

Title:

Increasing Infection-Free Surgery and Hand Hygiene Compliance inside the Operating Room

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Abstract:

Background: Surgical healthcare workers' hands remain one of the main methods of transmission behind healthcare-associated infections inside the operating room. Megus et al. 2015 demonstrated the urgent need for effective improvement strategies to increase adherence to hand hygiene guidelines inside the operating room. Gaube et al. 2018 demonstrated that gamification of hygienic protocols resulted in substantial long-term improvement of hygiene.

Methods: We have designed, programmed, and 3D-printed a hand sanitizer feedback unit called "Happy Hands" that gamifies hand hygiene. The purpose of "Happy Hands" is to catch the attention of nearby individuals and to motivate them to utilize proper hand hygiene. "Happy Hands" displays a red frowny face whenever it detects people nearby which changes to a green smiley face if the person utilizes the hand sanitizer.

Results: "Happy Hands" units have been implemented at Augusta University Medical Center. These units are under \$50, can be adapted for multiple hand sanitizer unit brands, and gamify hand hygiene. Psychological research has repeatedly shown simple incentivization can significantly improve hand hygiene when combined with gamification and positive reinforcement. These units also provide quantification of hand sanitizer usage, allowing compliance officers to monitor which operating rooms are most in need of supplementary hand hygiene campaigns. Our next steps include measuring and increasing compliance of hand hygiene in operating rooms and association with transmission of infections.

Conclusion: As a successful gamification of hand hygiene, "Happy Hands" likely represents a cost-effective preventative measure against hospital-associated infections in the operating room.