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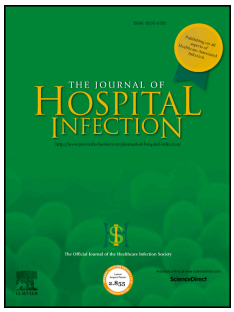

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Micro-textured Films for Reducing Microbial Colonization in a Clinical Setting

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Abstract: Transmission of microbes in the hospital environment occurs frequently through human interactions with high touch surfaces such as patient beds and over-bed tables. Although stringent cleaning routines are implemented as a preventive measure to minimize transmission of microbes, it is desirable to have high touch surfaces made of anti-microbial materials. Physical texturing of solid surfaces offers a non-bactericidal approach to control the colonization of such surfaces by microbes. This study investigated the efficacy of micro-textured polycarbonate (PC) films in reducing bacterial load on over-bed tables in a hospital ward. Two different micro-patterns were fabricated on polycarbonate film via a thermal imprinting method. Micro-textured films were then mounted on patient over-bed tables in a general hospital ward and the bacterial load monitored over 24 hours. Total Colony Counts (TCC), which represented on-specific bacteria loading, and meticillin-resistant *Staphylococcus aureus* (MRSA) counts were monitored at each timepoint. Over a period of 24 hours, both micro-textured surfaces showed consistently lower bacterial load as compared to the unpatterned PC and the bare over-bed table laminate. This study supports the findings of earlier laboratory-scale studies that microscale physical texturing can reduce bacterial colonization on a solid surface. Results of the current study suggest that micro-textured surfaces could provide a viable method for reducing microbial contamination of high touch surfaces in hospitals.

Keywords: Anti-microbial surfaces, microstructures, micropatterns, bacterial adhesion