Dirty Lab Coats: Thinking Inside of the Box to Prevent H.A.I.s

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According to the Centers for Disease Control, hospital acquired infections (HAIs) kill over 100,000 people every year in the United States. Studies have shown that lab coats worn by medical professional are infrequently washed and carry pathogenic microbes that contribute to the spread of HAI's. While medical personnel may wash their hands, or change their gloves after patient interaction, there is currently no method for them to clean their lab coats between patients. Germicidal UV-C light-cleaning medical technology is available, and has been demonstrated effective in sanitizing surfaces in clinical settings. However, this equipment is too expensive for the majority of medical settings to afford. The purpose of this experiment was to determine if an inexpensively built, UV-C light cabinet could quickly decrease the number of surface microorganisms on contaminated lab coats. In this experiment, lab coat fabric was inoculated with 100 ug of Staphylococci or E. coli, and exposed to varying times of Ultraviolet-C light using 4 HVAC germicidal light bulbs installed in a low-cost, lab coat cabinet. After UV-C light exposure, the cloth was cultured onto agar plates, incubated and counted. The results showed that lab coat material exposed to 30 seconds UV-C light in the cabinet grew an average of 88% fewer colonies. Coat material exposed to 90 seconds of UV-C light grew an average of 99.9% fewer colonies. Modest UV-C light cabinets could be used in medical, community, military, and third world settings to decrease the transfer of microorganisms that cause costly and potentially lethal nosocomial infections

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