"> • Ambulatory care clinics for oncology, transplant or immunodeficient patients • Anaesthesia and pump areas • Central processing department • Clinics/rooms areas used for invasive procedures <ul style="list-style-type: none"> - Bronchoscopy - Cardiac or vascular catheterization & angiography - Cystoscopy - Dental procedure rooms - Endoscopy areas - Pacemaker insertion rooms • Labour and delivery operating rooms • Operating rooms • Patient care speciality units - Burn care units - Cardiology - Cardiovascular recovery - Dialysis units - ICUs include critical care nurseries - Immunodeficiency units - Oncology (including outpatients) - Pediatric units at ACH** - Transplant - Trauma • Protective environment isolation rooms • Pharmacy admixture rooms • Radiology with invasive procedures • Sterile processing rooms • Sterile supply areas • Tissue culture laboratories

*Job tickets produced by Engineering and Maintenance may be colour-coded to indicate risk group

** Alberta Children's Hospital

THIS PROJECT IS GROUP _____

IDENTIFY THE APPROPRIATE CMR CLASS RELATED TO INFECTION PREVENTION AND CONTROL

**Table 3: CONSTRUCTION ACTIVITY/INFECTION PREVENTION & CONTROL MATRIX
(Modified from Table 1 CSA Z317.13-07)**

INFECTION PREVENTION & CONTROL RISK GROUP	CONSTRUCTION ACTIVITY			
	TYPE "A"	TYPE "B"	TYPE "C"	TYPE "D"
GROUP 1	CMR CLASS I	CMR CLASS II	CMR CLASS II, III*	CMR CLASS III, IV*
GROUP 2	CMR CLASS I	CMR CLASS II	CMR CLASS III	CMR CLASS IV
GROUP 3	CMR CLASS I	CMR CLASS II	CMR CLASS III, IV*	CMR CLASS IV
GROUP 4	CMR CLASS I, II, III*	CMR CLASS I, II, III*	CMR CLASS III, IV*	CMR CLASS IV

*Where two classes are noted, or any modification of a CMR Class is required, consult with IP&C prior to completing checklist.

THIS PROJECT IS CMR CLASS _____



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TABLE 4: Infection Prevention and Control IPC Construction Checklist

Location of Construction		Project #		Project Start Date	
CHR Project Manager/Coordinator				Estimated Duration	
Contractor Performing Work			Supervisor		Telephone Number
IPC Signature	CMR Class	Date	Exceptions		
<p>Table 4: CMR Class: A risk assessment for asbestos must be made for all construction, maintenance, renovation and repair work. If mould encountered, stop work and notify Project Manager/Coordinator.</p>					
	CMR Class I	CMR Class II Do CMR Class I plus	CMR Class III Do CMR CLASS I and II plus	CMR Class IV Do CMR CLASS I, II, III plus	
<p>Personal Clean Hands</p> 	<p>-Use required job related safety equipment -Use protection indicated by IPC signs attached to patient's door -Do hand hygiene before starting job and before leaving work area</p>		<p>Ensure clothing is dust-free before leaving work area (i.e., use HEPA filter vacuum)</p>	<p>Use clinically appropriate attire (i.e., OR greens). Attire must be changed whenever worker(s) enter/leave the area</p>	
<p>Containment</p>	<p>Protect patient care equipment and patients from dust</p>	<p>Use drop sheets in work area Use tape to create an effective seal of windows and unused doors Use a tack mat at entrance</p>	<p>Create impermeable dust barrier (1 layer 6 mil polyethylene) Seal plumbing, electrical outlets: seal intake and exhaust vents REVIEW WITH IPC how ceiling is sealed</p>	<p>An anteroom must be built inside an impermeable barrier. Job access must be through the anteroom. Use tack mat in anteroom</p>	
<p>Ventilation</p>		<p>Isolate ventilation (may need to disable) Change/replace filters</p>	<p>Use portable HEPA filtration units to create negative pressure (test with smoke test)</p>	<p>Create negative pressure in anteroom and job area</p>	
<p>Dust Control</p>	<p>Immediately replace tiles Clean work area i.e., HEPA vacuum and/or keep dust free by wet mop (no standing water)</p>	<p>Use water mist while cutting non-water permeable materials Use HEPA vacuum attachment when cutting water permeable surfaces (i.e., drywall)</p>	<p>HEPA vacuum air ducts and spaces above ceiling if necessary Contractor/Engineering and Maintenance clean-up must be completed before hoarding removed. Prevent dust creation during dismantling</p>	<p>IPC requires that a Commissioning Checklist (Appendix II) be completed for this project Yes No</p>	
<p>Plumbing</p>	<p>1) Work during low activity 2) Do not use material (i.e., gaskets) that would support Legionella growth 3) Do not use faucet aerators 4) Maintain dry work environment 5) Ensure no water discoloration 6) Report water leak to maintenance and IPC 7) remove "dead legs" Avoid stagnate water: i.e., do not use collection tanks or long pipes. Consider hyperchlorination of water or flushing to prevent Legionella</p>				
<p>Debris removal</p>		<p>Use covered containers to remove debris</p>	<p>Clean debris at end of day HEPA vacuum daily (minimum) and end of job</p>	<p>Contact IPC if a chute is planned to be erected</p>	

HEPA Filter and HEPA Vacuum equipment that contains High Efficiency Particulate Air (HEPA) filters that have passed a filter challenge test (commonly called a DOP test) within the last six months.

Negative pressure system is created when there is reduced air pressure within the work area compared to the ambient air pressure, produced through the use of negative-air units that prevent leakage of air out of the work area i.e., air flows from the corridor INTO the enclosed area.

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- ▶ **PROVEN** in 33 published studies as best practice for helping reduce the risk of infection
- ▶ **RECOMMENDED** use of 2% CHG formulation in at least 10 evidence-based guidelines, including the CDC, SCAI and IHI

REFERENCES 1. Brown I, Weizel RP, Hendley JJ. Exploration of the microbial anatomy of normal human skin by using plasmid profiles of coagulase-negative staphylococci: search for the reservoir of resident skin flora. *Antonie van Leeuwenhoek* 1990; 57: 161-164. 2. Garcia R, Mulberry S, Brady A, Hubbard JS. Comparison of ChloroPrep and Betadine as preoperative skin preparation antiseptics. Poster presented at 40th Annual Meeting of the Infectious Diseases Society of America; October 25, 2002; Chicago, IL. 3. Data on file Entura, Inc.



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Appendix II: CMR Class IV Commissioning Checklist

This checklist must be completed by the CHR Project Manager/Coordinator. IPC will indicate if they need to review the completed project prior to occupancy.

All items in Box A must be complete prior to removal of hoarding.

Prior to occupancy -All items must be completed and

-IPC must receive a copy of the completed and signed Commissioning Checklist

Location of Construction	Project #	Expected date of completion
CHR Project Manager/Coordinator		
Contractor Performing Work	Supervisor	Telephone number
IPC contact	Telephone Number	

Box A

All work is completed and meets requirements of	Schematic Design1 (if appropriate)	Deficiencies	
	Tender Package		
Ventilation systems cleaned, function restored, and verified as functional. (maintenance final inspection completed and verbal confirmation report received from air balance contractor)		Completed & meets standards	Yes <input type="checkbox"/> No <input type="checkbox"/>
Water systems flushed and inspected for leaks and verified to meet standards (maintenance final inspection completed)		Completed & meets standards	Yes <input type="checkbox"/> No <input type="checkbox"/>
City of Calgary Occupancy permit required Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, Occupancy permit received on Date			

Box B

1. If special equipment is being installed after hoarding is removed, review requirements with IPC e.g., autoclave installation and testing	
2. Contractor clean-up completed. a) Remove construction debris, b) clean, c) remove hoarding, d) clean	Completed and meets standards Yes <input type="checkbox"/> No <input type="checkbox"/>
3. 90 minute settle time ² (IPC may decrease or eliminate settle time)	Start time End Time
4. The Region housekeeping clean completed Cleaning may be required before and after the hoarding is removed. Confirm cleaning requirements with IPC.	Completed & meets standards Yes <input type="checkbox"/> No <input type="checkbox"/> Completed & meets standards Yes <input type="checkbox"/> No <input type="checkbox"/>
5. Final walk-through completed by Name Position Department	Date
Area Management given approval to occupy the space Yes <input type="checkbox"/> No <input type="checkbox"/>	

1. Most recent version of the IPC General Design Guidelines/Standards for Calgary Health Region Capital Projects.
2. Settle time is the length of time required to have particles that suspended in the air removed.

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1. Canadian Standards Association. (2007, Oct). Infection control during construction or renovation of health care facilities. (Can/CSA-Z317.13-07). Mississauga, ON: Canadian Standards Association.
2. Health Canada, Population and Public Health Branch. (2001, July). Construction-related nosocomial infections in patients in health care facilities: decreasing the risk of Aspergillus, Legionella and other infections. Canada Communicable disease Report, 27S2, 1-55. <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/01pdf/27s2e.pdf>

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Hand washing project in Peru

Hand washing is the most effective method to prevent the transmission of microorganisms between health workers and patients in the hospital. Pathogens are transported on the hands of health workers from colonized or infected patients, and represent an important means of transmission of microorganisms and the dispersion of infections. This common observation is clarified in our studies that evaluated the normal

flora of the respiratory and gastrointestinal tract of hospitalized patients in intensive care units. The normal flora is rapidly replaced by pathogens which are circulating in the unit.

We developed a hand washing project in the Neonatal Unit of Dos de Mayo Hospital, which is one of the most important public hospital in Lima, Peru, in 2006. The VIGIA project (a national project financed by the World Bank to improve the

health of high-risk populations) provided financial support totalling 3850 nuevos soles (~ \$1350).

The first component of the project, undertaken during the month of October, was training. Our objective was to provide intensive education on proper hand washing for all personnel in the Neonatal Unit. Fulfilling the program goals, 100 per cent of staff underwent our training.

Subsequent to the training we observed hand washing practice in

those staff. Observations in the Neonatal Unit found that staff performed acceptable hand washing technique 86.7 %, of the time, better than our objective of 80%. We also tested unit staff on the 11 items covered in training. We anticipated a grade of 80% on this test, but achieved a mean grade of 72.6% and a median grade of 72.9%.

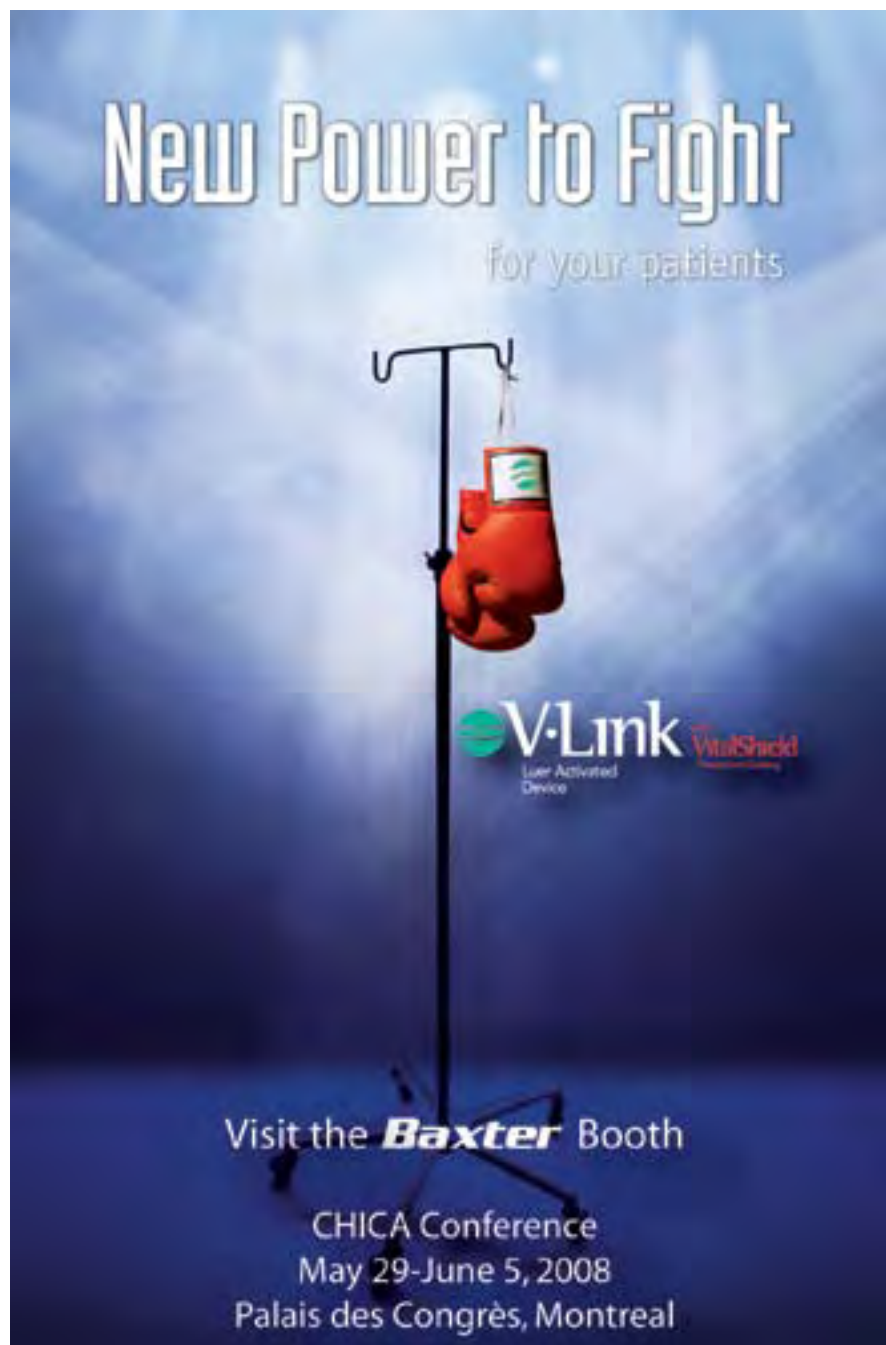
The aim of this project, of course, was to decrease nosocomial infections. Our results found that while our

nosocomial rate was 3.5% in March, it decreased to 2.4% in October.

Following the conclusion of this project and ongoing to date, handwashing procedures, training and observation were standardized in the Neonatal Unit. ●

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2. Boyce Jhon M., Pittet Dider. *CDC Guidelines for handwashing and hospital environmental control. Atlanta. Georgia 1985.*
3. Garner JS; Favero MS. *CDC. Guideline for handwashing and hospital environmental control. 1985. Infect control 1986; 7: 231- 43.*
4. Grupo Tecnico de Epidemiologia Hospitalaria. *Manual de Epidemiología aplicada a la Vigilancia de las Infecciones Intrahospitalarias. OGE-MINSA. Lima 2004.*
5. *Reinforcement of Hand washing. VIGIA Project OGE Peru 2006*



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Signatures of two active members are required for each nomination. If you know someone who would be qualified and interested in one of the above positions, send a completed nomination form to:

Bern Hankinson, RN, BN, CIC
CHICA-Canada Secretary/Membership Director
c/o Membership Service office
PO Box 46125 RPO Westdale
Winnipeg MB R3R 3S3

Or by courier to:
Bern Hankinson, RN, BN, CIC
CHICA-Canada Secretary/Membership Director
c/o Membership Service office
67 Bergman Crescent
Winnipeg MB R3R 1Y9

Deadline for nominations: August 15, 2008.



CHICA MANITOBA CHAPTER INFECTION PREVENTION AND CONTROL CONFERENCE 2008

Friday, June 20th, 2008
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* Self-assessment data from Centers of Excellence evaluations. Total of 118 evaluations.

** Assessed by an expert in an in-hospital evaluation.

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Palais des Congrès, Montréal, Québec,
May 29-June 5, 2008

Co-hosted by:

Community and Hospital Infection Control Association - Canada
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2008 Education Conference

Co-hosted by CHICA-Canada and l'Association des infirmières en prévention des infections (AIPI) – Palais des Congrès, Montreal, May 29-June 5, 2008.



SIMULTANEOUS INTERPRETATION

Simultaneous interpretation will be provided for all education sessions. The original language of the session will be indicated on the final program. Poster presentations will be presented in the language of the presenter. Visual materials during education sessions will be provided in both languages.

CALL FOR ABSTRACTS

The preliminary program and call for abstracts are now available at www.chica.org and www.aipi.qc.ca.

2008 EDUCATION CONFERENCE COMMITTEE

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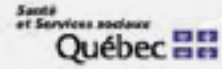
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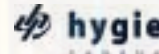


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2008 NATIONAL EDUCATION CONFERENCE

Palais des Congrès, Montreal – May 29 - June 5, 2008

ANNUAL GENERAL MEETING

NOTICE IS HEREBY SERVED that the Annual General Meeting of the Community and Hospital Infection Control Association – Canada will be held on Thursday, June 5, 2008 at the Palais des Congrès, Montreal, 0700 hrs. A Town Hall meeting will be held immediately following the Annual General Meeting. CHICA-Canada members must register and pick up a voting card before entering the AGM.

SOLUMED ORAL PRESENTATION AWARDS

CHICA-Canada and Les entreprises Solumed are pleased to announce the formation of the Solumed Oral Presentation Awards. Two awards for Best Oral Presentations, as chosen by attendees of the 2008 Education Conference, will be presented. The prizes, in the amount of \$500 each, will be presented at the closing ceremonies of the conference.

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THIRD ANNUAL RUN FOR IFIC – Fun 5Km RUN and 2.5Km WALK

Monday, June 2, 2008 - 6:30 am

(No rain date)

Starting Point and Route to be announced

Hosted by CHICA Montreal

In support of the IFIC* Scholarship fund

*International Federation of Infection Control

Please help support IFIC in its effort to support Infection Prevention and Control Professionals. Collect sponsors and then come and run or walk with us on a picturesque route through Montreal. Registration will be at the Palais des Congrès (look for the CHICA Montreal booth near the Registration area). Starting point and route to be announced.

The 2008 Run or Walk for Fun is in aid of the International Federation of Infection Control Scholarship Fund which assists Infection Control Professionals from under-funded or under-resourced countries to attend the annual IFIC education meeting.

Prizes will be awarded for fastest male and female, and fastest ICP and M.D. There will also be a prize for the person who raises the most sponsorship dollars. Help us reach our goal of \$2,500.00.

Entry fee and sponsorship will be paid at the conference. Do not send with your conference registration. The cost is 25\$ for runners and walkers. All participants will receive a race t-shirt.

When collecting sponsorship for your run or walk, please present the total sponsorship by way of a cheque made payable to CHICA-Canada. Sponsorship monies and sign up forms will be collected at race registration. A sponsorship form is attached. Sponsors will be provided with a charitable receipt from CHICA-Canada.

Participants will be required to sign a liability waived at time of registration. Medical assistance and water will be available en route. Participants are responsible for ensuring their own health and safety while on this run.

For more information, contact CHICA-Canada

Telephone 1-866-999-7111 or email chicacanada@mts.net

This event is approved by the City of Montreal and adheres to all City by-laws.

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MRSA ROADSHOW – Montreal

Two MRSA Roadshows were successfully held in Vancouver and Calgary in March and April 2008. With topics including Best Practices, Screening, Surveillance and Decolonization, the Roadshows attracted over 150 participants. A third Roadshow is planned for Toronto in the fall of 2008.

Three webinars were held to enhance the MRSA program. A fourth webinar is planned for the fall of 2008. Informa-

tion on upcoming Roadshows and webinars will be posted to www.chica.org.

The Roadshow Seminars program, sponsored by BD (Becton, Dickinson and Company), is aimed at both clinicians and healthcare executives faced with the clinical and financial impact of MRSA in their facilities.

“CHICA-Canada is pleased to partner with BD (Becton Dickinson) for the MRSA educational initiatives as infection prevention and control

professionals are continually faced with the challenges that accompany a growing burden of MRSA in Canadian healthcare facilities,” said CHICA-Canada Past President Joanne Laalo.

“BD is proud to work jointly with CHICA-Canada on this important initiative,” said James Glasscock, Country General Manager of BD, “as it is central to our commitment at BD to prevent healthcare-associated infections and help all people live healthy lives.” ●



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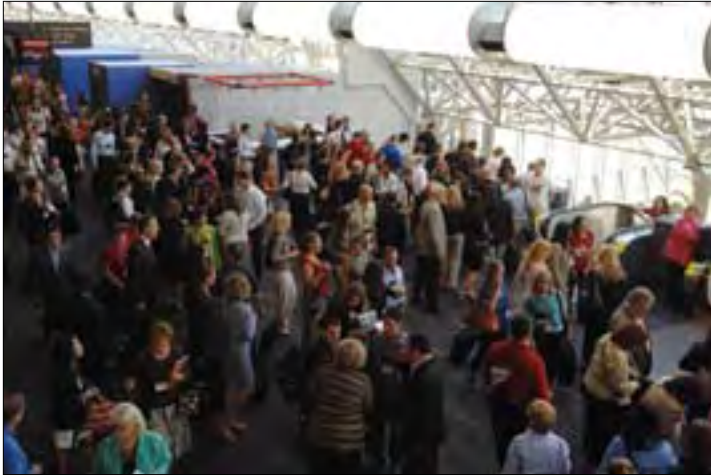
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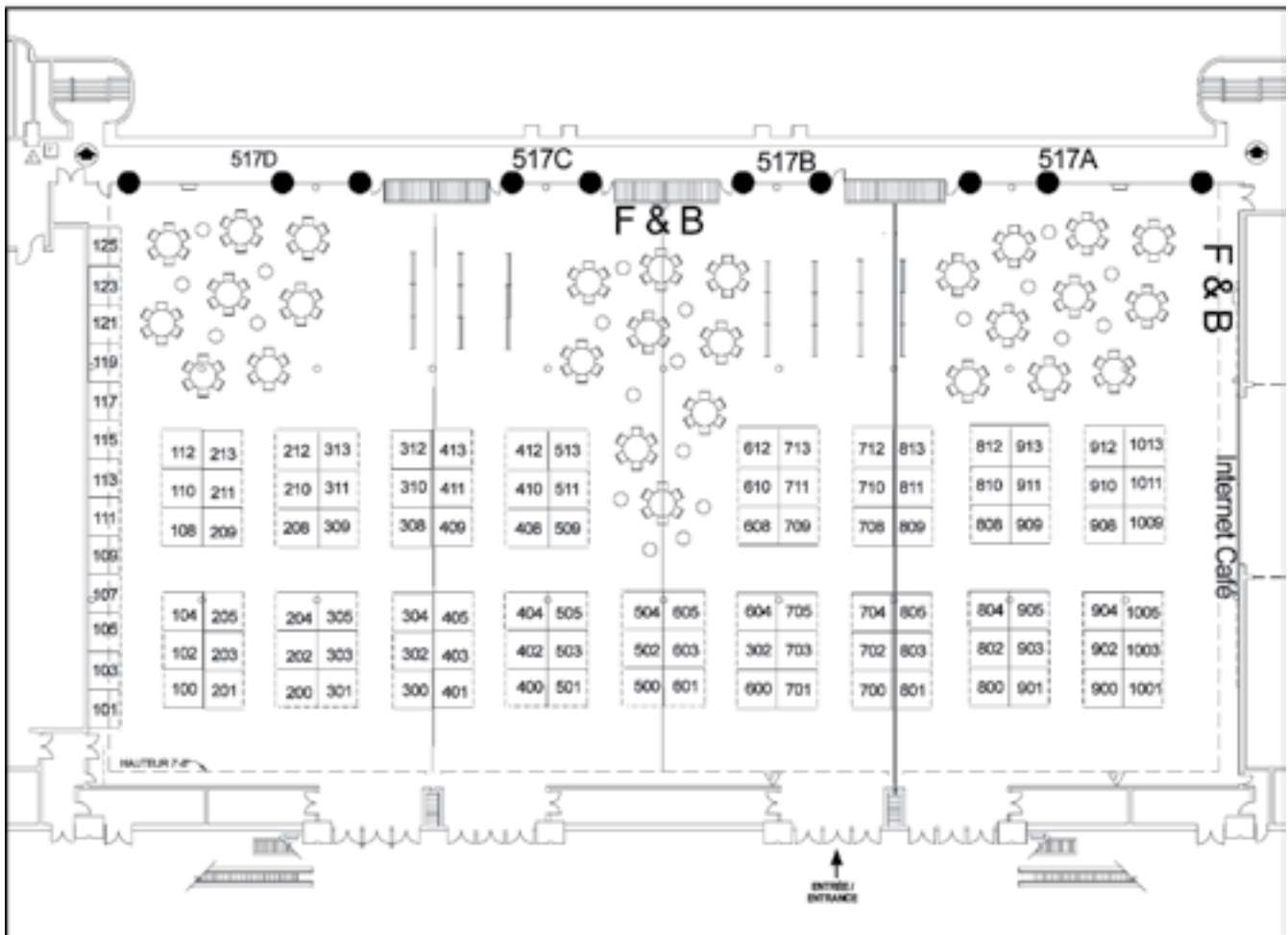
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CHICA/AIPI 2008 June 2-4, 2008 Palais des congrès de Montréal





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310	Angus Medical Inc.
900	Ansell
102	Aqua free Membrane Technology GmbH
509/511	
/513	Arjo Canada Inc./Huntleigh Healthcare
109	Association for Professionals in Infection Control and Epidemiology (APIC)
101	Association des infirmières en prévention des infections (AIPI)
713	Association paritaire pour le santé et la sécurité du travail, secteur affaires sociaux (ASSTSAS)
213	Atlas-Médic
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400/501	BD Canada
902	Bio-K+ International Inc.
711	BLS Systems Limited
411	Bowman
210	Butcher's
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1009	Canadian Council on Health Services Accreditation
T1	Canadian Journal of Infection Control
1011	Canadian Patient Safety Institute
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The winning author(s) (to a maximum of 3 authors) will each receive one waived registration to the conference portion of the 2009 conference (Tuesday-Thursday only; does not include Novice or Advanced Practitioner Day or PreConference Day). Applicable registration fee will be refunded if the registration has been paid before

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All papers will be judged by the CHICA-Canada Awards Committee according to:

- The author or at least one of the authors must be a member of CHICA-Canada.
- Papers must be relevant to Infection Prevention and Control in healthcare or in the community and must have appeal to the membership of CHICA-Canada.
- The paper must be original work.
- The paper must reflect clinical relevance and accuracy.
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organization, and grammatical correctness.

- There are current references, footnotes and bibliography.
- Manuscripts are prepared according to the Canadian Journal of Infection Control Guidelines for Contributors (see page 76).

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ORAL PRESENTATIONS

TUESDAY, JUNE 3, 2008

Final Schedule will be published in the Conference program.

SHARING A HOSPITAL ROOM: IS EXPOSURE TO HOSPITAL ROOMMATES A RISK FACTOR FOR NOSOCOMIAL INFECTION?

HAMEL M*, O'Callaghan C, Zoutman D., *Queen's University, Kingston, ON*

Background/Objectives: Numerous patient- and hospital-level characteristics have been established as risk factors for nosocomial infection. However, very few studies have examined the role of hospital roommates in transmission of infection. The objective of this study was to determine the association between exposure to roommates during a hospital stay and risk of nosocomial infection.

Methods: A retrospective cohort design was used to examine the association between number of hospital roommates and occurrence of three selected nosocomial infections (methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), and *Clostridium difficile* (C. difficile)) in patients admitted to tertiary level teaching hospital from 2001 to 2005. Exposures were characterized as daily number of roommates each patient was exposed to and number of unique hospital roommate exposures. Additional variables previously established to be associated with nosocomial infection were measured as potential covariates. Cox proportional hazards models were used to estimate the risk of infection associated with roommate exposure.

Results: Daily roommate exposures were found to be significantly associated with MRSA infection or colonization (HR=1.06, 95% CI: 1.02, 1.09) in multivariate analyses. No significant associations were found for total number of unique roommate exposures per day for MRSA, or for either roommate exposure variable and VRE or C. difficile.

Conclusions: The results of this study add to the growing body of research attempting to explain the transmission of nosocomial infections, as well their prevention and control. The significant association found between daily roommate exposures and MRSA demonstrates that limiting patients' contacts with each other may contribute to infection control in this facility.

GUIDE DE PRATIQUE : LES INFECTIONS DE SITES CHIRURGICAUX ASSOCIÉES À UN IMPLANT EN ORTHOPÉDIE : LES CONNAÎTRE, LES RECONNAÎTRE, LES PRÉVENIR.

Annie Laberge¹, Marie-Claude Roy², Johanne Gagnon², Françoise Côté²

¹Centre hospitalier affilié universitaire de Québec (CHA), Québec, Québec, Canada,

²Université Laval, Québec, Québec, Canada

Problématique: Au CHA, un projet de surveillance a démontré un taux anormalement élevé d'ISC (infection de site chirurgical) suite à des chirurgies orthopédiques avec implants. Après investigation, nous avons instauré différentes mesures visant à diminuer ces taux. Un guide de pratique à l'intention du personnel oeuvrant au bloc opératoire a été conçu en collaboration avec l'Université Laval, comme moyen d'intervention.

Projet: Ce guide a été réalisé dans le cadre d'une maîtrise en sciences infirmières. Sa conception a été faite par une recherche documentaire de données probantes issues de la recherche scientifique concernant les facteurs de risque d'ISC en orthopédie ainsi que sur les pratiques pour les prévenir. L'ébauche issue de cette recherche a ensuite été validée par des spécialistes du sujet.

Résultats: Le guide issu de cette recherche contient, en plus de recommandations clés documentées, la physiopathologie, la microbiologie, les classifications et définitions des ISC et des ISC associées à un implant, les facteurs de risque ainsi que des interventions démontrées comme étant efficaces pour diminuer les risques d'ISC en orthopédie.

Conclusion : Après validation, ce guide s'avère un outil fiable et accessible qui permet de conjuguer intervention et prévention

INFECTION PREVENTION AND CONTROL IMPACT ON EMERGENCY DEPARTMENT DESIGN: PLANNING FOR THE UNKNOWN

Maja McGuire, Sandra Callery, Eileen MacIsaac

Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Background: In 1976, the Sunnybrook Health Sciences Centre Emergency Department (ED) was built for a capacity of 20,000 visits per year. In 2007, the unit had over 41,000 visits and is recognized as a regional trauma centre. In 2003, the Health Services Restructuring Commission initiated an expansion project to increase capacity and restructure the department from 18,000 to 35,000 square feet and increase stretcher capacity to 48 bays.

Project: Illustrate the key design elements in the Emergency Department and Satellite Imaging Expansion Project that support infection prevention and control (IP&C).

Results: The final drawings took into account the need for patient segregation, unique separation qualities in the heating, ventilation and air conditioning system set-up, effective support areas and materials/surfaces conducive to easy cleaning and disinfection. Four self sufficient pods were created, serving varying levels of patient care/acuity. Each pod will contain a nursing station, airborne infection isolation room, patient rooms/bays, and support areas. Each pod will have its own air handling unit, with 100% outdoor exhaust to allow for pod isolation. There are 4 airborne infection isolation rooms; while another 18 rooms were retrofitted to provide negative airflow if required. The department has 17 hands-free, foot operated hand wash sinks, with adjacent water resistant wall covering. Clever use of space minimizes clutter and allows crash carts and stretchers to be stored out of traffic pathways.

Lessons learned: The involvement of IP&C from the beginning of the process enhanced the final designs by: Applying the region's changing epidemiology into the decision making process; Ensuring that key IP&C design related standards were applied related to spacing, transmission of organisms, and workflow paths; Redesigning the department

within the confines of an existing footprint; Utilizing strategies to mitigate risk to patients and staff despite project limitations.

**Chosen as one of the best abstract submissions*

THE EFFECT OF INADEQUATE FACILITIES ON METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) AND VANCOMYCIN-RESISTANT ENTEROCOCCUS (VRE) RATES IN VASCULAR SURGERY PATIENTS

Chris Chambers¹, Virginia R Roth¹, Colette Ouellet², Natalie Bruce¹, Josee Shymanski¹, Kathy N Suh¹

¹The Ottawa Hospital, Ottawa, Canada, ²Champlain Infection Control Network, Ottawa, Canada

Background/Objectives: Few studies quantify the nosocomial infection risk with inadequate facilities. In Jan01, vascular surgery was amalgamated onto a multi-bed unit with shared toilets. The objective of this study was to evaluate the effect of inadequate facilities on nosocomial MRSA and VRE rates.

Methods: We prospectively evaluated nosocomial MRSA and VRE rates in vascular surgery compared to other TOH patients. During Period 1 (Jan01-Oct03) the vascular surgery unit had only 2 private rooms with a dedicated toilet. The remaining 27 patients shared 7 toilets, for a patient:toilet ratio (PTR) of 4:1. In Period 2 (Nov03-Jun04) patients were split between two units with beds blocked to achieve a PTR of 2:1. In Period 3 (Jul04-Jan06) patients were re-consolidated onto a single unit with a PTR of 4:1. In Period 4 (Feb06-Sep06), patients moved to a renovated unit with a PTR of 2:1.

Results: The nosocomial MRSA risk was significantly higher for vascular compared to other TOH patients during periods when the PTR was 4:1 (157.7 vs 31.9 per 100,000 pt-days; RR=4.9; 95% CI=3.8-6.4) but not when the PTR was 2:1 (81.4 vs 49.6 per 100,000 pt-days; RR=1.6; 95% CI=0.9-3.1). Similarly, nosocomial VRE risk was significantly higher for vascular compared to other TOH patients during periods when the PTR was 4:1 (42.6 vs 6.2 per 100,000 pt-days; RR=6.9; 95% CI=4.1-11.5), but not when the PTR was 2:1 (0 vs 7 per 100,000 pt-days; RR=0). There were no differences in patient population, patient days, staff and physicians, procedures performed or severity of illness.

Conclusions: Improving the PTR ratio had a significant impact on nosocomial MRSA and VRE. These data suggest that hospitals should strive to maintain a maximum PTR of 2:1.

VASCULAR SURGERY AND SSI: WHAT DO WE KNOW? WHAT ARE THE RISK FACTORS?

Karen Dobbin-Williams, Donna Moralejo, Marion Yetman

Memorial University, St. John's, NL, Canada

Background/Objectives: In Canada, Surgical Site Infection (SSI) rates for vascular surgery patients are not readily available but in the US, SSI rates range from 4.3 – 10.3 SSIs per 100 vascular surgeries performed. Protocols for the administration of prophylactic antibiotics and hair removal have been widely published, but less is known about temperature and glycaemic control and other risk factors in vascular surgery patients. The objectives of this study were: 1) to determine if hyperglycemia, hypothermia and other factors increase risk for SSI in vascular surgery patients, and 2) to describe the assessment and management strategies for hyperglycemia, hypothermia and other risk factors in these patients.

Methods: A random sample of 116 was drawn from all vascular surgery patients who underwent Class I (clean) vascular surgeries of interest (bypass and AAA repair) during 2005. Their paper and electronic charts were retrospectively reviewed, including post discharge records from outpatient clinics or ER, and microbiology results. Standard CDC definitions of SSI were used.

Results: The SSI rate was 17.2 per 100 vascular surgeries performed. Giving antibiotics late was significantly associated with SSI: late vs. within 30 minutes of incision (p = 0.0089) or late vs. within 60 minutes of incision (p = 0.0113). Because of the small sample size, there were few statistically significant results but many clinically important findings were found. Compared to patients with no SSI, those with SSI were more likely to be hypothermic on arrival to the postoperative unit from the PARR, smoke more cigarettes, have an emergency procedure, or have an elevated glucose level (> 11.1 mmol/L) or HbA1c. Few patients had their temperature assessed in the OR, had HbA1c or ferritin levels assessed, had hyperglycemic episodes effectively managed, or were prescribed iron supplements if anemic.

Conclusion: We need to improve glucose and temperature control in vascular surgery patients and give antibiotics in a timely manner. As well, we need to do more research with a larger sample size.

DOES HIGH HUMIDITY IN THE OPERATING ROOM (OR) IMPACT SURGICAL SITE INFECTION (SSI) RATES?

Natalie Bruce, Colette Ouellet, Kathryn Suh, Virginia Roth

The Ottawa Hospital, Ottawa, Canada

Issue: There are few data on the risk of infections associated with high OR humidity.

The American Institute of Architects (AIA) requires a relative humidity of 30-60% for ORs. Meeting these levels may be a challenge in hospitals with aging HVAC systems, increasing numbers of OR personnel and longer procedures. The University of Ottawa Heart Institute experienced unusually high humidity levels between June 11-17, 2005, coinciding with extreme external temperature and humidity. OR personnel reported damp OR records, moist sterile supplies and instruments, condensation on the OR walls and uncomfortable working conditions.

Project: Patients who underwent cardiac surgery during the high humidity period were flagged in the existing SSI database to allow for prospective monitoring and comparison with baseline SSI rates. All sterile supplies and equipment packaged in porous material were discarded or reprocessed prior to use. Reprocessed sterile items were bagged in





plastic to prevent moisture from penetrating the packaging. Continuous temperature and humidity monitoring was installed the ORs and Sterile Supply Department; readings were recorded in a logbook. Nonurgent procedures were cancelled; patient disclosure for all other procedures was required when humidity readings were above AIA guidelines.

Results: During this week, humidity levels were consistently >60%, and often up to 85%. The SSI rate for procedures during this week was 10.7% (3/28 procedures). There were no fungal SSIs. This SSI rate was slightly higher than the remaining weeks in the first quarter of 2005 (5.6%), the first quarter for 2004 (3.3%), and the first quarter for 2006 (7.9%). However, these differences were not statistically significant. All procedures were deemed urgent; none were cancelled. No patient refused to undergo surgery upon disclosure. The humid weather and inability to alter the fresh air supply rate appeared to be cause of the increased humidity despite the HVAC system running at full capacity.

Lessons learned: We documented a non-significant increase in SSIs during a period of consistently high OR humidity. These data are helpful to quantify patient risk in high humidity situations. ORs should maintain a log of temperature and humidity readings in order to correlate SSI rates with OR conditions. Additional studies in larger populations would be helpful to validate these findings.

LIGHTS, CAMERA, ACTION: BEING AN INFECTION CONTROL PAPERAZZO (ICP)

Melody Cordoviz, Ian Albert, Janet Barclay, Shelley Winton, Amber-Leah Wolfe, Samantha Woolsey, Mark Joffe
Royal Alexandra Hospital, Edmonton, Alberta, Canada

Issue: Providing education to staff in a meaningful way is challenging. Infection Control Practitioners (ICPs) must find new methods to present old information. In a facility with over 5600 staff members, the hospital infection control team began using audio/visual technology to bring infection control (IC) information to frontline staff.

Project: The ICPs "star" in short, sometimes humorous, videos fashioned after commercials or music videos. The videos contain important infection control messaging from hand hygiene to equipment cleaning. The frontline staff are also asked to participate, as contestants, in games such as "Infection Control Jeopardy", "Infection Control Clue" and Personal Protective Equipment Olympics". The games consist of infection control facts that staff must answer questions about or demonstrate to win a prize. These activities are videotaped or photographed and are posted on the hospital IC website.

Results: Staff have given positive feedback about the videos and games. The audio/visual aides have increased interest in the IC website. The videos have sparked conversations about infection control issues.

Lessons learned: There were many benefits to providing IC information to frontline staff in a refreshing and innovative manner. Staff were entertained, while learning basic infection control principles. The videos and photographs increased the visibility of the ICPs. There was an increase in the awareness of IC issues. It is important for ICPs to use creative ideas to provide information in a manner that is engaging for staff. Using a multi-media approach is a creative and effective method to bring IC information to staff.

**Chosen as one of the six best abstract submissions*

A SUCCESS STORY: PERSONAL PROTECTIVE EQUIPMENT (PPE) TRAINING

Marie-Andrée Bruneau, Natalie Bruce, Virginia R Roth
The Ottawa Hospital, Ottawa, Ontario, Canada

Issue: The 2003 Severe Acute Respiratory Syndrome (SARS) outbreak in Ontario highlighted the need for increased infection control training for healthcare workers (HCWs).

Project: A training program was developed on the proper use of PPE based on Knowles' principles of adult learning. This one-hour program was advertised as mandatory attendance for all HCWs. To increase learner's readiness, a relief budget was made available and sessions took place away from clinical work areas. The key motivation message was: "use PPE correctly for your safety". Although the target audience was regulated HCWs, the degree of difficulty was low to accommodate all hospital staff. Strategies to improve retention were: explanation of PPE sequence, demonstration of donning and doffing PPE, followed by a video taped in a clinical setting. Participants performed a return demonstration. Individual feedback and positive reinforcement were given. Written educational material was provided to reinforce educational objectives. The evaluation component consisted of two-parts: (1) HCWs were observed for their demonstration of competency to measure immediate retention, and (2) HCWs' knowledge and needs were considered based on their feedback of the program.

Results: 83% (1264/1516) of the attendees were regulated healthcare workers (RNs or allied health). The remainder were support staff (e.g. housekeepers, ward clerks). 718 return demonstrations were evaluated; 80% were performed correctly. Gown removal was the most common incorrectly performed step (47%), followed by incorrect sequence of PPE removal (20%) or a missed hand hygiene step (20%). From the feedback survey, 99% reported the program to be helpful to their practice; 89% found the return demonstration to be useful. The format, content and strategies were well received including the safety message, which was relevant to HCWs.

Lessons learned: The success of this education program was confirmed by the high rate of HCWs who demonstrated immediate retention and competence. The majority of the target population found the program to be helpful to their practice. Future work is needed to measure long-term retention of the information as well as its applicability to alternate targets such as medical staff.

DO YOU KNOW WHAT'S ON YOUR HANDS AND PAGERS? OR HOW TO SENSITIZE HEALTHCARE WORKERS TO THE IMPORTANCE OF HAND HYGIENE?

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Montreal Children's Hospital, Montreal (QC), Canada

Issue: Recently, transmission of multi-resistant organisms (MRO) was observed in our Neonatal Intensive Care Unit (NICU). To sensitize healthcare workers (HCW), a Hand Hygiene Awareness (HHA) Week was rapidly set in place by the nursing personnel on the unit, preceded by a visual demonstration by the Infection Control Service of bacterial flora found on hands and pagers prior to hand washing. The project was undertaken to illustrate cross-contamination between patients via personnel, as well as the importance of hand washing.

Project: During an 8-hour period, all personnel entering the NICU was requested to inoculate a blood agar plate with their fingertips, prior to hand washing. The highly touched surface of pagers was applied with a light pressure on blood agar plates for 5 seconds. Data on employment status (nurse, respiratory therapist [RT], technologist, resident, or staff) and departments were recorded. Each employee was given an identification number that was used for results reporting. Organisms were identified, using usual algorithm and resistance screening for MRSA, VRE and ESBL were done when appropriate. The available results were presented during the HHA Week in the NICU, along with a questionnaire pertaining to hand hygiene, and demonstration of proper hand washing technique. Results and weaknesses were discussed with the participants.

Results: In total, 48 HCW participated in the experiment (18 nurses, 9 staffs, 4 residents, 3 RTs, 4 technologists, and 9 others); all had a culture of their fingertips taken and 20 of their pagers. No MRO was recovered. The majority of fingertips culture (94%) and pagers (85%) revealed normal skin flora, 3 HCW had no bacteria on their fingertips but admitted washing their hands compulsively. Interestingly, 2 of 3 RTs had abundant respiratory flora on their hands and pagers, including filamentous fungus. *S.aureus* (not MRSA) was recovered on the hands of 6 HCW and *Enterococcus* (not VRE) was found on the hands of 4 HCW.

Lessons learned: HCW were very receptive to these results. The predominant respiratory flora on RTs' hands illustrated well the cross-contamination that can occur between patients via hands or contaminated equipments. No MRO were identified and normal skin flora predominated.

THE CONTENT OF PANDEMIC INFLUENZA PLANS IN ONTARIO ACUTE CARE HOSPITALS

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¹Queen's University, Kingston, ON, Canada, ²University of Toronto, Toronto, ON, Canada, ³Melinshyn Consulting Services, Kingston, ON, Canada

Introduction: The purpose of this study was to examine the content of pandemic plans in acute care hospitals in Ontario to determine the information needed to be conveyed to help hospitals prepare for future influenza pandemics.

Methods: A survey was sent in early 2007 to all acute hospitals in Ontario. The survey was completed by the person most responsible for the hospital's pandemic influenza plan.

Results: The response rate was 77%, 97 of 126 acute care hospitals participated. Three quarters (75%, 73 of 97) hospitals had pandemic influenza plans. The most frequently consulted documents were the Ontario Health Plan for Pandemic Influenza (99%) and the Canadian Pandemic Influenza Plan (89%). Two-thirds of hospitals (65%) based their plans on the Incident Management System model. The key human resource components of which services to suspend (90%) and continue (85%) were addressed by most plans, however, few addressed staffing of alternative sites (36%) and roles for family members (36%). Surge capacity related to beds (97%) and on-site supplies (87%) were addressed by most hospitals, while fewer addressed morgue (74%) and parking (26%) capacity. Over 90% of plans identified critical supplies such as N95 respirators, masks, gloves, gowns, and eye protection, while fewer identified diagnostic supplies (63%) and cots (32%). Half of plans (53%) included a priority list for receiving antivirals and 42% a priority list for pandemic influenza vaccinations. The clinical care section of plans addressed the screening of new patients and visitors for febrile respiratory illness 100% of the time and triage procedures 90% while criteria for ventilator use was addressed by only a quarter of plans. Two-thirds (66%) of plans outlined a security strategy and half (51%) a within hospital patient transportation strategy. Challenges of smaller and rural hospitals (56%) and human resources (54%) were most often identified by respondents as priorities for pandemic preparedness learning.

Conclusions: The vast majority of pandemic influenza plans had shortfalls in many key areas. A web-based educational initiative, the "Being Prepared is Being Protected Pandemic Learning Portal Project", is currently being developed by the authors to address these important areas and will assist hospitals to plan effectively for future pandemics.

EASING THE PAIN OF OUTBREAKS IN LONG TERM CARE: ELEMENTS OF A SUCCESSFUL OUTBREAK PREVENTION AND CONTROL TEAM

*Hamlin, Rebecca

Capital District Health Authority, Halifax, Nova Scotia

Issue: The occurrence of outbreaks in a Long Term Care (LTC) facility is always a cause for concern.

Project: A multidisciplinary team was formed and terms of reference developed. Key issues identified included: outbreak prevention, empowerment of staff to assess and act promptly and efficiently to prevent transmission and the means by which decisions were made and executed in a timely, effective manner. Education and promotion programs were developed and delivered to residents, families, volunteers and staff. The team met as soon as evidence of an outbreak occurred and regularly throughout the outbreak. Members were responsible to report back to their respective groups. To further enhance communication within the facility, an electronic template was designed which outlines outbreak status, restrictions and expected actions of staff. To address the needs of residents, families and volunteers, an Outbreak Telephone Line was established which is updated after each meeting.

Results: The Outbreak group is an example of various disciplines coming together as a cohesive, productive team. Staff members now recognize and report potential cases of illness immediately to Infection Control. Staff members have reported a greater sense of comfort that has resulted from receiving clear, concise direction from the group. Residents



and family members have reported satisfaction with improved communication
Lessons learned: Early detection and action combined with effective communication are key to managing outbreaks successfully.

INFECTION PREVENTION & CONTROL PARTICIPATES IN AN ACCREDITATION PILOT

Peddle, N. *, Stevenson, R. *St. Joseph's Healthcare, Hamilton, Ontario*

Issue: The Canadian Council on Health Services Accreditation (CCHSA) developed a new format for hospital accreditation. Infection Prevention and Control (IP&C) at St. Joseph's Healthcare chose to participate in an accreditation pilot project. This presented an opportunity for a program self assessment prior to accreditation in May 2008.

Project: An on-line survey, pertaining to Infection Control, was distributed to ninety-nine front line staff. IP&C submitted selected infection rate data along with supporting documentation for six new Required Organizational Practices. The final stage of the pilot was an on-site visit by the CCHSA surveyors who met with IP&C. Surveyors also assessed front-line staff Infection Control knowledge.

Results: The CCHSA reviewed the on-line survey results. Feedback indicated questions on the survey were ambiguous and lacked clarity, causing Infection Control to receive red flags, indicating unmet criteria related to standards. An action plan was developed to address the red flags. Conversely, the on-site visit report concluded that Infection Control had met all the standard criteria, and had no red flags.

Lessons learned: We provided the CCHSA with feedback on the questionnaire format indicating that the front line staff found some questions difficult to interpret. The ambiguous nature of the questions was reflected in the number of red flags received. The on-site visit was a positive experience and IP&C gained valuable advice from the surveyors. Involving frontline staff in the process allows surveyors to better assess the quality of care provided. The accreditation pilot strengthened communication throughout the organization and built on St. Joseph's commitment to quality improvement.

ORAL PRESENTATIONS

WEDNESDAY, JUNE 4, 2008

Final Schedule will be published in the Conference program.

YEARLY DIDACTIC INFECTION CONTROL EDUCATION OF MEDICAL STUDENTS AT QUEEN'S UNIVERSITY

Jim Gauthier¹, Kathleen Poole¹, Dick Zoutman², Susan Moffatt², Janet Allen⁴, Susan Cooper⁴, Amanda Knapp⁵, Allyson Davis³, Darlene Campbell¹

¹Providence Care, Kingston Ontario, Canada, ²Queen's University, Kingston Ontario, Canada, ³Kingston General Hospital, Kingston Ontario, Canada, ⁴Southeastern Ontario Regional Infection Control Network, Kingston Ontario, Canada, ⁵KFL&A Public Health, Kingston Ontario, Canada

Issue: To build routine practices it into medical students' clinical habits as they learn physical diagnosis to help embed the practices in their clinical behaviours.

Project: As a collaboration between the Clinical Skills Program, School of Medicine, Queen's University, and the Kingston Hospital's Infection Control team, methods were discussed to increase education to medical students in each year of their didactic training. First-year students would receive 45 minutes on Routine Practices, hand hygiene and glove use within the first month of classes; second year students would receive a 40 minute review of Routine Practices and new information on gown and mask use for Additional Precautions (third-year students received this training also, as they had not received it last year); third-year students would be tested on gown donning and doffing during their Observed Standardized Clinical Exams (OSCE), also known as a bell ringer clinical examination.

Results: For first-year students, a preliminary 10-minute overview was presented by one IPCP, followed by the students breaking into groups of 10 students, who met with an IPCP for more information on hand hygiene, with a practical application of gloves, and a test of hand washing effectiveness using red paint to simulate soap. Second-year students received a similar 10 minute introduction in a group, then broke into smaller groups of 10 students to meet with an IPCP for a practical demonstration of gown donning and doffing. The OSCE for third-year students required 4 IPCP to observe and grade the students. Of 104 students, only 1 failed and required a make up lesson and demonstration.

Lessons learned: Annual education for medical students by IPCP was well received, with very positive feedback from all 3 classes. Examination to test for the basic skill of PPE use provided evidence of theoretical learning with the ability to put this learning into practice. Having an IPCP teach Routine Practices and proper Infection Control measures at the beginning of a medical student's career with reinforcement through their didactic training will hopefully ensure these psychomotor behaviours become automatically applied in daily practice. Effective collaboration between medical school undergraduate curriculum and teaching hospitals achieved a shared professional mandate.

PROGRAM EVALUATION: "DO CURRENT INFECTION PREVENTION AND CONTROL ORIENTATION PROGRAMS FACILITATE HEALTHCARE WORKERS' ATTAINMENT OF THE CORE COMPETENCIES?"

Jennette Coates¹, Donna Moralejo¹, June Pollett²

¹Memorial University of Newfoundland, St. John's, Newfoundland, Canada, ²Eastern Region Health Authority, St. John's, Newfoundland, Canada

Background/Objectives: CHICA-Canada has articulated core competencies for the knowledge and skills required by all healthcare workers (HCWs). This project assessed

one health region's orientation program, consisting of regional, nursing and environmental services sessions, to see if it contained the necessary core content.

Methods: Data collection, in Fall 2007, consisted of: 1) content analysis; 2) observation of delivery; 3) interviews with leaders; and 4) administration of a questionnaire to 103 current/recent attendees to assess their knowledge and confidence levels, and to obtain feedback.

Results: The regional session covered 22 (61%) of the 36 detailed topics contained within the 7 core competencies. The nursing and environmental services sessions each covered an additional 2 topics, with considerable duplication of topics. All three sessions missed 10 topics, including first aid and accessing IP&C resources. Topics missed varied by session, e.g., nursing included correct removal of PPE but not application while the reverse was true for environmental services. Sessions provide no opportunity to practice techniques.

Leaders stated they were not aware of the core competencies and all assumed HCWs came with prior IP&C knowledge. The questionnaire return rate was 18.4%. Confidence rating did not equal actual IP&C knowledge. For example: in 10 nursing staff, who reported a "very high" confidence level for glove application/removal, only 3 could state when and how to do this correctly, 3 gave a partly correct answer and 4 gave an incorrect answer.

Conclusions: To ensure the orientation program helps HCWs attain the 7 core IP&C competencies, revisions are recommended with emphasis on practice of skills, assessment of knowledge, reduction of overlap of content, and inclusion of all 36 topics. The methods used provide a model for assessing other orientation programs.

"SURVEY SAYS..." HOW HEALTHCARE WORKERS PERCEIVE INFECTION CONTROL ISSUES

Samantha Woolsey, Jill Joffe, Nina Shumatcher, Ariel Hendin, Shelley Winton, A. Mark Joffe
Royal Alexandra Hospital, Edmonton, Alberta, Canada

Issue: Provision of infection control (IC) education, service, and resources to a diverse group of healthcare workers can be a challenge for Infection Control programs. Our 750 bed tertiary care hospital has a staff of approximately 5600 with varying levels of education and experience. We felt it would be beneficial to determine the level of IC knowledge in our staff.

Project: Two summer students performed semi-structured interviews with 163 staff members in our facility's inpatient and outpatient care areas. The interviewees were asked a series of 19 questions that covered position type, healthcare experience, participation in IC specific education opportunities, IC service acquisition, and familiarity with the Infection Prevention Services department, IC issues most commonly encountered, and IC frustrations. Some interesting trends emerged.

Results: An IC education deficit was identified in all staff types, however the majority of staff felt their level of IC knowledge was adequate. Nurses with the most experience were the least likely to report having had formal MRSA education. 50% of nursing students stated they had not attended an IC orientation session. Very few staff could identify the IC staff by name although the majority stated they knew how to contact the IC department. Very few staff had accessed the IC website, and of greater concern almost half of staff would go to a co-worker for IC information rather than contacting the IC department.

Lessons learned: We have identified several areas for improvement in our facility. The survey responses illuminated the need for continued promotion of the Infection Prevention Department including a website education blitz. This information is being shared with leaders in the facility to gain support for yearly IC education sessions for more of our healthcare workers.

YOUR 4 MOMENTS FOR HAND HYGIENE, CLARIFYING THE "WHEN"

Liz McCreight, Clare Barry

Ministry of Health and Long-Term Care, Toronto, Ontario, Canada

Issue: Compliance rates for hand hygiene (HH) are frequently reported below 50%. In 2006 the Ministry of Health and Long-Term Care (MOHLTC) in Ontario held a 2-day workshop with provincial, national and international experts to discuss improving HH practices. Ontario then developed and tested a multifaceted HH program for hospitals. Ten hospitals across the province participated in the pilot. The pilot phase of the Just Clean Your Hands (JCYH) program found that health care providers (HCP) think they clean their hands appropriately. The observational audit results showed that there was a significant gap between perception and practice. Clarity in messages used to teach "when and how" to clean hands is a necessary component to improve HH practices. There are essential moments in hospitals where the risk of transmission is greatest and HH must be performed. This concept is what "Your 4 Moments for Hand Hygiene" is about.

Project: The goal of the project was to provide a simplified method to teach "when and how" to clean hands at the right moment with the right technique. The JCYH tested six indications. Feedback and expert review confirmed the six indications and recommended they be represented as "4 Moments". The 4 moments are: Before initial patient/patient environment contact; Before aseptic procedure; After Body Fluid Exposure Risk; After patient/patient environment contact. The "4 Moments" concept is one element of the multifaceted JCYH program.

Results: Defining simply "when and how" to clean hands through an education program contributed to a clearer understanding that translated into improved practices. In the 6 month testing phase, there was a steady increase in compliance rates across sites from the baseline rate. Average increase across sites for "Before initial patient/patient contact" was 18%.

Lessons learned: HCP think they clean their hands, but do not know the indications of "when and how" to clean their hands. Using "Your 4 Moments for hand hygiene" improves compliance in HH practices.

**Chosen as one of the six best abstract submissions*

LEARNINGS FROM ONTARIO JUST CLEAN YOUR HANDS PROGRAM PILOT PHASE

Clare Barry, Liz McCreight, *MOHLTC, Toronto, Canada*

Issue: A 2006 study of hospitals in Ontario found overall adherence to hand hygiene (HH) was 32%. The Just Clean Your Hands (JCYH) program for hospitals aims to obtain sustained improvement in HH compliance. JCYH was developed in collaboration with provincial, national and international experts.

Project: The nine month pilot phase in ten hospitals assessed the effectiveness of a multifaceted program. Program components included: environmental modifications; senior/middle management support; education; champions and role models; observation and feedback; and a communications toolkit. The evaluation components included: health care provider (HCP) surveys, patient surveys, focus groups, key informant interviews, product measurements, and compliance data through direct observation. A third party evaluation was done at baseline, interim and in the final phase. Ministry staff made two visits per site to learn more about the enablers and barriers to develop a successful program.

Results: Data included: 4,240 HCPs observed in 11,351 indications across all three evaluation periods; 27 focus groups at baseline and 20 interim focus groups; 2260 health care survey respondents (53% response rate); 5594 patient surveys (57% response rate). There was a steady increase in HH compliance across pilot sites. Key learning's included: HCPs do not have a clear understanding of when to clean hands; HH compliance varies by type of HCP and indication therefore an overall compliance rate may not be comparative over time; patient confidence increased knowing there is a HH program; patients do not want to be responsible for reminding HCPs to clean their hands; alcohol-based hand rub placed correctly at point of care increases compliance; timely feedback from observational audits can close the gap between perception and practice.

Lessons learned: A single intervention such as posters or education will not obtain a sustained improvement in HH. A multifaceted approach consisting of all the components listed above is essential.

POSITIVE IMPACT OF ALCOHOL BASED HAND RUBS (ABHR) AT POINT-OF-CARE ON THE HAND HYGIENE COMPLIANCE OF FRONT-LINE HEALTH CARE WORKERS

Olivia Yow, Sandra Callery, Mary Vearncombe
Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Background/Objectives: Hand hygiene (HH) is recognized as the single most important factor to reduce healthcare acquired infections. Various strategies and interventions have been utilized in the hopes of improving compliance. Placement of alcohol based hand rubs (ABHR) at point of care is known to be good practice but can be a challenge in special settings such as units with cognitively impaired residents. In our long-term care (LTC) home the selection of tamper-resistant dispensers has allowed the safe installation of ABHR at point-of-care. This study describes the impact of ABHR at point-of-care on the HH compliance rate of front-line HCWs.

Method: In the summer of 2007, the 575-bed LTC portion of this academic tertiary care facility completed the installation of dispensers for ABHR products at point-of-care (within the resident's bed space). From March 2007 until February 2008, trained auditors performed repeated HH audit sessions on 17 different resident units of the LTC home. The auditors used a standardized tool to audit HCWs' HH during their interaction with residents. Analysis of HH audit results pre and post installation was completed.

Results: During the HH audit period, 794 HH opportunities were observed during 97 auditing sessions. Overall, HH compliance increased by 122% with the implementation of ABHR at point-of-care. The difference is statistically significant. Improvement in unit-specific HH compliance rates was observed in all 17 resident units.

Conclusions: ABHR at point-of care can lead to improvement of hand hygiene compliance rates.

**Best First Time Abstract Submission*

LE TRIAGE INFORMATISÉ : UNE APPROCHE PROACTIVE D'ENDIGUEMENT D'UNE ÉVENTUELLE PANDÉMIE

Julie Carbonneau
Hôpital Ste-Anne, Ste-Anne de Bellevue, Qc, Canada

L'Hôpital Sainte-Anne, centre de soins de longue durée de 420 lits pour anciens combattants, a développé un programme de triage informatisé en cas de pandémie. Ce programme est le fruit de la collaboration entre des membres de l'équipe de prévention et de contrôle des infections, de l'équipe de gestion du plan de pandémie et du Service informatique de l'Hôpital.

En situation de pandémie, ce programme de triage informatisé permettra de procéder à l'évaluation initiale des signes et symptômes d'allure grippale que présentera un employé à son arrivée au travail. Au besoin, l'employé sera redirigé vers un professionnel de la santé pour que celui-ci procède à un triage avancé. Le triage informatisé facilitera le contrôle quotidien des absences des employés liées aux symptômes d'allure grippale, ce qui contribuera à prévenir ou à retarder l'introduction de l'influenza pandémique au sein de l'établissement. Le programme permettra également d'associer à chaque employé le masque N-95 approprié, tout en identifiant et en assurant le suivi de son état vaccinal et des antiviraux qu'il aura reçus.

Lors de la présentation, une démonstration concrète du logiciel sera effectuée. Les objectifs et l'utilité du programme de triage informatisé en cas de pandémie seront également passés en revue.

Il est indubitable que l'implantation d'un programme de triage informatisé facilitera la gestion des accès sur le site de l'Hôpital et constituera un outil essentiel pour assurer la sécurité et prévenir la propagation du virus en cas de pandémie.

UNIVERSAL MRSA ADMISSION SCREENING FOR PSYCHIATRY INPATIENTS IN A LARGE URBAN TEACHING HOSPITAL

Alexis Silverman, Michael Gardam
University Health Network, Toronto, Canada

Issue: The University Health Network (UHN), comprised of three major urban health care centres, has been screening all admitted patients considered at high risk for MRSA and VRE carriage for the past ten years. However in October of 2007, the decision was made to universally screen all newly-admitted patients. MRSA screening involves swabbing both nares, axillae, groin and perineum and any wounds or exit sites. VRE screening involves swabbing the rectum. Traditionally psychiatric patients have not been screened for MRSA and VRE as they did not meet the criteria for a high-risk patient and because of the invasiveness of the swabs for this patient population.

Project: The purpose of this project was to implement MRSA and VRE screening in an acute care psychiatric population.

Results: In order to implement admission screening, meetings were held with the nurse manager, nurses and psychiatric aids to see how best to approach this unique patient population. Opportunities were given for the health-care staff to voice questions and concerns. The unit staff identified that the majority of patients on the psychiatric ward were survivors of sexual abuse, a statement readily supported in the literature. Swabbing of intimate areas could potentially re-traumatize these patients, as well as severely impede the creation of a therapeutic nurse-client relationship. It was decided that patients would be swabbed for MRSA in the nares only. The nurse or psychiatric aid would ask to swab the patient's axillae, groin and perineum if the request would not re-traumatize the patient. The health care workers felt that VRE swabbing was inappropriate for this patient population. From November 1, 2007 to January 1, 2008, 62 patients were admitted to the ward, 50 patients were swabbed, only 6 refused and 6 patients were missed. The screening program identified one patient colonized with CA-MRSA, and this patient was moved to a private room and given education on MRSA and hand-hygiene. The in-patient psychiatric health-care staff were highly supportive of this initiative and the pilot has been adopted into daily practice.

Lessons learned: Universal admission screening is possible and practical on an in-patient psychiatric unit as long as: health-care workers are encouraged to participate in program development, the uniqueness of the patient population is respected and the risk of re-traumatization is avoided.

COMMUNITY ACQUIRED MRSA AND SOCIOECONOMIC STATUS (SES)

Simmonds K*, Dover D, Sanderson M, Alberta Health and Wellness, Alberta

Background: Community acquired methicillin resistant *Staphylococcus aureus* (CA-MRSA) is increasingly common. CMRSA 7 and CMRSA 10 are two strains known to be community acquired. Recent community outbreaks highlight the potential increased risk of infection for individuals of lower socio-economic status.

Objective: To describe the relationship between socio-economic status and CA-MRSA cases in Alberta over time.

Methods: Cases were defined as new clinical infections (no positive PFGE of the same strain during the previous six months) with PFGE identified as CMRSA 7 or CMRSA 10 in Alberta during 2006 and 2007 and less than 65 years of age at diagnosis. Patient data was linked to the Alberta Health Care Insurance Plan (AHCIP) at the quarter end closest to the infection date to create a proxy for socio-economic status. The groups were derived as follows: Group 1: Does not receive an AHCIP premium subsidy. Group 2: Receives an AHCIP premium subsidy. Group 3: Registered First Nations and AHCIP premiums are paid by the federal government. Group 4: Receives social assistance.

Results: For the 351 cases of CMRSA 7, 175 cases are Group 3 with an age standardized rate of 70.7 cases per 100,000. The age standardized infection rates for CMRSA 7 is highest among Group 3 followed by Groups 4, 2 and 1. For the 2,951 cases of CMRSA 10 the age standardized infection rate is highest among Group 3 (249.1 cases per 100,000) and Group 4 (256.7 cases per 100,000). The age standardized infection rates for CMRSA 10 increased in all groups between 2006 and 2007.

Conclusion: Those on social assistance are over represented as CMRSA 10 cases in Alberta. Registered First Nations are over represented as cases for both CMRSA 7 and CMRSA 10 in Alberta. Socio-economic status is a changing factor in MRSA infection.

**Chosen as one of the six best abstract submissions*

UTILITY OF ENVIRONMENTAL SAMPLING FOR THE PREVENTION OF VANCOMYCIN RESISTANT ENTEROCOCCI (VRE) TRANSMISSION

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

Background: Patients with gastrointestinal colonization are the major reservoir for vancomycin resistant enterococci (VRE) and transient carriage on the hands of healthcare workers the most common mode of transmission in healthcare facilities. Although VRE has been shown to contaminate environmental surfaces in the room of a patient infected or colonized with VRE there is no clear evidence that links environmental contamination with acquisition.

Objectives: To determine whether a policy of environmental sampling and keeping the room closed pending negative culture results, is more effective than visual inspection of the room without culturing, in preventing the transmission of VRE to the next admitted patient. **Methods:** All acute care inpatient units were eligible for inclusion excepting intensive care and psychiatric care. The rooms of consecutive patients with VRE who had been discharged or transferred were alternatively managed according to either Protocol I (terminal cleaning, inspection by Infection Prevention and Control and admission of new patient(s)) or Protocol II (terminal cleaning, environmental cultures and closing of the room pending negative results). The next admitted patient to all rooms had rectal swabs obtained for VRE within 24 hours of admission, 3-5 days after admission and upon discharge from the room and/or the facility. The proportion of patients who acquired the same strain of VRE after being admitted to rooms handled according to either Protocol I or Protocol II was compared.



Results: The risk of acquisition of VRE by patients admitted to a room managed according to Protocol I (1/19) was not significantly different than for patients admitted to a room managed according to Protocol II (0/12) (p=0.99). The patient who acquired VRE after admission to a room managed according to Protocol I, was identified as positive for the organism through a prevalence screen on the unit 40 days after admission. At least 1 positive environmental culture was obtained in 8/14 (57.1%) rooms managed according to Protocol II.

Conclusions: Although VRE may be detected in the hospital environment there is insufficient evidence to conclude that routinely obtaining negative environmental cultures from the room of a patient infected or colonized with the organism is more effective in preventing VRE transmission to subsequent patients, provided the room is adequately cleaned and disinfected.

SURFACE DISINFECTANTS AND LABEL CLAIMS: REALISTICALLY CAN CONTACT TIMES BE MET TO ACHIEVE ANTIMICROBIAL EFFICACY?

Navid Omidbakhsh

Virox Technologies, Oakville, On, Canada

The number of infections continues to rise in North American and around the world. The use of disinfectants is an important part of all healthcare facilities infection control practices. Most disinfectants are applied to surfaces, and allowed to air dry. For disinfection to occur, it is important for a product to keep the surface wet for the entire disinfection contact time as noted on the label in order to achieve the claimed disinfection activity. The objective of this study was to determine the efficacy of several different disinfectant chemistries against common pathogens using a realistic contact time for each chemistry based on its evaporation rate and compare the results to the efficacy claims listed on the product labels. In this study, several disinfecting chemistries including Accelerated Hydrogen Peroxide (AHP) 0.5%, bleach 500 PPM, a quat, 600 PPM, a quat-alcohol (0.2% quat & 21% alcohol), and a phenol, 700 PPM were tested for their drying time on a surface, and then tested for their antimicrobial activity at their drying time against *S. aureus*, *P. aeruginosa*, and MRSA, as representative bacteria using a quantitative carrier test method with the criteria of at least 6 log reduction to pass. All tested products dried in less than 5 min contact time with alcohol-based products drying significantly faster than any other chemistry (p-value of 0.000). Quat and phenol carried a label claim of 10 min, but dried at less than 2-3 min, and those contact times, they were found ineffective. AHP dried at 3-4 min, regardless it was still efficacious. Bleach dried at less than 2 min, and it was not efficacious. Quat/alcohol dried at less than 30 seconds, and was not effective. The results showed that it is not possible in practice to meet the required contact time for slow acting disinfecting products, and the products with no gap or less gap between their claimed contact time, and drying time have a significantly better chance of achieving their required level of decontamination.

SEEK AND YE SHALL FIND: RESULTS OF A MEDICAL DEVICE REPROCESSING AUDIT IN A LARGE CANADIAN MULTI-SITE HEALTH REGION

Shelley Winton, Sue Lafferty, Olivia Marcotte, Karin Fluet, Marsha Johnson
Capital Health Edmonton Area, Edmonton, AB, Canada

Issue: A medical device reprocessing (MDR) audit was completed in April 2007 by 37 auditors who assessed reprocessing of critical and semi-critical medical devices used for patient care. Within 56 facilities, 118 areas in the Health Region were identified to be performing MDR. Compliance with current infection prevention and control guidelines and MDR standards was measured.

Project: Participating auditors were regional staff with expertise in MDR or Infection Prevention and Control. An audit tool was divided into sections which represented distinct reprocessing functions (e.g. cleaning, disinfection, sterilization). Auditors assessed reprocessing activities by indicating "yes", "no", or "not applicable". Compliance percentage scores for each section of the audit were assigned using an established formula. "No" responses were recorded as a "variation", meaning that the item required corrective action to meet criteria specified in the audit.

Results: Audit data revealed "compliance percentages": >90% or above in 4/17 sections; 60% - 80% in 9/17 sections; and, <60% in 4/17 sections. Three general recommendations were made to: (1) centralize MDR whenever possible; (2) increase inventory of surgical instruments and centralized reprocessing capacity to minimize flash sterilization; and, (3) educate and monitor competency of staff responsible for MDR. Detailed reports with scores, variations and necessary corrective action were provided to each area audited.

Lessons learned: 1. Provide detailed reports to all levels of the organization. Detailed audit reports were provided to managers of MDR areas and shorter summary reports went to executive and operational leadership. In the final analysis, detailed reports were required at all levels. 2. Coordinate follow-up to facilitate action. Follow-up of the recommendations was intended to be coordinated by site and sector Infection Control personnel. In retrospect, a formal follow-up procedure for all sites would have assisted with provision of progress reports to executive and standardization of practice. 3. Reprocessing is a complex issue that requires ongoing monitoring. Repeat annual audits are scheduled.

POSTER PRESENTATIONS

TUESDAY, JUNE 3, 2008

Final Schedule will be published in the Conference program.

INFLUENZA CAMPAIGN 2006 AND 2007: A RESIDENTIAL CARE SUCCESS STORY

Cathy Munford, Shirley Finnigan

Vancouver Island Health Authority, Victoria, BC, Canada

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Objective: July 7, 2000, the BC Ministry of Health announced a comprehensive influenza campaign for British Columbia (BC). The Ministry's goals were: to reduce illness and death associated with influenza in the most vulnerable populations, to reduce predictable preventable additional pressures on the health care system that occur during influenza season, and to achieve an 80% immunization rate in health care workers. Since 2000, the staff influenza numbers continue to remain around 45% with a number of identified influenza outbreaks. Saanich Peninsula Hospital (SPH) 150 bed extended care unit challenged their staff to improve and sustain their immunization numbers to 80% for the protection of their residents.

Method: In response, SPH developed an integrated influenza management plan. The plan focused on an enhanced ability to prevent and control influenza. This would involve a targeted immunization campaign for high-risk groups, enhanced ability to quickly identify outbreaks, and to implement control measures. SPH along with the Vancouver Island Health Authority (VIHA) used a campaign that involved the development of staff policies around influenza immunization and outbreak management, an enhanced media campaign, incentive program for staff and refinement of protocols for quick access and testing of isolates during an outbreak.

Results: Increase in influenza awareness both among health care workers and the general public. Increased in immunization of SPH extended care staff with 115% increase in staff immunization rates over the 2005 campaign. A 90% immunization rate among residents in residential care facilities was seen. There were no reported outbreaks of influenza in residential care facility within the SPH during the 2006 and 2007 influenza season.

Discussion: Despite the increase in immunization rates among health care workers, in general, the overall rate within the health authority remains low. The success of the SPH extended care campaign may have been a result of the climate of the facility and the commitment of the manager and key staff to the initiative. Future campaigns will be directed to the entire facility, including acute care. It will be interesting to see if these immunization numbers can be sustained in other areas.

Conclusion: Influenza immunization campaigns in order to be successful must involve management and numerous departments. Early planning is important and must start as soon as the previous year's campaign concludes. A key component to any plan is communication, staff incentives and staff belief in the program. The success or failure of a plan is in the message about immunization that gets out to the 'at-risk' populations. This will continue to be a key component of the future influenza campaigns.

DEVELOPMENT OF AN EDUCATIONAL PROGRAM: HELPING LONG TERM CARE NURSES TO MAKE THE RIGHT INFECTION CONTROL DECISIONS

Hamlin, R, Murray, D*, *Capital District Health Authority, Halifax, Nova Scotia.*

Issues: Capital District Health Authority in Halifax, Nova Scotia is diverse and wide geographically. The district includes five Long Term Care Facilities (LTC). We knew there were varying degrees of nursing practices. There are many infection control challenges in health care and long term care is no exception.

Project: Infection Control Practitioners (ICP) recognize the importance of maintaining a balance between a home like environment while protecting the residents from infection related adverse events. We recognize that health care workers need the "right" information to make the "right" decision. While an established Infection Prevention and Control program existed within the district, it did not totally address the complexities of resident care. A reference binder was developed for nursing staff which included supporting infection control education which is easily accessible, user friendly and is consistent across the district. Nurses use this to guide their Infection Control practice. This reference material has been integrated into the nursing units of all LTC areas of Capital Health. Project funded by District Nursing Advisory Council.

Results: This project has transformed the practice environment and the spin off has been the creation of a LTC/IC Quality Nursing Collaboration in which the goal is to optimize quality resident care within Capital Health.

Lessons: The ICP recognizes the integral role they play in guiding nursing/IC practices.

VAP: VENTILATOR ASSOCIATED PNEUMONIA OR VALUE ADDED PROGRAM?

May Griffiths-Turner¹, Margaret MacLennan¹, Lily Waugh¹, Julia Groenestege¹, Deborah Cook², Roman Jaeschke²

¹St. Joseph's Healthcare, Hamilton, Ontario, Canada, ²McMaster University, Hamilton, Ontario, Canada

Issue: To reduce the rate of VAP in an adult medical / surgical Intensive Care Unit (ICU) through implementation of the Safer Healthcare Now (SHN) Ventilator Associated Pneumonia (VAP) surveillance and intervention bundle.

Project: A multidisciplinary team was convened to initiate the program. SHN VAP definition criteria were utilized to identify VAP in the ICU. The intervention bundle elements were introduced concurrently. An oral care regimen every 12 hours was introduced 6 months later, increasing to every 6 hours after 9 months. Monthly VAP rates were calculated as the number of VAP per 1000 ventilator days. A baseline VAP rate was established with a goal of reducing the rate to 50% below baseline. Intervention bundle compliance was calculated as a percentage with a goal of achieving 95% compliance.

Results: 25% of VAP occurred 2-5 days post intubation. 75% of VAP occurred greater than 5 days post intubation. VAPs declined over time, reaching a sustained rate reduction of 50%. Intervention bundle compliance surpassed 95%. Implementation of an oral care regimen resulted in the largest subsequent decline in VAP rates.

Lessons learned: A collaborative multi-pronged approach to identify a potential VAP, triggering VAP investigation, was essential to ensure all cases were captured. Reporting of VAP infection rates generated interest in implementation of other IP&C related quality improvement initiatives in ICU. VAP surveillance became the vehicle to an amplified

collaborative relationship between IP&C and ICU. What began as ventilator associated pneumonia surveillance became a value added program.

THE STATE OF PANDEMIC INFLUENZA PLANNING IN ONTARIO ACUTE CARE HOSPITALS

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Introduction: The purpose of this study was to determine the state of pandemic influenza planning in acute care hospitals in Ontario. The findings will aid in designing a program to help hospitals plan effectively for future pandemics of severe respiratory infections such as influenza.

Methods: A comprehensive survey was sent in early 2007 to all acute care hospitals in Ontario. The survey was completed by the person most responsible for the hospital's pandemic influenza plan.

Results: The response rate was 77%, 97 of 126 acute care hospitals participated. Three quarters (75%) of hospitals had pandemic influenza plans. There was a trend for larger hospitals to be more likely to have plans ($r = .20, p = .06$). Most urban hospitals (88%) had plans while only 67% of rural hospitals did. Only 16% (12 of 73) of hospitals with plans had formally tested their plans. Larger hospitals were more likely to have tested their plans ($r = .35, p = .003$) and more urban hospitals (29%) had tested their plans than rural hospitals (8%). 70% of respondents thought the planning process was not adequately funded. No respondents were completely satisfied with the completeness of their hospital's pandemic plan and only 18% were satisfied.

Conclusions: A quarter of Ontario's acute care hospitals did not have a pandemic influenza plan as of early 2007 and few hospitals had formally tested them. The majority of hospitals thought the pandemic planning process was underfunded and were not satisfied with the completeness of their plans. These results support the need for a comprehensive program to help hospitals, especially small and rural hospitals, develop pandemic influenza plans.

THE PREVALENCE OF EXTENDED-SPECTRUM BETA LACTAMASE-PRODUCING *ESCHERICHIA COLI* AND *KLEBSIELLA PNEUMONIAE* AMONG CLINICAL ISOLATES FROM A GENERAL HOSPITAL IN IRAN

Bibi Sedigheh Fazly Bazzaz, Mahboub Naderi Nasab, Zahra Farshadzadeh
Mashhad University of Medical Sciences, Mashhad, Iran, Islamic Republic of

Objectives: Beta-lactamase production is the most important mechanism for bacterial resistance to beta-lactam antibiotics. *Escherichia coli* and *Klebsiella pneumoniae* are among the bacteria which produce extended-spectrum beta lactamase (ESBL). ESBL production causes resistant to multiple antimicrobial agents. The aim of this study was to determine the prevalence of ESBL producing *E. coli* and *K. pneumoniae* and antimicrobial pattern of the strains.

Methods: This study was conducted at Imam Reza Hospital, a 900 beds general teaching hospital affiliated to Mashhad University of Medical Sciences. From May to September 2007 all *E. coli* and *K. pneumoniae* strains isolated from clinical specimens were collected by microbiological laboratory. Bacterial susceptibility to antimicrobial agents was determined by disk diffusion method. The double disk synergy test was performed by standard disk diffusion assay for each isolate. Clavulanate enhancement of the diameter of the inhibition zone around either the antibiotic disk by at least 5 mm was regarded as presumptive evidence for the presence of ESBL.

Results: During the study period, the total of 206 isolates including 106 *E. coli* and 100 *K. pneumoniae* were collected of which 149 isolates (72.33) were ESBL positive. From ESBL positive samples, 77 isolates of *E. coli* (51.67%) and 72 isolates of *K. pneumoniae* (48.32%) were resistant to at least to one of the antibiotics. In the *E. coli* isolate group 77 samples were ESBL positive, of which 28 isolates were resistant to cephalosporins, 16 to monobactam and 33 to both families of antibiotics. In the *K. pneumoniae* isolates, 72 samples were ESBL positive, of which 22 isolates were resistant to cephalosporins, 11 to monobactam and 39 to both families of antibiotics. Also there was significant difference between out or in-patients isolates in regard to ESBL production (p -value<0.0001).

Conclusion: In our study, the prevalence of ESBL producing isolates was high for a clinical setting. We recommend an antimicrobial policy and performance of double disk diffusion assay to ensure correct medication by physicians.

GLOVE POWDER: A HEALTH HAZARD

Lucie Ouellet

Universite de Montreal, Montreal, Canada

Issue: Glove powder is made of adsorbed cornstarch. Powder lubricant is used in manufacturing process, on finished glove, as donning agent, as mold release agent and on finished glove to prevent blocking. It has influenced the eventual exposure of sensitive people to latex allergens and demonstrated health effects on patients as well. An estimated 50% of all surgical gloves and an estimated 30% of all examination gloves purchased in Canadian hospitals are powdered. Cost is the driving force behind these numbers. Many healthcare professionals think that there is insufficient evidence behind the hazard of glove powder to pursue a change in their practice.

Literature review: This review will describe available scientific evidences of cornstarch glove powder effects in healthcare. Powder issue has been published for many years. Glove powder is a vector in latex allergen issue, occupational asthma, skin breakdown, microorganisms and food contamination. Glove powder has been involved in granuloma formation, granulomatous peritonitis, adhesions, and wound infection. Maintaining a powdered environment has economic implications rarely accounted for. Despite overwhelming evidences in literature, hospitals, doctors, and other healthcare professionals continue to wear powdered gloves.



Conclusion: This review will provide participants with scientific and medical evidences in understanding the effect of cornstarch in healthcare. Finally, it is determined to provide material in a noncommercial format that satisfies the needs of CHICA.

B.U.G.S. CREATIVE CONCEPTS FOR THE BOTTOM LINE IN BASIC BUG BUSINESS
BASIC BUG BUSINESS INFORMATION TO PROMOTE UNDERSTANDING OF INFECTION TRANSMISSION CONCEPTS AND GENERATE IMPROVED COMPLIANCE AMONG STAFF, PATIENTS, AND VISITORS REGARDING INFECTION PREVENTION AND CONTROL PRACTICES IN THE PAEDIATRIC SETTING

Gayla Dial Dionne

Shriners Hospitals for Children, Montreal, Quebec, Canada

Issue: Implementation of prevention practices in a multicultural paediatric facility is a challenge. Simple concepts are required for improved comprehension and compliance. XXXXX XXXXXXXX-Canada is a bilingual, short term, speciality acute care centre. It is a part of an international health care system of 22 hospitals. The patient population includes children and adolescents who come from Canada, the United States as well as from other foreign countries.

Project: Utilisation of pictograms and humorous Bug costumed presentations to promote improvement in compliance. B.U.G.S. is the general theme used for promotion of educational activities for Infection Control and comprises the basics of an infection prevention program. Known as the "Bug Lady", the infection control practitioner has used various creative ways to obtain the attention of both patients and staff in order to enhance their collaboration in implementing infection control measures in this specialized facility. This presentation presents in a simplified and humorous manner the basic concepts of infection transmission and prevention practices – creative concepts for the bottom line in Basic Bug Business.

Results: Improved compliance and comprehension of basic prevention practices. No transmission of MRSA or VRE and reduced Class I surgical site infection rates.

Lessons learned: Creative concepts help promote compliance.

INFECTION PREVENTION AND CONTROL: DEVELOPING AN ENDOSCOPY PROGRAM

Elizabeth Hendsbee, Lynn Johnston, Sheila MacDonald

Capital District Health Authority, Halifax, Nova Scotia, Canada

The reprocessing of flexible endoscopes is an exacting science in which the manufacturer outlines a clear concise protocol in order to achieve a consistent best practice. Careful attention must be given to the implementation of Infection Control standards and guidelines. At the Capital District Health Authority in Halifax, the Infection Prevention and Control management team established a position for an Infection Control Practitioner, with Endoscopy expertise, specifically assigned the project of developing an Endoscopy Program. The primary goal is to ensure the universal care of the endoscopes to all areas within the district, by applying scientifically based guidelines and routinely monitoring the performance-based compliance of these guidelines.

DEVELOPMENT OF POSTERS FOR DONNING AND REMOVAL OF PERSONAL PROTECTIVE EQUIPMENT

Gail Barwise, Chris Drummond, Deborah Brown, Alvina Jenkins, Stacey Linger, Amanda Marshall

¹Queen Elizabeth Hospital, Charlottetown PEI, Canada, ²Prince County Hospital, Summerside PEI, Canada, ³Hillsborough Hospital, Charlottetown PEI, Canada, ⁴Souris Hospital, Souris PEI, Canada

Issue: A study conducted by the Infection Control Practitioners in Prince Edward Island revealed inconsistencies in the process for donning and removal of personal protective

equipment (PPE). PPE is defined as "specialized clothing or equipment, worn by an employee for the protection against infective material." The observational study concluded that the potential for health care workers to contaminate themselves and their surroundings when removing PPE was significant. The ICP's conducted a needs assessment which identified that the development of a tool with instructions in combination with visual aids would assist the HCW's and visitors in the proper procedures.

Project: The project team consisted of four Infection Control Practitioners from across PEI and a fourth year nursing student. The ICP's represented acute care, additions, long term care, mental health and community hospitals. The goal of the team was to develop posters based on Health Canada Guidelines and best practice and to be used across the PEI health care continuum. The team created ten posters with instructions and photos directing staff and visitors when donning and removing PPE. The purpose is to ensure that PPE is donned and removed appropriately reducing the risk of personal contamination. The development of the posters was informed by the procedures outlined in the literature by the Ontario Ministry of Health and LTC, WHO, and best practices from Hong Kong, Australia and Italy. Research indicates that personal contamination can be avoided with effective removal of PPE and that using simple language and pictures to illustrate instructions will encourage compliance from staff and visitors. The team met over a period of six months to form and edit the posters.

Results: The content was developed by the ICP's based on the literature and feedback obtained by Occupational Health and Safety and an Infectious Disease Specialist. The poster colour and layout were designed based on recommendations from the Strategic Marketing Graphic Design Section of the Provincial Government. The posters are in the implementation phase.

Lessons learned: The project proved to be a major challenge in using plain language, designing pictures to accurately depict the donning and removal of the PPE while ensuring that the posters were appropriate for all health care agencies. The Graphic Design Section was accessed and their expertise was beneficial. Although the project was prolonged, the finished posters have been well received from the major stakeholders and the Provincial Infection Control Committee.

WHO WANTS TO BE AN INFECTION CONTROL MILLIONAIRE: THE SEQUEL

Jim Gauthier¹, Kathleen Poole¹, Dick Zoutman¹, Michelle Gibson², Darlene Campbell¹
¹Providence Care, Kingston Ontario, Canada, ²Queen's University, Kingston Ontario, Canada

Issue: Education for third-year medical students before their clinical rotation included a quiz using remote voting devices (resembling the audience participation in "Who Wants to be a Millionaire" program). This year, all students had received hands-on training in hand washing, glove donning and doffing, and appropriate mask use, 1 hour more Infection Control education time than previous third-year students.

Project: Compare the results of this year's voting with the previous year to see if the added contact with an IPCP modified our results.

Results: The largest change was in the students who had the extra training thinking that all personal protective equipment (mask, gown and gloves) is required for Contact and Airborne Additional precautions.

Lessons learned: When having the smaller group sessions with the students, more emphasis can be placed on the minimum required PPE for each scenario being discussed.

A MONTHLY SITE SPECIFIC CONSTRUCTION/RENOVATION/ REPAIRS REVIEW MEETING: IMPROVING INTERDEPARTMENTAL COMMUNICATION

Kathleen Poole¹, Jim Gauthier¹, Darlene Campbell¹, Dick Zoutman², Gael Kirkwood¹

¹Providence Care, Kingston Ontario, Canada, ²Queen's University, Kingston Ontario, Canada

Issue: All outside contractors are required to meet CSA Z317.13-03 for projects in our facilities and to attend Infection Prevention and Control education sessions. It was noted that our own maintenance/physical plant staff frequently did not meet the same standards for dust control for routine maintenance, painting, and repairs.

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Project: Infection Prevention and Control, in March 2006, established a monthly meeting with maintenance/physical plant, housekeeping, and Occupational Health and Safety to discuss upcoming and ongoing internal projects.

Results: Terms of reference (TOR) were created which include:

- Discuss and review upcoming internal and external (contractor) projects for compliance with Canadian Standards Association (CSA) Standard Z317.13-03,
- Ensure input from each working group member where applicable,
- To ensure a Risk Assessment Analysis form has been completed for each project,
- To aid in the coordination and development of effective communication regarding projects among team members related to each stage of the projects.

Senior Management approved the TOR with copies of the minutes going to the site administrator and Joint Health and Safety Committee.

Lessons learned: 1. Input from Occupational Health helped established any at-risk staff members in areas where maintenance or repairs were being conducted. 2. Input from housekeeping helped to ensure rapid and effective cleaning after projects that generated dust. 3. Infection Control was aware of issues coming up in advance, instead of working in a reactive mode. Maintenance/physical plant was able to plan barriers that were suitable for the degree of work being performed. Overall, all staff receive better communication of possible disruptions in their area, not just in patient care areas.

VANCOMYCIN RESISTANT ENTEROCOCCUS IN A NEONATAL INTENSIVE CARE UNIT (NICU): AN "INTENSIVE" CHALLENGE

Pearl Orenstein, Barbara Amihod, Norma Consolacion, Sharon Gates, Silvana Perna, Mark Miller

Sir Mortimer B. Davis-Jewish General Hospital, Montreal, Quebec, Canada

Background: The Sir Mortimer B. Davis-Jewish General Hospital (SMBD-JGH) is a 638-bed acute-care, tertiary hospital with a 34-bed NICU. The NICU never had a neonate colonized/infected with vancomycin resistant enterococcus (VRE) until May 18, 2007 when a routine VRE surveillance culture of stool from a neonate (born in March) was incidentally found VRE positive (Van A).

Methods: A VRE cohort, full barrier precautions, extensive education, weekly stool specimens from the neonates and rigorous environmental cleaning followed by environmental screening were the prevailing IPCU strategies implemented immediately. Numerous multi-disciplinary meetings as well as meetings for parents and family members were held concurrently to elucidate the urgency and necessity for these measures. Numerous obstacles related to the above measures were encountered, and required resolution.

Results: The first stool screening resulted in finding an additional 2 positive babies. Subsequent weekly stool screening identified a total of 7 VRE-positive neonates by the end of May. Weekly screening continued for 1 month post-discharge of the last VRE positive neonate and demonstrated a total of 5 months with no further transmission. The protocol for all NICU admissions now includes VRE screening.

Conclusion: Lack of further nosocomial transmission and a speedy resolution of the outbreak validated the rigorous and stringent infection prevention and control measures, despite many obstacles and repeated protestation by some NICU staff.

SECULAR TREND OF NOSOCOMIAL FUNGAL INFECTION AT A MEDICAL CENTER, 2000-2007

Shu-Yuan Lioa, Yin-Yin Chen, Fu-Der Wang

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Background/Objectives: The studies have documented geographic differences in rates and epidemiology, underscoring the need for surveillance to monitor the trend of the nosocomial fungal infection over a 10 years span.

Methods: In a retrospectively study we reviewed medical charts from 1998 to 2007 at a medical center in north Taiwan. Patients admitted after 48hrs who developed nosocomial fungal infection were included in the study.

Results: The result reveals that there were 2,651 episodes of nosocomial fungal infection during 10 years, with an average incidence of 0.336 episodes/1,000 patient-days/year (range 0.215-0.648 episodes). Incidence of candiduria increased during the study period from 0.127 in 1998 to 0.425/1,000 patient-days/year in 2007, and candidemia increased from 0.065% to 0.155%. Overall, 59.0% of the nosocomial fungal episodes (1,565/2,651) were due to yeast, followed by *C. albicans* (24.8%), *C. tropicalis* (5.5%), *C. glabrata* (4.3%), *C. parapsilosis* (3.5%), and other *Candida* species (2.9%). By Chi-square test for trend, there were statistical differences among the annual infection rates $p < 0.001$. The most common organisms causing nosocomial fungemia were *C. albicans* (48.0%), there was significant increased ($p < 0.001$), but no difference in the annual infection rates between *C. albicans* candidemia with non-*C. albicans* candidemia $p = 0.43$.

Conclusions: These data suggest that, there was a steady increase in the frequency of isolation of nosocomial infection with fungus during the last decade, particular in urinary tract infection and blood stream infection. The incidence of candidemia was lower than those reported previously in North America and Europe, but the species distribution were similar to these studies.

USING GIS IN MAPPING, ANALYSIS AND EVALUATION OF HIV/AIDS OCCURRENCE PATTERNS IN THAILAND

Suwanee Adsavakulchai

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The occurrence spread patterns of HIV/AIDS varies from one geographic region to another and this has been attributed to the social, cultural and economic variations. One of the most challenging is the ability to determine the spread patterns. The main objective of this paper is to introduce the technique of Geographic Information Systems (GIS) in mapping, analyzing and its spatial distribution patterns of HIV/AIDS occurrence Patterns in Thailand.

ACTIVE SURVEILLANCE FOR METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) IN A TRAUMA INTENSIVE CARE UNIT (ICU): IT WORKS!

Barbara Catt, Sandra Callery, Mary Vearncombe

Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Background: MRSA is an important healthcare associated pathogen worldwide. In Canada, approximately 72% of the MRSA acquisitions occur in hospitals. MRSA infections in ICU settings are associated with higher morbidity and mortality rates, and healthcare costs. ² It is important to identify and contain transmission of MRSA, as soon as possible. Sunnybrook Health Sciences Centre (SHSC) is a large academic tertiary care centre. In 1999 an admission screening tool to capture patients at high risk for acquiring MRSA was instituted. ICU staff were instructed in the use of the MRSA screening tool and its application to all patients in their setting.

Purpose: To determine compliance with the completion of the MRSA screening tool and to monitor the incidence of MRSA in an ICU setting.

Method: Nose, perianal, wound and exit site swabs are obtained for MRSA from high risk patients, identified by the screening tool. MRSA positive patients and their contacts are placed on Contact Precautions. Cases were investigated to determine nosocomial acquisition that includes molecular typing. Periodic chart audits were performed for the completion of the MRSA screening tool. In 2005 staff education on the use of the screening tool was done and surveillance screening was incorporated into the physician orders upon admission. To determine overall prevalence of MRSA in the ICU the number of MRSA patient days was calculated for each year.

Results: Two chart audits were performed in 2004. Compliance with the completion of the screening tool was calculated at 22.2% and 38.2% respectively with 75% of the eligible patients not being screened. In 2005, compliance results increased to 83% and 5% of the eligible patients were not screened. The nosocomial rate of MRSA has continued on a downward trend from 1.54/1000 patient days in 2005 to 0.15 per 1000 patient days in 2007. The total number of MRSA days in the ICU for 2007 was 454.

Conclusions: MRSA control programs should include active targeted surveillance followed by the use of Contact Precautions for those identified as MRSA positive. Close monitoring of compliance with the screening tool is critical. Nosocomial acquisition for MRSA can be prevented during times of high prevalence of MRSA in the ICU setting by early identification and application of precautions. *Chosen as one of the six best abstract submissions

**Chosen as one of the six best abstract submissions*

THE USE OF CHLORHEXIDINE GLUCONATE DISPOSABLE CLOTHS TO REDUCE TRANSMISSION OF VANCOMYCIN RESISTANT ENTEROCOCCI ON TWO NEPHROLOGY UNITS

Deborah Hobbs, Sarah Forgie, Geoff Taylor, Rhoda Wiens

Infection Control Unit, University of Alberta Hospital, Capital Health, Edmonton, Alberta, Canada

Background: Transmission of antibiotic resistant organisms (AROs) is a growing global public health problem and is of particular concern for hospitalized patients. There had been an increase in new acquisition of Vancomycin resistant Enterococci (VRE) among patients in our nephrology units. Both nephrology units had VRE outbreaks in the previous two years which resulted in the units being closed to admissions for a period of time. Recent reports in the literature have described a reduction of environmental and healthcare worker contamination with VRE through the use of chlorhexidine gluconate (CHG) disposable washcloths to bathe patients. The reduction of VRE bio-burden achieved the goal of reducing transmission of VRE to other patients.

Objective: To determine whether bathing VRE positive patients with CHG disposable washcloths would decrease transmission of VRE to other patients on two nephrology units.

Method: In addition to our usual strategies used to prevent transmission of AROs (including active surveillance cultures) we instituted the use of 2% CHG disposable washcloths to bathe patients known to be colonized or infected with VRE. These VRE positive patients were bathed daily for one month or until discharge whichever was shorter with CHG disposable washcloths. Active surveillance culture studies of VRE negative patients for the presence of VRE were conducted before, during and after implementation of this practice.

Results: Data from the Infection Control database was analyzed for the two years prior to implementation of the CHG cloth bathing practice (January 1, 2005 to December 31, 2006) and one year after (January 1 to December 31, 2007), comparing the number of hospital acquired VRE cases per 10,000 patient days on the same units. The number of patients with hospital acquired VRE was 7/10,000 patient days in 2005 (9 cases), 8.5/10,000 patient days in 2006 (11 cases) and 2.9/10,000 patient days in 2007 (4 cases). A statistically significant decrease ($p = 0.05$) in hospital acquired VRE was noted for cases in 2007 compared to 2006. The data from 2007 when compared to 2005 was not found to be significant.

Conclusions: The use of 2% chlorhexidine gluconate disposable washcloths appears to have been associated with a reduction in transmission of VRE on inpatient nephrology units.

NETWORKING SURVEILLANCE OF CVC-RBSI IN CROATIAN ICUS

Smilja Kalenic, Jasminka Horvati, Vesna Tripkovic, Marija Medved, Dubravko Sijak

Reference Centre for Hospital Infections, Zagreb, Croatia

Background: Healthcare-associated infection control (HAI) in Croatia has started slowly three decades ago. After 1998 when first bylaw about HAI prevention and control was issued, this has become more organized and systematic. At the beginning of 2006, Reference Centre for infection control (RC) has performed a 6-month surveillance study of central venous catheter related bloodstream infections (CVC-RBSI) in intensive care units (ICU).

Method: A form for data collection based on NNIS definitions was prepared; nurses/physicians filled it locally and sent to RC, where data were filled into an EpiInfo-based program. This study included 10 out of 34 acute care Croatian hospitals.



Results: 1914 patients with 7315 CVC days and 8535 patient days were treated in these ICUs, with 21 CVC-RBSI recorded. Mean CVC utilization rate was 0.85 (range 0.44-0.94), and mean CVC-RBSI rate was 0.28 (range 0-9.25).

Conclusion: Ten hospitals were not fully comparable, but the comparison of the same ICU in time was very useful for local action. ICPs became visible in ICUs – very important for overall infection prevention and control. As this was first such surveillance in most of these hospitals, data about infection were not always fully reliable. Very high utilization rate was not in accordance with mostly very low infection rates (an indication that data were not always good). Furthermore, this study led us to network development, and from January 2007 we have continued to survey infections in 10 Croatian ICUs, inside European Union project of ICU infection surveillance.

VALUE OF A MULTI DISCIPLINE APPROACH TO CONTROLLING HOSPITAL ACQUIRED CLOSTRIDIUM DIFFICILE

Inez Landry, Shelita Dattani, Charlie Dickey
Queensway Carleton Hospital, Ottawa, Canada

Issue: Investigation of a cluster of Clostridium difficile (C.diff) Patients in the fall of 2004 alerted infection prevention and control staff to the fact that there was a problem with the amount of non critical patient care equipment that there was no routine cleaning practice identified with assigned accountability. The same patient cluster identified some high risk multiple antibiotic use in our medical and surgical patient population.

Project: A multidiscipline task team identified the patient care equipment being used and discovered that there was no routine consistent practice for cleaning between patients and therefore developed strategies to address problem. Antibiotic prophylaxis was researched and education sessions were given to the physicians by the Clinical Coordinator, Department of Pharmacy Services. There are multiple working groups that provided their expertise to different strategies

Results: Hospital Acquired rate per 1000 patients decreased from 4 in 2005/06 to 2.1 in 2006/07 and to 1.6 in 2007/08 to date.

Lessons learned: Multi strategies are important to decrease rates of Clostridium difficile infections. It is important to pilot some strategies before implementing hospital wide. Cleaning accountabilities are needed for non critical patient care equipment. Ward aide position added to patient care areas has been valuable in reducing hospital acquired infections. Pharmacy assistance with physician education on Antibiotic prophylaxis has made a difference in the right antibiotic being ordered for the correct amount of time. Antibiotic prophylaxis pre-op timing has also improved. Education on the importance of compliance with isolation procedures/processes needs to be reinforced annually.

OUTBREAK OF TOXIC ANTERIOR SEGMENT SYNDROME (TASS)

Melanie Barbacsy¹, Sherif El-Defrawy², Dick Zoutman², Sheryl Baker¹, Jean Richmond¹
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Issue: An outbreak of toxic anterior segment syndrome (TASS) occurred at this hospital over a 6-month period in 2006-2007. TASS is a noninfectious complication following cataract and anterior segment surgery. This non-infectious outbreak clearly demonstrated the importance of having a multidisciplinary outbreak investigation team, including Infection Control, as many areas were impacted.

Project: A retrospective review was completed and the following interventions were implemented to help control the outbreak. All medications used in eye surgeries were assessed and a new sterile topical anesthetic containing preservative was identified and immediately discontinued. A review of the Central Sterilization and Reprocessing department (CSR) revealed that a new enzymatic cleaning solution had been trialed and intermittently used in the ultrasonic cleaner during the outbreak. The solution was immediately removed from CSR. A review of proper handling and decanting of chemicals into the sinks and ultrasonic cleaners in CSR was completed. It was identified that the amount of chemical being used was not always accurately measured and that chemicals were also being improperly combined. This was corrected with education of the CSR staff. In reviewing the cleaning processes, a new policy was created requiring that the ultrasonic machine be drained and filled specifically for ophthalmic instruments and that the final rinse of these instruments be done with distilled water. Also, it was identified that two different types of Phacoemulsification hand pieces were being used at our facility but that only one flushing procedure was being used for both types. This practice was revised to be consistent with the manufacturers cleaning instructions for each individual hand piece.

Results: To date, no further cases of TASS have been identified. All cases of TASS had good outcomes (no vision impairment). This investigation allowed for an extensive review of CSR, resulting in a new ultrasonic cleaner, washer-disinfectant and reverse osmosis system being installed.

Lessons learned: The complexity of our TASS outbreak revealed that no single factor was the source. Numerous changes were required in order to halt the outbreak.

ANALYSE DE BESOIN DE FORMATION DES INFIRMIERS(ÈRES) EN PRÉVENTION ET CONTRÔLE DES INFECTIONS EN SOINS DE LONGUE DURÉE

Mylène Laberge-Homsy

Institut National de Santé Publique du Québec, Montréal, Québec, Canada

Problématique : Il est reconnue que les infections nosocomiales (IN) représentent une menace à la santé des personnes qui séjournent en CHSLD. La réduction du risque passe par des programmes de PCI avec des infirmières formées. Présentement, aucun programme de formation n'est dispensé par des maisons d'enseignement au Québec. Depuis 2005, l'Institut nationale de santé publique (INSPQ) offre une formation de base de 80 heures à toutes les infirmières qui travaillent en PCI au Québec. En raison, des problématiques spécifiques de la LD et des commentaires des participantes œuvrant en LD, l'INSPQ a décidé d'adapter une partie de la formation de base pour répondre à ce

besoins. Ce projet vise à connaître les besoins spécifiques de formation des infirmières en PCI de LD.

Project: Un questionnaire d'évaluation de besoin de formation a été développé à l'aide de la littérature et d'opinions d'experts. À l'aide du logiciel SurveyMonkey, le formulaire a été distribuée à toutes les infirmières du Québec ayant participées à la formation de l'INSPQ et travaillant en LD ou en courte et longue durée à la fois.

Résultats : Les infirmières en LD sont moins scolarisées que celles travaillant à la fois en CD et LD. Une importante proportion remplit d'autres fonctions que la PCI. Elles ne maîtrisent pas aussi bien toutes les habiletés requises pour travailler en PCI. La validation des résultats auprès d'infirmières en PCI de LD sera effectuée prochainement. La rédaction & diffusion des procédures, la surveillance, les mesures environnementales, l'éducation et la gestion des éclosions sont les domaines requérant plus de formation.

Leçons apprises: La formation devra se limiter à des notions de bases. Des situations pratiques pouvant se retrouver en LD sont essentielles. Des lignes directrices spécialisées au milieu de vie de la LD doivent être abordées.

CIC: A 350% INCREASE

Susan Cooper, Janet Allen

South Eastern Ontario Infection Control Network, Kingston, Ontario, Canada

Issue: In 2006 an informal survey, conducted by the South Eastern Ontario Infection Control Network (SEOICN), of infection control resources demonstrated that in southeastern Ontario there were only 4 certified (CIC) Infection Control Professionals (ICPs) practicing in our region. Although many non-certified ICPs were new to their current role, several met the qualifications required to write the exam.

Project: With successful certification as a shared goal, a study group, supported by SEOICN, and open to ICPs employed across the spectrum of care, was established to assist qualified candidates prepare for the certification exam. A group of 15, with diverse backgrounds and perspectives, met monthly from October 2006 through June 2007. Using the Certification Board of Infection Control (CBIC) handbook, the APIC study guide, and the expertise and experience of group members, sample questions were reviewed. Based on areas of study outlined in the CBIC test specifications, areas of weakness were identified and discussed

Results: Of 15 regular attendees, 10 attempted the exam within 6 months of study group completion. All 10 were successful and the number of certified ICPs in southeastern Ontario increased from 4 to 14, a 350% increase. Evaluations post study group showed attendees were motivated and benefited from working together. The study group provided encouragement and guidance, allowed networking and confidence development in a positive environment.

Lessons learned: The establishment of a regional CIC study group is an effective model for creating a supportive atmosphere for reviewing and understanding key infection prevention and control knowledge required for certification.

CENTRAL VENOUS CATHETERS IN A NEONATAL ICU – INFLUENCE OF TYPE OF CATHETER AND BIRTH WEIGHT

Lorraine Piché, Lyne St-Martin, Lina Moisan, Dorothy Moore

Montreal Children's Hospital, McGill University Health Centre, Montreal, Québec, Canada

Objective: Primary blood stream infections (BSI) are the most common infections acquired in neonatal intensive care units (NICU). Most are associated with central vascular catheters (CVC). Our objective was to determine if BSI rates differed by type of CVC used.

Methods: Prospective surveillance for CVC-associated BSI (C-BSI) and CVC use is routinely performed in our NICU. Data for the most recent 5 years were analysed. C-BSI rates were calculated per 1000 CVC-days and data stratified by birth weight group (BWG). Our NICU has no in-born neonates; most patients are referred in for surgery or other highly specialized care.

Results: There were 63 primary BSI: 43 associated with CVC, 2 with umbilical catheters (UC), 17 with peripheral catheters and one with no catheter. Overall C-BSI rate was 4.67. Rates for non-tunnelled CVC (NTCVC), peripherally-inserted central catheters (PIC), tunnelled CVC (TCVC), and UC were 7.47, 3.88, 3.98 and 0.98 respectively. The rate for NTCVC was significantly higher than for TCVC and PIC (p 0.037, RR 1.89, 95% CI 1.04-3.46) and for UC was lower than with other catheters (p 0.015, RR 0.20, 95% CI 0.05-0.76). Patients had 2 CVC simultaneously for 13% of CVC-days but no BSI during these periods. Parenteral nutrition (PN) was administered during 72% of CVC-days and all but one C-BSI occurred during PN administration. C-BSI rates were 5.1, 5.7, 4.8, and 4.5 for infants of BWG <1000 g, 1000-1500g, 1500-2500g, and >2500g respectively and did not differ significantly by BWG.

Conclusions: C-BSI rates were highest with NTCVC. Rates with PIC and TCVC did not differ. When need for long term vascular access is anticipated, especially for PN, PIC or TCVC should be considered. Stratification of C-BSI rate by BWG permits comparison with published benchmark data, but may not be the optimum marker of severity of illness in a referral NICU. Other markers of severity of illness may be needed.

HOSPITAL-ACQUIRED CLOSTRIDIUM DIFFICILE DIARRHEA: THE VIEW FROM PAEDIATRICS

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Objective: Hospital-acquired Clostridium difficile diarrhoea (CDAD) has been of concern in recent years because of increasing infection rates and dissemination of a hypervirulent strain. We describe CDAD in a paediatric hospital in a region experiencing epidemic CDAD in hospitals caring for adults.

Methods: Prospective surveillance for nosocomial infections is carried out in our paediatric tertiary care hospital using uniform case definitions and case finding strategies. C.

difficile toxin is detected by cytotoxin assay. Data from the past 10 years were analysed. **Results:** Pathogens were identified in 398 of 486 cases of nosocomial diarrhoea (ND) and included rotavirus 247 (51%), CDAD 156 (32%), other bacteria 3, other viruses 9, with 2 pathogens found in 17 cases. As children < 6 months old were only sporadically tested for CDAD, these children were eliminated from further analysis, leaving 144 cases of CDAD and 200 of other ND. Annual rates of CDAD ranged from 0.27 to 0.41 per 1000 patient-days, with no significant trend over the 10 years. Most cases were sporadic. Children with CDAD were older than those with other ND (mean age 87 vs 47 months, $p < 0.0001$, t-test) and more likely to have underlying chronic illness (69% vs 41%; RR 1.93; 95% CI 1.47-2.53; $p < 0.0001$, Mantel-Haenszel chi-square). The most frequent underlying illnesses were cancer and stem cell or organ transplant (58/100). Most illnesses were mild. There was one death, in which CDAD was assessed as a contributing but not a direct cause of mortality. No child required surgery.

Conclusion: We did not experience an increase in rate or virulence of CDAD. It is possible that children are less susceptible to CDAD toxin than adults, or that the hypervirulent strain has not spread in our hospital. The policy of placing all children with diarrhoea on contact precautions until an infectious cause has been ruled out may have contributed to a low rate of transmission.

THE MARK OF ZORO: AN INNOVATIVE MRSA ADMISSION SCREENING PILOT IN THE CALGARY HEALTH REGION

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Background/Objectives: Incidence rates of healthcare (HA) and community-associated (CA) methicillin-resistant *Staphylococcus aureus* (MRSA) continue to climb within the Calgary Health Region (CHR). Since 2003, rates of newly detected MRSA positive patients have increased from 2.2 to 9.4/10,000 patient days, and with the widespread emergence of CA-MRSA this rate is predicted to continue climbing. Universal admission screening has been suggested as a strategy to control MRSA, however is extremely resource intensive. Recently released Alberta Health and Wellness (AHW) Provincial MRSA Infection Prevention and Control (IPC) standards recommend implementation of a screening program which targets individuals who have been institutionalized for 24-48 hours in the past 6 months. A pilot project was carried out to assess the system impact and feasibility of a universal admission screening and suppression protocol on select units which would exceed the AHW standard.

Methodology: Two medical (one a mixed palliative/medical) and one surgical unit were selected at three sites. The pilot period was from August 1 to October 30, 2007. Admission screening cultures consisted of: a nasal culture, Z body culture of axilla and torso, and up to 3 wounds. All patients found to be MRSA positive were placed on Contact isolation and followed a suppression regime consisting of bathing/showering with chlorhexidine gluconate (CHG) sponge, or body wipes.

Results: The percent of eligible patients screened was high (range: 83% to 98%). Out of 929 admissions/transfers, 41 (4.4%) new cases of MRSA were identified. The patient population appeared to influence the percent of positives identified: 9.2% (22) in the palliative/medical population, 4.5% (11) in general medicine, and 1.8% (8) in the orthopaedic population. Forty four percent (18) of newly detected cases were considered CA and 41.5% (17) were considered nosocomial. Of the strains that underwent pulse field electrophoresis 29% were CMRSA 10 or 7. The highest yield combination of swabs was nasal and Z swab which detected 95% (39) of previously unknown MRSA positive patients. Costs associated with the pilot were substantial: lab costs of \$19,872, CHG product costs of \$4414, as well as those less easily measurable such as nursing and housekeeping time associated with increased isolation.

Conclusion: Given the current staffing shortages and capacity pressures in the CHR, implementing an admission screening program will be challenging. To maximize efficiency and foster sustainability, the process must be streamlined and screening efforts should be tailored to reflect the epidemiology of the population.

HAND HYGIENE CAMPAIGNS: HERE'S A HELPING HAND TO GET STARTED

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Issue: Hand hygiene campaigns have become an essential component of an infection control program. The implementation of a campaign can be a challenge to an infection control practitioner (ICP) in a solitary practice.

Project: Three of Newfoundland Labrador's four health regions independently initiated a hand hygiene campaign during the past year. While many of the educational initiatives were similar, development and implementation approaches, resources, issues and solutions varied. ICPs reviewed the processes and successes of the campaigns to identify conditions and strategies that were beneficial or detrimental to a campaign.

Results: The ICPs found that a successful campaign required a substantial time commitment from the ICP staff. A proposal that outlined the rationale, objectives and methods of the campaign facilitated implementation of the campaign in a timely manner, whereas the lack of a budget that clearly articulated the requirement for additional human resources was an impediment. All regions used a resource committee, with success highest when members were carefully chosen in order to provide administrative, communications and regional support. Audits provided value to the campaigns by having the presence and

commitment of the ICP recognized in the patient care areas. Additionally they generated "numbers" to show that the hand hygiene program had been beneficial in terms of increased compliance amongst staff. Canada's Hand Hygiene Campaign provided useful tools; the use of "pictures of hand hygiene champions" especially stimulated interest and participation amongst staff.

Lesson learned: A successful hand hygiene campaign involves more than having the right education tools. Careful planning, sufficient resources, and appropriate involvement of key players are "behind the scenes" factors that ICPs must take into account when planning their own campaign.

L'ART EN GESTION D'ÉCLOSION

Sylvie Demers, Chantal Soucy

Institut de Cardiologie de Montréal, Montréal, Québec, Canada

L'Institut de Cardiologie de Montréal (ICM), un centre hospitalier ultraspécialisé de 153 lits, est un chef de file au Canada et un partenaire respecté à travers le monde. Aussi, nombreux sont les échanges et les collaborations avec des centres universitaires américains et européens. Sa mission est d'offrir les soins tertiaires à la fine pointe de la médecine cardiovasculaire. Les soins, la recherche et l'enseignement constituent ses principales activités.

Les infections nosocomiales, ou infections acquises à l'hôpital, constituent une cause majeure de complications des soins en santé, d'où l'importance de la mise en place d'un programme structuré de prévention et contrôle de ces infections incluant la gestion des éclosons. En mai 2007, l'ICM fait face à une écloson d'entérocoque résistant à la vancomycine (ERV) sur l'unité de chirurgie de 53 lits dont 24 de soins intensifs.

L'objectif de cette présentation sera de vous faire partager notre expérience lors de l'écloson d'ERV. Nous vous présenterons, entre autre, nos mesures extraordinaires soit : notre système d'identification de la clientèle, la clef de notre réussite. Il sera aussi question des mesures de précautions additionnelles, du dépistage, des difficultés rencontrées et du rôle de l'infirmière en prévention des infections.

**Chosen as one of the six best abstract submissions*

EVALUATION OF MICROBIAL CONTAMINATION OF BONE MARROW HARVEST AT A PAEDIATRIC HOSPITAL

Krista Cardamone, John Doyle, Sarah Courtney, Jillian Bates, Donna Yates, Anne Matlow

The Hospital for Sick Children, Toronto, Ontario, Canada

Issue: SickKids performs approximately 12 bone marrow (BM) harvests a year in our Operating Room (OR). 41 harvests were performed from 2004-2007. An increase in the number of culture positive BM samples was noted over the 2006-07 fiscal year. From 2004-2007 the number of culture positive cases was 1/18 (6%) for 2004-05, 1/13 (8%) for 2005-06, and 5/10 (50%) for 2006-07. Of the 7 total positive samples, 6 yielded Coagulase negative staphylococcus and 1 *Corynebacterium*.

Project: Infection Prevention and Control (IPC) was contacted and invited to observe a BM harvest in the OR, focusing on any breaks in infection control practices that could lead to contamination of the product. Postoperatively, a collaborative meeting was held to review recommendations arising from our audit. These included: 1) Changing skin preparation from Betadine to Chlorhexidine 2%; ensuring that the skin prep is allowed to air dry for the appropriate time. 2) A preoperative bath with Chlorhexidine 4%. 3) Double gloving for the surgeons and the scrub nurses. 4) Wiping the top of the blood culture bottle with an alcohol wipe, and allowing it to dry, before injected the blood. 5) Limiting traffic to essential personnel only in the OR suite during set-up, as well as throughout the procedure. 6) Ensuring the bone marrow collection bag stays closed until the procedure begins, and that it is closed immediately after.

Results: Since the time these changes were implemented (May 2007), there has been no microbial contamination of BM in the 5 cases performed thus far in the 2007-08 fiscal year. **Lessons learned:** The main lesson learned was the value of firsthand audit of practice in order to detect subtle breaches that might contribute to microbial contamination. Another important lesson was involving all key stakeholders and working together as a collaborative group. We have used this multidisciplinary approach to create, implement, and sustain the interventions and practice changes. Our recommendations have been incorporated in the OR reference manual and all nurses who will be involved in BM harvesting must review the Policy and Procedure prior to participating in a case.

DEVELOPMENT AND IMPLEMENTATION OF A POST-C-SECTION SURGICAL SITE INFECTION SURVEILLANCE SYSTEM WITH EXCELLENT STAKEHOLDER ENGAGEMENT

Doreen Alexander, Andrea Currie, Man Fan Ho, Michelle Cuda, David Eisen, Bonnie Kerr, Lois MacInnis, Diane White, Kevin Katz

North York General Hospital, Toronto, Ontario, Canada

Issue: Our 430-bed community teaching hospital delivers 5,500 babies annually, of which 30% are delivered by caesarean section. Surgical site infections (SSI) following c-sections increase healthcare costs, cause morbidity and are often preventable. We describe the development and implementation of post-c-section SSI surveillance to determine the incidence of infections and direct prevention strategies with emphasis on stakeholder engagement to achieve success.

Project: Infection Prevention and Control provided strong support to clinical leaders from the Maternal Newborn Program (MNP) to develop and implement surveillance. We achieved consensus on the need for surveillance through retrospective review of Health Records data. We developed a surveillance plan through an iterative consultative process. We built data flow upon existing infrastructure to keep surveillance simple and acceptable to stakeholders. MNP champions introduced surveillance to their colleagues, encouraged in-hospital case reporting and six-week follow-up reporting by physicians and midwives, and provided feedback to improve surveillance.



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Results: Physicians and midwives completed surveillance forms for 745 (85%) of 872 c-section patients who delivered between July and December 2007. The incidence of infection was 8.1 cases per 100 c-sections. Excluding cases identified through outpatient surveillance, there were 2.7 cases per 100 c-sections. Surveillance findings were discussed at quarterly MNP Quality Council meetings.

Lessons learned: Engaging clinical leaders to take ownership of surveillance beginning in the planning phase led to 85% complete patient follow-up, ongoing collaborative discussions of findings and problem-solving to prevent infections. Most infections were identified through outpatient surveillance. The intensity of case-finding must be reported with infection rates to allow for valid inter-hospital comparisons and benchmarking.

SURVIVING THE STORM: FLOOD REMEDIATION IN AN RURAL HEMODIALYSIS UNIT

Sheila Havey, Janice Verch-Whittington, Nancy Kelly-Moore
Renfrew Victoria Hospital, Renfrew, Ontario, Canada

Our chronic Hemodialysis Unit is part of a regional dialysis program in a rural setting consisting of one main unit and two satellite units. The program includes hemodialysis, outpatient peritoneal dialysis, and a pre renal insufficiency clinic. The total number of patients undergoing hemodialysis is roughly one hundred although this number fluctuates. Stable patients can be dialyzed at the satellite units while those requiring closer monitoring are accommodated at the main site where two nephrologists are readily available. In the fall of 2007 the hemodialysis unit at the main site sustained major damage after freak weather conditions. While we were hopeful for a quick remediation and reconstruction turnaround time, the down time resulted in relocation of the unit from September 2007 until February 2008. Many challenges were encountered including the reorganization of patient and staff schedules and communication with personnel regarding project status. In addition the infection control issues related to mould remediation, the physical relocation of the unit and the reconstruction phase involved discussion and communication at several levels within the organization.

Our discussion will cover the impact on both personnel and patients, the process followed to resolve the flood damage, the reconstruction opportunities, and the educational hurdles. We anticipate lessons learned from this endeavour can be utilized in pandemic planning for this patient population.

APPLICATION OF A RAPID QUALITY IMPROVEMENT STRATEGY (KAIZEN) TO IMPROVE CLEANING OF INTRA-HOSPITAL TRANSPORT EQUIPMENT

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North York General Hospital, Toronto, Ontario, Canada

Issue: Regular cleaning of intra-hospital transport equipment (IHTE) is important in preventing nosocomial transmission of organisms. We identified this as a problem area at our 430-bed community teaching hospital.

Project: A multidisciplinary team was formed for a 5-day Kaizen event that was facilitated by a Lean Sensei. This involved mapping the "current state" process of IHTE cleaning. We identified inefficiencies through team observations and gap analysis, and subsequently designed a new "future state". We developed protocols for cleaning, designated areas for clean IHTE and made cleaning products more easily accessible. Education was provided to porters and volunteers to ensure clear understanding of the cleaning protocols. **Results:** On baseline observation, IHTE was cleaned 0 out of 8 times following patient use. Porters self-reported cleaning 100% of IHTE after use for patients who were on isolation. There were no standard expectations or protocols for IHTE cleaning and the porters were not aware that they had to clean IHTE after every patient use. Target compliance rate was set at 100% with at least 80% within two months of implementation of new cleaning protocols. Based on porter self-reporting and casual observations, this target was achieved within the first week and an audit at two months indicated 100% compliance (8 observations). Educational sessions and random compliance audits will be ongoing.

Lessons learned: This Kaizen event produced positive solutions quickly and effectively. Standard protocols and clarifying expectations for cleaning IHTE through education can lead to dramatically improved results.

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS ADMISSION SCREENING AT BC CHILDREN'S HOSPITAL

¹Jun Chen Collet, ²Lyslie Koch, ¹Bonnie Anderson, ¹Rita Dekleer, ¹Vicki Gagan, ¹Eva Thomas
¹PHSA Infection Prevention and Control Service, Provincial Health Service Authority, British Columbia; ²Department of Pathology and Laboratory Medicine, Children's & Women's Health Centre of British Columbia, Vancouver, BC.

Background: The increase of Methicillin-resistant Staphylococcus aureus (MRSA) (both community and hospital acquired) has been widely reported worldwide. Due to this increased awareness of MRSA colonization and infection, admission screening of high risk patients for MRSA becomes an appealing strategy to isolate patients in order to prevent subsequent nosocomial spread.

Objectives: This study is aimed to show the percentage of positive MRSA admission screening cultures among high risk patients admitted to BC Children's hospital over 2006/2007 and 2007/2008 periods.

Method: Data mining technique-crystal report (version Enterprise 11) was used for extracting all MRSA screening culture results from hospital lab system (MISYS). Information was obtained for two periods: 2006/2007 (May 19, 2006-March 31, 2007) and 2007/2008 (April 1, 2007-January 10, 2008). BC Children's Hospital MRSA screening policy applies to those admitted patients who meet the following two conditions: a) admit-

ted to any hospital other than Children's hospital, longer than 24 hours within the last 3 months; b) diagnosed with a multi-resistant organism, or so called "super bugs", MRSA or VRE. Two ratios and their associated 95% confidence interval (95% CI) were generated for each period: MRSA screening rate (the number of MRSA screening/total number of admissions) and MRSA screening positive rate (positive MRSA/positive MRSA + negative MRSA). Statistical software SPSS (version 15.0) was employed in this study for data management and data analysis.

Results: For period 2006/2007: 605 MRSA screening exams were done among 7727 inpatient admitted. The MRSA screening rate was 7.8% (605/7727; 95% CI: 7.2-8.5). The MRSA screening positive rate was 5.5% (33/605; 95% CI: 3.6-7.3). For period 2007/2008: 514 MRSA screening tests were performed among 6823 inpatient admitted. The MRSA screening rate was 7.5% (514/6823; 95% CI: 6.9-8.2). The MRSA screening positive rate was 4.3% (22/514, 95% CI: 2.5-6.1).

Interpretation/Conclusion: The MRSA screening results among high risk patients at BC Children's Hospital are stable over two consecutive periods, the slight decrease in MRSA positive screens in 2007/2008 was not statistically significant. These results may be affected by the compliance with the screening policy at the hospital.

USE OF GLOWGERM™ AS A QUALITY INDICATOR FOR ENVIRONMENTAL CLEANING PROGRAM

Jennifer Blue, Cindy O'Neill, Paul Speziale, Jeff Revill, Lee Ramage, Lisa Ballantyne
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Background: Healthcare associated infections (HAI) due to antibiotic resistant organisms are increasing in Ontario. Environmental cleaning plays a key role eradicating resistant organisms that live in hospital environments in help reduce HAI by. Environmental cleaning practices on an Orthopedic Unit were reviewed along with hand hygiene and equipment disinfection following an outbreak of vancomycin resistant Enterococcus (VRE) which can live in the environment for a long time. These findings lead to a hospital wide cleaning improvement initiative using Glowgerm™, a chemical that fluoresces under a UVA lamp. The Glowgerm™ product was employed by Infection Control and Customer Support Services (CSS) as a tool to evaluate daily cleaning of patient washrooms as well as discharge cleaning of isolation rooms on all units except ICU/CCU/ER at Hamilton Health Sciences (HHS)-Henderson site.

Method: Over a four-week period, the Glowgerm™ product was applied to 7 frequently touched standardized targets in randomly selected patient bathrooms on each unit and 14 frequently touched targets in isolation rooms prior to cleaning. The cleaning was evaluated the following day using the UVA lamp to detect targets that were not cleaned. Results were recorded on a standardized form.

Results: The rate of targets cleaned versus targets missed were calculated. The overall rate for daily cleaning of bathrooms and discharge isolation rooms was poor (73% targets missed). Based on these findings, several interventions were implemented based on contributing factors. Among these were increased formal infection control education and practical environmental exercises using Glowgerm™. A significant improvement in cleaning was observed in subsequent evaluations.

Conclusion: Glowgerm™ is an effective tool to evaluate environmental cleaning and adherence to policy/procedures and was superior to visual evaluation methods. The use of Glowgerm™ improved cleaning and enhanced staff contribution. The Glowgerm™ product was incorporated into the CSS environmental cleaning program as a quality indicator to monitor environmental cleaning process.

POSTER PRESENTATIONS

WEDNESDAY, JUNE 4, 2008

Final Schedule will be published in the Conference program.

RAPID CONTROL OF MRSA OUTBREAK IN A MEDICAL SURGICAL INTENSIVE CARE UNIT (ICU)

Anjum Khan, Marianita Lampitoc, Maryam Salaripour, Patricia McKernan, Roslyn Devlin, Matthew Muller
St Michael's Hospital, Toronto, Canada

Background: Outbreaks of MRSA in ICU are often prolonged, difficult to control, and result in significant morbidity and mortality. We describe the control of an MRSA outbreak in a 24 bed open concept medical-surgical ICU through early detection and the stepwise addition of infection control measures.

Objective: To describe the epidemiology and control of an MRSA outbreak in our Medical Surgical ICU.

Interventions: Our infection control policy mandates an outbreak investigation if 2 hospital-acquired MRSA cases are identified in an ICU within a 4 week period. In July 2007, MRSA was identified in the sputum of 2 patients within a 1 week period. Screening of the ICU identified 1 additional case and a fourth case was identified from a clinical specimen before control measures were implemented. Initial control measures included healthcare worker education, enhanced surveillance (i.e. screening of ICU admissions and discharges and weekly screening of the ICU), cohorting, and enhanced environmental cleaning. Despite these measures, 3 more cases occurred. All patients were then placed in contact isolation, healthcare workers were screened for MRSA and the nursing staff was cohorted. After 2 weeks without a case, 2 additional cases were identified. Decolonization of all MRSA positive patients was initiated. No further cases occurred over a five week period and the outbreak was declared over.

Results: The baseline MRSA acquisition rate in our medical-surgical ICU is 1.5 cases per 1000 patient days (~10 cases/year). The outbreak resulted in 9 cases of MRSA colonization (n=8) or infection (n=1) over an 11 week period. Colonization was identified from sputum (7/9), nares (2/9) or perianal specimens (2/9) and 3/9 patients were colonized at multiple sites. Strain typing using PFGE indicated that 4/4 initial cases, but only 2/5



subsequent cases were colonized with the outbreak strain. Only 1/175 healthcare workers screened was colonized with MRSA but it was not the outbreak strain.

Conclusions: Early detection and the stepwise addition of infection control measures resulted in the rapid control of an MRSA outbreak in our medical-surgical ICU without unit closure. A low threshold of suspicion and the rapid initiation of unit wide MRSA surveillance were the key steps in limiting the size of the outbreak. Despite enhanced infection control measures, MRSA transmission involving 3 different strains persisted, suggesting intermittent breakdowns in infection control practice. Complete cessation of transmission required the initiation of MRSA decolonization for all MRSA positive patients.

DECREASING THE RATE OF HEALTH CARE ACQUIRED CLOSTRIDIUM DIFFICILE ON A HOSPITAL UNIT

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Background: Regular surveillance of the HA rate of C.diff showed an increasing rate beginning in Q3 of 2005/06 fiscal year. The rate was increasing from around 3/1000 admissions per quarter to as high as 14.5 in Q4 of 2006/07. The majority of the increase occurred on one particular unit. This increase coincided with the NAP1 C.difficile outbreak in Montreal hospitals. An interdisciplinary team approach was used to reduce the escalation of HA C.difficile on the unit.

Purpose: To develop a sustainable, systematic approach to reduce the rate of Health Care Acquired C.difficile on a hospital unit.

Method: A team was formed to develop an interdisciplinary approach to resolve the increasing rate of C.difficile. The team was comprised of pharmacy, environmental services, management, front line staff infection control staff, and Chair of the Infection Control Committee. In Q2 2006/07 a letter went out from the Infection Control Committee to physicians requesting prudent use of all antibiotics and that they consistently noted the indication for antibiotics when ordered. In Q1 2007/08 the medical unit was targeted with a concerted effort around cleaning the unit and all equipment. Another approach in the cleaning was to switch to a 1:10 bleach solution as recommended in the PIDAC Best Practices Document for C.difficile. In Q1 2007/08 an additional Infection Control Professional was hired and began an intense education program for the staff on the unit, reinforcing the importance of hand hygiene, appropriate use of PPE and an understanding of how transmission occurs through shared equipment.

Results: In the time frame between Q3 2005/06 and Q1 2007/08 the rate of HA C.difficile continued to rise at a steady rate. In Q2 2007/08 the rate began to decline. In Q3 2007/08 the rate had declined to 3.1/1000 admissions.

Conclusions: An interdisciplinary approach is effective to decrease the rate of HA C.difficile. A multi prong approach including hand hygiene education, improved use of PPE, improved unit and equipment cleaning and prudent antibiotic use is effective in reducing the rate of HA C.difficile. Over time, with regular in servicing, the behaviors of staff regarding hand hygiene and PPE do change. The sustainability of these changes will be reviewed quarterly

UTILIZATION OF A KAIZEN (RAPID IMPROVEMENT) PROCESS TO IMPROVE THE CLEANING OF SHARED EQUIPMENT

Diane White, Scott Lewis, Alfred Ng, Elena Holt, Esther Rupnarain, Kevin Katz
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Issue: Routine Practices is the cornerstone of good infection control practice. Nonetheless, compliance with cleaning of non-critical shared equipment between patients remains suboptimal.

Project: A four-day rapid improvement project was undertaken to determine incentives and barriers to cleaning equipment such as blood pressure machines between patients. A multi-disciplinary team was created which determined the current state process and designed the new 'future state' process. The manager of IPAC and the unit manager jointly championed the project. Accountabilities were clarified and job descriptions were updated for all unit staff. The outcome metrics for monitoring improvement are listed in the table below.

Results: Baseline data showed poor compliance with cleaning equipment, and no identification of clean vs. dirty equipment. After the improvements were implemented, compliance improved substantially. It became clear that the accountability for cleaning of commonly used non-critical patient care equipment required clarification. The metrics were determined at periodic intervals post-intervention (see table).

Lessons learned: Infection prevention and control improvement projects have improved success rates when the project is 'owned' by the unit involved. Monitoring the usage of disinfectant wipes is also valuable in determining areas of low usage requiring intervention.

THE ATTRIBUTABLE MORTALITY AND COST-OF-ILLNESS OF NOSOCOMIAL INFECTION IN INTENSIVE CARE UNIT

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Objective: To evaluate the association between nosocomial infections (NIs), attributable mortality and costs in patients admitted into intensive care units (ICUs).

Methods: Three-year prospective study was carried on three types ICU (medical ICU (MICU), surgical ICU (SICU), and mixed medical and surgical ICU [MSICU]) at a tertiary referral medical center.

Results: Four hundred and one NIs occurred in 320 of 2,757 screened patients. The incidence rate was 12.1% in MICU, 14.7% in SICU and 16.7% in MSICU (p.005). The most frequent NIs observed were BSI 33.9% in MICU, RTI 35.6% in SICU and UTI 33.8% in MSICU. Urinary tract infection (UTIs) and surgical site infections (SSIs) had statistically significant differences (p.001) among ICUs. The likelihood of death occurring in a MICU

was 1.67 times (95% CI 1.28-2.17, p.001) that of SICU and 1.28 times (95% CI 1.00-2.64, p.048) that of MSICU. By multiple regression, the excess variable costs for each NI in overall ICUs was: BSI (US \$2,926, p.001), RTI (\$2,415, p .001), SSI (\$2,177, p= .040), and UTI (\$474, p.494). BSI (\$10,158, p.001) in SICU and RTI (\$5,860, p.001) in MSICU had a significant increase in the costs.

Conclusions: Nosocomial infections were not significantly differently associated with increased mortality after adjusting for covariates. Most NIs were associated with a significant expenditure burden.

Metric	Pre Kaizen Ave.	2 Weeks Post Kaizen	3 Months Post Kaizen
% of equipment cleaned after use	20%	60%	100%
# of times 'dirty' equipment touches a patient before being cleaned	8	2	0
# disinfectant wipe containers used per month	63	N/A	94

CLOWNS FOR STAFF EDUCATION? ARE YOU SERIOUS?

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¹Calgary Health Region, Calgary, Alberta, Canada, ²University of Calgary, Calgary Alberta, Canada

Issue: The Hand Hygiene Group (HHG) of Calgary Health Region Infection Prevention and Control (IPC) team has promoted improved hand hygiene practice with novel forms of staff education such as "Bugs on the Run" skit with professional actors. The HHG utilized a clown presentation to deliver hand hygiene (HH) messages.

Project: Two clowns were utilized in this endeavour. One was a professional clown who practiced therapeutic clowning at a pediatric hospital; the other was an amateur. The clowns developed their own 10 minute presentation from a creative brief given to them by HHG. Nursing units were given advanced notice of clown visits. Accompanied by an ICP, the clowns visited nursing units in 3 adult acute care urban hospitals, a pediatric hospital, continuing care centres, home care, and rural health centres and hospitals.

Results: About 66 presentations were conducted. Staff surveys of urban acute care staff following the presentations indicated 14% of staff surveyed saw the clowns, and of those 30% were more aware of HH messages. Impact of the clown presentations was less than the impact made with the "Bugs on the Run" skit. Thirty percent of staff saw the actors and of those, 82% reported that they were more aware of HH messages. Some Infection Control Professional (ICP's) stated they were uncomfortable when they started with the professional actors but their comfort level increased as they saw the interaction between the staff and the actors. However, with the clowns their comfort level remained low.

Lessons learned: 1) Professional clowns may be more effective in some areas than others. 2) ICP input is important in the preparation of the presentation to ensure quality content. 3) ICP acceptance of a novel education approach is paramount in promotion of that endeavour. 4) Clown performances to deliver hand hygiene messages may be more effective during seminar, education days or for informal greetings in public spaces, such as facility lobbies. 5) Staff discomfort with clowns may have a negative influence on performances and therefore influence the effectiveness of the education message. While the use of clowns was not deemed a success in our Region, there were several lessons learned. Experimentation with novel education approaches involves the willingness to risk and to learn from that risk whether or not the endeavour was successful.

THE EFFECT OF PATIENT AND FAMILY EDUCATION ON HEALTHCARE WORKERS' COMPLIANCE WITH HANDWASHING

Kathy McGhie², Romina Reyes¹, Natalie Goertz², MaryLou Card², Zafar Hussain², Michael John¹

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Background: Effective hand hygiene by healthcare worker's (HCWs) is central to prevention of hospital-acquired infections. In spite of many studies to support this, non-compliance with hand hygiene is still a significant challenge in the hospital setting. Empowering patients to remind health care workers to wash their hands has been shown to increase hand hygiene adherence by HCWs.

Objectives: To investigate whether patient and family education results in an increase in hand hygiene compliance among health care workers (HCW).

Methods: An audit of HCW hand hygiene compliance was completed using a tool developed and validated in our institution. The study was performed on an orthopaedic, a respiratory/medicine ward and a dialysis unit in a teaching hospital in London, Ontario. Family and patients were educated regarding indications for, and the importance of HCW hand hygiene compliance. The educational intervention involved a teaching session by the study nurse and provision of a pamphlet that had been developed for this purpose. Patients and families were asked to remind staff to perform hand hygiene. This intervention was provided for one month and following a second month where no intervention took place, a second audit was conducted.

Results: The first hand hygiene audit indicated compliance rates for orthopaedics of 41.6%, respiratory/medicine 30%, and dialysis 40%. Following the educational campaign regarding patient awareness of hand-hygiene the overall compliance rates of hand-hygiene at our

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centre significantly increased from 37 to 54% (p-value 0.005). Overall, the trend was due to increased hand-hygiene compliance in all HCW groups. In both study periods hand hygiene after completion of care was significantly associated with hand-hygiene compliance.

Conclusions: Education of patients and families appears to increase HCW hand hygiene compliance, however, whether this is due to patients/families reminding staff or from simply creating heightened awareness of hand hygiene on the units is unclear and will require further study. The finding that hand hygiene after completion of care was significantly associated with hand-hygiene compliance indicates that there is opportunity for education of our staff regarding opportunities for hand hygiene.

MANAGEMENT OF AN OUTBREAK OF METHICILLIN SENSITIVE STAPHYLOCOCCUS AUREUS (MSSA) IN A NEONATAL INTENSIVE CARE UNIT (NICU): SPACE AND DESIGN DO MATTER

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Background: Our facility is the designated tertiary care perinatal center for Eastern and South Eastern Ontario, Western Quebec and Baffin Island, with a combined level 2 and level 3 NICU. We investigated and managed an MSSA outbreak in the NICU between Oct 2007 and Feb 2008.

Methods: Cases were defined as neonates infected or colonized with *Staphylococcus aureus* (SA) since October 1, 2007. Prevalence screens of asymptomatic neonates were performed on 7 occasions between December 20 and February 19. NICU staff were screened for nasal SA carriage. Pulsed field gel electrophoresis (PFGE) analysis was performed on all SA isolates. Hand hygiene education was provided to the staff. Environmental cleaning and respiratory therapy protocols were reviewed to identify potential breaches in infection control. Space allocation within the NICU was assessed and compared to current design guidelines.

Results: A total of 26 infants were positive for SA (11 infected, 15 colonized) during the study period. 45/127(35%) of the staff were positive for SA. PFGE analysis identified 2 outbreak strains, which accounted for 82% of the infant isolates and 34% of the HCW isolates. Multiple control measures were put in place including cohorting of positive infants, educating staff about hand hygiene, providing decolonization therapy for colonized staff and enhancing environmental cleaning. The unit was closed to new admissions for a 2-week period. The median occupancy rate during the outbreak was 23 (range 15 - 30). The NICU has 26 designated spaces divided in 3 main rooms, providing an average of 89 square feet (range 75-118) per designated space. However, the number of infants in rooms A and B exceeded the number of designated spaces 19% and 44% of the time. On reopening the unit, admissions were limited to the number of designated spaces. There have been no further infections identified since January 25 2008.

Conclusion: The unit's design and high occupancy level were barriers to optimal cohorting of infants and contributed to overcrowding, which facilitated transmission. A minimum of 120 square feet should be provided for each infant to meet current guidelines and the number of admissions should be limited to the number of designated bed spaces.

HAND HYGIENE COMPLIANCE IN NON-ACUTE CARE SETTINGS

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¹St. Joseph's Health Care, London, Canada, ²London Health Sciences Centre, London, Canada, ³McMaster University, Hamilton, Canada

Background/Objectives: To determine hand hygiene compliance of staff in non-acute care settings associated with St. Joseph's Healthcare in London, Ontario.

Methods: A prospective, observational study was conducted. A nursing student performed hand hygiene observations at 3 non-acute care facilities, with a total of 890 beds. Observations of staff were conducted using a previously validated instrument, over a 2 month period from May to June 2007, in the morning and afternoon hours. Opportunities for hand hygiene included before and after providing patient care; before performing invasive procedures and when moving from 'dirty to clean.' Compliance with hand hygiene was recognized as either the use of soap and water or alcohol based hand rubs. Glove use in place of hand washing was recorded, but regarded as non-compliance.

Results: A total of 1480 opportunities and 380 compliances for hand hygiene were observed, resulting in a rate of 25.7%. Staff compliance was highest for nursing at 27.2%. Hand hygiene was poorest before providing patient care at 7.1% and highest after or between care at 37.7%. Alcohol based hand rub was used in 49.7% of the compliances. Gloves in place of hand hygiene occurred 15.1% of the time.

Conclusions: Hand hygiene compliance in non-acute care settings is poor and findings are lower compared to previous observations at acute care facilities in London, although the use of alcohol based hand rubs was higher. Interventions to increase awareness and knowledge concerning the importance of and the opportunities for hand hygiene are needed for all staff.

MANAGING A METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) OUTBREAK ON A SPINAL CORD REHABILITATION UNIT IN A NON-ACUTE CARE SETTING

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London Health Sciences Centre, London, Ontario, Canada

Background: Parkwood Hospital, St Joseph's Health Care London Ontario, is a 499-bed hospital offering complex care, veterans, and specialized rehabilitation programs. Within the rehabilitation program, a 33-bed unit provides services for spinal cord, acquired brain injury and amputee patients. In September 2007 a cluster of 3 nosocomial MRSA infections were identified in spinal cord injury patients, prompting an investigation.

Objective: To identify outbreak management strategies and factors that contributed to

MRSA transmission in this unique non-acute care setting.

Methods: Investigation methods included: 1) molecular typing of MRSA isolates 2) review of therapy practices 3) an environmental audit 4) additional precautions audit. Outbreak management strategies included 1) weekly prevalence screening to identify further cases 2) patient co-horting 3) decolonization of all MRSA positive patients with 2% chlorhexidine washes and nasal mupirocin 4) enhanced environmental cleaning with accelerated hydrogen peroxide 5) increased point of care alcohol hand rub.

Results: Weekly prevalence screening identified 5 additional nosocomial cases of MRSA. Molecular typing identified a common outbreak strain. Five of the 7 MRSA positive patients remaining on the unit and screened at one-month post treatment had successfully decolonized. Improved cleaning for shared patient equipment and increased accessibility of alcohol hand rub before patient self-catheterization was felt to be instrumental in controlling transmission.

Conclusions: Current literature describes outbreak management interventions primarily for acute care settings. Our challenge was to adapt these to a non-acute care rehabilitation setting. Molecular typing of MRSA isolates was valuable in identifying a common strain. Implementation of a new decolonization protocol was unique for this outbreak

COLCHESTER EAST HANTS HEALTH AUTHORITY INFECTION PREVENTION AND CONTROL QUICK REFERENCE CARD

Jan-Marie Dearing

Colchester East Hants Health Authority, Truro, Nova Scotia, Canada

STANDARD PRECAUTIONS/ROUTINE PRACTICES FOR INFECTION CONTROL

Hand Hygiene: Before & after contact with patient/body fluids/contaminated items; after glove removal.

Gloves: Wear for contact with body fluids, mucous membranes, non intact skin and contaminated items. Change between care activities. Wear when HCW has open skin lesions on hands. Wear when handling sharps.

Gown, Mask, Eye Protection, Face Shield: Wear if splashes of body fluids likely or if body fluids/excretions are likely to soil skin, mucous membranes, or clothing.

Patient Equipment & Linen: Handle in a manner that prevents transfer of microorganisms to others and the environment. Clean/reprocess reusable equipment between patients.

Environmental Control: Follow hospital procedures for appropriate disinfection of environmental surfaces, patient furniture, and equipment.

Needles and Other Sharps: Do not recap or hand-manipulate used needles; use safety features when available; place used sharps in puncture-resistant container. Wear gloves when handling sharps.

Patient Resuscitation: Use resuscitation devices as an alternative to mouth-to-mouth resuscitation.

Patient Placement: Use private room for a patient who soils environment, is unable to maintain hygiene, or who is at risk of transmission or acquiring infection. [CEHHA Infection Prevention and Control Sept. 2005]

ASSESSMENT OF INFECTION CONTROL PROGRAM NEEDS FOR A LARGE AMBULATORY CARE CENTRE

Kingsbury L*, Scharf S*, Fujii R, Zhao K, Newton A, Kidd C, Yassi A, Bryce E

Background: A large new private/public/academic (3P) ambulatory care centre was opened adjacent to a tertiary care centre. A project was undertaken to assess the infection control (IH) and occupational health (OH) needs for this unique partnership prior to developing recommendations for a sustainable joint program.

The research questions were: What are the IH and OH safety needs? What are the gaps between IC and OH needs and current service? How are the service gaps best addressed?

Methods: A literature review provided little assistance in developing a 3P program for ambulatory care. Key informant interviews were employed to develop a process for implementing an IC/OH program.

Results: Key informant interviews identified a need for resources and procedures for sterilization and disinfection in physicians' offices, assistance in establishing a joint OH/IC committee, signage, workplace violence, and infection control education particularly on antibiotic resistant organisms. The results of the key informant interviews were used to refine two assessment tools: a Health and Safety Questionnaire (staff survey) and Workplace Inspection Tool. The implementation of these tools will assist in identifying the patient population, procedures being performed, services provided and IC/OH needs. A communication strategy was developed to ensure that all employees and services (public, private and academic) were included.

Conclusions: The key informant interview questionnaire, staff survey and workplace inspection tool are useful tools in identifying OH and IC deficiencies, service requirements and will assist in prioritizing implementation of program elements.

Support: Vancouver Coastal Health, CIHR/MSFHR Training Program Grant in Partnering in Community Health Research.

INFECTIONS DU SITE CHIRURGICAL (ISC) POST CÉSARIENNE: QUELLE MÉTHODE DE SURVEILLANCE CHOISIR?

Joëlle Adib

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Problématique: On assiste à un mini «baby-boom» au Québec, avec une augmentation des césariennes. À l'hôpital Royal Victoria (HRV), un centre hospitalier universitaire de Montréal, 3 738 accouchements ont eu lieu durant l'année financière 2005-2006, dont 990 (26,5 %) par césarienne. Or, il n'y a pas de surveillance des ISC post césarienne à l'HRV et la déclaration par les obstétriciens des ISC n'est pas constante. Par ailleurs, il y a eu 12 réhospitalisations post césarienne durant l'année mentionnée, sans diagnostic précis qui

permette au service du contrôle de la qualité de les coder. La surveillance rétrospective de ces réhospitalisations, par révision des dossiers (phase 1 du projet) a décelé 11 ISC.

Projet: Pour déterminer quelle méthode de surveillance des ISC post césarienne serait efficace et facile à appliquer, une surveillance prospective (phase 2) a été menée sur 66 patientes (date prévue d'accouchement entre le 16 février et le 16 mars 2007). Trois méthodes ont été utilisées : distribution d'un feuillet d'information aux patientes pré accouchement, pour auto-déclaration, révision des dossiers et relance téléphonique au 30e jour.

Résultats: 52 patientes ont accouché entre le 16 février et le 16 mars, 17 par césarienne (32 %). Deux ISC post césarienne (11,76 %) ont été identifiées, une grâce à la relance téléphonique, l'autre par la révision du dossier.

Conclusion: L'implantation d'un programme de surveillance des ISC post césarienne est recommandée, compte tenu des résultats. Cependant, la consultation des dossiers et la relance téléphonique requièrent beaucoup de temps et de ressources, étant donné le grand nombre de césariennes et le feuillet d'information pré accouchement n'est pas utile, car les patientes ne s'en souviennent pas. La méthode de surveillance la plus efficace pourrait être la distribution d'un feuillet d'information aux patientes post césarienne, accompagné d'un bref enseignement fourni par une infirmière de prévention et contrôle des infections, avant le congé, sur l'unité de post partum et qui fait appel à l'auto-déclaration. Evaluation of 2% chlorhexidine gluconate (CHG) impregnated cloths in decreasing nosocomial

EVALUATION OF 2% CHLORHEXIDINE GLUCONATE (CHG) IMPREGNATED CLOTHS IN DECREASING NOSOCOMIAL MRSA, VRE AND CDAD IN THE RENAL INPATIENT AND RENAL TRANSPLANT UNITS

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Calgary Health Region, Calgary, Alberta, Canada

Background: Clusters of new MRSA, and sporadic new cases of VRE and CDAD in Jan-Mar 2007 prompted the trial of CHG impregnated cloths as an additional measure to reduce nosocomial transmissions in the renal units. Pre-trial period: Apr-Jul 2007. Trial period: Aug 2007-Mar 2008.

Methods: All patients were screened (nasal, rectal, wound/drainages) upon arrival to the unit for MRSA and VRE carriage. Patients who screened negative on admission were re-screened every 14 days until discharged or death. Known positives were re-screened monthly. Decolonization was not performed. Patients who reverted spontaneously to negative were re-screened twice, one week apart, to confirm negative status. Once negative status was confirmed, patients were re-screened every 14 days until discharged or death. During the trial period, SAGE 2%CHG cloths were applied once daily for all positive patients from chin to toe. Linen and clothing were changed after each application. In addition, 2%CHG cloths were used to clean (final wipe) the perineum for CDAD and/or MRSA, VRE patients with diarrhea. Linen and clothing were changed if soiled.

Results: There appears to be a trend of overall reduction of new nosocomial MRSA, VRE and CDAD. Overall new nosocomial rate per 1000 patient days decreased from 4.0 in the pre-trial period to 2.4 in the trial period. (MRSA decreased from 0.5 to 0.1, VRE decreased from 2.2 to 1.8, CDAD decreased from 1.2 to 0.6). Approximate cost of SAGE 2%CHG cloths was \$18520. Majority of the staff agreed the SAGE 2%CHG cloths were appropriately packaged, adequate for bathing and fragrance free. Six of 27 evaluations reported skin irritation in patients with abrasions or rashes.

Conclusions: The SAGE 2% cloths appear to contribute to decreasing nosocomial transmission of MRSA, VRE and CDAD. Since the rate of new nosocomial cases was low in the pre-trial period, it is difficult to show that 2%CHG cloths have significant effect in decreasing MRSA and VRE transmissions. The use of the cloth is acceptable to staff and patients in general. Product cost is not insignificant and must be offset by preventing potentially costly infections.

INFECTION PREVENTION AND CONTROL (IPC) IN ALBERTA

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Alberta Health and Wellness, Edmonton

Issue: Alberta is developing a provincial approach to IPC. The process for undertaking such an endeavour includes strategy development and setting standards to support consistency in IPC practice. Concerns regarding the sterilization of instruments at a hospital and in a physician's clinic, prompted infection prevention and control (IPC) actions across the system.

Project: An investigation by the Health Quality Council of Alberta, and an Alberta Health and Wellness review of provincial IPC policies, practices, and procedures, identified variation in IPC policies and practices throughout the province. Findings indicated a need for provincial IPC standards. The Minister directed Alberta Health and Wellness to include standards in the IPC Strategy, which was already in development.

Results: The IPC Strategy, accompanied by the Alberta Hand Hygiene Strategy and four infection control standards, were released in January 2008. The standards are: 1) Infection Prevention and Control Accountability and Reporting; 2) Cleaning, Disinfection and Sterilization of Reusable Medical Devices for all Health Care Settings; 3) Standards for Single-use Medical Devices; and 4) Standards for Prevention and Management of Methicillin-Resistant Staphylococcus aureus (MRSA) in Health Care Settings. Implementation plans for the IPC Strategy and the Alberta Hand Hygiene Strategy are being developed.

Lessons learned: Consistent practices across the province's health regions are desirable to prevent and manage health care-associated infection. One lesson learned is that despite the existence of national and provincial guidelines such as the Canadian Standards Association (CSA), Health Canada guidelines, and Ontario Best Practices for Cleaning, Disinfection and Sterilization, health organizations and professions need and benefit from a province-led focus on IPC practices. The provision of health care occurs in multi-disciplinary environments and wide-ranging facilities. Ongoing communication and consultation is required to facilitate successful standard development and implementation across the spectrum of health care.

PRATIQUES DE BASE ET PRÉCAUTIONS ADDITIONNELLES ; TESTEZ VOS CONNAISSANCES PAR LE BINGO!

*Johanne Gagné, Sylvie Goulet, Myriam Lalonde et Pauline Laplante

Problématique: L'évolution des soins en milieu hospitalier demande une constante mise à jour des nouvelles méthodes de soins reliées à une technologie développée et fascinante. L'équipement informatique et les appareils électroniques à usages multiples par exemple facilitent à bien des égards la qualité des soins et permettent de sauver du temps. Dans un contexte semblable, comment est-ce possible de capter l'intérêt du personnel hospitalier en regard des pratiques de base et des précautions additionnelles ? Ces « concepts » de base reliés à la prévention des infections doivent être enseignés en un premier temps, puis rappelés de façon régulière au fil des problématiques quotidiennes. De quelle manière peut-on offrir une mise à jour des connaissances en suscitant l'intérêt des participants sur un sujet maintes fois abordé ? Inspiré de quelques textes sur le changement de comportement des travailleurs de la santé en regard de maladies respiratoires transmissibles et plus particulièrement d'un article sur les exigences à rencontrer en éducation mais de façon créative, l'idée d'adapter un projet de Bingo présenté dans cet article a donc été retenu.

Projet: Développer les outils pour offrir une mise à jour des connaissances en regard des pratiques de base et précautions additionnelles aux infirmières et aux préposés aux bénéficiaires. Les objectifs sont de revoir les éléments de la chaîne de l'infection, l'application des pratiques de base dans les activités courantes d'une unité de soins, les principes d'asepsie lors de soins, les précautions additionnelles et leurs applications, l'étiquette respiratoire, les outils disponibles en prévention des infections et la bonne technique de mise et de retrait de l'équipement de protection. La méthode proposée est donc interactive sous forme de jeu.

Résultats: Trois cartes comprenant douze questions chacune ont été réalisées et pour soutenir les informations ou indications à transmettre, des images ou photos en format Power Point ont été préparées. Pour l'ensemble des trois hôpitaux du Centre hospitalier de l'Université de Montréal (CHUM), 1000 personnes ont participé au Bingo !

Conclusion: L'apprentissage sous forme de jeu est stimulant pour le personnel. La méthode interactive permet de capter l'attention et l'intérêt du personnel de soins, ce pour les trois horaires de travail.

**WHAT ARE YOU MISSING?
 AUDIT OF MICROBIOLOGY RESULTS AND DOCUMENTATION STANDARDS ON ADMISSION SCREENING FOR METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) AND VANCOMYCIN-RESISTANT ENTEROCOCCUS (VRE)**

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Issue: In a follow up to the November 2006 audit in which the potential problem was identified that staff may be focusing on the nares/perirectal sites when doing MRSA screening and not swabbing open areas and devices. It was noted that if sites were being missed when following up known carriers, it was likely that they were missed during admission screening. Documentation standards were poor and did not indicate specific sites where swabs had been collected. Education was presented to the staff highlighting the College of Nurses standards on documentation and the audit results.

Project: The setting is a facility providing complex care and complex rehabilitation through a broad range of inpatient and outpatient services. A chart review was completed on all newly admitted patients during the month of August 2007 within 24 hours of admission. Data was collected on whether there was documentation of MRSA swabs being collected, sites specified, and whether there were sites other than nares/perirectal areas to be screened. Microbiology site results for each patient was then checked with data collected from the patient's chart. VRE screening was also part of the audit.

Results: There was documentation indicating that 71% (100/140) of new admissions were swabbed for MRSA but only 25% of those specified sites swabbed. Microbiology results indicated 91% (127/140) of patient's had correct swabs taken, but 9% were missed altogether. There were 37 sites that should have been collected but no documentation was found in progress notes. Some patients may have had more than one site. VRE results indicated that 43% (60/140) had documented swabs taken but microbiology results indicated 64% (89/140) Only two thirds of admissions noted are being swabbed for VRE.

Lessons learned: Clear, complete and accurate documentation facilitates the evaluation of the client's progress towards desired outcomes; as per College of Nurses guidelines on documentation. This audit shows that documentation is still inadequate and there is the potential for sites other than nares/perirectal to be missed during screening. The consequence of this is that there is the potential that MRSA carriers are not being identified. Feedback and education on results was reported to managers. A recent new project at Bridgepoint hospital is the change to electronic charting. Will this improve compliance with charting and swab collection? Will electronic charting make it easier to identify sites missed and correct the potential for missed MRSA carriers?

DOES MRSA SCREENING HAVE AN EFFECT ON NOSOCOMIAL TRANSMISSION? RESULTS FROM AN ADMISSION SCREENING PROTOCOL INITIATED AFTER DETECTION OF AN MRSA CLUSTER IN AN ICU

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Background: A cluster of seven MRSA infections in one month was identified by Infection Prevention and Control in a 10-bed medical/surgical ICU in the Calgary Health Region. Early investigation of the cluster revealed epidemiological links that were later confirmed by molecular methods. There was evidence suggesting nosocomial transmission of CMRSA 2 and 10.

Methods: Immediate measures implemented included a prevalence screen to identify more cases, isolation of known positives, enhanced environmental cleaning, hand hygiene education, the use of a new disposable oral suction holder and the initiation of an admission screening protocol. Nasal and rectal swabs were obtained and screened for MRSA using selective agar plate culturing on all admissions to the ICU for the next fourteen months.

Results: There were 510 admissions but 26 patients (5%) missed screening due to a short length of stay (<1day) in the ICU. Of the 484 admissions that were screened, 35 were positive for MRSA (7.2%). Thirteen of these were already known to be positive in the Region. Of the remaining 22 (4.5%) new positive admissions, 64% (14/22) were found to be colonized on admission screening, while 36% (8/22) presented with a positive clinical culture. There was only one case of MRSA acquisition that could be attributed to the ICU during this time.

Conclusions: While the debate continues regarding the benefits of admission screening, early identification of colonized patients may play a role in decreasing transmission by facilitating the early isolation of colonized patients and heightening staff awareness of the issue. By comparison, hand hygiene initiatives and enhanced cleaning can be difficult to sustain.

ANTIBIOTIC USE AND SUSCEPTIBILITY PATTERNS IN ONE REHABILITATION AND TWO LONG-TERM CARE INSTITUTIONS

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Background: Antimicrobial resistance is increasingly important in rehabilitation and long-term care institutions (LTCRI). Local susceptibility patterns (SP) can guide empiric treatment of infections, alert infection control practitioners to transmission of resistant organisms and highlight the need for antibiotic stewardship. We examined the SP of gram-negative bacilli (GNB) in our 3 LTCRI and compared this to antibiotic usage.

Methods: The database for the microbiology laboratory that serves these LTCRI was queried for GNB for 3 successive years (2005 – 2007). Antibiograms were aggregated, trended, and compared to regional SP. The pharmacy database was queried for fiscal 2007 to assess antibiotic use.

Results: For 2005-07, 2012 GNB were identified: E.coli (50%), Proteus group (16%), Klebsiella (15%), Enterobacter (12%), and Citrobacter and Serratia ($\leq 5\%$ each). SP are summarized: 80% of antibiotic prescriptions were orally administered. Antibiotic usage varied, however quinolones and sulfa drugs represented the most commonly prescribed drugs (33% and 31% respectively).

Conclusion: The SP in our LTCRI limits the choices for oral antibiotic therapy, and has resulted in a mismatch of empiric therapy and SP. These data will serve as our baseline to monitor SP in our LTCI.

CAMPAGNES D'HYGIÈNE DES MAINS : SORTIR DES SENTIERS BATTUS

Suzanne Leroux

CSSS du sud de Lanaudière, Terrebonne, Canada

Sujet: Les établissements de santé sont des lieux où la probabilité de retrouver une quantité et une diversité d'agents infectieux est élevée. Quotidiennement, un grand nombre de personnes s'y présente pour recevoir des soins. Les infections nosocomiales sont une préoccupation importante pour les établissements qui doivent offrir des soins de qualité et sécuritaires. L'hygiène des mains des mains est reconnue comme un moyen efficace pour réduire la transmission des infections. En 2003, le centre hospitalier Pierre Le Gardeur innovait avec un projet qui consistait à promouvoir le lavage des mains auprès de la clientèle hospitalisée et des visiteurs 2 fois par jour, 7 jours sur 7 par une équipe de préposés au lavage des mains. Cette équipe est maintenant permanente et pour la 4^{ème} année, le nombre d'infections nosocomiales à SARM est à la baisse passant de 108 en 2002-2003 à 8 en 2006-2007. En 2006, un audit du lavage des mains indique un relâchement dans l'observance à l'hygiène des mains chez le personnel de soins malgré les efforts du personnel en prévention des infections. Après analyse, les résultats ont démontré que seulement 46 % du personnel de santé a posé un geste d'hygiène des mains avant un contact direct avec un patient, corroborant les taux de la littérature (entre 20 et 58 %). Que se passerait-il si le risque d'une pandémie d'influenza aviaire se concrétisait? Comment augmenter l'observance du personnel de la santé à l'hygiène des mains? Une revue de la littérature fut faite et un nouveau projet est né. Le patient est invité à rappeler aux intervenants de se laver les mains avant de lui donner des soins et le personnel est invité à procéder à l'hygiène des mains devant le patient. Le patient est maintenant notre partenaire pour nous aider à aller plus loin et augmenter l'hygiène des mains. Le patient et le personnel de la santé, une collaboration nécessaire! La présentation portera sur la conception, réalisation et l'évaluation de ces deux projets.

POSITIVE IMPACT OF IMMEDIATE FEEDBACK TO FRONT-LINE HEALTH CARE WORKERS ON HAND HYGIENE COMPLIANCE

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Background/Objectives: Although hand hygiene (HH) has been known to be the single most important factor to reduce healthcare acquired infections, studies of HH compliance in health care workers (HCWs) is often no more than 30%. Various strategies and interventions have been utilized in the hopes of improving compliance. This study describes the impact of providing immediate feedback to front-line health care workers on their HH compliance rate.

Method: In the summer of 2007, the 650 bed acute care portion of this academic tertiary care facility completed the installation of brackets for alcohol based hand rub products (ABHR) at point of entry and exit of each patient room. Any additional use of ABHR within the patient care area was at the discretion of the assigned HCW. From November 1, 2007 till February 29, 2008, designated trained auditors performed repeated HH audit sessions at 18 different inpatient units of the hospital. The auditors used a standardized tool to audit HCWs HH during their interaction with patients. HH compliance report card was introduced to provide immediate feedback to front-line HCWs regarding their personal HH compliance rate. Pre-feedback HH compliance and post-feedback HH compliance were compared.

Results: During the HH audit period, 2952 HH opportunities were observed during 142 auditing sessions. Overall, HH compliance increased by 123% with the implementation of immediate feedback to HCWs. The difference is statistically significant. Improvement in unit-specific HH compliance rates was observed in all 18 units.

Conclusion: Regular auditing and immediate feedback to the individual front line HCW can lead to overall improvement of hand hygiene compliance.

EVALUATION OF ONCOLOGY PATIENTS FOR TUBERCULOSIS BEFORE UNDERGOING IMMUNOSUPPRESSIVE THERAPY

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Background: Oncology patients are immunosuppressed patients and susceptible to nosocomial Mycobacterium tuberculosis (TB) disease. Further, oncology patients who have latent Mycobacterium tuberculosis infection (LTBI) are at increased risk of progression to active TB disease. In our region, estimates are between 1/3 and 1/2 of patients referred to an oncology program come from TB endemic areas.

Issue: From August 2007 to November 2007, 4 oncology patients were diagnosed with laboratory confirmed pulmonary TB. The respiratory and systemic symptoms of their TB were initially attributed to their cancer. The TB diagnosis was delayed in all cases, up to 10 months, resulting in exposure of staff and patients before Airborne Precautions were implemented. A total of 22 patients and 102 staff required follow up. Tuberculin skin test (TST) converted in one staff member.

Objective: To develop a strategy for early detection of active TB or LTBI in oncology patients.

Methods: A literature review was performed to determine current strategies for early detection of TB applicable to the oncology program. A working group of Infection Prevention and Control, Public Health, Quality/Risk Management, Oncologists and Administration reviewed the cases to identify early interventions for prevention of TB exposure and determine their feasibility.

Results: There is limited published literature regarding early detection of TB in oncol-

ogy patients. Recommendations included clinical evaluation for TB risk for all patients undergoing immunosuppressive therapy. Patients from endemic areas should receive a TST and/or radiological evaluation upon admission to the program prior to therapy. Those suspicious for TB disease should be immediately referred for a thorough diagnostic evaluation and treatment. Those diagnosed with LTBI should be considered for treatment and follow up. These recommendations are supported by the Centers for Disease Control and Prevention and Canadian TB Standards. Recommendations from the working group were shared with the Oncology Program for implementation.

Conclusion: Implementation of a strategy for early detection of active TB or LTBI in oncology programs will help protect these vulnerable patients from acquisition of nosocomial TB. A high index of suspicion for TB disease is required in this patient population.

INFLUENCING INFECTION PREVENTION AND CONTROL PRACTICES IN FIRST NATIONS COMMUNITY NURSING STATIONS/CLINICS

Karen Clinker, Lorinda Christie-Jacobson, Pat Piaskowski, Janet Gordan, Isabelle Langman, Liz Van Horne

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Issue: In 2006, SLFNHA was contracted by the NWOICN to complete an environment scan and strategic plan to support improved infection prevention and control (IPAC) activities within First Nations community-based health facilities in the area. It included on-reserve First Nations community based health facilities, as well as off-reserve facilities such as Community Health Centres and Aboriginal Health Access Centres that provide services to First Nations in the area. The results of the Environmental Scan concluded that there were a number of IPAC needs within the First Nations settings. A follow-up First Nations Conference held in Thunder Bay in April 2007 reaffirmed and expanded on these identified needs.

Project: Based on the results of the Environmental Scan, the First Nations Conference, and IPAC areas of priority for FNIH, a joint initiative between the NWOICN and FNIH to address IPAC needs in the First Nations Communities Nursing Stations/Clinics was initiated. From this collaboration, 5 phases were identified to prioritize and meet IPAC needs in First Nations Communities Nursing Stations/Clinics. Audits of three FNIH nursing stations and one clinic were conducted by the NWOICN Infection Control Consultant and learning needs identified. An education program was developed and delivered in partnership with Northeastern Ontario Infection Control Network and KO Telemedicine. Action plans to address the audit results were developed.

Results: Through a further forecasting process, created a workplan to address future IPAC Education and Quality Improvement strategies described in PHASES 3 to 5.

Lessons learned: There is a great need for support at the community level, including First Nations, from IPAC professionals. With the birth of the Ontario Infection Control Networks, this gap has been bridged and relationships have been established and maintained, that allows the Networks to focus on their mandate, and communities are gaining the benefit of this relationship.

THE EFFECTIVENESS OF MRSA ADMISSION SCREENING IN A REHABILITATION CENTRE

Katherine Defalco, Sam MacFarlane, Collette Ouellet, Daniel DeForge, Baldwin Toye, Virginia Roth, Kathryn Suh

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Issue: The Ottawa Hospital Rehabilitation Centre (TRC) is a 62-bed, three-unit regional inpatient rehabilitation facility. Between July and October 2004, 10 inpatients were found to have MRSA \geq 48 hours after admission. Six different strains were identified, and chart review identified limited nosocomial transmission. Current policy was for MRSA screening to be performed within one week prior to admission to TRC, with cultures obtained from nares, rectum, tracheostomy and device insertion sites, and up to 2 draining wounds. Screening upon admission to TRC was required only if preadmission screening had not been completed. Review of practice identified that pre-admission screening was not being performed systematically (median 17 days prior to admission, range 2 to 75 days) and that screening was often incomplete (i.e. sites for culture were missed).

Project: To determine the effect of implementing an admission screening policy for MRSA in TRC.

Results: A six-month admission screening trial was implemented on one unit between March and August 2005. All patients with history of hospitalization within the previous 6 months were screened for MRSA within 24 hours of admission to TRC. During this time, 55 new admissions were screened. A total of 3 patients were identified as MRSA carriers at time of admission; 2 were reported positive by the transferring institutions and 1 was identified through admission screening at the TRC. There was no nosocomial transmission of MRSA on this unit during the pilot period, and compliance with MRSA screening was increased compared with previous. Admission screening for all patients was introduced to all units of TRC in November 2005. In the following 27 months, a total of 12 patients were identified as MRSA carriers; 9 at time of admission to the TRC and 3 unlinked nosocomial cases attributed to the TRC.

Conclusion: Admission screening for MRSA at our rehabilitation was successful in identifying MRSA carriers, and has contributed to the absence of outbreaks of MRSA. As the potential negative impacts of MRSA can interfere with prescribed rehabilitation programs in this population, early identification and control of MRSA are important aspects of ongoing care.

IDENTIFICATION OF POSSIBLE HEALTH CARE ACQUIRED EPIDEMIC KERATO CONJUNCTIVITIS CASES AND DEVELOPMENT OF A PROTOCOL FOR INFECTION PREVENTION AND CONTROL

Josee Shymanski, Maureen McGrath, Jo-Anne Janigan, Anne Hansen, Pascale Rinfret, Walter Delperio, Virginia Roth

The Ottawa Hospital, Ottawa, Canada

Issue: In November 2007, the Infection Control program was made aware that there was an increase in the number of epidemic kerato conjunctivitis (EKC) cases in the community and that there were concerns about possible transmission within our two eye care centers. There was no formal reporting mechanism for health care acquired EKC and it was difficult to ascertain the location and extent of the problem.

Project: The Infection Control program worked collaboratively with the ophthalmology group to develop a corporate protocol for surveillance and management of EKC cases.

Results: A total of three possible hospital acquired EKC cases were identified over a six-week period. Two cases were associated with center A and the third case was associated with center B. A subsequent review of practices determined that both centres had a different protocol for management of suspected EKC cases. Both centres were using the same environmental cleaning product to clean surfaces post EKC cases but the product was not effective against adenovirus. A corporate adenovirus EKC protocol was developed to address management of suspected EKC, including patient placement, use of personal protective equipment, use of disposable instruments, reprocessing of instruments and cleaning of environmental surfaces with a product effective against adenovirus. The protocol also included a patient information sheet on EKC and a corporate reporting form to be completed and sent to the Infection Control department if nosocomial acquisition is suspected. The protocol is also being implemented in our emergency departments where cases of EKC may initially present following an ophthalmologic visit.

Lessons learned: EKC is a highly transmissible eye infection that can spread quickly in ophthalmology settings. Disinfectant agents used in many healthcare settings may not have the virucidal activity against adenovirus. Staff working in these settings must be aware of the proper management of suspected cases, and the necessary environmental disinfection protocols, to prevent transmission. Prompt identification of possible nosocomial transmission and a central reporting system are required to act quickly to avert a potential outbreak.

THE ROLE OF MRSA DECOLONIZATION THERAPY AND ITS USE AS AN INFECTION PREVENTION AND CONTROL METHOD IN A TERTIARY HOSPITAL

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Decolonisation of MRSA patients may assist in ARO control by decreasing the reservoir for this organism. We analyzed the results of decolonisation therapy on a gastrointestinal medicine/surgery unit (GIU) in a tertiary care hospital in Toronto, to assess the efficacy, safety and tolerability of decolonisation therapy in this population.

Methods: Retrospective cohort study of patients admitted to a GUI at the time of their first MRSA culture at Mount Sinai Hospital from January 1, 2000 to June 30, 2007. Data were obtained from the infection control database, and microbiology laboratory information system.

Results: 156 patients were identified as MRSA colonized (N=121) or infected (N=35) on this unit during the study period. Of these, 51 received some form of decolonisation treatment, 31 patients received gold standard therapy (7 days of topical mupirocin, chlorhexidine gluconate washes, oral rifampin, and doxycycline). Treatment was initiated at first admission with a positive culture in 47 cases (92%), 11 patients had a second treatment attempt subsequently, and 3 a third one. The mean age was 58 years (range 18 to 95 years) in treated patients vs. 64 years (range 19 to 95 years) in non-treated. There were no significant difference in the type or number of positive sites at diagnosis (27 % of the treated and 24 % of untreated patients having 2 positive sites including wounds) and type of MRSA between treated and untreated patients. Patients harbouring mupirocin susceptible MRSA were 2.7 times less likely to be treated (P=0.01), and patients with longer LOS (35 days vs 22 days, P=0.09) were somewhat more likely to be treated. Survival analysis demonstrated that 72.55 % of treated patients were MRSA free at 3-6 months post therapy, compared to 45.65 % of untreated patients (2 = 7.83, p=0.005 by log-rank test). Four patients declined treatment and 3 discontinued therapy prematurely due to gastro-intestinal side effects. Therapy was not associated with selection of mupirocin resistance.

Conclusions: Decolonisation therapy significantly increased the chances of patients being MRSA free in the long term, without significant rates of adverse events. Efforts to decolonize patients, even on wards with large numbers of compromised patients with chronic skin lesions may assist in reducing the need for additional precautions, and the size of the MRSA reserve.

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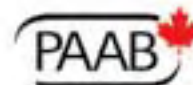
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The goal of an effective infection control program is to reduce the risk of acquisition and transmission of healthcare-associated infections. The new standards, now more than three years old, require that hospitals have organization-wide infection prevention and control programs and state that hospitals should assign responsibility for managing these programs to individuals formally qualified in infection prevention and control and epidemiology. According to JC Standard IC.7.10: "Qualifications [for the individual(s) responsible for managing the infection control program] may be met through ...certification [such as that offered by the Certification Board for Infection Control (CBIC)] in prevention and control of infections." This Joint Commission endorsement of certification through CBIC serves as an incentive for infection control professionals (ICPs) to become and maintain certification. This Joint Commission endorsement also provides the impetus for healthcare institutions to require certification for individuals responsible for managing their infection prevention and control programs.

This year promises to be an exciting and productive one for CBIC. Much work has already begun. During our February board meeting we welcomed new members Barbara Russell, Craig Gilliam, Marion Yetman, and Michelle Farber. The CBIC Test Committee,



chaired by Rita Tjoelker, is working on a new SARE that will be ready for those who choose to recertify in 2009. Other board and committee work includes collaborating with APIC and AJIC on several lengthy projects; one will continue for the next three years.

The three-year project is an initiative to increase the number of certified infection control professionals to at least half of the APIC membership, which is just over 11,000. Only 3,929 ICPs around the world are currently certified. Eventually we'd like to see the eligible APIC members become board-certified in infection prevention and control.

You will find many references to the 35th Annual Educational Conference and International Meeting on the APIC website. As a past Conference Committee chair and someone who attends educational meetings held by other healthcare associations, I can tell you that APIC's Annual Meeting is not to be missed. The value of networking with your peers and hear-

ing the most current information on topics that truly interest you cannot be matched. The updates really add value to you and your professional practice because they enable you to share what you learn with others in your respective organizations and, perhaps, add to their efforts to prevent and control infections. An added benefit of this conference is that some of the information provided may contribute to your success with the certification exam. I encourage all of you to attend and I hope to see you there.

Those attending APIC '08 in Denver: Please join us at the CBIC session on June 16. I will discuss the increasing number of advantages associated with being certified in your specialty practice. And stop by the CBIC booth to say hello to the board members.

Warm wishes for the rest of the year ahead. ●

Deanie Lancaster, CBIC President



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The Registered Nurses' Foundation of Ontario Molson Canada SARS Memorial Fund providing grants to ICPs

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

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

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

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VIROX TECHNOLOGIES PARTNERSHIP SCHOLARSHIP WINNERS

Through the financial support of the Virox Technologies Partnership, 10 CHICA-Canada members were awarded scholarships to attend the 2008 Education Conference in Montreal. CHICA-Canada and its members thank Virox Technologies and their partners Deb Canada, JohnsonDiversey, Steris Corporation, Virox Technologies and Webber Training for their initiative to make the education conference accessible to those whose accomplishments should be recognized and who may not have otherwise been able to attend.

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¹ Peng, Jane. International Healthcare Worker Safety Center. "Preventing Sharps Injuries: Where Do We Stand in 2007?" Presented at B. Braun Medical, Orlando, FL, Feb. 23, 2007. 2003 BIPNet data. Of injuries from safety devices, 44% occurred after use and before disposal (potentially preventable if passive or if safety feature activated).

² Meredith MH, Liu Chen BY, Rosenstein-Bland et al. Study of Introcan safety IV catheter (B. Braun Medical Inc.) for the prevention of percutaneous injuries in healthcare workers [abstract]. Presented at: 13th Annual Meeting of the Society for Healthcare Epidemiology of America (Arlington, VA), 2003.

³ Iwama T, Iizawa J, Takehira M, et al. Passive safety devices are more effective at reducing needlestick injuries [letter]. J Hosp Infect 2006; 61(4): 380-1.

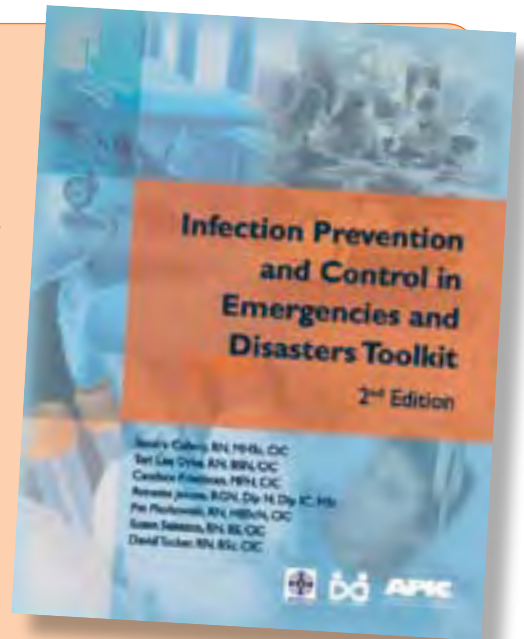
Did you know ...

The International Infection Control Council (I2C2) is a partnership of CHICA-Canada, APIC and ICNA (UK).

In 2002, it published the *Infection Control Toolkit: Strategies for Pandemics and Disasters*. With the advent of SARS and the H5N1 influenza virus, as well as other natural disasters and disease outbreaks since 2002, the I2C2 recognized the need to update and revise the previous toolkit.

The content has been updated and reformatted into the newest version *Infection Control Toolkit for Emergencies and Disasters*. The purpose of the toolkit is to assist IPCPs in the preparation and implementation of plans for emergencies and disasters.

The revised toolkit is now available at \$120.00 CDN (Member rate) plus shipping & handling and GST. ●



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Carol Goldman

Carol Goldman Lifelong Learning

Carol Goldman began her career as an ICP in 1978 “by chance.” She was working for the Victorian Order of Nurses, and was interested in education. Her friend Linda was leaving an infection control position at Mount Sinai Hospital in Toronto, and urged Goldman to apply. She did, and was hired at the end of her interview. She stayed in the position for 20 years.

“We were so unsophisticated with regard to surveillance and even laboratory services then,” she says, remembering those early days. “But the principles of infection prevention and control are really not that much different than they are today. We were always interested in standards of practice, patient care. Patients were the bottom line.”

She says that she hopes that SARS made the difference in infection control in Ontario and with any luck everywhere in Canada. “It always seemed that administrators only played lip service to infection control.”

She was fortunate that Mount Sinai had a supportive medical microbiologist on staff, Dr. John Smith. “He was a forefather in infection control and really understood what we needed in healthcare,” says Goldman. He laid a good foundation that allowed the staff to buy into

the program. However, he moved to Vancouver and the hospital had only an acting microbiologist for years. “I learned by the seat of my pants.”

Goldman credits the wealth of mentors in Toronto for her continued learning and success. She joined CHICA in the early 1980s, and was named an honorary member in 2001. “CHICA has been so wonderful with establishing the education programs. We never had that before. All we could do was read and attend conferences and mentor; we never had anything formalized.”

After her 20 years at Mount Sinai, she moved across the street to the Hospital for Sick Children. The only previous pediatric experience she’d had was her standard rotation in nursing school, so it took her some time to adjust to the different patient population. “From an infection control perspective, understanding the patient is key. The host factors of the child are unique, and their ability to care for themselves so different than adults. It’s a whole different approach in terms of educating the client for example, but the infection control principles are the same – the application of them just a little different.” In fact, she found moving to pediatrics allowed her to return to basic infection control, since pediatrics (then) did not face the problem of antibiotic-resistant organisms. “It was back to basics, which I hadn’t realized how much I’d missed it.”

Goldman retired two years ago and now does consulting work. She also is proud to represent CHICA on the International Federation of Infection Control. She has always enjoyed travel, and gets to combine her two passions in this role. While on holiday in Ukraine this upcoming summer she plans to visit colleagues there to see if she can drum up some business for IFIC while there.

Belonging to an association like CHICA is invaluable according to Goldman, and certification “critical.”

“I’ve been certified since day one. Employers need to recognize it and it should be criteria of the job. It’s wonderful that CHICA has pushed the CBIC program.”

Goldman feels glad to have chosen a career in infection control, despite her distaste for biostatistics and surveillance, and the fact that the job can be demanding. “There’s no timetable in infection control. You need to be committed. Mount Sinai was the first to report an institutional outbreak of Norovirus, with 1,000 people infected. I don’t think I was home for a month, and had two hours of sleep many nights. You have to forego a personal life during outbreaks.”

Despite the challenges, Goldman loves infection control, and would do it all again if she could. “It’s an exciting part of healthcare. It takes a while to learn the huge body of knowledge, and in fact it seems that there is always something new to learn everyday.” ●

How to submit an article to the *Journal*

The Canadian Journal of Infection Control publishes member-supplied articles as feature technical article or as “News from the Field”. All material submitted is reviewed by an editorial board consisting of CHICA-Canada members. If you are not sure about your writing skills, get your ideas down and ask a colleague or member of the editorial board for help. Full requirements for technical articles can be found at http://www.chica.org/inside_cjic_journal.html, but here are some tips for getting started:

- 1) The author of the content must be clearly identified by name, title and organization and both a telephone number and email address must be supplied for contact purposes.
- 2) The subject of the material must be relevant to the interests of infection control practitioners.
- 3) The material should be submitted electronically via email as a Word document.
- 4) Length of submitted material is to be limited to a maximum of 1,500 words.
- 5) No part of the submitted material is to include what can be construed as sales-oriented promotion of specific individuals, companies, products or services.
- 6) Any photographic images to be included with the material must be free and clear of any copyright and must be submitted electronically as JPGs or TIFFs that are high resolution (at least 300 dpi) and a minimum of 6” x 9” in size. Image files should be sent separately, not embedded in the Word document.
- 7) In the event that the material is accepted for publication in *CJIC*, the author agrees that the first publication rights for the material belong to *CJIC* magazine and that any subsequent publishing of the material can only be done after the author or publisher is granted reprint approval in writing from CHICA-Canada and *CJIC* magazine.

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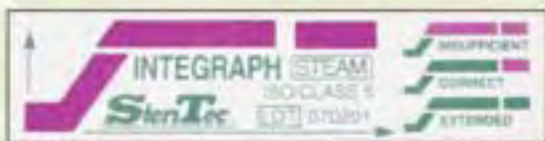


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