



Service Priorities and Programmes
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Submitting author: Dr Koon Chi Christopher Lai

Post title: Associate Consultant, Queen Elizabeth Hospital,

Environmental sampling of Vancomycin-resistant Enterococci (VRE) as surrogate marker for carriers

Lai CKC(1), MY Kong(2), SY Lee(2), SY Chan (2), HK Siu (2), DNC Tsang (1)(2)
(1) Department of Pathology, Queen Elizabeth Hospital, (2) Infection control team, Queen Elizabeth Hospital

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Introduction

The strategy for control of Vancomycin-resistant enterococci (VRE) depends on three critical elements: (1) early case finding; (2) segregation of primary sources, and; (3) stop the spreading of VRE by means of hand hygiene and environmental hygiene. Environmental hygiene plays an important role: contaminated environmental surfaces and equipment, which in turn contaminate the hands of healthcare workers, have been linked to the transmission of VRE in clinical areas. To control the spread of VRE in Queen Elizabeth Hospital, we monitored the ward environment contamination by VRE using the microbiological methods

Objectives

1. To assess whether the presence of VRE new case correlates with environmental contamination
2. To assess overall cleanliness of high touch areas using VRE as an indicator organism
3. To identify which high touch areas are most contaminated

Methodology

During the study period, the environmental cleaning protocol was unaltered. Competency of cleaning workers was ensured by onsite coaching and return-demonstration by Infection Control Team and Central Nursing Division. A designated person was trained to conduct environmental sampling from 40 high touch inanimate surfaces in four clinical wards every week between 6th September 2013 and 6th February 2014. Wards belonged to departments with high prevalence of VRE were selected. Ten high touch surfaces were randomly sampled from each ward using sterile Polywipe sponge. VRE was recovered by broth enrichment followed by sub-culturing onto chromogenic agar. The number of new VRE cases identified in QEH by usual screening during the same period was drawn from CDARS

Result

A total of 1131 environmental specimens were collected from 37 wards, 108 (9.54%) were positive for VRE. Spearman's correlation between the new cases identified by

usual screening and VRE positive rate in environmental samples was 0.55 ($p < 0.05$) (Figure 1); the top ten positive sites among the high touch areas was identified (Table 1). Commode chairs and high chairs are surfaces that are frequently contaminated. We demonstrated that the use of microbiological sampling for VRE correlates with the number of new VRE case identified by usual screening. With our finding of the top 10 contaminated sites, future cleaning schedule and protocol should be modified to include sites that were previously thought to be of 'low risk'. Further studies with more standardized environmental sampling are warranted.