1224. Factors Associated with Aerosolization of Gammaproteobacteria from Intensive Care Unit (ICU) Sinks in a Randomized Trial of Copper Alloy vs. Standard Chrome Sink Drains
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1225. How Frequently Should Sink Drains Be Disinfected?
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Needed to determine whether this influences patient risk for hospital-acquired infection. We suggest this is mediated through reduced bacterial growth in the drains. Ongoing study is mapping bacteria in adjacent air when compared with standard chrome drains, and results growth was included in the model (IRR 0.64 (95% CI 0.43, 0.94)), Tailpiece swab growth was more likely if rooms were occupied compared with a cleaner logistic regression, GEE with an exchangeable correlation matrix, a robust estimate of variance, negative binomial distribution and log link function. Results. Gammaproteobacteria were detected in 247/424 (58%) tailpiece swabs, 137/456 (30%) air samples, and 31/456 (7%) faucet swabs. In multivariable analysis, adjusting for factors associated with growth in air and drains, used conditional logistic regression, GEE with an exchangeable correlation matrix, a robust estimate of variance, negative binomial distribution and log link function. Results. Gammaproteobacteria were detected in 247/424 (58%) tailpiece swabs, 137/456 (30%) air samples, and 31/456 (7%) faucet swabs. In multivariable analysis, growth was less likely from copper drains compared to copper sinks (IRR 0.50 (95% CI 0.35, 0.73), P < 0.0001), with reduced effect size observed when drain growth was included in the model [IRR 0.64 (95% CI 0.43, 0.94), P = 0.025]. Growth in air was more likely when drain growth was 1.899 CFU/cm² (IRR 2.38 (95% CI 1.46, 3.88), P = 0.001) or 2900 CFU/cm² (IRR 3.55 (95% CI 1.87, 6.86), P < 0.001) vs. no growth. Tailpiece swab growth was more likely if rooms were occupied compared with empty [IRR 1.85 (95% CI 1.25, 2.76), P = 0.002], and less likely from copper drains compared with faucets from chrome drains [IRR 0.51 (95% CI 0.47, 0.75), P < 0.001]. conclusions. Sinks with new copper drains are less likely to have detectable gammaproteobacteria in adjacent air when compared with standard chrome drains, and results suggest this is mediated through reduced bacterial growth in the drains. Ongoing study is needed to determine whether this influences patient risk for hospital-acquired infection.

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1226. Application of a Foam Disinfectant Enhances Sink Drain Decontamination in Hospital Sinks
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Background. Sink drainage systems are a potential reservoir for the dissemination of pathogens in healthcare facilities. Pouring of liquid disinfectants down drains may have limited efficacy due to inadequate contact time and suboptimal penetration into areas harboring biofilm-associated organisms. We hypothesized that a foam application of a disinfectant would enhance sink drain decontamination in comparison to pouring of the same disinfectant. Methods. We compared the antimicrobial efficacy of 300 mL of a hydrogen peroxide-based liquid disinfectant applied to sink drain systems (N = 30 sinks per treatment group) using a hand-pumped foaming device vs. pouring down the drain. Swabs were used to collect quantitative cultures from the proximal sink drain to depth of 1 inch below the strainer before treatment and at 15 minutes and 1, 2, 3, and 7 days after treatment. We also investigated the efficacy of the foam when applied every 3 days for a 2-week period (N = 10 sinks).

Results. As shown in the figure, pouring the hydrogen peroxide-based disinfectant down the drain significantly reduced the bacterial load on day 0 and day 1, but the bioburden returned to baseline levels within 2 to 3 days. In comparison, the foaming application of the disinfectant resulted in significantly greater reductions in bacterial recovery on days 0, 1, 2, and 3 (P < 0.01). With repeated foam treatments every 3 days, there was a progressive decrease in the bacterial load recovered from sink drains. Application of the foam required ~3 minutes per sink.

Conclusions. An easy-to-use foaming application of a hydrogen peroxide-based disinfectant was effective in suppressing recolonization of the proximal drainage system of sinks for at least 7 days. Intermittent application of the foaming disinfectant could potentially reduce the risk for dissemination of pathogens from sink drains.

Figure. Effectiveness of sink drain decontamination with a hydrogen peroxide-based disinfectant poured as a liquid or applied as a foam

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