



## KEY POINT SUMMARY

### OBJECTIVES

To investigate the efficacy of a new self-sanitizing solid surface in reducing the presence of harmful pathogens on hospital tray tables.

## Self-sanitizing copper-impregnated surfaces for bioburden reduction in patient rooms

*Coppin, J. D., Villamaria, F. C., Williams, M. D., Copeland, L. A., Zeber, J. E., Jinadatha, C. 2017 | American Journal of Infection Control, Volume 45, Issue 6, Pages 692-694*

### Key Concepts/Context

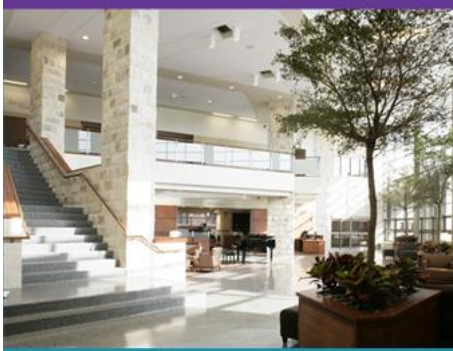
Hard surfaces inside hospital environments are particularly susceptible to hosting dangerous, drug-resistant pathogens that can cause harmful infections. These infections can go on to negatively impact patients, caregivers, and overall facility operations. While many defenses against these pathogens have been developed and implemented in the past, the issue of drug-resistant pathogens remains unresolved. Recently, researchers have been exploring the disinfecting capabilities of copper oxide-impregnated materials, and how certain objects and environments can be infused with these materials to reduce the presence of drug-resistant pathogens. This study focuses on copper oxide-impregnated self-sanitizing solid surfaces (SSSCu) in the form of hospital bedside tray tables.

### Methods

This study took place in a 120-bed hospital over a two-day period. Bacteria samples (ABC counts) were gathered from 11 patient bedside trays that were equipped with copper oxide-impregnated surfaces, along with 11 other patient bedside trays that featured standard laminated surfaces (thus functioning as the “control” rooms for this study). The control rooms included 6 isolation rooms and 5 non-isolation rooms, while the rooms equipped with copper trays included 6 non-isolation rooms and 5 isolation rooms. All observed surfaces were cleaned with 10% hypochlorite wipes, and all bacterial samples were incubated at the same temperature for 24 hours.

### Findings

SSSCu surfaces accumulated less bacteria over time than the standard bedside tables observed in this study. Significant differences in bacterial counts between the



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two surfaces were noticed during day two of analysis, exemplifying the SSSCu’s ability to ward off increasing amounts of bacteria over time. The isolation status of patient rooms significantly impacted ABC counts for rooms with standard bedside trays, but not for rooms with SSSCu surfaces, implying that SSSCus may be equally effective in either setting. The authors note, however, that this latter finding requires further investigation.

**Limitations**

The authors note that their study design did not account for potential variations in patient treatment processes or other hospital operations during the study period. It was also noted that this study took place over a relatively short period of time (two days) and focused only on one specific type of surface; therefore, these findings may not be applicable to all surfaces or settings, and may not be as significant over longer periods of time.

**Design Implications**

By implementing copper oxide-impregnated self-sanitizing solid surfaces (SSSCus), designers could help mitigate the risk of patient infections without significantly altering the floor plans or other architectural features of healthcare spaces. This study suggests that SSSCus may be a relatively simple, inexpensive, and effective way to combat drug-resistant pathogens over time.

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