SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

To study how well a product called ABS-G2015 can create a long-lasting surface coating that provides continuous disinfection action within an intensive care unit.

Long-term efficacy of a self-disinfecting coating in an intensive care unit

Tamimi, A. H., Carlino, S., Gerba, C. P. 2014 /*American Journal of Infection Control, Volume 42, Issue 11, Pages 1178-1181*

Key Concepts/Context

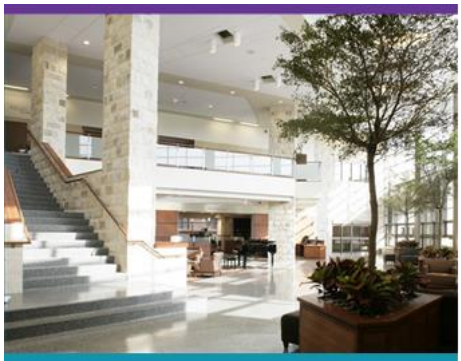
Intensive care units (ICUs) provide care to patient populations that are often particularly vulnerable to healthcare-associated infections (HAIs), leading researchers and designers alike to investigate how the surfaces of objects can be treated to reduce the presence of HAI-causing organisms. One of the most common bacteria that cause HAIs is Staphylococcus aureus, or MRSA, which is also known for quickly developing resistance to antibiotics. ABS-G2015 is a product formulated to bind to surfaces and enact long-term disinfecting action upon application; the use of this product in an ICU setting warrants investigation.

Methods

This study took place in a 24-bed ICU over a four-month period. Bacterial samples from 95 different locations within the ICU were gathered. From each patient room samples were taken from bedside controls and rails, tray tables, and walls above sinks. Other sampling locations included nursing stations, the waiting lobby, phone surfaces, end tables, computer keyboards, and chair armrests. After initial samples were gathered, ABS-G2015 was applied to each test surface, and subsequent post-application samples were gathered at intervals of one, two, four, eight, and 15 weeks following application. No staff hand hygiene or other cleaning protocols were altered before, during, or after the application of ABS-G2015.

Findings

Analysis of bacterial samples on all treated surfaces in the ICU found that the use of ABS-G2015 led to over a 99% reduction in bacteria counts for as long as eight weeks following application. Throughout all 15 weeks of post-application analysis, bacterial levels on treated ICU surfaces never returned to those that were



observed prior to application. When bacterial samples were tested specifically for MRSA, no traces of the bacteria could be found throughout the entire 15 weeks. These results indicate that ABS-G2015 is an effective long-term method for treating areas that are susceptible to antibiotic-resistant bacteria such as MRSA. The authors recommend applying the treatment at intervals of three to four months.

Limitations

The authors note that during the course of their study, some items that received the anti-bacterial treatment were moved, and could therefore not be included in the study. Patient populations within the treated spaces fluctuated frequently and were not closely observed during the course of this study. This study took place in a single location; different ICUs might not see the same results due to structural, operational, or environmental differences.

Design Implications

Designers could benefit from the application of products such as ABS-G2015. This application would allow for an increased focus on the physical architecture of the healthcare environment itself without spending additional time and resources attempting to create new floor plans or surface materials aimed at mitigating the spread of HAIs. Antibacterial solutions such as these can be relatively inexpensive ways to preserve both the physical designs of healthcare environments as well as the overall safety of patients.