First of its Kind Joint Study Demonstrates Copper’s Effectiveness at Killing Bacteria and Viruses on Public Transit

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VANCOUVER, May 18, 2023 - A collaborative cross-Canadian partnership between infection control researchers, transit authorities and private industry has demonstrated the effectiveness of antimicrobial copper to reduce the spread of bacteria and viruses in public spaces. The results of a successfully completed, one-year study, led by the medical microbiology research team at Vancouver Coastal Health and hosted by TransLink and Toronto Transit Commission, found that select copper products on public transit can eliminate up to 99.9% of bacteria.

This groundbreaking study was the first of its kind in North America and was fully funded by Teck as part of its Copper & Health program. The study evaluated the efficacy of three copper-based solutions for reducing the transmission of bacteria and viruses on high-touch surfaces on public transportation. The solutions tested included thermal coated copper surface layers, copper alloys, and copper decals; both in-situ for bacterial testing and in-lab for virus testing. Test results showed that select copper products can eliminate up to 99.9% of bacteria on public transit and 99.9% of viruses in a laboratory setting within two hours of contact.

The medical microbiology team from Vancouver Coastal Health, supported by Mount Sinai Hospital in Toronto and the University of British Columbia in Vancouver, conducted tests every two months over the course of a year, analyzing samples from both copper and non-copper surfaces on public transit. This phase of the study was critical in determining the long-term viability of copper as a material for high-touch surfaces on public transportation, with particular emphasis on its antimicrobial properties and potential for infection control in public settings.

Led by the Vancouver Coastal Health medical microbiology team, researchers tested for virus-killing capabilities, including surrogates for COVID-19 and Noroviruses. This testing is crucial, as it demonstrates the potential for copper surfaces to reduce the risk of transmission of viruses in addition to bacteria. Results of the in-laboratory studies showed consistent viral load reduction for surrogates of COVID-19 and Noroviruses, as well as the bacterial testing, across all copper products compared to no reduction in the stainless steel comparison.

Research Details:

- This trial tested three types of registered products including thermal coated copper surface layers, copper alloys, and copper decals on handles and exit doors on buses, streetcars and trains.
- Samples were analyzed every two months, from copper surfaces as well as non-copper surfaces on transit by Vancouver Coastal Health's medical microbiology team, supported by Mount Sinai Hospital/University Health Network in Toronto and the University of British Columbia in Vancouver.
- Researchers from the University of British Columbia tested and analyzed the durability of the three products as they aged over the course of the year.
- In-lab virus and bacterial testing simulated a year's worth of use, including disinfectant cleaning and human touch (sweat). The copper products showed consistent and sustained antimicrobial activity through the course of the testing, showing that cleaners and human use did not affect the efficacy of the copper in killing surface bacteria and viruses.
- This trial was fully funded by Teck's Copper & Health program. The findings have significant implications for public health, especially during pandemics and outbreaks, and highlight the importance of interdisciplinary collaborations between health care providers, academic researchers, and industry partners in improving infection control measures. The success of this pilot project demonstrates the efficacy of copper surfaces in reducing the spread of bacteria and viruses in shared public spaces.

The project is the result of a partnership between Teck Resources Ltd., Toronto Transit Commission, TransLink, Vancouver Coastal Health, Mount Sinai Hospital/University Health Network, the Coalition for

Community and Healthcare Acquired Infection Reduction (CHAIR), UBC Department of Materials Engineering, VGH & UBC Hospital Foundation, and Westech Cleaning Audit Systems. The trial follows preceding studies conducted by the Infection Prevention and Control team at Vancouver Coastal Health that have shown copper to be highly durable and effective at killing bacteria in laboratory and healthcare settings.

QUOTES

Jonathan Price, CEO, Teck -
"Copper's unique antimicrobial properties make it ideal for use in busy public spaces such as transit systems. Teck is proud to partner with leading researchers on this study, which continues to demonstrate that copper is a critical tool to help stop the spread of infection and make our communities safer."

Kevin Quinn, TransLink CEO -
"TransLink is proud to be the first transit agency in North America to welcome healthcare providers and academic researchers onto our system to test copper on transit vehicles. We hope this innovative partnership will help to broaden the scientific community's understanding of copper and its use in public spaces."

Dr. Marthe Charles, Medical Microbiologist, Vancouver Coastal Health -
"This study provides another proof point that copper, alongside hand washing, vaccination programs and other infection prevention measures, is an added layer that can help reduce the risk of transmission of pathogens. We're excited that we have been able to contribute to the global understanding of the antibacterial and antiviral properties of copper and that was made possible through this partnership."

Angela Chapman, President & CEO, VGH & UBC Hospital Foundation -
"Microbes that are dangerous to human health and well-being will continue to evolve, including COVID-19. VGH & UBC Hospital Foundation has played a vital role in funding innovation through medical research that has produced new technologies, and changed practice and protocols that have saved lives here in BC and globally. The latest groundbreaking study on the use of copper to reduce the spread of bacteria and viruses in public spaces is another step in our mission to inspire philanthropy, transform health care and save lives. We are grateful for the partnership of Teck and our colleagues across Canada whose innovative approach to health care in public spaces is bettering our health across the country."

About Teck
As one of Canada's leading mining companies, Teck is committed to responsible mining and mineral development with major business units focused on copper, zinc, and steelmaking coal. Copper, zinc and high-quality steelmaking coal are required for the transition to a low-carbon world. Headquartered in Vancouver, Canada, Teck's shares are listed on the Toronto Stock Exchange under the symbols TECK.A and TECK.B and the New York Stock Exchange under the symbol TECK. Learn more about Teck at www.teck.com or follow @TeckResources.

About Teck's Copper & Health Program
Through its Copper & Health program, Teck has funded numerous initiatives across a range of industries and public facilities to help improve health and safety in high-traffic, high-touch areas through the installation of antimicrobial copper. Teck's Copper & Health program has installed copper surfaces in a number of healthcare facilities, including Vancouver General Hospital and St. Paul's Hospital, on public transit in partnership with TransLink and Toronto Transit Commission, throughout the terminal at Vancouver International Airport, in major attractions including Royal Ontario Museum and Science World, and in schools through partnerships with BCIT, SFU and UBC. Teck is a proud member of CHAIR Canada, the Coalition for Community and Healthcare Acquired Infection Reduction (chaircanada.org).

About VGH & UBC Hospital Foundation
VGH & UBC Hospital Foundation is Vancouver Coastal Health's primary philanthropic partner, raising funds for specialized adult health care services and research for all British Columbians. VGH & UBC Hospital Foundation partners with donors to raise essential funds for Vancouver Coastal Health, supporting VGH, UBC Hospital, GF Strong Rehab Centre, Vancouver Coastal Health Research Institute, and Community Health Services.

Media downloads:

Video

MORE INFORMATION:
Copperstopsthespread.ca

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