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Hospital Disinfection: Reducing HAI rates

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Environmental cleaning and disinfection is a unique challenge. Environmental Services Managers operationalise the strategies set by Infection Prevention professionals. They are responsible for workers who have a varied skillset. But there exists no specific standard that has kept pace with the scientific evidence, and Clinical Governance departments do not monitor cleaners. There is great variability in cleaning practice from hospital to hospital and even greater variability from region to region.

One reason for that variability is that the science of cleaning hospitals is evolving. New approaches include new disinfectants, UV light, microfibre and disposable wipes. These methods are difficult to evaluate for cost-effectiveness because the results are not usually modelled against patient outcomes.

However when cross-referenced with hospital-acquired infection (HAI) rates, there is a clear correlation. Selecting the right product, then cleaning with the right process, reduces nosocomial *C. difficile* infection rates significantly (Alfa, AJIC 2015).

Emerging multidrug-resistant organisms like *Candida auris* may exacerbate our HAI threat in the next decade. It follows that a discussion on product selection is warranted. Which disinfectant will work best against soil, stains, bacteriae, viruses and fungi?

The Australian Guidelines for the Prevention and Control of Infection in Healthcare (NHMRC, 2010, p74) state that hypochlorite

inactivates intractable pathogens but its use should be mitigated according to environmental risk and potential hazards.

Australian hospitals should use a TGA registered disinfectant with claims against the organism of concern (NHMRC, 2010, p74). Accelerated hydrogen peroxide (AHP)-based disinfectants may be a good choice as they are compatible with valuable surfaces like stethoscopes, ultrasound probes and monitors.

Boyce (AJIC, 2017) recently published the world's first prospective, cluster-controlled, crossover study to directly compare disinfectant classes. Boyce suggests that AHP is ideal for reducing bacterial contamination on high-touch surfaces. "The proportion of surfaces that yielded zero pathogenic growth after cleaning was significantly greater with AHP," Boyce contends.

Implementing the right process is equally important. Nurses have adopted or taken

on a range of duties originally performed by doctors, including catheter manipulation. The increasing complexity of nursing care increases the potential for fragmented equipment cleaning responsibility between Environmental Services and Nursing.

Cleaners are expected to comply with policies that often lack detailed guidance for each and every item found in a hospital. Furthermore, they are not usually trained to decontaminate electrical items or clinical equipment. Thus there is a risk that frequently used equipment and so-called forgotten sites will accumulate soil, including opportunistic pathogens.

Kundrapu (ICHE, 2012) found that most cleaners do not clean the bedrails or areas adjacent to the patient. They either want to avoid bothering the patient, or they assume that such close-quarter equipment cleaning is a Nursing function.

If the fallback position is to rely on the cleaners, then those cleaners need to be included in the education process. An engaged workforce is an accountable one. They will benefit from access to a product that is compatible with surfaces and safe for them. The following approach may be of value:

1. Oxivir Tb® (AHP) for high-touch surfaces at the point of care
2. Sporicide Plus™ (high-dose AHP) if there is a high index of suspicion of *C. difficile* spores
3. A bundle approach (microfibre, UV light, steam) for other areas (Weber, AJIC, 2010)

There is no single magic bullet however, and one chemical cannot do all things. There is no easy way to clean a hospital or keep it clean, regardless of how we define "clean." Consequently, there is a place for a range of cleaning products in hospitals. AHP is suggested as one proven, user-friendly option to reduce variability in high-level cleaning and disinfection.

References:

1. Boyce JM et al, Prospective Cluster Controlled Crossover Trial to Compare the Impact of an Improved Hydrogen Peroxide Disinfectant and a Quaternary Ammonium-Based Disinfectant on Surface Contamination and Healthcare Outcomes. American Journal of Infection Control, 2017.
2. Alfa MJ et al. Use of a daily disinfectant cleaner instead of a daily cleaner reduced hospital-acquired infection rates. American Journal of Infection Control, 2017.



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