

P0771

Poster Session III

Clostridium difficile: epidemiology and outcomes

DETECTING CLOSTRIDIUM DIFFICILE SPORES FROM HOSPITAL SURFACES. WHICH METHOD IS BEST?

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Background

The survival of *Clostridium difficile* spores on inanimate surfaces of the hospital environment plays an important role in its transmission. However, environmental sampling of the hospital environment remains largely confined to outbreaks or research studies. Practical, reliable and fast methods are needed to monitor cleaning and to validate new decontamination techniques.

Objectives

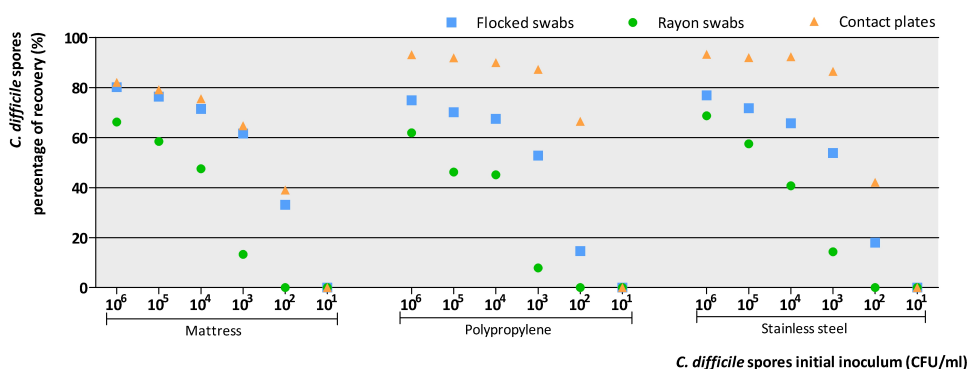
To evaluate and compare different methods for the detection and recovery of *Clostridium difficile* spores from hospital surfaces.

Methods

Clostridium difficile spore suspensions ranging from 10¹ to 10⁶ CFU/ml were applied to different surfaces, replicating those commonly found in the hospital environment. Rayon swabs, flocked swabs and contact plates were used to recover the applied *C. difficile* spores from mattress, polypropylene and stainless steel. The percentage recovery and limit of detection of *C. difficile* for each of the methods was calculated and compared.

Results

Figure 1 shows the percentage recovery of *C. difficile* spores from mattress, polypropylene and stainless steel sections using rayon swabs, flocked swabs and contact plates at various inocula. The contact plate was consistently the best method for all the surfaces tested with an average percentage recovery of 56.7%, 71.4% and 67.7% from mattress, polypropylene and stainless steel, respectively. The flocked swab was the second best method achieving average percentage recovery of *C. difficile* spores of 53.7% from mattress, 46.6% from polypropylene and 47.7% from stainless steel. The least effective method was the rayon swab, significantly inferior to contact plates (P<0.05) with an average percentage recovery of 30.9%, 26.8% and 30.2% from mattress, polypropylene and stainless steel, respectively. The limit of detection, i.e. the lowest number of *C. difficile* spores applied to a surface to yield a positive result was of 10² CFU/ml for all surfaces with either contact plates or flocked swabs.



Conclusions

Contact plates or flocked swabs are the most efficient for recovering *C. difficile* spores from surfaces commonly found in the hospital. Both methods could therefore be used according to the surface type and its dimensions in microbiologically assessing hygiene or in validating new decontamination techniques.