

Micro News

June / July 2008

1. 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.

2. Rising rates of nosocomial CDI in the US

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.

3. 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.

4. Hygiene standards and risk assessment

A study from Glasgow in Scotland investigated whether hygiene failures as judged by an aerobic count $>2.5\text{cfu/cm}^2$ or the presence of *S. aureus* are related to ward-based variables on an SICU (White et al. 2008). The number

of hygiene failures was related to the occupancy levels on the SICU and the number of hygiene failures was higher in weeks in which at least one unit-acquired infection occurred. Interestingly, the floor and sink were found to be microbiologically cleaner than the hand-touch site in the near-patient environment! Molecular typing of the staphylococci identified several indistinguishable groups cultured from both patients and the environment; temporal distribution of these isolates suggested that acquisition may have been environmentally associated in some cases, although staff were not screened. These data suggest that objective microbiological hygiene standards may be useful in certain hospital settings.

5. 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.

6. And finally...Docs really are worse at washing their hands!

A recent US study has confirmed the suspicion of many that there is an inverse correlation between the level of professional education and hand hygiene compliance (Duggan et al. 2008). Furthermore, the rate of hand hygiene compliance increased significant among the nurses after a JCAHO visit (the US healthcare watchdog), whereas rate among doctors actually worsened! Come on docs, wash your hands!

References

Boyce,J.M., Havill,N.L., Otter,J.A., McDonald,L.C., Adams,N.M., Cooper,T., Thompson,A., Wiggs,L., Killgore,G., Tauman,A. and Noble-Wang,J. (2008) Impact of Hydrogen Peroxide Vapor Room Decontamination on Clostridium difficile Environmental Contamination and Transmission in a Healthcare Setting. *Infect Control Hosp Epidemiol*.

Drees,M., Snyderman,D., Schmid,C., Barefoot,L., Hansjosten,K., Vue,P., Cronin,M., Nasraway,S. and Golan,Y. (2008) Prior Environmental Contamination Increases the Risk of Acquisition of Vancomycin-Resistant Enterococci. *Clinical Infectious Diseases* **46**, 678-685.

Duggan,J.M., Hensley,S., Khuder,S., Papadimos,T.J. and Jacobs,L. (2008) Inverse correlation between level of professional education and rate of handwashing compliance in a teaching hospital. *Infect Control Hosp Epidemiol*. **29**, 534-538.

Otter,J.A. and French,G.L. (2008a) Community-associated methicillin-resistant Staphylococcus aureus in injecting drug users and the homeless in south London. *J Hosp Infect* **69**, 198-200.

Otter,J.A. and French,G.L. (2008b) The emergence of community-associated methicillin-resistant Staphylococcus aureus at a London teaching hospital, 2000-2006. *Clin. Microbiol. Infect* **14**, 670-676.

White,L.F., Dancer,S.J., Robertson,C. and McDonald,J. (2008) Are hygiene standards useful in assessing infection risk? *Am. J Infect Control* **36**, 381-384.

Zilberberg,M.D., Shorr,A.F. and Kollef,M.H. (2008) Increase in adult Clostridium difficile-related hospitalizations and case-fatality rate, United States, 2000-2005. *Emerg. Infect Dis.* **14**, 929-931.