The role of terminal-cleaning (TC) is to reduce the risk of microbial contamination within the operating room environment (ORE). However, previous studies have suggested that high-levels of microbial contamination can occur following TC. This study documents using ATP-bioluminescence assay (ABA) the impact of an antimicrobial isopropyl alcohol/organofunctional silane solution (IOS) to reduce microbial surface contamination.

**METHODS:** Baseline ABAs (N=120) were obtained from 4 operating rooms at 5 selected critical surfaces in each room, followed by IOS treatment of duplicate surfaces. Surfaces (IOS-treated/nontreated) were tested twice-weekly for 6-weeks using ABA and results reported as RLU (N=480). Comparative RODAC plate cultures were obtained on a rotating schedule over the 6-week study period to assess microbial recovery on designated test surfaces. A value equal to or less than 45 RLU was designated as clean, while surfaces yielding values equal to or greater than 46 were assessed as dirty.

**RESULTS:** Overall, 26.6%, 41.6%, 56.6% and 43.3% of surfaces sampled in 4 selected ORs were designated as dirty (RLU range: 46–2951) following terminal cleaning. Surfaces treated with IOS ranged from 0 to 310 RLU (mean 71.7), while non-treated surfaces ranged from 5 to 2951 (mean 415.3 RLU). A total of 10.4% of IOS treated sites yielded RLU values >46, follow-up RODAC cultures of all sites were negative. In comparison, 31.6% of non-treated surfaces documented RLU >46, yielding multiple bacterial isolates, including Staphylococcus epidermidis. Critical OR surfaces treated with IOS prevented bacterial contamination over the 6-week study period.

**CONCLUSIONS:** Residual bioburden contamination involving both viable and non-viable particulate matter was detected by ATP-bioluminescence assay on multiple OR surfaces following terminal cleaning. However, an innovative antimicrobial isopropyl alcohol/organofunctional silane solution was highly effective (p<0.001) at preventing bacterial contamination of selective critical OR surfaces compared to non-treated surfaces. The findings of this study suggest that an increased effort is warranted to minimize the risk of bioburden contamination within the operating room environment following terminal cleaning.

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**Green and Safe Disinfectants, Can These Terms Really Coexist?**

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**ISSUE:** Disinfectant products are widely used in Healthcare settings. It is a common belief that these products are somewhat toxic to the end users since they have toxicity against microorganisms. The objective of this presentation is suggest that this notion is not necessarily true, and showcase a new technology in which it has both effective antimicrobial activity, and is safe to the end users and the environment, as per EPA Design for the Environment Program.

**PROJECT:** A new technology based on accelerated hydrogen peroxide was assessed for its antimicrobial activity using EPA approved test methods, as well as its user safety and environmental fate compliance with the EPA Design for the Environment Program (DfE). The antimicrobial and toxicity tests were all conducted under GLP, and DfE criteria compliance assessment was conducted by both EPA DfE and DfE’s approved third party lab.

**RESULTS:** The antimicrobial tests showed that the product is a general hospital grade disinfectant witha 5 min contact time(- including efficacy against Norovirus), and a 30 sec sanitizer. It carries the Toxicity rating (Category IV) allowed by the EPA due to its non irritating properties to skin, eyes and respiratory system and does not required the use of PPE. Moreover, it is not toxic to the environment according to EPA DfE and is fully biodegradable.