

ORAL PRESENTATION

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Massive hospital-wide bacillus outbreak related to hospital linen and construction

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Introduction / objectives

At the National University Hospital in Singapore, the baseline average number of bacillus cultures/month is eight. An outbreak became evident when 274 clinical isolates of *Bacillus* were recovered from 230 inpatient episodes between April and August 2010. An investigation was undertaken.

Methods

Chart reviews of affected patients and extensive environmental sampling was followed by a review of hospital ventilation systems, cleaning protocols and laundry processes. Response to interventions was monitored via clinical case numbers and environmental sampling over a six month period.

Results

B. cereus complex constituted 164 cases (71.3%). Bacteremia comprised 207 patient episodes (90.0%), of which 124 occurred in immunocompromised patients or those with intravascular devices. Physicians treated the organism in 68 episodes (29.5%). Environmental investigations confirmed heavy air contamination particularly within patient rooms and air conditioned wards. Dense airborne contamination outside the hospital adjacent to large earthworks on a construction site was demonstrated ($\sim 600\text{CFU}/\text{m}^3$). Towels were heavily contaminated even after laundering (7403 ± 1054 spores/ cm^2). Amplification of spores occurred in clean linen due to storage conditions (165 ± 84 spores/ cm^2 pre-storage vs 4437 ± 1228 spores/ cm^2 post-storage). Interventions focusing on laundry protocols, environmental cleaning and air filtration saw clinical case numbers return to baseline levels within three months.

Conclusion

Environmental contamination with *Bacillus* may be an under-recognised infection risk in hospitals exposed to construction work. Laundering and environmental cleaning processes that are not sporicidal carry a greater risk. Storage conditions of cleaned linen can amplify *Bacillus* contamination.

Disclosure of interest

None declared.

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