

Antimicrobial Copper Surfaces Maintain Terminal Clean Levels in Hospitals Healthcare

New research published in the American Journal of Infection Control reports antimicrobial copper touch surfaces installed in hospital patient rooms significantly reduced concentrations of bacteria, sustaining levels prescribed on completion of terminal cleaning.

Grinnell College's Associate Professor of Biology, Shannon Hinsale, PhD, and her team conducted research over 18 months at Grinnell College and Grinnell Regional Medical Center (GRMC) in Iowa, with more than 1,500 samples. The study found significantly fewer bacteria on copper alloy products—such as grab bars, toilet flushes, IV poles, switches, keyboards, sinks and dispensers—than on traditional, non-copper hospital room surfaces.^[1]

The study was designed to build on existing research demonstrating the efficacy of antimicrobial copper touch surfaces in boosting infection control in intensive care units, where infections were reduced by 58%.

The new study notes more than half of all healthcare-associated infections are acquired outside ICUs. Here, 20 frequently-touched surfaces—in medical and surgical suite patient rooms, en-suite bathrooms and areas external to patient rooms—were replaced with antimicrobial copper equivalents. Both occupied and unoccupied rooms were studied to determine background bacterial concentrations.

'Even the most conscientious cleaning will not remove all bacteria cells from a surface, allowing for recolonisation,' says Hinsale. 'To reduce the risk of patients acquiring an infection while in the hospital, we need to reduce the number of bacteria surrounding them. This is what makes copper so important: it is always working to destroy micro-organisms and will maintain a clean environment for patients.'

With weekly sampling over the course of 12 months, 88% of the samples collected from copper components in occupied areas were below the recommended terminal clean level (250 CFU/100 cm²). During the same period, 55% of control surfaces had burdens above this threshold.

More surprisingly, in unoccupied rooms (given a terminal clean after the patient vacated), 51% of control samples were above the threshold. The observation that microbial populations are re-established on hospital surfaces subsequent to cleaning supported observations made in previous research.^[2] 93% of the copper samples from unoccupied rooms were below the threshold.

The researchers further noted most of the copper surfaces went unnoticed by patients, and concluded antimicrobial copper should become an important part of hospital infection control, working in concert with hand hygiene and daily and terminal cleaning.

Following these findings, GRMC President and CEO Todd Linden said the medical centre is now installing bacteria-killing surfaces throughout the facility. Currently, only half of the patient rooms are fitted with copper hardware and components.

‘A wonderful thing about copper is it’s doing its job to kill bacteria 24 hours a day, 365 days a year,’ notes Linden. ‘So, at the end of the day, when I go home, I know that we’ve got a new ally for fighting the potential for infection in our hospital, and that makes me feel great.’

The products used in the study were made from CuVerro® copper alloys, one of several brands of antimicrobial copper materials registered with the Environmental Protection Agency as being permitted to make public health claims in the US.

A wide range of antimicrobial copper products are available from companies around the world, with installations spanning hospitals and care homes, mass transit hubs, buses and trains, schools, restaurants and other areas where people gather and infections can spread.