PRÉSENTATIONS PAR AFFICHAGE

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

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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 4th 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:

1. 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.
2. In Q2 2007/08 the rate began to decline.
3. In Q3 2007/08 the rate had declined to 3.1/1000 admissions.

Conclusions:

1. An interdisciplinary approach is effective to decrease the rate of HA C.difficile.
2. 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.
4. Over time, with regular in servicing, the behaviors of staff regarding hand hygiene and PPE do change.
5. The sustainability of these changes will be reviewed quarterly

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

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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 multidisciplinary 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).

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

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). ***Mothods: 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.

CLOWNS FOR STAFF EDUCATION!! ARE YOU SERIOUS???

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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 HEALTAHCARE WORKER'S COMPLIANCE WITH HANDWASHING

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Background: Effective hand hygiene by healthcare worker's (HCW's) 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 HCW's..

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 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.

HAND HYGIENE COMPLIANCE IN NON-ACUTE CARE SETTINGS

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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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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

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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]

	Contact ‡	Droplet ‡	Airborne	SRI SARS	PROTECTIVE	DROPLET CONTACT	airborne contact
Private Room	Preferred* Yes ARO's	Preferred*	Yes (door closed)	Yes (door closed)	Yes (door closed)	Yes-VAC exception	Yes (door closed)
Negative Pressure	No	No	Yes	No (Yes SARS)	No Positive	No	Yes
Mask: Staff	No (Surgical for Resp. MRSA)	Surgical	N95 required	SRIs: Surgical SARS:N95	Surgical	Surgical for Resp. Infection	N95 required
Mask: Visitors	No	Surgical	Surgical	Surgical	Surgical	Surgical	Surgical
Eye Protection	No	Yes	No	Yes	No	Yes	No
Gown	Yes (Shoe covers VRE)	Yes for pt contact	No	Yes	Yes	Yes	Yes
Gloves	Yes	Yes	No	Yes	Yes	Yes	Yes
Dedicated Equip	Yes	Preferred*	No	Yes	No	Yes	Yes
Transport pt. in Surgical Mask & Clean Linens	Clean linens only	Yes	Yes	Yes	Yes	Yes	Yes
Disposable Meal Tray	No Yes for VRE	No	No	No	No	No	No
Cubicle Curtains at Discharge	Change	Change	Change	Change	Do not change	Change	Change
Routine and Terminal Cleaning	Yes (Special for VRE)	Yes	Yes	Yes	Yes	Yes	Yes

* ‡ Check yellow pages in IC Manual for specific disease and pediatric precautions
CEHHA Infection Prevention and Control Sept. 2005

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

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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:

1. What are the IH and OH safety needs?
2. What are the gaps between IC and OH needs and current service?
3. 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 ?

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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 MRSA, VRE and CDAD in the renal inpatient and renal transplant units

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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 that 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.

(Trial to-date: February 2008. Updates to March 2008 will be included in the poster.)

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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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* !

Auteurs :
*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.

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.

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.

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* (≤5% each). SP are summarized:

Year	n	amp	amk	azt	caz	ceph	cfz	cipro	ctax	imi	levo	nfur	sxt	tim
2005	611	30%	99%	96%	96%	45%	72%	56%	97%	100%	61%	60%	65%	85%
2006	619	30%	100%	95%	95%	47%	75%	54%	94%	99%	63%	60%	67%	85%
2007	782	24%	98%	87%	90%	40%	67%	50%	90%	100%	61%	59%	63%	82%

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 LCTI.

Campagnes d'hygiène des mains : sortir des sentiers battus.

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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 4ième 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 HCW's 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 IMMUNOSUPRESSIVE THERAPY

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Background: Oncology patients are immunosupressed 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 ½ 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 oncology 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

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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

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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 ≥ 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

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Issue: In November 2007, the Infection Control program was made aware that there was an increase in the number of epidemic kerato conjunctivits (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 95years) 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 (χ^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 reservoir.