

ORAL PRESENTATIONS
TUESDAY, MAY 12/WEDNESDAY, MAY 13, 2009 – 2:00 p.m.-3:00 p.m.
DELTA ST. JOHN'S

Tuesday, May 12, 2009
Salon E, Mental Health

Reducing The Risk Associated With Alcohol Based Hand Rub (ABHR) in Mental Health

Keith Sopha, Jill Richmond, Norma Richards; *Homewood Health Centre, Guelph, Ontario, Canada*

Issue: There are many challenges associated with alcohol based hand rub (ABHR) in Mental Health Facilities. An incident of ingestion occurred involving an unsecured bottle of ABHR gel.

Project: As a result of the incident, a multidisciplinary team was established to identify and address all concerns related to ABHR in the facility. Point of care is very different as patients are mobile and not always treated within a typical healthcare bed space. Patient to patient transmission is more of a concern because of mobility and requires different strategies. As well, safety concerns related to misuse by ignition. Facilities with addictions programs need to consider the triggering effects of ABHR. Special consideration is also required in high risk mental health units.

Results: The team implemented a change from gel products to foam, as it was felt that foam would be less likely to be ingested in large quantities. Unsecured bottles were replaced with wall mounted, secured dispensers. The number of dispensers was substantially increased making it more accessible at point of care. Service providers on high risk units were issued pocket sanitizers. An auditing system to monitor usage was established by collecting returned empty cartridges. Portable, touchless ABHR stands are now available for placement outside isolation rooms and during outbreaks.

Lessons learned: We experienced an unfortunate incident involving arson to one of the wall mounted dispensers. The ABHR ignited easily and resulted in some reassignment of ABHR dispensers. The multidisciplinary team approach and involving front line staff from all departments during the product evaluation/selection process helped with product acceptance and change. The ABHR project created a new project of glove selection, use and training.

Linking the placement of alcohol hand sanitizer (AHS) dispensers to your facility's hand hygiene strategy, a systematic approach

Ted Pincock, Daphne Murray; *Capital District Health Authority, Halifax, Nova Scotia, Canada*

Issue: Health care facilities across Canada have adopted a national initiative, the "4 Moments for Hand Hygiene", to improve hand hygiene compliance among healthcare workers. We describe the impact of a change in supply contracts for alcohol hand sanitizer (AHS) during the implementation of a new district wide hand hygiene campaign, reviewing its challenges and opportunities.

Project: A well-planned and well-executed installation of hand hygiene products is an essential step in any program to enhance hand hygiene adherence in health care settings.¹ AHS dispensers act as visual cues for hand hygiene behavior, and their strategic and ubiquitous placement renders the product highly accessible for frequent use.^{1,2} Does this fact offer an opportunity to integrate the national hand hygiene campaign "4 Moments for Hand Hygiene" into a strategy for dispenser placement in all areas of the healthcare spectrum?

Results: Based on our experience, we enumerate strategies to avoid logistical difficulties, integrate dispenser placement with the current hand hygiene program, and amplify the positive momentum gained through the installation of a new AHS dispensing system.

Lessons Learned: We suggest steps to performing dispenser needs assessments, developing dispenser placement guidelines, setting down rules for the installers, and linking the installation process to a hand hygiene program. A Pre-installation Matrix is also provided to assist practitioners prepare and communicate a thorough systematic approach.

CHALLENGES TO IMPLEMENTING A DAILY FEBRILE/ENTERIC SURVEILLANCE FORM AS A PATIENT SAFETY TOOL IN A MENTAL HEALTH CENTRE

Jo-Anne Burt, Darlene Fawcett, Linda Fletcher; *Whitby Mental Health Centre, Whitby, Ontario, Canada*

Background: Patient care units reported infections to Infection Control at months end and completed FRI screening on admission. With a mental health focus, there was no daily FRI assessment. IPAC staff was contacted when multiple patients were showing similar symptoms and mental health programs were impacted. The need for a patient safety tool that was user friendly and identified patients with potential infections was necessary. The tool would provide daily information to prevent transmission and/or outbreaks.

Development of a tool: A form was developed using the basic assessment tool appended in the FRI document (PIDAC 2006). We added other physical symptoms to the tool that could help identify early stages of respiratory illness or gastro. A column for visual assessment by staff was added for patients who were unable/unwilling to respond to questions. After education of managers and staff, the new daily surveillance tool was implemented February 1, 2008.

Challenges: Implementation of the daily tool was perceived as an additional task by nursing staff. Staff expressed objections "we are mental health and not acute care". Staff lacked computer skills and or access to a computer and the form was designed to be available on the intranet.

Conclusion: With ongoing support from IPAC, the daily surveillance tool compliance rate for the first year is > 75%. The implementation of this tool allows IPAC to implement prompt interventions to prevent or control transmission of HAIs. Despite initial resistance, the daily febrile/enteric surveillance form has become a most effective working tool.

CHICA-Mental Health Interest Group Report: Preliminary Findings on Current IPAC Practices

Rebecca Yu¹, Robert Nguyen², Vytas Velyvis²; ¹CHICA-Mental health Interest Group, Co-Chair, Canada, ²Whitby Mental Health Centre, Whitby, Ontario, Canada

Abstract Background:

CHICA-CANADA Mental Health Interest Group (MHIG) was established to support members interested in infection prevention and control in mental health (MH) setting.

Members often express the lack of publications and references for their unique patient population IPAC programs. Because of this there is a need to establish the Best Practices/Position Statement in MH.

Project/method:

CHICA-MHIG has set out a 6-stage plan working towards a Best Practices/Position Statement. In Nov. 2008, Stage 1 was launched. The objective was to establish current data on staff ratios, surveillance programs, admission screening protocols, immunization program, hand hygiene program, physician support, signage, fixation behaviour and guideline/standards currently used. A 36-item questionnaire was sent out to 34 MH settings across the country. Of the 36 questions, 21 were close-ended while 15 were open-ended.

Result:

19 out of 34 (56%) facilities responded, with the majority from Ontario. The average number of beds across the facilities was 229 with an average of only 0.9 FTE Infection

Control Practitioner. Surveillance programs were in place at 13 of the sites. 14 facilities screen for MRSA and 12 screen for VRE upon admission. Most had a written hand hygiene program and referred to the PIDAC and APIC for their surveillance and IPAC programs. About a third of the facilities did not have an infectious diseases physician.

Lessons learned:

Feedback shows that a more user friendly questionnaire is needed for the next round of survey which will be extended to regional mental health settings. This presentation will share the initial data collected so far for this project.

Tuesday, May 12, 2009
Salon D, Long-Term Care

Lights, Camera, Action! Creating an Educational Video About the Proper Use of Personal Protective Equipment in Long-Term Care

Tim Cronsberry, Christine Moussa; *South Western Ontario Infection Control Network, St. Marys, ON, Canada*

Video resources outlining the proper use of personal protective equipment (PPE) often tailor messaging to the acute care setting. Staff in long-term care (LTC) are at a disadvantage because few Infection Prevention & Control (IPAC) learning resources are geared specifically to their setting.

Principles of adult learning suggest that adults prefer resources that are applicable to their current experiences and that the use of humour can be an effective means of engagement. IPAC education videos often do not incorporate these principles.

The South Western Ontario Infection Control Network created a professionally produced 15 minute video targeted to LTC addressing PPE use. The video was filmed in a long-term care home and depicts scenarios familiar to LTC staff.

The video was distributed to approximately 2000 stakeholders in Ontario. The package included a DVD, teaching guide, and CD containing companion resources. The resource was marketed as an "in-service in a box".

Feedback to date has been outstanding. Although the resource has been created and marketed for LTC, acute care settings and community agencies have requested and used the video. A formal evaluation of the resource package will be conducted in early 2009.

Healthcare workers are constantly faced with competing messages. Humour is an effective means of engaging an adult audience, and cutting through message clutter. In addition, creating resources that are sector specific increases the applicability of the messages, in turn augmenting the viewer's learning experience.

Impact of Hand hygiene (HH) compliance on a Norovirus outbreak in a long term care home (LTCH)

Olivia Yow, Sandra Callery, Mary Vearncombe; *Sunnybrook Health Sciences Center, Toronto, Ontario, Canada*

Background/Objectives: Norovirus outbreaks are common in LTCHs. Norovirus is highly infectious and is transmitted via the fecal-oral route, including by contaminated hands. In January 2009, a norovirus outbreak was observed in our hospital's 535-bed LTCH. We examined the impact of HH compliance on a norovirus outbreak in our LTCH.

Methods: HH compliance was collected using standardized, validated audit tool prior to the outbreak. During the outbreak, resident and staff cases were followed. Attack rates (AR) for all outbreak-affected units were calculated. Linear regression analysis was used to examine the relationship between unit HH compliance and unit AR for all affected units.

Results: The outbreak involved all 9 wards within one building and lasted 34 days. 111 people were affected, 72 residents and 39 staff. The mean ward AR was 18 % (range 1-51%); mean resident - AR was 27% (range 0-80%) and mean staff - AR was 12% (range 0 - 47%) Mean ward HH compliance rate was 51% (range 12-81%). Individual ward HH compliance rate and AR were inversely related: the higher the ward HH compliance rate, the lower the ward AR. The relationship is statistically significant ($p=0.001$).

Conclusions: HH compliance rate may be used as an indicator to predict the impact of a norovirus outbreak. Improving HH compliance in LTCHs may decrease the impact of norovirus outbreaks.

LONG-TERM CARE REGISTERED NURSES' PERCEIVED BARRIERS AND FACILITATORS TO IMPLEMENTING INFECTION CONTROL BEST PRACTICES

Anne Bialachowski, *Regional Infection Control Networks, Dundas, ON*

The purpose of this study was to describe long term care registered nurses' perceived barriers and facilitators to implementing infection prevention and control best practices. Three focus groups composed of long term care professionals from southern Ontario were conducted. A researcher-developed semi-structured focus group guide adapted from the Barriers Scale was utilized and barriers and facilitators were identified using a conceptual mapping grid. Themes were identified from question to question and across questions and the barriers and facilitators were identified. Participants perceived key barriers to implementing infection prevention and control best practices were role design, staffing shortages, best practice document design, and long-term-care facility design. The key facilitators identified were administrative support and connections to external networks.

Antibiotic Resistant Organisms and Antibiotic Practices in Canadian Long-term Care Facilities: Focusing on the Relationship of Infection Surveillance and Control Activities and Antibiotic Practices with MRSA Rates

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Background: Long-term care facility (LTCFs) residents are at risk from AROs. The examination of the relationship of infection surveillance and control activities and antibiotic practices with MRSA will identify strategies to manage AROs in LTCFs.

Methods: A survey was sent in 2005 to all Canadian LTCFs to assess infection surveillance and control resources and activities (In Press). Items assessing antibiotic use practices and AROs were included in the survey. Regression analyses were used to examine the association of infection surveillance and control activities and antibiotic practices with MRSA rates.

Results: One third of LTCFs responded (34%, 488 of 1,458). The mean MRSA rate was 0.8 (SD 1.3) per 10,000 patient days, mean *C. difficile* rate was 0.3 (SD 0.4), mean VRE rate was 0.06 (SD 0.2), mean ESBL-*E. coli* rate was 0.9 (SD 2.2), and mean ESBL-*Klebsiella pneumoniae* rate was 0.5 (SD 1.2). 47% of LTCFs reviewed antibiotic prescribing. A quarter (25.1%) have minimum criteria for initiating antibiotics for respiratory infections. Residents with asymptomatic bacteriuria received antibiotics more than half the time in 31.9% of LTCFs. Few LTCFs (11.8%, 50 of 422) developed antibiotic resistance pattern summaries. Surveillance index scores ($r=-0.21$, $P=.001$), resident morbidity ($r=0.15$, $P=.02$), and antibiotic practices scores ($r=0.16$, $P=.02$) were associated with higher MRSA rates.

Conclusion: Infection surveillance activity was associated with lower MRSA rates. There is need for further investment in infection surveillance to protect vulnerable LTCF residents. The authors have reported elsewhere surveillance in Canadian LTCFs does not meet recommended levels.

Tuesday, May 12, 2009
Salon C Acute Care

The Impact of Peer Administration on Healthcare Worker Influenza Vaccination Rates

Victoria R Williams, Wendy Morgan, Sandra Callery; *Sunnybrook Health Sciences Centre, Toronto, ON, Canada*

Background: Yearly influenza vaccination is recommended for all healthcare workers (HCWs) who have direct patient contact to protect patients and prevent transmission. In order to achieve adequate HCW influenza vaccination compliance a multifaceted strategy is necessary. The objective of this study was to determine if the addition of peer administration of the vaccine to the annual influenza vaccination campaign increased HCW compliance.

Methods: During the 2008-09 influenza season a HCW vaccination strategy was rolled out facility-wide that included management support, staff education, promotional materials, and ready access to the vaccine. Members of the nursing staff of the perinatal and gynecology (P&G) program were trained in the administration of the influenza vaccine and vaccinated their coworkers. HCW influenza vaccination rates were collected up to February 1, 2009 and the mean change in HCW compliance between the 2007-08 and the 2008-09 seasons were compared between the P&G program and programs that did not receive peer administration.

Results: The mean increase in HCW compliance with influenza vaccination from 2007-08 to 2008-09 was 15.5% for the P&G program as compared to 8.3% for the remainder of acute care programs ($P=0.25$). Comparison of the P&G program to elective orthopaedics, both programs that are located offsite and have similar access to occupational health and safety, demonstrated a significant mean difference in HCW immunization compliance (23.7%, 95% confidence interval 6.8-40.6, $P=0.013$)

Conclusion: Peer administration has the potential to increase HCW compliance as one component of a facility-wide influenza vaccination strategy.

Access Your Surveillance Data More Easily with MS-ACCESS®

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Issue: One of key components of an infection control program is the collection and analysis of surveillance data. Management of the data has plagued ICPs who often have limited expertise in the area of information technology. This report describes the process of the development of an ACCESS® database for ICPs' surveillance data requirements.

Project: The Provincial Infection Control (PIC-NL) group met in 2007 and identified MRSA and CDI as targets for focused surveillance. A decision was made to have the Information Technology (IT) experts write a program specifically designed for data management of the surveillance projects. In addition to the IT experts, the design process required the involvement of ICPs, an epidemiologist, a privacy analyst and IT support in the regional facilities. A protocol was written to ensure consistency in the data collection requirements and a user manual was developed. The database was created using MS ACCESS® and included 3 parts: data entry, reports and charts.

Results: In November 2008 the database was deployed to the Western region as a pilot project. An orientation was provided via teleconference to the ICPs and IT support staff.

Lesson learned: The project was much larger in scope than anticipated. The delays in the process were frustrating for the development team and the users waiting for the product. It is challenging to develop a database to meet the needs of four different regional infection control programs. However, feedback from the ICPs included enthusiasm and satisfaction with the database making it a worthwhile initiative.

Accreditation Canada: Service Excellence Standards for Reprocessing and Sterilization of Reusable Medical Devices

Mireille Cyr-Hansen; *Accreditation Canada, Ottawa, Canada*

Accreditation Canada, formerly known as the Canadian Council on Health Services Accreditation, is a national, non-governmental, not-for-profit body that accredits health care organizations across Canada. Through accreditation, organizations evaluate and improve the quality of the services they provide. The accreditation process includes examining daily activities and services and comparing them to standards of excellence.

Accreditation Canada's standards of excellence cover more than 25 healthcare and service areas. Responding to requests from organizations across the country, Accreditation Canada in partnership with the Canadian Standards Association began developing accreditation standards for Reprocessing and Sterilization of Reusable Medical Devices in the fall of 2005. As part of Qmentum, our new accreditation program, these sterilization standards will be in use by organizations in 2009.

The presentation will inform attendees of the history behind the development of these standards, provide an outline of the Reprocessing and Sterilization of Reusable Medical Devices standards, share general findings of survey visits to date and will provide updates in relation to sterilization.

Time is Money. Does Prophylactic Antibiotic Timing (PABT) affect Hip and Knee Joint Replacement Surgical Site Infection (SSI) Rates?

Diane Weinwurm, Krystyna Ostrowska; *Trillium Health Centre, Mississauga, Canada*

Objective: Surveillance of post-op SSIs and correct PABT was conducted from November 1, 2004 to June 22, 2007 on 643 clean elective hip and 1,331 clean elective knee joint replacement patients. SSI data was compared to the National Healthcare Safety Network (NHSN) Report, 2008.

Method: AICE (Automated Infection Control Expert) was interfaced with the operating room's program to download data which the Infection Control Practitioner (ICP) used to generate a record on *every patient*. The record includes patient and surgical information, wound classification, surgery start and stop times, American Society of Anaesthesiology (ASA) score, prophylactic antibiotics and timing. AICE calculates the composite index (0,1,2,3) for predicting the risk of the patient developing a SSI after surgery. CDC (Centre for Disease Control) definitions for SSIs were followed and rates compared to NHSN. Surveillance includes 30 days post-op for superficial SSIs and 1 year for deep, organ/space SSIs. The ICP reviewed microbiology reports, emergency/urgent care visits, re-admissions, consultation notes, antibiotic prescribing and surgeon post-discharge feedback.

Results: The hip and knee SSIs rates detected in-hospital were comparable to NHSN rates. Comparing in-hospital plus post-discharge SSIs from 2004-2007, hip SSIs rates were 3.9%, 0.5%, 3.0% and correct PABT started in 90%, 92%, 96% cases respectively. Comparing in-hospital plus post-discharge SSIs from 2004-2007, knee SSIs were 2.8%, 2.8%, 2.6% and correct PABT started in 90%, 93%, 96% cases respectively.

Conclusions: The additional 8 hip and 25 knee SSIs detected post-discharge suggests that a more active post-discharge surveillance is necessary for accurate rates. In our study overall SSIs rates decreased and correct PABT improved. PABT is a key component of perioperative care.

Tuesday, May 12, 2009
Salon F, Pediatrics

Serratia Marcescens (SM) Outbreak in a Neonatal Intensive Care Unit (NICU) Related to the Exit Port of High Frequency Oscillator (HFO). Tracy M MacDonald*, Joanne M Langley, Timothy Mailman, Kim Allain, Michael Mulvey, and Dora Stinson, IWK Health Centre, Halifax, Nova Scotia.

Tracy M. Macdonald^{1,4}, Joanne M. Langley^{1,3}, Timothy Mailman^{1,3}, Kim Allain¹, Michael Mulvey², Dora Stinson^{1,3}, George Nelson¹

¹IWK Health Centre, Halifax, Nova Scotia, Canada, ²National Microbiology Laboratory, Winnipeg, Manitoba, Canada, ³Dalhousie University, Halifax, Nova Scotia, Canada, ⁴Central Newfoundland Regional Health Centre, Grand Falls-Windsor, Newfoundland & Labrador, Canada

Background: SM is known for its role in NICU nosocomial infection. We report an outbreak thought to be related to aerosols from the HFO exit port of a colonized infant.

Methods: The level 3 NICU's outbreak unit is a 3067 feet² space divided into three pods. The index case was <1500 gm premature infant with respiratory tract colonization. Because of the morbidity associated with SM Infection Control placed the patient on contact isolation (CI). Three weeks later a second colonized infant who had spent 48 hours in the NICU was found. Over the ensuing months 5 more infants were identified and placed on CI. A line listing showed the only common risk factor was residency in the same pod. The unit was closed to further admissions. All children were placed on CI. A multidisciplinary team gathered and multiple (n=16) environmental samples were taken. A small puddle of water directly under the HFO exit port was noted and sampled. Samples positive for SM were processed according to the CDC 1 day E. coli pulsed field gel electrophoresis protocol at the National Microbiology Laboratory, Winnipeg.

Results: Seven patients were colonized (n=5) or infected (n=2). Of environmental samples, only the HFO exit port of the index case grew SM. This isolate and that of the index case were genotypically identical. Two of the clinical specimens were identical (A1); three more were related (A2, A3). **Conclusions:** A SM outbreak was terminated through a combination of CI, education, increased hand hygiene, closing the unit, and retrofitting of the exit port of HFO. We

hypothesize that small particle aerosols generated by the HFO may have dispersed the organism and facilitated patient-patient and HCW-patient spread.

Hand Hygiene in the NICU: Where Does the Baby's Environment End and NICU Space Start?

Anna O'Shaughnessy, Edmond Kelly, Karel O'Brien, Ann Tozer, Rheney Castillo, Mary Ann Tomek, Lidia Xhaholli, MSH NICU Infection Prevention and Management Committee, MSH Infection Control Team
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Issue: Hand hygiene is an important measure to prevent the spread of hospital acquired infections. Initial adherence to the "4 moments" of hand hygiene audits in our neonatal intensive care unit (NICU) was 59%. Follow up discussions identified that application of the 4 moments in our open NICU provided a unique challenge because the physical environment within and surrounding the isolette made it difficult to define what constituted the "patient environment".

Project: A multi-disciplinary group reviewed the 2007 hand hygiene results during education sessions and determined that there was uncertainty about what constituted the patient's environment in our open concept NICU. Patient care scenarios were reviewed and clear definitions for "baby space/environment" and "NICU space/environment" were developed. Two hand hygiene reference documents specific to the NICU were developed. One detailed the process for hand hygiene in the NICU and the other included scenarios to demonstrate application. Follow up education and feedback sessions will be conducted incorporating the new definitions and reference documents will be distributed.

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

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

DELEGATES FOR INFECTION CONTROL: FOSTERING AN INFECTION PREVENTION AND CONTROL CLIMATE

Lyne St-Martin; *McGill University, Montreal, Quebec, Canada*

The Infection Control Practitioner's (ICP) role is a complex and challenging one. To diffuse information to all health care workers of a hospital requires much creativity.

Our IPC team needed to identify and train Delegates for Infection Control to act as role models and to diffuse IPC information.

The ICP from this tertiary care hospital envisioned one Delegate for Infection Control from each patient care unit. Several steps were undertaken to define and expand their role: developing a mandate for the Delegates for Infection Control, obtaining buy-in from hospital administrators, describing the roles and responsibilities, officializing the function of this working group, offering train-the-trainer sessions and creating and distributing "Infection control toolkits".

The sum of the actions undertaken has contributed to the success of this project. The educational sessions have given the Delegates a sense of confidence in their ability to act as role models, which has fostered a sense of ownership for issues related to IPC. The most impressive result is that unit specific initiatives have been proposed and organized by Delegates. This has created a positive influence on all health care workers and has shifted the focus on preventing infections rather than controlling them.

To foster an IPC climate within a hospital requires time and energy. In a hospital with 1.5 ICPs, Delegates for Infection Control are essential to become the eyes and ears of the ICP and to become role models amongst their peers.

An Outbreak of CA-MRSA 10 Involving Newborns and Parents Associated with a Colonized Healthcare Worker.

Jo-Anne McConnell¹, Paul Dick¹, Elizabeth Gregg¹, Michael Gardam²

¹*Grey Bruce Health Services, Owen Sound, Ontario, Canada,* ²*University Health Network, Toronto, Ontario, Canada*

Introduction: We identified 3 previously admitted newborns with MRSA infections between February and August 2008. Concurrently, infection control was contacted by physician's offices regarding other clinical cases. There was concern of an outbreak; however no baseline data existed for comparison.

Methods: An outbreak committee was struck and expert advice was sought. We conducted a look back study by contacting internal and external physicians and Emergency Departments asking them to identify clinical cases of MRSA in newborns or their families, and to culture newborns born after February 1 2008 for MRSA. An active admission and discharge surveillance program was instituted on the affected unit. All unit staff and physicians were screened for MRSA. The unit was terminally cleaned, visitors restricted, contact precautions used for all patients, and education provided to staff.

Results: Between February 1 and December 1 2008 we identified 25 infants (16 colonized, 9 infected); 10 mothers (4 colonized, 6 infected); 2 fathers (2 infected); and 1 healthcare worker (colonized). Molecular fingerprinting revealed that 36/37 cases and the healthcare worker had an identical CA-MRSA 10 strain. Review of staff assignments revealed that the colonized healthcare worker was in contact with 88% of affected mothers and babies. The outbreak ceased when the healthcare worker stopped working, recurred upon return, and stopped again when they left on sick leave.

Conclusions: This outbreak was environmentally and temporally associated with a colonized healthcare worker. Staff screening was a very important measure in identifying and halting this outbreak.

Wednesday, May 13, 2009

Salon E Alternate Groups/Settings

To Boldly Go Where No Man Has Gone Before: Auditing Reprocessing Practices in Physician Offices-The Alberta Experience

Tracey Lubkey¹, Susan Lafferty²: ¹College of Physicians and Surgeons of Alberta, Edmonton, AB, Canada, ²Regional Infection Prevention and Control Program, Alberta Health Services, Edmonton, AB, Canada

Issue: In response to concerns about breaches in infection control, Alberta's government ordered each professional regulatory College to ensure that its members practice in accordance with accepted infection control practices.

Project: Following dialogue with the Provincial Medical Officer of Health about priorities, the College of Physicians and Surgeons established an Infection Prevention and Control Advisory Committee, created an awareness campaign for physicians and initiated inspections of offices in regards to the cleaning, disinfection and sterilization of reusable medical equipment.

The College began inspecting office reprocessing practices in April 2008. As of February 2009 the College has contacted 2600 specialists and has inspected 158 offices. The next round of office inspections to begin in the summer of 2009 will involve over 3,000 family practitioners and will likely result in an additional 200 offices for inspection.

Results: Results of the 158 office inspections revealed that deficiencies were common and included a lack of documented policies, procedures and training protocols, biological monitoring, appropriate rinsing following HLD and wearing required PPE.

Lessons Learned: The feedback from physicians about our audit and education program has been encouraging. Out of the first 55 offices surveyed 44 offices have resolved deficiencies and continue to reprocess, and the remainder either chose to use disposable devices(6), outsourced reprocessing (2) stopped procedures (2) or retired (2). Our major challenge remains the urgent need for ongoing education for physicians and healthcare workers who reprocess.

Out of the Basement: Certified Medical Device Reprocessing Technician (CMDRT) Personnel Certification Program.

Miles Murphy¹, Susan Lafferty²: ¹Canadian Standards Association, Mississauga, ON, Canada, ²Regional Infection Prevention and Control Program, Alberta Health Services, Edmonton, AB, Canada

Issue: Recent adverse events in delivery of health care have highlighted improper cleaning, disinfection and sterilization of reusable medical devices that have potentially exposed patients to infection. Lack of a Canadian certification process to ensure competency of medical device reprocessing staff has been noted as a contributing risk factor.

Project: To mitigate risk, Canadian Standards Association (CSA), an organization with expertise in personnel certification, moved forward with developing a national personnel certification program in September, 2008. A certification scheme committee, representing a broad range of stakeholders from across Canada, worked closely with CSA to steer the development of a robust certification to meet the requirements of ISO 17024 for independent, third party and neutral certification of medical device reprocessing technicians (MDRT). The program is intended to: (1) Promote public health by improving safety of use of medical devices (2) create a national standard of practice for Canadian MDRT personnel (3) lend credibility and authority to MDRT personnel while meeting needs of industry and regulators for relevant, standardized training (4) reduce number of hours needed for on-the-job training.

Results: The program is scheduled to be launched in the spring of 2009 and represents the first Canadian national certification program for eligible personnel who reprocess reusable medical devices.

Lessons Learned: A significant number of stakeholders from health care, industry and ministries of health were willing to volunteer their time and expertise in the development of this much-needed certification process. The role of CSA in managing and facilitating the process cannot be underestimated.

EMPLOYING AN ESTABLISHED TRAINING MODEL TO INTRODUCE ROUTINE PRACTICE AND INFECTION CONTROL TO POLICE OFFICERS IN A LARGE MUNICIPAL SERVICE. Hiltz, Natalie*, Peel Regional Police, Silverman, Alexis, Region of Peel Public Health

Natalie Hiltz¹, Alexis Silverman²: ¹Peel Regional Police Service, Brampton, Ontario, Canada, ²Peel Public Health, Brampton, Ontario, Canada

Issue: Peel Regional Police Service is the 3rd largest municipal service in Canada with more than 1,800 front line officers responding to over 250,500 calls annually. The region consists of Brampton & Mississauga, which are home to over 1.2 million residents. Due to the substantial diversity of the Region and the nature of policing itself, Peel Police Officers are frequently required to interact with individuals who may put them at risk of exposure to communicable diseases. Despite this danger, there is no requirement to provide training to Police on infection control.

Project: The "Personal Protection Strategy, (PPS) Model" was developed in collaboration with Peel Public Health to teach routine practice and infection control in a way that was readily accessible to Police Officers.

Results: The PPS model incorporates the design and colour-scheme of the Ontario Ministry of Community Safety and Correctional Services' Use of Force model, which is a well-known and widely accepted training tool for assessment of physical risk. The PPS Model has Officers use the same critical thinking that allows them to assess and avoid physical risk, and apply it to communicable disease. Thirty randomly-chosen Officers evaluated the model, using questions designed to assess its effectiveness in introducing the concepts of Routine Practice and Infection Control. All Officers questioned stated that the model and its concepts were useful, important and readily adaptable and applicable to their work environment. The majority of respondents, (80%) found the model satisfactory in its current format and felt it would be useful as a training aid.

Offender Health and Infection Prevention and Control: The Challenges and Triumphs of this Unique Endeavor

Dean Smith; *Capital District Health Authority, Halifax, Nova Scotia, Canada*

Nova Scotia is the only province in Canada in which a District Health Authority provides Infection Prevention and Control expertise to offenders within the Department of Justice. For greater than two years, CDHA Infection Prevention and control has been developing a program for Offender Health Services that attempts to address the infection prevention and control needs of its clientele. The purpose of the discussion will be to give an overview of the many challenges in developing the Infection Prevention and Control program in a climate of isolation, social stigma, fiscal limitations and multiple bureaucracies. With little bench marking data for comparison or offender health infection prevention and control colleagues in this field, the discussion of the program will be both eye opening and entertaining while introducing the CHICA community to this unique field.

Wednesday, May 13, 2009

Salon D, Surveillance

CENTRAL VENOUS CATHETER(CVC)INSERTION PRACTICES AMONG INTENSIVE CARE UNITS(ICU) PARTICIPATING IN THE CANADIAN NOSOCOMIAL INFECTION SURVEILLANCE PROGRAM(CNISP)

Lynn Johnston¹, Dorothy Moore², Linda Pelude³, Joanne Langley⁴, Geoff Taylor⁵, Michael John⁷, Alice Newton⁷, Zahir Hirji⁸, Karen Olekson⁶, Betty Ann Henderson¹⁰, Kathryn Suh⁹, Denise Gravel³

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Background: CVC insertion practices to reduce risk for bloodstream infection (BSI) have been identified and effectiveness demonstrated. Despite recommendations, proven strategies are inconsistently applied.

Objective: To report adherence to CVC insertion guidelines among ICU participating in CNISP.

Methods: Using a one-page checklist, CVC insertion practices were recorded by ICU nurses or infection control practitioners. Statistical analyses included variable descriptors by ICU type. Composite variables were created to assess the proportion of insertions adhering to most or some recommendations. Fisher's exact or Chi-square tests were used.

Results: Ten units provided observations on 283 insertions (74 pediatric(PICU)/neonatal ICU(NICU), 63 adult surgical, 146 adult medical/mixed ICU). Most were by residents (62%) and attending physicians (23%) using subclavian (33%), internal jugular (32%), and femoral (22%) veins. Hand hygiene was performed by physicians for 100% of PICU/ NICU insertions and 85% of adult ICU insertions. Sterile gown, gloves, & mask were worn for $\geq 98\%$ of insertions and cap for 78%. Full draping occurred for 65% of insertions (12% adult medical ICU and 77% NICU). Adherence to all recommendations was observed in 51% of adult ICU and 93% of PICU/NICU ($p < 0.0001$). Attending physicians were more likely to adhere to recommendations than medical students and residents (81% vs 38% vs 53%; $p = 0.005$).

Conclusion: There is incomplete adherence to CVC insertion recommendations in participating ICU. Practices vary between adult & pediatric/neonatal units and between attending physicians & housestaff. These practices likely mirror those in other Canadian ICU. As process outcomes reflect clinical outcomes, ICU should formally assess CVC insertion practices and provide educational programs where indicated.

Coordinating Surgical Site Surveillance between two Health Authorities: Lessons Learned

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Introduction: Surgical site infection (SSI) surveillance is often inconsistent between facilities and health regions. This three month pilot project examined the feasibility of developing standardized surveillance methodology across two health regions.

Methodology: Traditional surveillance was already in place at Vancouver General, Kelowna General and UBC Hospitals. Standardized definitions and data fields for SSIs were developed as well as a common patient phone survey (PPS) form and a voluntary physician reporting (VPR) form.

Results: All three hospitals were readily able to standardize surveillance following the creation of a Steering Committee and fulfillment of Privacy requirements. Traditional surveillance identified 7 SSIs (26.9% total infections), compared to 5 by VPR (19.2%) and 19 by PPS (73%). PPS was labour intensive, overly sensitive (90% of patients contacted did not have a SSI) and was unable to distinguish between deep and superficial infections. However, it did identify infections not otherwise detected by other methods.

Conclusions: Standardized methodology is feasible between different health regions but requires considerable infrastructure support. Facilities should recognize that SSI surveillance is both an assessment of perioperative quality as well as an evaluation of the impact of SSIs on the healthcare system; as such, detection of both superficial and deep infections is important. No one method of surveillance captured all infections; traditional surveillance suffered from the inability to detect cases outside the facility while VPR was subject to noncompliance and recall bias. The PPS detected the majority of infections, but also suffered from recall bias and was too sensitive a tool as drafted.

What's the "diff"? Syndromic surveillance and prompt implementation of additional precautions for diarrhea

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Background: Published data shows an increase in the incidence and severity of *C. difficile* associated disease (CDAD). Environmental contamination plays a significant role in the transmission of *C. difficile* spores. Prompt initiation of Contact Precautions with a dedicated toilet for patients presenting with new onset of unexplained diarrhea is important to prevent the transmission of CDAD in healthcare settings.

Sunnybrook Health Sciences Centre performs daily syndromic surveillance which includes diarrheal illness. A review of 2008 overall hospital data identified that 70% of patients/residents who were *C. difficile* toxin positive were placed on contact precautions at time of symptom onset. The remaining 30% did not have precautions implemented until toxin results were communicated. The delay in implementing appropriate additional precautions may contribute to the transmission of CDAD.

Project: A brief algorithm was developed outlining the steps to take when a patient/resident presents with new onset of diarrhea. Educational sessions were given to a pilot unit, a 36 bed trauma unit, utilizing case studies and a standardized stool chart, throughout September 2008.

Results: Compliance with the initiation of contact precautions based on symptom onset for CDAD patients increased from 25% to 100% after the educational intervention on the pilot unit.

Lessons learned: When new onset of diarrheal illness is identified through syndromic surveillance, prompt action can prevent transmission. Providing an easy to use algorithm together with targeted education can facilitate prompt implementation of additional precautions until an infectious cause can be excluded through appropriate microbiological testing.

UNIVERSAL SCREENING FOR METHICILLIN RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) HAVE WE MISSED THE TARGET?

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Background: Early identification of positive patients and instituting additional precautions have shown to be beneficial in reducing MRSA transmission. At SHSC a targeted approach of screening admitted patients considered to be at high risk for acquiring MRSA is used.

Objective: To determine if a universal MRSA screening protocol is more effective than targeted screening, to reduce MRSA transmission.

Method: From January 21, 2008 to July 31, 2008, all patients admitted to unit A (38-bed medical unit) and unit B (36-bed cardiology unit) were swabbed for MRSA within 72 hours of admission. Swabs were obtained from nasal, perianal and other wounds or exit sites. The organism was identified using selective chromogenic agar at 37°C for up to 48 hours. Infection Prevention and Control were notified of positive MRSA results and Contact Precautions were initiated. Additional information regarding MRSA risk factors was obtained from patient records and patient interviews.

Result: Of 2131 eligible patients, 1935 (90.8%) met inclusion criteria. Universal screening identified 33 MRSA-positive patients versus 29 patients by targeted screening. Universal screening added 1396 (65.5%) patients. The risk factor for the 4 additional cases was an outpatient clinic visit in the past year.

Conclusion: This study was limited to two inpatient units. Results may not reflect the entire facility. The current screening tool targeted 735 (34.5 %) admissions and captured 87.9% of patients admitted with MRSA. Universal screening added 1396 patients (65.5%) for testing and identified 4 additional patients with MRSA. Universal screening is not recommended at this time.

Wednesday, May 13, 2009

Salon C, Assessing/Understanding Behaviour

Heretics and Lunatics in Infection Control History (and what we can learn from them)

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The history of infection prevention and control is littered with heresy and (apparent) lunacy. Among the legion of examples: Dr.'s Snow, Semmelweis, and Daschner. John Snow's insistence that the contagion plaguing London of his day was the result of consuming contaminated water and the invisible creatures therein, rather than the widely accepted miasma theory, branded him a lunatic. Dr. Ignaz Semmelweis was not only considered a heretic and lunatic for his hand hygiene compulsion, he was ultimately driven to lunacy by ferociously intransigent opposition. And this practice continues even to modern times with Prof. Franz Daschner's heretical precepts of environmentalism in infection control. This presentation will explore several examples of how some contrary-thinkers evolve from heretics to heroes (and some who were just lunatics), and what lessons modern infection prevention and control can take away from our history.

Evaluation Tools to Assess Healthcare Workers' Knowledge and Skills Related to the Use of Personal Protective Equipment

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Issue and Purpose: One of CHICA-Canada's core competencies in Infection Prevention and Control for Healthcare Workers (HCWs) specifies that HCWs should demonstrate appropriate use of Personal Protective Equipment (PPE). Unlike hand hygiene, there are few tools available for assessing HCWs' knowledge and skills on PPE use. This project developed tools that are more comprehensive than those currently available, and that address recommendations from national guidelines as well as common errors.

Project Methods: 1) Literature was reviewed to identify tools and key issues with use of PPE, 2) tools were developed and 3) preliminary feedback was obtained from experts (Infection Control Practitioners, educators and students) for content validity and feasibility.

Results: Key issues with PPE identified include: noncompliance with recommendations, self-contamination when removing or wearing PPE, cross-transmission to the environment, skin/other reactions, and underutilization of hand hygiene. Five tools were developed: mask, respirator, gloves, gown, and goggles/face shield. Each tool consists of a performance checklist (for donning, removal and wearing when providing care), questions to assess knowledge, and answers to the questions.

Conclusion: The five PPE assessment tools are now ready to be used. These tools are applicable to students during basic education and practicing HCWs during orientation and in-service education

A Human Factors Approach to Hand Hygiene

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Hand hygiene, like many healthcare processes, is complex due to the number of factors involved. There are a number of physical tools required, diverse environments in which the process must occur, different groups of healthcare workers required to comply, each with highly differentiated work cultures, varying work processes and task requirements. Because of this complexity, hand hygiene lends itself well to a human factors analysis; that is, an analysis of the people, tools, environments and processes involved, in order to design a system that matches human cognitive and physical strengths and makes allowances for human limitations.

Methods: A multi-phased user-centered approach was undertaken to explore barriers and enablers to hand hygiene in diverse environments (rehab, family medicine, emergency and intensive care) for a number of healthcare workers (physicians, nurses, allied health, housekeeping, patient support workers). Observational studies, interviews, focus groups, and surveys were used to engage end users in solution development. Solutions were then validated through an environmental modification study, which sought to quantify the benefits of proposed solutions. This work was funded by the Canadian Patient Safety Institute.

Conclusions: This research highlighted the need to take into consideration the differences between healthcare workers, their environments and the tools they are provided when recommending solutions to barriers. Context specific recommendations resulting from this work will be formulated into a toolkit for dissemination by CPSI in April 2009.

Masters Of Disguise: Conducting an annual covert hand hygiene audit

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Issue: Performing hand hygiene audits on patient care units can be a challenge for infection control practitioners (ICPs). Selecting an appropriate method is important to ensure results are valid. Using direct observation may inflate hand hygiene rates due to Hawthorne effect. An unobtrusive method is preferable to obtain accurate hand hygiene rates. A disguise is created allowing an observer to move freely on a nursing unit and monitor hand hygiene performance. This imaginative disguise always involves impersonating a staff member who would normally be present in a patient room. The disguise usually has a background story and on occasion has required a homemade prop to make the ruse more believable.

Project: The hand hygiene audit is a direct observational study whereby staff is unobtrusively observed by the same data collector. There is no interaction or immediate feedback provided to observed staff necessitating the need for a disguise.

Results: The hand hygiene rates are provided to the infection prevention and control quality assurance committee, administration, and the management of the clinical areas.

Lessons Learned: Performing a yearly hand hygiene audit requires a great deal of planning, especially when creating an assumed identity is required. Hand hygiene rates fluctuate for various reasons. Rates are temporarily affected by hand hygiene campaigns. Deviating from a method that has been successful will lead to unusable data. Barriers to hand hygiene exist and need to be addressed. Utilizing a disguise is a good method to obtain true hand hygiene rates.

Wednesday, May 13, 2009
Salon F, Outbreaks

Parainfluenza Outbreak Investigation in a Bone Marrow Transplant Unit (BMT).

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Background: Parainfluenza outbreaks in BMT recipients are associated with increased morbidity and mortality. Between July 26 and July 31st 2008, parainfluenza was identified in three BMT patients admitted to our 24 bed BMT unit, prompting an immediate outbreak investigation.

Methods: Virology results for the past 6 months were reviewed. Chart review was completed. Screening for febrile respiratory illness was reinforced and symptomatic patients were placed on droplet precautions. Traffic within the unit was restricted. Rapid testing for parainfluenza was initiated. Ongoing education was provided to the unit staff. Stricter measures including private room for all patients, use of mask and gloves for all patient contact, screening for asymptomatic carriage, and extending outbreak measures to outpatient areas were required to halt transmission

Results: The first case dated June 22 could not be linked to the outbreak. For the initial cluster of cases, the viral culture results were reported positive from 4 to 10 days after collection of the nasopharyngeal specimen. Most of the remaining cases were exposed and infected before the diagnosis of parainfluenza was confirmed in this cluster. The outbreak was declared over on Sept 17th, after 2 incubation periods without occurrence of a new case and after testing all patients to rule out asymptomatic carriage. In total, 15 patients acquired parainfluenza infection; 4 developed pneumonia of which 2 required ICU admission.

Conclusions: As a result of this outbreak, we have enhanced our routine viral testing for BMT patients with any respiratory symptoms and have enforced more rigorous routine practices and visitor restrictions on the unit.

CONTROL OF A VRE OUTBREAK IN A LARGE TEACHING HOSPITAL: A JOINT EFFORT

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Issue: Vancomycin Resistant *Enterococcus faecium* (VRE) can cause large and costly outbreaks in healthcare facilities, accompanied by serious morbidity and mortality. Our hospital faced a large outbreak encompassing 14 clinical wards.

Project: The at-risk period for contracting VRE was defined from November 1 2005 until January 16 2006. A multidisciplinary outbreak control team adopted colonization definitions for VRE-positive, VRE-suspected, and VRE-negative, respectively. Patient cohorts were formed. Positive and suspected patients were flagged in the hospital information system. Strict hygienic guidelines were implemented. Environmental cleaning procedures were intensified. Rooms of VRE-positive patients and contaminated areas could only be re-used after a nebulising process (hydrogen peroxide). Isolation of VRE by culture from individual stool samples, or by PCR from pooled specimens, was used for case finding. Molecular typing (MLVA) was performed on all isolated strains.

Results: 8900 patients were determined to be at-risk. 113 VRE strains were detected in 112 patients. 108 strains belonged to the same MLVA type. Of the five non-epidemic VRE strains that were detected, four occurred in dialysis patients. Many environmental samples turned out to be positive demonstrating massive spread to the surrounding area. Within six weeks after implementing the control measures the outbreak was under control.

Lessons learned: The rapid containment of the outbreak was attributed to implementation of the abovementioned policies, including strict basic hygienic guidelines to prevent further spread. Our outbreak protocol was further adapted in order to increase physicians' involvement in decision making about closing wards and moving patients.

OUTBREAK PEP RALLY: A GOOD COMMUNICATION TOOL

Stefanie Ralph; *Norfolk General Hospital, Simcoe, Ontario, Canada*

Issue: February 29, 2008 to April 14, 2008 Norfolk General Hospital (121 bed acute facility) experienced an outbreak of Vancomycin Resistant *Enterococcus* on the combined obstetrics, surgical, and medical unit (3B). A total of 31 hospital associated cases were identified. The magnitude of the outbreak affected staff in all departments. As the outbreak continued staff morale decreased and a need for further staff communication was identified.

Project: A pep rally was held for staff in the hospital cafeteria March 20, 2008. The pep rally included handmade signs that read "Go NGH" or "No VRE", hand shaped noise makers, balloons, and streamers. Information was presented by the Vice President for Patient Care and Infection Control Practitioner. Messaging was brief with the focus on working together to bring the outbreak under control. The pep rally ended with a cheer "Help 3B, no VRE!" Breyers Unilever donated ice cream bars for all attending staff.

Results: This event had good local media coverage. McDonalds went on to deliver Egg McMuffins to all morning staff and cheeseburgers to all evening staff the next day. The community support of the hospital during this difficult time became a wonderful good news story. Staff morale was noticeably improved and on March 31 it was identified that transmission had been contained and the 3B unit was reopened.

Lessons learned: Outbreaks are very stressful for all staff involved. Upbeat messaging, fun and silliness went a long way to keep up staff morale. Our organization would use this technique again in the future.

Adapting Ontario's Just Clean Your Hands Program for Long-Term Care Homes

Clare Barry, Liz McCreight, Helen Sawick; *Ministry of Health and Long-Term Care, Toronto, Canada*

Issue: Hand hygiene is the single most important way to prevent infections and outbreaks in long-term care homes (LTC). To learn what adaptations should be made to the Ontario's multi-faceted hospital hand hygiene program for LTC, stakeholder focus groups were used.

Project: Stakeholders indicated that LTC would require a training program that was accessible to individuals and groups without a dedicated trainer. Feedback demonstrated that implementing the "4 moments" for HH would require adaptation for shared activities. The materials adapted for LTC include; a DVD with different vignettes to show practical application of 4 moments in LTC with sections for the different staff groupings, volunteers and family; adapted 4 moments poster; mini pocket guide; abridged implementation guide and revised provider categories on audit tool. An expert reference group reviewed materials.

Results: LTC is different from hospitals because they are homes - places where people live - as well as care settings. Many of the activities in LTC are shared activities. In order to reduce the transmission of organisms beyond the resident room, HH for LTC has been adapted to incorporate these shared activities. "Your 4 moments" will be practiced in resident's rooms and whenever direct care is provided. In shared activities, HH will be practiced by the residents and providers before and after activities.

Lessons Learned: Due to limited resources in LTC the teaching process is on a DVD so that a dedicated trainer is not required; the 4 moments required adaptation for shared activities