Pilot evaluation of environmental hygiene using fluorescent markers and microbiological cultures

Amish Acharya,[1] Dunisha Samarasinghe,[1] Julie Singleton,[1] Eimear Brannigan,[1] Tracey Galletly,[1] Hugo Donaldson,[1] Alison Homes,[1,2] Jonathan Otter[1]

1. Imperial College Healthcare NHS Trust; 2. Imperial College London

✉ jon.otter@imperial.nhs.uk @jonotter

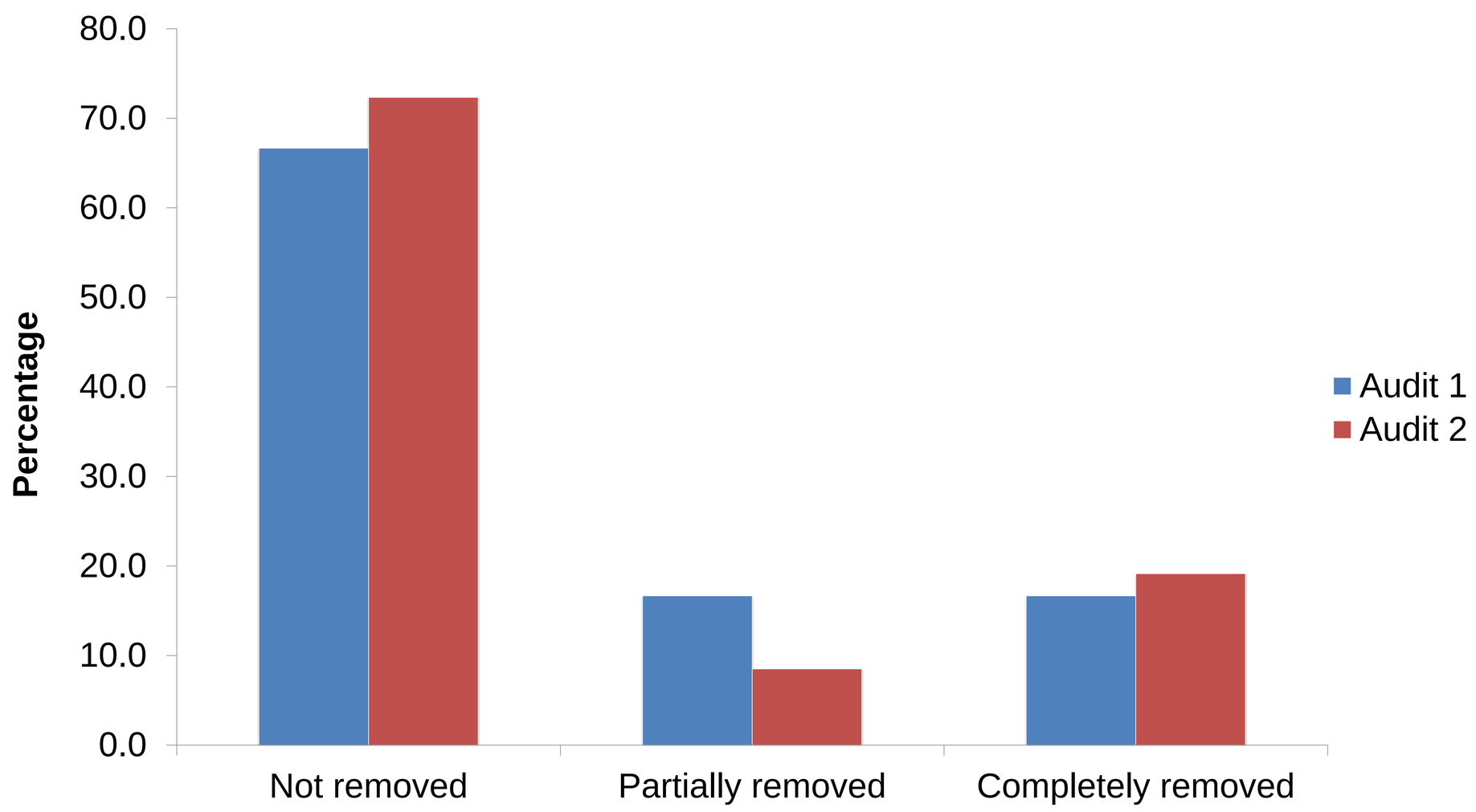
1. Introduction

- Environmental hygiene is a crucial component of infection prevention and control. It is difficult to define "clean" without objective measures of environmental hygiene.
- Using fluorescent marks to evaluate the cleaning process and microbiological cultures as an endpoint evaluation of the cleaning result are two objective measures.[1,2]
- We used fluorescent markers and microbiological cultures to evaluate ward hygiene during an outbreak of carbapenem-resistant Enterobacteriaceae (CRE).

2. Methods

- 30 environmental cultures were collected from a mixed medical / surgical ward, comprising each occupied bed space and communal areas (nursing station, shared toilet and sluice), and cultured for CRE, including an enrichment step.
- One two occasions, separated by a week, fluorescent marks were applied to two surfaces in each occupied bed space (bed raising panel and bedside locker), and whether they had been partially or completely removed was determined 24 hours later.

Figure: Removal of fluorescent markers. (Audit 1 n=24; Audit 2 n=47)



3. Results

- None of the environmental cultures grew CRE. In the first fluorescent mark audit, of the 24 marked sites, 16 (66.7%) were not removed at all, four (16.7%) were partially removed, and four (16.7%) were removed completely.
- In the second fluorescent mark audit one week later, of 47 marked sites, 34 (72.3%) were not removed at all, 4 (8.5%) were partially removed, and 13 (27.7%) were removed completed. There was no significant difference between the rate of mark removal in the first and second audits.

4. Discussion

- We did not identify any viable environmental contamination with CRE. However, we did identify poor levels of compliance with removing fluorescent mark from hand-touch surfaces; this was particularly disappointing since the sites should have been cleaned three times in the 24 hours from application to evaluation.
- However, we note that these baseline levels of mark removal are in line with published data from other hospitals using the same technique. These findings have prompted a re-evaluation of training for cleaners.

References

1. Boyce *et al. Infect Control Hosp Epidemiol* 2011;32:1187-93. 2. Carling *et al. Infect Control Hosp Epidemiol* 2008;29:1035-41.

Imperial College Healthcare NHS Trust

Disclosures: JO is a consultant to Gama.