ID: 103 COMPARATIVE ANTIMICROBIAL EFFICACY OF TWO HAND-HYGIENE PRODUCTS IN INTENSIVE CARE UNITS: A RANDOMIZED CONTROLLED TRIAL

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Background Contaminated hands of healthcare workers (HCW) are an important source of transmission of healthcare-associated infections in the intensive care unit (ICU). Alcohol-based hand sanitizers, the primary form of hand hygiene in healthcare settings, are effective but do not provide sustained antimicrobial activity. The aim of this study was to quantitatively visualize the immediate and persistent antimicrobial effectiveness of 1% chlorhexidine gluconate (CHG)+61% ethanol versus 70% ethanol at 2-time points: immediately after application on normal skin flora and after hand contamination with environmental microbes in the ICU.

Methods A prospective, randomized, double-blind clinical trial with crossover design and paired data was done in three medical ICUs in a large academic teaching hospital. Eligible personnel included permanent and temporary HCWs involved with direct patient care in the ICU. HCWs were randomly assigned to one of two hand hygiene products using a crossover design. Hand prints were obtained immediately after hand hygiene was performed and again after spending >5 minutes in the ICU common areas. The numbers of aerobic colony-forming units (CFU) were compared for the two groups after log transformation.

Results A total of 51 HCWs completed testing of both products. On bare hands, use of CHG+alcohol was associated with significantly lower recovery of aerobic CFU, both immediately after use (0.27 ± 0.38 and 0.88 ± 0.55 $\log_{10}$ CFU; *P=.035*) and after spending time in the ICU common areas (1.81 ± 0.48 and 2.17 ± 0.35 $\log_{10}$ CFU;

P<.*0001*). Both of the antiseptics were well tolerated by HCWs with no adverse events.

Conclusions The CHG+alcohol product was associated with significantly lower aerobic bacterial colony counts on hands of healthcare personnel, both immediately after use and after spending time in ICU common areas. Further studies are needed to determine if the use of the CHG +alcohol product results in sustained antimicrobial protection against healthcare-associated pathogens on hands of HCW.