



## KEY POINT SUMMARY

### OBJECTIVES

To assess how well copper-infused hard surfaces and linens can help decrease the risk of healthcare-associated infections.

## Reduced health care-associated infections in an acute care community hospital using a combination of self-disinfecting copper-impregnated composite hard surfaces and linens

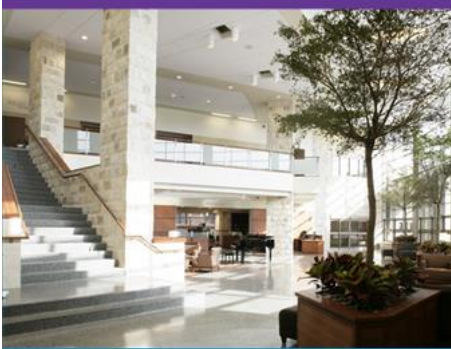
*Sifri, C. D., Burke, G. H., Enfield, K. B. 2016 / American Journal of Infection Control, Volume 44, Issue 12, Pages 1565-1571*

### Key Concepts/Context

Although significant progress has been made in the effort to reduce healthcare-associated infections (HAIs) in hospitals over the past decade, facilities are still working to meet the HAI reduction goals set by the Department of Health & Human Service's 2009 itinerary. Several types of pathogens, known as multidrug-resistant organisms (MDROs), are commonly found in healthcare environments. These organisms are capable of quickly developing resistances to antibiotics and common cleaning methods, indicating that other solutions should be explored to reduce MDRO presence. Copper could be a useful material in healthcare environments due to its ability to fend off bacterial cultures that gather on surface materials.

### Methods

This study took place in two different wings of a large urban hospital; one wing was equipped with hard surfaces and linens that were infused with copper materials, while the other wing was not modified. Data concerning infection rates (IRs) were gathered over a 25.5-month period and maintained within hospital records. The final analysis compared 204 patient beds within acute care settings in both wings of the hospital prior to any modification, with 84 and 72 beds in the old and new wings, respectively, after copper modifications were introduced. IR totals were divided by total patient days spent in both wings during the study period to assess the average IR for each wing. Countertops and molded surfaces in the new wing's patient rooms



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and clinical care areas were equipped with 16% copper oxide, while the patient rooms also received copper-infused linens. HAI prevention measures were otherwise conducted as usual within both wings of the hospital before and after the introduction of the copper materials.

## Findings

Despite the fact that the hospital involved in this study already featured an aggressive HAI-prevention program that successfully reduced the presence of MDROs and HAI incidents, the presence of the new copper-infused materials in the new hospital wing had a substantial impact on further reducing rates of infection. Instances of HAIs in the new wing fell by 78% when compared to baseline data gathered before the introduction of copper materials.

## Limitations

The authors note that patient demographics, characteristics, and susceptibility to certain types of infections may have influenced study results, especially since the hospital's admission and patient triage procedures changed drastically following the introduction of the new wing. Information on the patients' history of consuming antibiotics was not gathered. Rooms in the new wing were 112% larger than those of the old wing; physical differences between the old and new wings such as these were not factored into the analysis.

## Design Implications

Designers could consider how newly-emerging research indicates that implementing copper-infused surfaces and linens into patient rooms and surrounding clinical areas can lead to significant reductions in healthcare-associated infections. Frequently-touched surfaces such as sinks, desks, computer stations, and mirrors are eligible for copper-infusion. Use of copper could help reduce infection rates without requiring large-scale floor plan redesign or long-term facility closure.

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