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Antimicrobial Copper 'Halo Effect' Discovered

The results of a pilot study at an outpatient clinic show that, as well as reducing surface microbial contamination by 90%, antimicrobial copper surfaces extend a 'halo effect' to nearby, non-copper surfaces, reducing their contamination levels too.

The study was performed in an Infectious Disease outpatient practice at North Shore-Long Island Jewish Health System in the United States. Phlebotomy chairs at the clinic were fitted with copper trays and arms and surface contamination measured, showing a 90% reduction in contamination compared to that on standard surfaces. Furthermore, a microbiocidal 'halo effect' was discovered, equating to a 70% reduction in contamination on the adjacent, non-copper surfaces of the chairs compared to controls.



The majority of samples from the chairs with copper components were below a level thought to represent a risk to the patient (5 cfu/cm²), while the majority of samples collected from the non-copper chairs were above this level.

Given that the environmental microbial burden is a component of the risk associated with clinical care, using this data alongside patient numbers, the researchers extrapolated a 17-fold lower risk of exposure to environmental microbes when using the copperised arm rests versus the standard ones, and a 15-fold lower risk with the copperised trays compared to standard ones. This marks the first study that has offered an estimation of actual risk reduction through the use of antimicrobial copper touch surfaces.

It is well known that micro-organisms can survive for extended periods of time on common healthcare touch surfaces in the patient environment. Bed rails, call buttons and overbed tables have been demonstrated to be among the worst offenders. The present study approached the problem in an environment that is often overlooked: an outpatient facility, where the high volume of potentially infected people with much more mobility than hospital patients increases the opportunity for cross-contamination.

Researchers found that traditional chairs, even when cleaned regularly, acted as reservoirs for the spread of bacteria, particularly staphylococci, to both patients and healthcare workers.

The new results confirm the findings from trials conducted in the UK at Selly Oak Hospital, which showed a 90-100% reduction in contamination on copper surfaces. They also backup early results from the US (Medical University of South Carolina, Memorial Sloan-Kettering Cancer Center and Ralph H. Johnson VA Medical Center) and Chile (Hospital del Cobre) and also now demonstrate a halo effect radiating from the copper surfaces, further supporting the use of antimicrobial copper touch surfaces for reducing contamination in clinical environments.

	
<p>Antimicrobial copper arms and tray on a phlebotomy chair</p>	<p>Close-up of antimicrobial copper tray and arms on a phlebotomy chair</p>

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Editor's Notes

1. The findings were presented in a poster session at the Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) that took place in Boston, Massachusetts, from September 12th – 15th 2010.

Copper Surfaces Reduce Microbial Burden in Out-Patient Infectious Disease Practice

B E Hirsch, H Attaway, R Nadan, S Fairey, J Hardy, G Miller, S Rai, D Armellino, M Schilling, W Moran, P Sharpe, A Estelle, J H Michel, H T Michels, M G Schmidt – presented in a poster session at the Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) in Boston, MA, September 13 2010.

To view it online, please visit:

<http://antimicrobialcopper.com/media/103390/2010-poster-hirsch-et-al.pdf>.

2. Copper has been shown to be a powerful broad-spectrum antimicrobial effective against the microbes causing HCAs, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *enterococci* (VRE), *Staphylococcus aureus*, *Enterobacter aerogenes*, *Pseudomonas aeruginos*, and *E. coli* O157:H7.

Extensive test data has been independently verified by the US EPA, leading to the registration of 300 copper antimicrobial copper alloys as being able to be marketed with public health claims.

For further information and scientific references, please visit:

www.antimicrobialcopper.com/uk

3. The Selly Oak Hospital trial results also demonstrated copper's ability to keep contamination below levels thought to present a risk to patients. Based on the median total aerobic cfu counts from the study period, ten out of ten copper points and only five out of ten control sample points passed proposed benchmark values of a total aerobic count of <5 cfu/cm².

Role of Copper in Reducing Hospital Environment Contamination

A L Casey, D Adams, T J Karpanen, P A Lambert, B D Cookson, P Nightingale, L Miruszenko, R Shillam, P Christian and T S J Elliott, *J Hosp Infect* (2009), doi:10.1016/j.jhin.2009.08.018.