Environmental Testing of Patient Bath Basins Drives Quality Improvement Efforts in the Prevention of Bacterial Cross-Contamination

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ABSTRACT

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Introduction Hospital-acquired infections (HAIs) are a major source of patient morbidity and mortality, accounting for an estimated $72.7 billion annually.1 Contamination of surfaces in hospital rooms contributes to the transmission of multidrug-resistant organisms (MDROs) such as Methicillin-Resistant Staphylococcus aureus (MRSA) and Vancomycin-Resistant Enterococcus (VRE).2 Hospital bath basins have been identified as a reservoir of pathogens such as MRSA, VRE, Pseudomonas aeroginosa, and Candida albicans.3 Studies have indicated that hand hygiene is often suboptimal, contributing to the formation of biofilms on bath basins. The objective of this study was to investigate the potential role of bath basins in the transmission of bacteria and to identify strategies to reduce cross-contamination.

Methods

Hospitl-acquired infections (HAIs) are a major source of patient morbidity and mortality, accounting for an estimated $72.7 billion annually.1 Contamination of surfaces in hospital rooms contributes to the transmission of multidrug-resistant organisms (MDROs) such as Methicillin-Resistant Staphylococcus aureus (MRSA) and Vancomycin-Resistant Enterococcus (VRE).2 Hospital bath basins have been identified as a reservoir of pathogens such as MRSA, VRE, Pseudomonas aeroginosa, and Candida albicans.3 Studies have indicated that hand hygiene is often suboptimal, contributing to the formation of biofilms on bath basins. The objective of this study was to investigate the potential role of bath basins in the transmission of bacteria and to identify strategies to reduce cross-contamination.

Methods

The study was a prospective, non-randomized, single institution infection disease study. Twenty-four patient bath basins were sampled.

Sample Collection Procedure:

• Upon removal from a patient’s room, the entire basin interior and bowl was submerged with a culture sponge pretreated with 10 ml sterile saline.
• Culture sponges were packaged in a sterile bag and delivered to the laboratory immediately.
• The analysis on the same day the samples were gathered.
• Patient primary diagnosis, location of basin in the patient’s room, and unit designation were recorded in a database.

Sample Analysis Procedure:

• A standard enrichment protocol was implemented to detect low level or stressed organisms in the test broth.
• Samples were streaked onto selective agar plates after a 48-72 hour incubation period.