

## Micro News

### Review 2008

#### 1. VRE environmental contamination: be careful what you touch!

A recent US study investigated VRE environmental and hand contamination on an ICU (Hayden *et al.* 2008). A stunning 21% of the 131 HCW hands sampled before touching either the patient or the surfaces in the room already had VRE on their hands. 52% of 23 healthcare workers who touched environmental surfaces in the rooms of VRE-positive patients but did not touch the patients themselves picked up VRE on their hands. Each contact with patient or environmental surface represented a 10% risk of picking up VRE so it seems that touching a surface in the room of a VRE-positive patient is just about as risky as touching the VRE-colonised patient in terms of picking up VRE on your hands!

#### 2. Prior room occupants and the risk of VRE acquisition

A study on two ICUs in the USA investigated the risk factors for VRE acquisition (Drees *et al.* 2008). Weekly environmental cultures and routine surveillance cultures for VRE were conducted over the 14 months study period and a VRE colonised patient as a prior room occupant, a VRE colonised prior room occupant in the prior 2 weeks or a previous positive VRE environmental culture were all independent predictors for VRE acquisition in a multivariate analysis adjusted for colonisation pressure and antimicrobial exposure. These data suggest that residual VRE room contamination is increasing the likelihood of VRE acquisition for subsequent room occupants and that improved room disinfection should be implemented.

#### 3. CA-MRSA and CDI continue to increase nationally in the USA

Using national databases, a US team investigated visits to emergency departments and outpatient units to treat various skin and soft tissue infections (SSTIs), which are characteristic of CA-MRSA (Hersh *et al.* 2008). Significant increases were observed for all SSTIs and abscesses/cellulites in particular, which increased 88% from 17.3 to 32.5 visits per 1000 individuals from 1997 to 2005. Increases were notably larger among black and among young patients visiting emergency departments, suggesting that CA-MRSA disproportionately affects certain populations.

Analysis of ICD-9 codes by a team in the US has identified a doubling of the rate of *C. difficile* hospitalisations from 5.5 cases per 10,000 population in 2000 to 11.2 in 2005 (Zilberberg *et al.* 2008). The increase was sharpest in the >85 age group, followed by the 65-84 age group. Furthermore, CDI-related age-adjusted case-fatality rate rose from 1.2% in 2000 to 2.2% in 2004. Therefore, it seems that the prevalence and severity of CDI in the US continues to increase probably due to the emergence of the NAP1/027 strain.

#### 4. **Routine HPV decontamination reduces rates of CDI in a US hospital**

A collaborative study between the Hospital of St. Raphael (a Yale University-affiliated hospital), the CDC and BIOQUELL investigated the impact of routine hospital-wide hydrogen peroxide vapour (HPV) decontamination on the incidence of *C. difficile* infection (CDI) (Boyce *et al.* 2008). The results of the prospective intervention study indicate a significant reduction in environmental contamination (25.6% of 43 cultures positive for *C. difficile* before HPV compared with 0 of 37 cultures HPV,  $P < .001$ ) and in the incidence of CDI (1.28 vs 2.28 cases per 1,000 patient-days;  $P = .047$  on five high incidence wards and 0.88 vs 1.89 cases per 1,000 patient-days;  $P = .047$ , hospital wide, when the analysis limited to months in which the epidemic strain was present during both the preintervention and the intervention periods). Despite some potentially important cofounders and the lack of an extant control unit, these data suggest that routine use of HPV may reduce rates of CDI.

#### 5. ***C. difficile* skin contamination?**

A team from Cleveland, Ohio, investigated skin contamination on patients with *C. difficile*-associated disease (CDAD), which is not often investigated (Bobulsky *et al.* 2008). The study found that 93% of the 27 patients tested had *C. difficile* spores on their skin at one or more of the five sites tested, that the spores were readily transferred to the hands of healthcare workers on contact and that the spores on the skin persisted for a median 7 days after the resolution of symptoms. This study raises important questions about when to take patients with CDAD off contact precautions.

#### 6. **Community-associated *C. difficile* – an emerging problem?**

*C. difficile* infection (CDI) is classically associated with older patients who are hospitalised and have had recent antibiotic usage. However, a recent retrospective case-control study from Leeds suggests that the traditional risk factors for CDI do not hold true for community-associated CDI (Wilcox *et al.* 2008). In this study, community-acquired CDI did not exclude patients with recent healthcare contact and CDI was associated with antibiotic use, older patients and hospitalisation. Surprisingly, cases were more likely to be associated with infants  $\leq 2$  years, almost half of the cases had not received antibiotic therapy in the month before CDI, and approximately one-third did not have exposure to antibiotics or recent hospitalization. It remains to be seen whether there has always been a low undetected background of CA-CDI or whether CA-CDI is a new phenomenon associated with 027 or other strains.

#### 7. **MRSA carriage in various populations**

A plethora of articles have been published over the last few months on MRSA carriage by various population subsets. The prevalence of MRSA colonisation varied from:

- 30% of 50 pig farmers in Holland (VAN, IV *et al.* 2008).
- 16% of 602 individuals arrested in Baltimore, Maryland, USA (Farley *et al.* 2008).

- 15% of 105 healthcare workers in an emergency department in Las Vegas (Bisaga *et al.* 2008), 4% of 225 healthcare workers in an emergency department in Pittsburg (Suffoletto *et al.* 2008), 2% of 1721 healthcare workers in contact with veal calves in Holland (Wulf *et al.* 2008) and 4-6% of healthcare workers in general (Albrich and Harbarth 2008).
- 3% of 123 uninfected children in Greece (Sdougkos *et al.* 2008). In the same study, 56% of 170 *S. aureus* infections in Greek children were methicillin-resistant.
- 1% of 959 healthy members of the Greek air force (Karapsias *et al.* 2008).

The finding of MRSA colonisation in 30% of pig farmers in Holland and 15% of healthcare workers in one US emergency department is of great concern, indicating that community associated strains are becoming increasingly established.

## 8. CA-MRSA rears its ugly head in London

Despite CA-MRSA being reported with increasing frequency from the USA, relatively little CA-MRSA has been reported from the UK. A study from King's College London used ciprofloxacin-susceptibility as a phenotypic marker and found that the number of ciprofloxacin-susceptible CA-MRSA is on the increase at St. Thomas' Hospital from 2000-2006 and that the strains show considerable clonal diversity, with most internationally recognised CA-MRSA clones represented (Otter and French 2008b). The most common clone identified was a previously reported CA-MRSA clone associated with the homeless and injecting drug users in the community served by the hospital (Otter and French 2008a). This is one of the first systematic reports on CA-MRSA in the UK and further work is required to assess the true prevalence of CA-MRSA in the UK.

## 9. Norovirus outbreak traced to a contaminated keyboard

An outbreak of Norovirus occurred in a US elementary school affecting 103 (39%) of 266 staff members and children at the school (CDC 2008). One classroom in particular was associated with transmission, and this was the only classroom in which staff and students shared computers. Norovirus DNA matching the outbreak strain was detected on one such shared computer keyboard in this classroom. Fomites that are shared but not commonly cleaned, such as computer keyboards, should be decontaminated during outbreaks of Norovirus.

## 10. And finally...

*Legionella* from a garden hose (Piso *et al.* 2007), alcohol supping *Acinetobacter* (Dixon 2008), computers telling us to wash our hands (Venkatesh *et al.* 2008) and doctors not washing theirs (Duggan *et al.* 2008), the dangers of bedside Bibles (Lloyd-Hughes *et al.* 2008) and really scary acupuncture needles (Murray *et al.* 2008). What does 2009 have in store...?

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