

**P1074**

**Paper Poster Session**

**Disinfection and healthcare-associated infections**

**Efficiency of disinfection wipes and sprays against outbreak strains**

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**Background:** Cleaning and disinfection of the patient environment in hospitals is an important infection control measure. Multidrug resistant microorganisms, are globally emerging. The patients' environment plays an important role in the transmission of several healthcare associated pathogens, including multidrug resistant Gram-negative rods, MRSA, VRE and *Clostridium difficile*. Over the last few years there have been a number of innovative cleaning / disinfecting products brought to market. In this study commercially available products, combining cleaning and disinfection, and the use of two different application methods, were compared. The aim was to determine which product was the most effective in the simultaneous cleaning and disinfection of surfaces.

**Material/methods:** Seven ready to use disinfecting cleaning wipes and sprays were tested for their efficiency in removal of microbial burden and proteins. Tiles of 5x5cm were contaminated with a test soil consisting of either 3% or 12% BSA and erythrocyte solution plus 0.5 McFarland of known Dutch outbreak strains; VRE, OXA-48 *Klebsiella pneumoniae* and *Acinetobacter baumannii*. The test soil was left to dry for 1 hour. The tiles were then wiped or sprayed with one of the products, following manufactures' instructions. The tiles were left for 5 minutes before transferred in neutralizer or used for an Adenosinetriphosfaat (ATP) testing. An aliquot of neutralizer was plated on Tryptone soya agar. After 24h incubation the colony forming units (CFU) were counted. All test were completed in triplicate.

**Results:** The ready to use disinfection cleaning products reduced the microbial count with a  $>5\log_{10}$  after 5 minute exposure time, for all tested bacteria, with the exception of a spray based on hydrogen peroxide. Omitting the aforementioned hydrogen peroxide spray, there were no significant differences between the use of a wipe or spray in bacterial load reduction. While the overall activity was good, all products showed better effective against *K. pneumoniae* and were slightly less effective against VRE.

Using ATP measurements, a significant difference in  $\log_{10}$  RLU reduction between the tested species ( $p=0.00$ ) was observed. On average the RLU reduction of OXA-48 *K. pneumoniae* was lower than the RLU reduction of VRE and *A. baumannii*. Especially for *K. pneumoniae*, CFU and RLU reductions of the different products, did not correlate (highest for CFU, lowest for RLU)

While different concentrations of test soils had no significant ( $p=0.49$ ) impact on the bacterial load reduction, the RLU reduction was different for low and high soil concentrations ( $p=0.06$ ).

**Conclusions:** In general, all tested wipes and sprays, showed excellent CFU log reductions (> than  $5\log_{10}$ ) for all tested outbreak strains, with the exception of the spray based on hydrogen peroxide, that was slightly less effective. While ATP may show a difference between pre and post-cleaning, the RLU reduction did not correlate with factual CFU reductions.