

Bacterial communities change during ICU renovations

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Abstract

Infectious microbes don't stop at the hospital door upon admission. Hospital surfaces serve as a reservoir of microbial life that may colonize patients, resulting in healthcare-associated infections (HAIs). The most vulnerable are critically ill patients in the intensive care unit (ICU), where HAIs represent the leading cause of death. Unfortunately, little is known about how the microbiome of the ICU is established or how it is influenced over time. A new study took advantage of a unique opportunity to examine the evolution of the ICU microbiome. Researchers examined microbes isolated from ICU surfaces before, during, and after hospital renovations closed the unit. Using DNA sequencing, they found that the greatest bacterial diversity existed before ICU closure. Specimens from after the 300-day ICU closure had the least diversity, with environmental microbes dominating, and samples obtained 45 days after re-opening remained less diverse than pre-closure but began to be dominated by human-associated bacteria. These data help to decipher microbiome evolution in the most critical part of the hospital, demonstrating the impact that microbiota from patients and staff have on microbial evolution on ICU surfaces.