Journal Watch

Journal Watch presents a brief description of articles recently published in other journals and thought to be of relevance or interest to the AIC readership. Readers are encouraged to refer to the full article for complete information.

Compliance with contact precautions

The Spartanburg Regional Medical Centre, a 588 bed tertiary referral centre in the United States, report that the proportion of methicillin resistant *Staphylococcus aureus* (MRSA) isolates increased from 24.7% in 1997/8 to 44% in 2002/03. Reduction of MRSA was identified as a patient safety goal by the facility's infection control team. By employing a focus, analyse, develop and execute (FADE) process, the team identified the need to improve infection control compliance, provide feedback to staff and reduce rates of healthcare associated MRSA.

These findings resulted in the development of the Effective Processes in Infection Control Project (EPIC) to meet these targets. Components of EPIC included policy review, health care worker education, implementation of a monitoring and feedback system, and the development of a leadership accountability tool. Daily ward rounds were conducted to capture all new admissions and to monitor appropriate institution of infection control precautions, including signage and supplies. A method of immediate feedback to staff was developed, with weekly updates to nursing managers.

Outcomes included healthcare associated MRSA rates per 1000 patientdays and MRSA days at risk, although MRSA infection and colonisation were not differentiated. Compliance with isolation precautions increased from 19% in 2002 to 71.5% in 2003. Although the risk of MRSA transmission increased over the 2 year period, the rate of healthcare associated MRSA rates decreased from 0.69/1000 patient-days in 2001 to 0.478/1000 patient-days in 2003.

Cromer *et al.* state that the decreased rate of healthcare associated MRSA resulted in a cost reduction to the facility in the realm of US\$2 million. The authors claim that the introduction of a waterless hand antiseptic in April 2003 and improved pre-operative antibiotic prophylaxis using cefazolin in January 2002 did not impact on the initial decrease in MRSA rates. Cefazolin is not generally effective against MRSA and therefore would not have impacted on the healthcare associated MRSA rate.

The authors conclude that accountability for infection control compliance is essential for the prevention of transmission of antibiotic resistant organisms and for influencing patient safety.

Cromer A, Hutsell S, Latham S, Bryant K, Wacker B, Smith S, Bendyk H, Valainis G & Carney M. Impact of implementing a method of feedback and accountability related to contact precautions compliance. Am J Inject Cont 2004; 32(8):451-455.

Identification of patients at risk of MRSA and VRE on hospital admission

Furuno *et al.* used a retrospective cohort study to assess the validity of factors from patients' past medical history to predict those at high risk for methicillin resistant *Staphylococcus aureus* (MRSA) and/or vancomycin resistant Enterococci (VRE) on hospital admission.

The study was conducted at the University of Maryland Medical Centre (UMMC), a 650-bed tertiary referral centre. Cases (n=273) were defined as patients with positive clinical cultures for MRSA and/or VRE within 48 hours of hospital admission. Controls (n=19, 126) were selected from the same wards as cases and defined as all patients admitted without positive cultures for VRE and/or MRSA with 48 hours of admission.

Data were collected retrospectively from UMMC electronic records of patients admitted to general medical and surgical wards during 2001 to 2002 and a literature review identified risk factors for MRSA and VRE.

The results indicated that previous admission within 1 year and receipt of antibiotics had much better sensitivity for VRE (76.9% and 72.3% respectively) compared to MRSA (50.5% and 42.8%). Admission to hospital within the previous year had a sensitivity of 56.8% and a specificity of 88.4% for predicting a case of MRSA or VRE. The authors suggest that a previous hospital admission is a stronger predictor for VRE infection than for MRSA and may be useful in settings where VRE control is required.

In this study, positive clinical cultures were used as a proxy for infection, there was no differentiation between patients colonised or infected with MRSA or VRE. Further, the study did not take into account those patients who may have received antibiotics outside of UMMC. Furuno *et al.* conclude that patients with a hospital admission within 1 year of the current admission may constitute a high-risk group that could be targeted for active surveillance on admission.

Furuno J, Harris A, Wright M, McGregor J, Venezia R, Zhu J & Perencevich E. Prediction rules to identify patients with methicillinresistant Staphylococcus aureus and vancomycin-resistant Enterococci upon hospital admission. Am J Infect Cont 2004; 32(8):436-440.

Environmental cleaning and cross-infection

The role of the inanimate hospital environment in the spread of nosocomial infection remains controversial. The author of this review identifies four factors that can be measured, including: the degree of contamination of the nosocomial environment by specific pathogens; whether the environment is contaminated before or after patient colonisation; assessment of confounders such as hand hygiene and the quality of cleaning of fomites; and whether improved cleaning after controlling for other interventions reduces the risk of patient infection.

The author states that some of the best studies on this subject have used molecular epidemiologic techniques to identify pathogens and measure environmental cleaning as well as hand hygiene. This has resulted in the ability to link contaminated surfaces with cross-colonisation of patients.

During the discussion of various pathogens, the author suggests that the influenza virus could persist in the environment and become reaerosolised during floor sweeping. Candida infections are more likely to be considered from endogenous sources, but molecular typing has shown that yeast can be recovered from patients and from the hands of health care workers as well as the environment. Other pathogens discussed include *Clostridium difficile*, Gram-negative and other Gram-positive bacilli. Included in the article for easy reference is a summary of the pathogens and the length of time that environmental contamination persists with recommendations for decontamination.

The final discussion of this paper highlighted the need for more studies to further explore this issue but recommended that the most cost-effective measure in infection control could be more thorough and more frequent environmental cleaning to reduce the risk of cross-colonisation.

Bala Hota. Contamination, disinfection and cross-colonization: are hospital surfaces reservoirs for nosocomial infection? Clin Infect Dis 2004; 39:1182-1189.

Ansell

Vancomycin use in a paediatric hospital

This retrospective study was undertaken at a 325-bed paediatric tertiary care teaching hospital to determine whether the use of vancomycin was appropriately or inappropriately prescribed for both initial (\leq 72 hours) and prolonged (\geq 72 hours) use and to identify patient characteristics that may be associated with inappropriate use.

The study population was all children over the age of 1 year, who were inpatients and who were administered intravenous vancomycin during the period November 2000 to June 2001. To determine whether the use of vancomycin was appropriate or inappropriate, the authors based their criteria on a modified version of the Hospital Infection Control Practices Advisory Committee (HICPAC) vancomycin use guidelines.

Databases from pharmacy, administration and infection control provided patient information such as other medications prescribed, co-morbidities, nosocomial infections and procedures. In total, 406 courses of vancomycin were prescribed during the study period. Of these, the authors were able to review 327 courses for appropriateness. These 327 courses were prescribed to 260 patients. The remaining 79 courses of vancomycin were prescribed to 65 patients, but were unable to be evaluated because the medical records could not be located. The results showed that 35% of initial courses of vancomycin were considered inappropriately prescribed. In regards to the prolonged courses, 72% were considered inappropriately prescribed. Four patient characteristics were found to be associated with inappropriate prescribing for initial courses, whilst the authors were unable to identify specific characteristics for inappropriate prescribing in the prolonged courses. The characteristics identified were malignancy, stem cell transplantation, being admitted to a surgical service and receipt of multiple courses of vancomycin.

The authors note the limitations of their study as the missing records, reliance on databases for obtaining patient characteristics rather than the patients medical records, and a potential severity bias in being a tertiary paediatric facility. The authors conclude that studies such as this should form the basis of liaising with clinical staff in an effort to understand prescribing practices.

Bolon M, Arnold A, Feldman H, Rehkopf D et al. Evaluating vancomycin use at a pediatric hospital: new approaches and insights. Infect Cont Hosp Epid 2005; 26:47-56.

ADVERTORIAL

Medihoney[™] – Hospital wound care launch

MedihoneyTM has just launched in Australia and the United Kingdom Antibacterial Wound GelTM and Antibacterial Medical HoneyTM in CE marked single use tubes, following more than 10 years' research in Australian, New Zealand and UK hospitals. Underpinned by strong clinical research, Medihoney has developed a range of wound care products using highly unique honeys from selected floral sources.

Resistant organisms such as MRSA and VRE, including pan resistant strains, are especially sensitive to Medihoney's antibacterial wound care products. Suitable throughout the healing process for a wide range of acute and chronic wounds, Medihoney provides the benefits of *One product, three actions:* Wound protection; Wound cleaning; Wound healing.

Medihoney Antibacterial Wound Gel is a high viscosity product indicated for ulcers, surgical sites and burns. Deep wounds, sinus wounds, necrotic wounds and surgical wounds are best dressed with Medihoney Antibacterial Medical Honey.

References

Blair S. Honey and drug resistant pathogens. Presented at the Joint Scientific Meeting of the Australian Society for Microbiology and New Zealand Society for Microbiology, July 2000.

Cooper RA, Molan PC & Harding KG. Antibacterial activity of honey against strains of *Staphylococcus aureus* from infected wounds. J R Soc Med 1999; 92(6):283-5.

Dunford CE & Hanano R. Acceptability to patients of a honey dressing for nonhealing venous ulcers. J Wound Care 2004; 13(5).

George N. Honey – antimicrobial agent au naturel. Presented at the Australian Infection Control Association Third Biennial Conference, June 2004.



Ansell – Why double glove

Healthcare workers (HCWs) are exposed to the risk of blood-borne infections. The chronic Hepatitis B infection among surgeons is three times greater than that of the general population and more than 200 HCW die every year from blood-borne hepatitis infections. Glove punctures occur more commonly without the wearer's knowledge, representing up to 42% of the operating time having inadvertent contact with a patient's body fluids. Double gloving significantly reduces the perforation rates of the glove in contact with the skin and should be used routinely in all surgical procedures, as recommended by numerous standards such as ACORN Standards (2004) and the Australian Government Infection Control Guidelines (2004).

Outer glove: Gammex® PF

Glove type:

- White coloured natural rubber latex (NRL).
- Polymer coated for easier donning.

Shape features:

- Graduated palm thickness and relocated thumb ball, which, combined, decrease working fatigue.
- Thinner and shaped fingers pads for improved sensitivity.
- Textured under finger surface and palm for maximum grip.

Cuff features:

 Tapered straight cuff which improves gown grip and reduces carpal tunnel pressure.

Inner glove: Micro-Thin™ PF

Glove type:

- Brown coloured NRL glove.
- Inner glove darker than outer gloves helps to identify punctures.
- Polymer lining for easier donning.
- Thinner latex formulation which improves finger sensitivity and reduces bulk.

Shape features:

• Wide thumb ball for less working fatigue.

For further information, visit http://www.ansellas iapacific.com/downloadSection/?topic_ID=620

Ansell Limited, Level 3, 678 Victoria Street, Richond VIC 3121 Tel: (03) 9270 7270 Fax: (03) 9270 7300 Web: ansellhealthcare.com

Ansell, Gammex[®] PF and Micro-Thin[™] PF are trademarks owned by Ansell Limited, or one of its affiliates. ©2005 All Rights Reserved.