

## **New Research puts Copper at the Forefront of the Fight against *Clostridium Difficile***

Researchers at the University of Southampton have established that copper surfaces can inactivate the virulent hospital superbug *Clostridium difficile*.

The team, led by Professor Bill Keevil, showed that *C. difficile* microbes placed on copper alloy surfaces died within one or two days. On a stainless steel surface, the bacteria were still alive after a week.

*C. difficile* forms spores which are resistant to a range of disinfectants, including alcohol gel, which is recommended for routine use in hospitals. These spores can live in the environment for a long time and are rapidly becoming a major cause of hospital acquired infections.

Latest figures from the Health Protection Agency show an alarming 72% increase in deaths from *C. difficile*. The numbers have risen from 3,757 in 2005 to 6,480 in 2006.

The Southampton research team has already shown how effective copper can be in combating the *MRSA*<sup>1</sup> hospital bug. Exceptionally high levels of *MRSA* microbes were eliminated within 90 minutes of contact with a copper surface. In the same tests, the bacteria remain alive on stainless steel surfaces for up to three days.

Lead researcher Professor Keevil says the new findings are particularly significant:

"We've already shown that copper surfaces can inactivate *MRSA* microbes. The fact that we've now established that copper also inactivates *C. difficile* spores, which are resistant to standard cleaning regimes, doubles our conviction that copper can play a significant role in helping hospitals to fight against infections."

The Southampton research provided the foundation for a year-long programme of testing, under the United States Environmental Protection Agency approved protocols, on 3,000 samples of five different copper alloys in independent laboratories in the US. This has very recently led the US Environmental Protection Agency to officially register copper as an antimicrobial agent. Copper is the first and only solid material to ever be registered by the EPA as antimicrobial. Now, for the first time, products made from copper alloy can be marketed in the US making public health claims.

In the light of the research, Selly Oak Hospital in Birmingham, UK, has already begun a trial to demonstrate copper's antimicrobial properties in a clinical setting. Frequently touched surfaces, such as door handles, grab rails, bathroom taps and light switches, have all been replaced with copper alloys in one ward.

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<sup>1</sup> Methicillin-Resistant *Staphylococcus aureus*.

Professor Tom Elliott, University Hospital Birmingham Deputy Medical Director and leader of the Selly Oak copper clinical trial, believes copper could play a key role in the future to help contain hospital-acquired infections.

“Laboratory research has shown that *MRSA* and *Clostridium difficile* microbes die much more quickly when they come into contact with copper-based surfaces than on the usual surfaces you find in a hospital. It is an exciting development and, if the trial proves successful in a clinical setting, could provide the NHS Foundation Trust (UK) with yet another means of tackling the spread of health care-associated infections.”

**About Copper Development Association**

Copper Development Association (CDA) provides information on copper's properties and applications, essentiality for health, role in technology and the quality of life. The Association also provides a link between research and the user industries and maintains close contact with the other Copper Development Associations throughout the world. CDA is working with manufacturers and material suppliers to help develop products for the Copper Clinical Trial at Selly Oak. CDA is a member of the European Copper Institute.

**About the European Copper Institute**

The European Copper Institute (ECI) is a joint venture between the world's mining companies (represented by the International Copper Association, Ltd) and the European copper industry. Its mission is to promote copper's benefits to modern society across Europe through its headquarters in Brussels and a network of eleven Copper Development Associations.

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<p>Sampling of brass grab rail in bathroom on test ward</p>	<p>Sampling of brass lever handle on test ward</p>	<p>Sampling brass taps on test ward</p>	<p>Selly Oak Hospital, Birmingham</p>

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