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BEWARE BIOFILM! DRY BIOFILMS CONTAINING BACTERIAL PATHOGENS ON MULTIPLE HEALTHCARE SURFACES; A MULTI-CENTRE STUDY.

Ledwoch K, Dancer SJ, Otter JA, Kerr K, Roposte D, Rushton L, Weiser R, Mahenthalingam E, Muir DD, Maillard JY.

Multi-species dry biofilms were recovered from 95% of 61 samples. Abundance and complexity of dry biofilms were confirmed by SEM. All biofilms harboured Gram-positive bacteria including pathogens associated with HCAI; 58% of samples grew methicillin-resistant *Staphylococcus aureus*. Dry biofilms had similar physical composition regardless of the type of items sampled or the ward from which the samples originated.

The presence of dry biofilms harbouring bacterial pathogens is virtually universal on commonly used items in healthcare settings. The role of dry biofilms in spreading HCAs may be underestimated. The risk may be further exacerbated by inefficient cleaning and disinfection practices for hospital surfaces.

2. THE ROLE OF DRY SURFACE BIOFILM IN SPREADING HOSPITAL PATHOGENS

This simple lab study evaluated the amount of *Staphylococcus aureus* that were transferred from dry surface biofilms grown on glass and plastic coupons. Volunteers pinched the coupons on which the dry surface biofilms were grown, and then touched agar plates. In order to test the possibility of sequential transfer from hands, the volunteers touched a series of 19 agar plates (without touching the coupons again).

Around 5% of the *S. aureus* on the coupons was transferred to volunteers' hands, and 1% to the agar plates via contaminated volunteers' hands. While this doesn't sound like much, when you start with a couple of million bacteria, even 1% is a significant amount of bacterial transfer (around 20,000 or 105 cells). Worryingly, bacteria were transferred to agar plates for up to 19 sequential transfers.

The study also modelled whether detergent cleaning of the biofilms would help to mitigate the transfer of bacteria. However, in the case of the plastic coupons, wetting them with detergent actually made things worse, increasing the rate of bacterial transfer to the agar plates from 1% to 5%. Perhaps this is because the physical action of cleaning the coupons mobilised bacteria in the biofilms?

3 HOSPITAL CLEANING WITHOUT LEAVING DETERGENT RESIDUES.

Neutral pH PCS 250 Oxidizing Disinfectant/Disinfectant Cleaner
 Use to clean frequently touched surfaces.
 Apply to surface and wipe dry.

- **SAFE , EFFECTIVE**
- **ENVIRONMENTALLY RESPONSIBLE**
- **CLEANING WITHOUT TRANSFERRING PATHOGENS**

