Conclusion: Thus, early results show a significant reduction of SSI by the use of a microbial sealant.

64.035

Many Viruses Are Present in Infants During Winter - Impact for Isolation Procedures

H.A. Nielsen[1], L.P. Nielsen[2,*]

[1] *Department of anestesiology, Gentofte Hospital., Copenhagen, Denmark*
[2] *National influenza Laboratory, Statens Seruminstitut, Copenhagen, Denmark*

Background: Respiratory syncytial virus (RSV) is a major pathogen in infants leading to multiple infections and admissions to hospital during the wintertime in temperate countries. In many clinical departments the results of rapid tests for RSV are used in deciding whether to isolate a given child with respiratory infection. We question such procedures as we experience many nosocomial infections despite the use of rapid RSV diagnostics.

Methods: We evaluated 498 samples from children with respiratory infection during a winter where RSV was prevalent. Rapid testing was evaluated against 2 RT-PCR methods. All secretions were analyzed by RT-PCR for an array of other respiratory viruses (influenza A and B, parainfluenza, coronaviruses, adenoviruses, metapneumovirus, bocavirus, polyomavirus KI and WU) as well as atypical bacterial pathogens: B. pertussis, *M. pneumonia* and chlamydia species

Results: We found that a membrane ELISA test (Directigen, Becton-Dickenson) only had a sensitivity of 45% whereas direct immunofluorescence staining had a sensitivity of 95%. Forty-five percentages of all samples were PCR positive for RSV. Next to RSV rhinovirus and bocavirus were the most common. Eighty percentage of the samples contained at least one virus. Twenty percent of the children had double infection and 4% were positive for two or more viruses

Conclusions: The membrane ELISA used had a very low sensitivity and should not be used unless the negative samples are submitted to other tests. Routine diagnostics performed only for RSV is inadequate for viral diagnostics in a population of small children with respiratory symptoms. Testing for many respiratory viruses will be expensive and the results will not have a impact on the decision to isolate or not, as many different viruses are present in the winter season and it will not be possible to isolate the children according to the viral diagnosis. Infection control and especially hand washing may in daily routine be more important than viral diagnostics.

Epidemiology of Vancomycin Resistant Enterococcus (VRE) in a Singapore Tertiary Hospital

R. Sridhar, C. Ong*, S.Q. Toh, K.T. Goh, R. Lin, T.M. Ng, D.A. Fisher, P.A. Tambyah

National University Health System, Singapore, Singapore

Background: At our 900 bed Singapore teaching hospital, VRE surveillance was initially restricted to patients from two other hospitals with previous VRE outbreaks or contacts of non-isolated VRE cases as our hospital was presumed not to have endogenous transmission of VRE.

Methods: A retrospective case control study was performed to determine the efficacy of this strategy. Cases were patients with VRE positive cultures from rectal swab, stool, urine or blood specimens. Controls were matched for age and month of hospitalization. Clinical data were analyzed for risk factors for VRE carriage

Results: Twenty-five cases and 75 controls were identified from 1st January to 31st December 2007. These represented 5 different patterns by variable nucleotide tandem repeat (VNTR) typing. There were 1 vanB *E. faecalis*, 2 vanA *E. faecium* and 22 vanB *E.faecium*. One patient had bloodstream infection, the rest were rectally colonized. Significant risk factors for VRE colonisation by multivariate analysis included hospitalization within the same room for 24 hours or more with an unrecognised VRE carrier [Odds ratio (OR) 4.89; 95% confidence interval (CI) 1.95 - 19.19), presence of diabetes mellitus (OR 4.26, 95% CI 1.41−15.85) and hospitalization of $\geq$10 days (OR 7.04; 95% CI 2.20−22.57). Prior hospitalization in other hospitals with previous VRE outbreaks was not associated with VRE colonisation (OR 0.27; 95% CI 0.08 - 0.87). (Epidemic curve below).

Conclusion: We identified independent risk factors for VRE carriage that suggest local transmission rather than simply importation. We have since modified our screening strategy to screen patients with a high composite risk score rather than those from hospitals with previously reported outbreaks and intensified infection control measures in the wards.

64.037

Daily Management of Antimicrobial Prescribing Leading to Reduction of *Clostridium difficile* Infections in Elderly Patients

W. Al-Wali*, M. Asensio, C. Hughes, S. Ahuja

Rotherham General Hospital, Rotherham, United Kingdom

Background: The incidence of *C. difficile* infections in the Elderly wards of a British District General Hospital has been higher than comparable hospitals. An audit was carried out to ascertain the risk factors behind the increased rate of these infections. The aim was to target the causative factors and formulate an action plan to reduce the rate of this hospital- acquired infection. The findings of the audit has demonstrated an association between the use of third generation cephalosporins namely ceftriaxone and other antimicrobials and the occurrence of *C. difficile* diarrhoea.

Furthermore, patients with C.difficile had a longer hospital stay than those who did not acquire this infection.

Methods: Third generation cephalosporins were removed from the formulary. They were only allowed to be prescribed following advice of the Microbiologists. A red alert action plan was put in place to reduce antimicrobial usage in general and particularly cefuroxime and broad-spectrum antimicrobials. To this effect the antimicrobial policy was reviewed and the following methodology was implemented with the aim of reducing intravenous antimicrobials and encouragement of the use of oral antimicrobials:

1. Daily lists of all patients on antimicrobials in the Elderly wards were faxed to the Microbiology Department.
2. The Medical Microbiologists then contacted the relevant clinicians to discuss antimicrobial treatment with the aim of rationalizing antimicrobial therapy to reduce and control *C. difficile* infections.

Results: As a result of this intervention the outcome has been the following:

1. Reduction in the use of antimicrobials.
2. Reduction in the duration of antimicrobial treatment.
3. More conversion of intravenous therapy to oral therapy.
4. Discontinuation of ceftriaxone and third generation cephalosporins.
5. Reduction in the incidence of *C. difficile* infections in Elderly patients by more than 45%.
6. Better clinical management of patients and on-going education of junior doctors.

Conclusion: The daily communication of patients who are on antimicrobials to the Microbiologists and their active intervention has led to the reduction in antimicrobial usage, more rational use of antimicrobials, more switch from intravenous to oral therapy, reduction of *C.difficile* diarrhoea and better clinical management of patients.

doi:10.1016/j.ijid.2008.05.957

64.038

Journey of Infection Control in a Tertiary Care Hospital

R. Adhikary*, K.R. Kulkarni, B.N. Gokul, M. Chakravarthy

Wockhardt Hospital, Bangalore, India

Background: Hospital programmes of infection control should include surveillance to detect healthcare associated infections (HAI), to reduce the incidence and thus to reduce the associated morbidity, mortality, and costs. With this aim in mind, Wockhardt Hospitals, Bangalore, India started its surveillance programme for four healthcare associated infections such as surgical site infection (SSI), blood stream infection (BSI), urinary tract infection (UTI) and ventilator associated pneumonia (VAP), analyzed and monitored the trend, compared it with sister hospital and took interventions as and when required.

Methods: An active on-going systematic surveillance is done by analysis of laboratory reports of culture and sensitivity, regular visits to patient care areas by the infection control team and clinical monitoring of all hospitalized patients through the infection control worksheets. The analysis of the data showed that the rates of all HAI were very high in the month of June and July 2007. SSI rate was 3.3%, UTI rate was 15/1000 catheter days, VAP was 17/1000 ventilator days in the month of June and BSI rate was 19/1000 indwelling catheter days in July. Interventions like regular and specialized training of infection control protocols, isolation of infected patients, barrier nursing, environmental cleaning, upgrading the hand wash stations, implementing alcohol hand rub in each patient bedside, monitoring of adherence to hand hygiene practices, VAP bundle etc were taken immediately and the rates were brought down over a period of 8 months

Results: HAI rates were brought down to 0.2% for SSI, 4.2/1000 catheter days for UTI, 2.2/1000 ventilator days for VAP and 1.6/1000 indwelling catheter days for BSI in the month of January 2008.

Conclusion: The surveillance results are fed back regularly to the clinical staff and the management to prioritize the plan of action to bring down the rates to as minimum as possible.

doi:10.1016/j.ijid.2008.05.958

64.039

Impact of Ventilation System Design on Airborne Infectious Disease Control in an Emergency Room

J. Chang*, P. Harght

University of Kansas School of Architecture and Urban Planning, Lawrence, KS, USA

In healthcare settings, air distribution systems play a vital role in providing and maintaining indoor air quality that is safe for patients, staff, and visitors. Emergency rooms contain multiple patients who share the same setting and are in close proximity to each other making them more susceptible to other illnesses caused by the transmission of airborne contaminants. It is therefore necessary to provide an indoor environment that is designed to minimize the spread of airborne contaminants from patient to patient and patient to staff. One means of addressing this issue is through the proper selection and design of air distribution systems.

This study examined the influence of air distribution systems (overhead and displacement) and return and supply grille locations on ventilation effectiveness and contaminant distribution control of a typical North American emergency room. Emphasis was placed on the isolation and removal of air in the immediate vicinity of the patient to minimize the possible spread of airborne infections in the multi-patient environment.

The study employed numerical simulations using computational fluid dynamics (CFD) to investigate the airborne contaminant control performance of the air distribution system designs. CFD provided a means to analyze the ventilation performance of the emergency room through both numerical and visual results. Contaminant distribution was modeled with the patient's mouth serving as the source. Local air quality index (LAQI) was used to measure the effectiveness of contaminant removal. Local mean age of air (LMA) was used to analyze the general ventilation performance of the emergency room. Analyses of the data showed