Evaluating the Dispersal of Gram-Negative Bacteria from Sink Drains in a Hospital Setting

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Gram-negative bacteria are associated with hospital-acquired infections. The infection control literature has identified that hospital sink drains can be a potential source of these hospital-acquired infections and pathogen transmission due to biofilm formation. Bacterial dispersal can occur when the biofilm inside the sink drain is disrupted and dispersed from the drain to the sink bowl and counter. However, there is limited information about the characteristics of sinks that are associated with bacterial dispersal. The purpose of this study was to evaluate the sink characteristics that aid in the dispersal of commonly found gram-negative bacteria in contaminated sink drains in a hospital setting. I looked at different sink designs to identify characteristics associated with dispersal. I found gram-negative bacterial dispersal from the sink drain of 16% to the sink bowls with an incline at the drain and dispersal of 70% to the sink bowls with a flat sink drain surface (P=0.12). There was gram-negative bacterial dispersal of 50% from the sink drain to the bowl with both direct water flow and with offset water flow to the drain (P=1). The sink counters had 12% gram-negative bacterial dispersal from the sink drain to the bowl with both direct and offset water flow (P=1). It was concluded that both direct and offset waterflow was associated with gram-negative bacterial dispersal from sink drains to the bowl and counter and inclined sink drains minimized gram-negative bacterial dispersal. More research needs to be completed to determine effective methods of decreasing dispersal from contaminated sink drains.

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