



Copper Can Prevent Respiratory Virus Spread



Human coronavirus 229E on copper

Copper can effectively help to prevent the spread of respiratory viruses, which are linked to severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), according to researchers from the University of Southampton in the UK. Their study shows that while human coronavirus 229E — closely related to animal coronaviruses that "host jump" to humans, such as SARS and MERS — can remain infectious on common surface materials for several days, the virus is rapidly destroyed on copper. The findings are published in the journal *mBio*.

"Human coronavirus, which also has ancestral links with bat-like viruses responsible for SARS and MERS, was found to be permanently and rapidly deactivated upon contact with copper," says the study's lead author Dr. Sarah Warnes. "What's more, the viral genome and structure of the viral particles were destroyed, so nothing remained that could pass on an infection. With the lack of antiviral treatments, copper offers a measure that can help reduce the risk of these infections spreading."

Human coronavirus 229E produces a range of respiratory symptoms from the common cold to more lethal outcomes such as pneumonia. It can survive on surface materials including ceramic tiles, glass, rubber and stainless steel for at least five days. Infections can be contracted by touching surfaces contaminated by respiratory droplets from infected individuals, or hand touching. "Transmission of infectious diseases via contaminated surfaces is far more important than was originally thought, and this includes viruses that cause respiratory infections. This is especially important when the infectious dose is low and just a few virus particles can initiate an infection," adds Dr. Warnes.

During simulated fingertip contamination, the research team observed that the corona virus was inactivated within a few minutes of being exposed to copper or copper alloys ([collectively termed "antimicrobial copper"](#)). This led the team to conclude that antimicrobial copper surfaces could be employed in communal areas and at any mass gatherings to help reduce the spread of respiratory viruses and protect public health.

See Also: [Antimicrobial copper in an ICU offers a cost-effective additional measure to boost infection control](#)

Worldwide respiratory viruses are known to cause more deaths than any other infectious agent. Moreover, the evolution of new respiratory viruses poses a significant threat to human health.

"The rapid inactivation and irreversible destruction of the virus observed on copper and copper alloy surfaces suggests that the incorporation of copper alloy surfaces — in conjunction with effective cleaning regimes and good clinical practice — could help control transmission of these viruses," explains Professor Bill Keevil, co-author and Chair in Environmental Healthcare at the University of

Southampton.

Previous research by Prof. Keevil and Dr. Warnes has proved copper's efficacy against norovirus, influenza and hospital superbugs, such as MRSA and Klebsiella, plus stopping the transfer of antibiotic resistance genes to other bacteria to create new superbugs.

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