eP262
ePoster Viewing
Assessing and decreasing environmental contamination
Environmental sampling of air and surfaces on hospital wards. What does it tell us?

T. Claro[1], M. O'Reilly[1], S. Daniels[2], H. Humphreys[1,3]

[1]*Clinical Microbiology, Royal College of Surgeons in Ireland*

[2]*National Centre for Plasma Science and Technology, Dublin City University*

[3]*Department of Microbiology, Beaumont Hospital, Dublin, Ireland*

Background

Contamination of air and surfaces by healthcare-associated bacteria has been reported but with different outcomes in terms of transmission.

Objectives

To assess environmental contamination of air and surfaces before and after cleaning in two wards (one medical and one surgical) in a tertiary referral hospital and to evaluate the cleanliness of each of the surfaces sampled.

Methods

Microbiological sampling of air and inanimate surfaces around hospitalised patients was carried out twice a day (before and after cleaning) over a seven week period. Air contamination was assessed using the Sampl'air lite system and tryptic soy agar for bacterial enumeration. Surface sampling was assessed using contact plates and petrifilms on four high-touch surfaces including the toilet-door handle, the bedside locker, the tray table and the call button. The cleaning assessment was carried out by applying a fluorescent dye to each of the surfaces sampled and assessing if it was present the day after.

Results

Air contamination varied during the screening period independently of the ward, bay or time of day (before or after cleaning). The mean total viable count detected in air before cleaning was 1363 colony forming units (CFU) per m3 and after cleaning 569 CFU/m3 ($P \leq 0.05$). Bacterial contamination on surfaces was higher on the toilet-door handle independently of the ward or time of the day, followed by the bedside locker. The least contaminated surfaces were the tray table and call button. Statistical analysis showed no significant difference between the two methods used (contact plates and petrifilms) for environmental sampling. The cleaning assessment revealed that the bedside locker and the call button were the surfaces failing most often (i.e. inadequately cleaned) followed by the tray table. The toilet-door handle was targeted most frequently for cleaning. The overall pass rate was 41%.

Conclusions

Routine cleaning may play a role in the reduction of air contamination. Bacterial contamination of surfaces around patients was above the range of >2.5 to 5 CFU/cm2, currently accepted by many as a measure of poor hygiene. There is a need for improved cleaning standards and better decontamination techniques in hospitals.