

Abstract citation ID: ofac492.1034

1201. Reduction of Methicillin-Resistant *Staphylococcus aureus* Surface Microbial Burden and related Healthcare Associated Infections with the implementation of an Advanced Photocatalytic Oxidation Technology in a Medical-Surgical Intensive Care Unit

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Session: 137. HAI: Disinfection/Sterilization & Environmental Infection Prevention *Friday, October 21, 2022: 12:15 PM*

Background. Methicillin Resistant *Staphylococcus aureus* (MRSA) bacteria have been long established as a major cause of infections. MRSA infections occurring in blood or other sterile sites are associated with poorer health outcomes and an increased risk of mortality, especially when acquired in a healthcare setting. The ongoing COVID-19 pandemic has not only stymied reduction efforts but has precipitated increases in invasive HO-MRSA infections, with increases seen of 12-34% in national MRSA standardized infection ratios in 2020 compared to 2019. The facility had seen similar increases of HO-MRSA infections, defined as a positive culture on or after the 3rd hospital day, despite no change in clinical practice.

Methods. A prospective study was conducted in a 22 bed Medical-Surgical Intensive Care Unit from November 2021 to March 2022. 50 surface samples were collected from surfaces throughout the unit including two nurses' stations, physician charting area, and 5 areas in 7 patient rooms. The advanced photocatalytic oxidation (aPCO) equipment was then installed in the HVAC ductwork throughout the ICU and activated. Sampling was then repeated every four weeks during the study period. The facility's normal disinfection protocols were unchanged. HO-MRSA infections attributed to the unit were also tracked during the study period. Changes in MRSA surface burden were calculated using a repeated methods ANOVA with post hoc analyses as appropriate. Rates of HO-MRSA infections per 1,000 patient days were compared using the chi-square test.

Results. There was a 98% statistically significant decrease in MRSA surface burden from the baseline to final post-activation test. The average colony forming unit count (CFU) went from 427 to 3 CFU/100cm² during the same time. HO-MRSA infections also had a statistically significant decrease when compared to the same time frame a year prior and the immediate 6 months prior to the study.

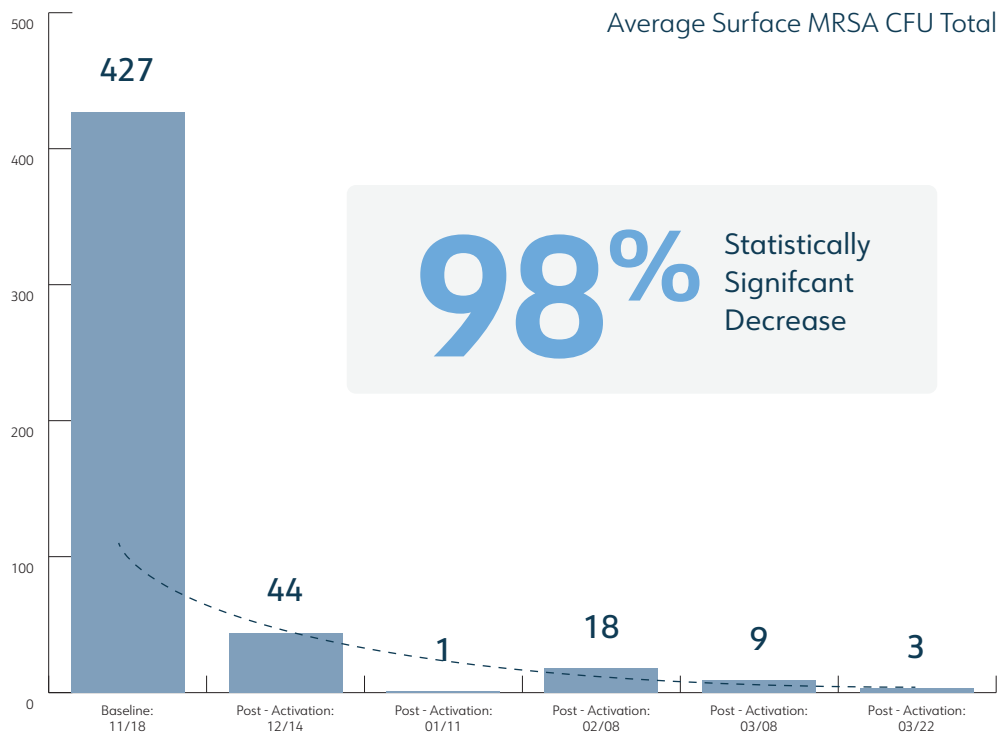


Figure 1 Average MRSA Surface Reduction

Conclusion. The aPCO technology resulted in a reduction of MRSA on frequently touched surfaces in a high-traffic ICU. Corresponding decreases in HO-MRSA cases were also seen. This study highlights a novel aPCO technology and its efficacy at reducing microbial burden and healthcare-onset MRSA infections despite no change in practice and through the continued COVID-19 pandemic.

Disclosures. Caitlin Stowe, MPH, CPH, CIC, CPHQ, VA-BC, ActivePure Medical: Employee|PDI Healthcare: Employee.