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.

Influence on compliance with standard precautions among OR nurses

An Australian study by Osborne using a descriptive correlation design aimed to assess the influence of operating room (OR) scrub nurses' attitudes and beliefs on compliance with standard precautions and occupational exposure reporting. In particular, the practices of double gloving and wearing adequate eye protection were evaluated.

A 96 item questionnaire was developed to explore and test relationships between compliance with standard precautions and variables that influence whether an individual will undertake particular self-protective health behaviours as described in the Health Belief Model. Five hundred questionnaires were mailed to a randomly selected proportion of Australian College of Operating Room Nurses (ACORN) members in each state. The response rate was 45% (n=227), reflecting 13% of ACORN membership (n=1710).

Results demonstrated that compliance was significantly greater for nurses with less than 2 years' scrub experience and significantly less for nurses working in small facilities with few operating rooms. Nurses in NSW demonstrated the greatest compliance with double gloving and nurses in South Australia had a significantly lower compliance rate for the wearing of protective eyewear. The author states that a trend towards improved compliance is evident, with a mean compliance of 55.6% for double gloving and 92% for wearing adequate protective eyewear.

The author acknowledges that limitations to the study include the sampling frame used, since ACORN represents only 12.2% of all OR nurses in Australia, and the tendency to overestimate compliance via the self-report method. Osborne concludes that the results will be useful for the development of multifaceted OR infection control programmes aimed at improving compliance with standard precautions.

Osborne S. Influence on compliance with standard precautions among operating room nurses. American Journal of Infection Control 2003; 31(7):397-404.

Effect of comparative data feedback on ICU infection rates

Nosocomial infections represent a significant problem for critical care units, with a prevalence of up to 50% in some settings. McKinley *et al.* reported a study using an experimental design that aimed to: provide a network of Veterans Affairs (VA) hospitals in the United States with a standardised intensive care unit (ICU) surveillance system; compare ICU infection rates in hospitals that received comparative data with those that did not; and compare VA network device-associated infection trends to national trends.

Eight VA hospitals were randomised into two groups. During 1999 the experimental group (n=4) received risk-adjusted infection rates and National Nosocomial Infections Study (NNIS) comparative data and the control group (n=4) only received their risk-adjusted infection rates. During the first 6 months of 2000, both groups received risk-adjusted infection rates and NNIS comparative data. Data collected by the two groups included nosocomial device-associated infections, invasive device-days, total number of ICU patient admissions and total number of ICU patient-days.

Results showed that during 1999 the device-associated infection rates were significantly higher in the control group compared with both the experimental group and NNIS rates. There was no significant difference between rates from the experimental group and NNIS. Between January and June 2000 there was no significant difference in device-associated infection rates between either the control or experimental groups and NNIS.

The authors acknowledge that in some cases there was incomplete reporting of data and that timeliness of data reporting was the main reason that the study was discontinued. Furthermore, differences were noted in regard to infection control staffing and reporting between hospitals. Only two hospitals in the control group distributed the reports to ICU staff, although all eight hospitals reported implementation of performance improvement initiatives in

their ICUs. Lastly, the study was limited by being discontinued in 2000. The authors conclude that infection rates may be reduced when national comparative data are provided.

McKinley L, Moriarty H, Short T et al. *Effect of comparative data feedback on intensive care unit infection rates in a Veterans Administration Hospital Network System. American Journal of Infection Control 2003; 31(7):397-404.*

Infection control knowledge amongst body-piercing practitioners

Body piercing has become increasingly popular, leading to concerns about the associated risk of hepatitis C virus (HCV) transmission during piercing. Many body-piercing practitioners (BPPs) have recently entered the industry but little is known about their training and understanding of HCV transmission.

This study, conducted in Victoria, Australia, measured BPP knowledge about HCV and infection control procedures. It also tested for HCV contamination within body-piercing establishments. BPPs were asked to complete a questionnaire about the number and type of piercings performed, their methods for disposing of and reprocessing piercing equipment, and their training and knowledge of HCV. Environmental swabs were collected from the body-piercing establishment and tested for HCV RNA.

BPPs at 35 establishments were recruited. A total of 31 BPPs had training as a BPP, ranging from 1 hour to 6 years (median; 15 days). Reprocessing of equipment was variable; eight establishments inadequately reprocessed piercing guns and four inadequately reprocessed forceps or guiding equipment. All BPPs were aware of HCV but many did not know how the virus was transmitted. A total of 19 BPPs performed extra cleaning after piercing a customer known to be HCV positive. No environmental swabs tested were positive for HCV RNA.

The authors conclude that many of the surveyed BPPs had inadequate training, and lacked knowledge and understanding of HCV transmission, infection control and standard precautions. They recommend that, to reduce the risk of HCV transmission, BPPs should be required to undergo formal training in infection control before being registered as BPPs.

Hellard M, Aitken C, Mackintosh A, Ridge A & Bowden S. Investigation of infection control practices and knowledge of hepatitis C among body-piercing practitioners. American Journal of Infection Control 2003; 31(4):215-220.

υCJD and the potential for transmission following surgery in Australia

There were 117 (approx 2 per million) cases of definite or probable variant Creutzfeldt-Jacob disease (υCJD) in the United Kingdom (UK) by April 2002. The median age of disease onset was 26 years and median age at death was 28 years. Ramasamy *et al.* report that the epidemic pattern observed suggest an age-related incubation period or susceptibility and exposure since υCJD usually presents at a younger age. This may be due to the beef items consumed by children and young adolescents, although genetic and environmental risk factors are not well understood.

In Australia, to January 2001, the CJD National Registry listed 236 definite CJD, 160 probable CJD, 1 possible CJD and 89 incomplete (awaiting more information) CJD cases, giving an annual incidence of approx 1.1 per million from 1988 to 2000. The cases consist of 91.2% sporadic CJD, 6.3% familial and 2.5% iatrogenic. To date there has not been a case of υCJD in Australia.

Ramasamy *et al.* propose a model for the quantitative risk assessment for the transmission of υCJD following surgery in Australia and provide examples for tonsillectomy and caesarean delivery. For the purposes of the risk assessment, the population at risk of υCJD is limited to those who have travelled to and/or lived in the UK between 1984-1997, the period thought to be highest risk of exposure to bovine spongiform encephalopathy (BSE). Based on the model, Australia can expect approximately 20 new cases of classical CJD each year and, using an approximation based on UK cases, 1-2 υCJD cases by 2002-2003.

Ramasamy *et al.* refer to risk-reduction strategies regarding transmission of transmissible spongiform encephalopathies during surgery and secondary transmissions arising from previous infections following surgery. The difficulties encountered with surgical instrument reprocessing, the employment of single use and/or disposable instruments, preoperative patient screening and research into υCJD detection and decontamination of instruments are also addressed by the authors.

The model presents various scenarios relating to surgical transmission of υCJD in Australia; however, the authors acknowledge the number of people incubating vCJD in Australia is uncertain.

Ramasamy I, Law M, Collins S & Brooke F. Variant Creutzfeldt-Jacob disease and the potential for its accidental transmission following surgery with contaminated instruments: The risk of transmission in Australia. Folia Neuropathology 2003; 41(1):1-10.

Risk factors for SARS transmission

The entire February edition of Emerging Infectious Diseases *is devoted to the topic of severe acute respiratory syndrome (SARS) and the following article is from this issue. The full text of* Emerging Infectious Diseases *is available on-line free of charge from www.cdc.gov/ncidod/EID/index.htm*

Most cases of severe acute respiratory syndrome (SARS) have occurred in close contacts of SARS patients. However, in Beijing, a large proportion of SARS cases occurred in persons without such contact. The authors conducted a case-control study in Beijing that compared exposures of 94 unlinked, probable SARS patients with those of 281 community-based controls matched for age group and sex.

Results showed that case-patients were more likely than controls to have chronic medical conditions or to have visited fever clinics (clinics at which possible SARS patients were separated from other patients), had eaten outside the home, or had taken taxis frequently. They also found that the use of masks was strongly protective. Among 31 case-patients for whom convalescent-phase (>21 days) sera were available, 26% had immunoglobulin G to SARS-associated coronavirus.

The authors conclude that their finding that clinical SARS was associated with visits to fever clinics supports Beijing's strategy of closing clinics with poor infection-control measures, and the finding that mask use lowered the risk for disease supports the community's use of this strategy.

Wu J, Xu F, Zhou W, Feikin DR, Lin C-Y, He X et al. *Risk factors for SARS among persons without known contact with SARS patients, Beijing, China. Emerging Infectious Diseases 2004; Feb. Available online from: www.cdc.gov/ncidod/EID/ vol10no2/03-0730.htm*

VRE and *S. aureus* in the intestinal tract

The presence of vanA genes in vancomycin-resistant *Staphylococcus aureus* (VRSA) isolates suggests that the resistance determinants may have been acquired from vancomycin-resistant enterococci (VRE). This study from a Veteran Affairs Medical Centre in Ohio examined the frequency at which *S. aureus* and VRE coexist in the intestinal tract of VRE-colonised patients and evaluated whether anti-anaerobic antibiotic therapy promoted increased density of *S. aureus* colonisation. The study was conducted prospectively over an 8 month period. Weekly stool cultures were obtained from all in-patients with documented VRE colonisation.

Results showed that 23 of 37 (62%) patients colonised with VRE also had *S. aureus* recovered from stool specimens and 20 (87%) of these had methicillin-resistant strains. All 37 patients had received at least one course of antibiotic therapy. The most frequently used anti-anaerobic antibiotics were metronidazole (19 patients), piperacillin-tazobactam (19 patients), and amoxicillin-clavulanate (12 patients). The authors found no significant difference in the mean density of *S. aureus* during versus ≥ 1 month after discontinuation of anti-anaerobic antibiotic therapy. In contrast, the mean density of VRE in specimens obtained during antibiotic therapy was significantly higher than in samples obtained ≥ 1 month after discontinuation of therapy.

No *S. aureus* isolates were found to be resistant to vancomycin; however, the frequent finding of coexistence of the two organisms in the intestinal tract of patients indicates a potential reservoir for the emergence of VRSA.

Ray AJ, Pultz NJ, Bhalla A, Aron DC & Donskey CJ. Coexistence of vancomycin-resistant enterococci and Staphylococcus aureus in the intestinal tracts of hospitalized patients. Clinical Infectious Diseases 2003; 37:875-881.

Efficacy of mupirocin for *S. aureus* decolonisation

Most *Staphylococcus aureus* infections are endogenously acquired, and treatment of nasal carriage is one potential strategy for prevention. In this review, the authors have critically appraised the published evidence regarding the efficacy of intranasal mupirocin for eradication of *S. aureus* nasal carriage and for prophylaxis of infection.

The authors evaluated 16 randomised, controlled trials; nine trials assessed eradication of colonisation as a primary outcome measure, and seven trials assessed the reduction in the rate of infection. Identified studies were conducted on heterogeneous study populations, including health care workers, HIV-infected individuals and patients undergoing haemodialysis, which precluded quantitative summarisation.

Several studies conducted with varied populations demonstrated that mupirocin was highly effective in eradicating nasal colonisation with *S. aureus* in the short term. Prophylactic treatment of patients with intranasal mupirocin in large trials did not lead to a significant reduction in the overall rate of infections. However, subgroup analyses and several small studies revealed lower rates of *S. aureus* infection among selected patient populations after treatment for carriage.

The authors concluded that the currently available evidence does not support routine use of intranasal mupirocin for infection prophylaxis. The long-term effect on resistance development is not known, because no studies included several years of follow-up.

Laupland KB & Conly JM. Treatment of Staphylococcus aureus *colonization and prophylaxis for infection with topical intranasal mupirocin: an evidence-based review. Clinical Infectious Diseases 2003; 37:933-938.*