hour intervals. The control group did not receive any H2O2 treatment and cultures were taken at identical locations. This process occurred in the clinical setting in between patient room turnover.
Results: In the experimental group the mean colony forming units (CFU's) were as follows: pre H2O2 = 21.679, five minutes post = 5.179, ten minutes post = 4.393, one hour post = 0.714, and two hours post = 0.464. Paired t-test indicated statistically significant decreases in the microbial counts after 5 minutes of dry time ($p = 0.0016$) and again at 1 hour dry time ($p = 0.0027$). The decreases in microbial counts were not significant from 5 to 10 minutes and from 1 to 2 hours dry time. In the control group the mean CFU's are as follows: 20.727, 15.727, 15.636, 16.364, and 19.000. There was not a significant change in the microbial counts at any culture site when not sprayed with H2O2. Statistical analysis was used to evaluate the data and the paired t-test used to evaluate each sample set. See figure.
Conclusions: This study suggests that a treatment of 3% H2O2 is an effective cleaning process in-between routine laundering of 100% polyester patient privacy curtains. The bio-burden significantly decreases after just 5 minutes of dry time and continues to decrease up to the 2 hour time period thus allowing better control of this potential environmental reservoir of pathogenic organisms.

Presentation Number 2-019

Evaluation of Liquid Hydrogen Peroxide to Clean Surfaces in Patient Rooms Using Aerobic Colony Counts and Adenosine Triphosphate Bioluminescence Assay

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Background/Objectives: Current guidelines recommend cleaning of non-critical items in patient rooms in healthcare facilities on a regular basis. Disinfectants used in hospitals include quaternary ammonium compounds, bleach and more recently hydrogen peroxide. We conducted a prospective study to evaluate the efficacy of a new liquid hydrogen peroxide disinfectant using aerobic colony counts and adenosine triphosphate (ATP) bioluminescence assay.
Methods: In a convenience sample of 72 patient rooms, 10 surfaces were sampled immediately before and 10-15 minutes after cleaning by 2 trained individuals using a liquid hydrogen peroxide disinfectant (Clorox HealthcareTM, Oakland, CA). Samples were taken with an ATP bioluminescence assay (3M, St. Paul, MN) and results were recorded as relative light units (RLUs). Aerobic colony counts (ACCs) were determined using D/E neutralizing contact agar plates (BD or Remel). We defined surfaces as being clean if the relative light unit (RLU) reading was <250 for ATP. Surfaces that yielded a RLU of <250 or no growth on the agar plate before cleaning were omitted from further analysis. The proportion of sites yielding ACC <2.5/cm2, which is a proposed definition of "clean", was calculated. Differences in proportion were analyzed with the Chi Square test.
Results: 99% (698/704) of cultures yielded ACCs <2.5/cm2 after cleaning. 96% (679/704) of cultures yielded ACCs < 10 per contact plate. No growth was detected from 75% (528/704) of the cultures with a range from 53-89% for the 10 sites. There was a significant difference among sites with the chair arms having the lowest proportion achieving no growth and the bedside panels having the greatest proportion achieving no growth ($P < 0.001$). The median colony count per contact plate before cleaning was 63.1 with a range of 15-119 colonies for the 10 sites. The median colony count after cleaning was 0.0 for all 10 sites. 69.7% (388/557) of sites yielded RLU values <250 after cleaning, with a range from 43.3-96.8% for the 10 sites. There was a significant difference among the 10 sites with the bedside rail having the lowest proportion achieving <250 RLUs and the blood pressure cuff having the greatest proportion achieving <250 RLUs after cleaning ($P = ><.0.001$).
Conclusions: The liquid hydrogen peroxide product tested is a very effective disinfectant against aerobic bacteria. ATP bioluminescence assays can be used as a tool to monitor the effectiveness of cleaning practices using liquid hydrogen peroxide. Further studies are warranted to determine if the ATP cut-off used to classify surfaces as clean should vary depending on the composition of the surface sampled and type of disinfectant used.

Presentation Number 2-020

Effect of Disinfectants on Clinically Relevant Bacteria Under Planktonic and Biofilm Conditions

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Background/Objectives: Microbial biofilms are now recognized as playing a major role in the progression of infection and disease. Current research has shown that biofilms are more difficult to eradicate than their planktonic counterparts; however, the majority of standardized methods used to test the efficacy of disinfectants rely on the use of planktonic bacterial cultures. Recently, a new experimental device has been developed to determine the minimum biofilm-eliminating concentration (MBEC) of antimicrobial agents and disinfectants: the Calgary Biofilm Device (CBD). The MBEC Assay allows for rapid, high-throughput assessment of the antibiofilm activity of antibiotics, disinfectants, biocides and metals at varying concentrations. The main objectives of this study are to compare the effectiveness of various disinfectants on bacteria grown planktonically and in biofilms, and to compare the minimum inhibitory concentration (MIC) and MBEC methods for testing the efficacy of disinfectants.
Methods: Overnight cultures of Pseudomonas aeruginosa MPAO1, Bacillus subtilis JH642 and clinical isolates of Escherichia coli and Staphylococcus aureus were grown aerobically in brain heart infusion (BHI) medium at 37°C. For MIC assays, diluted overnight cultures were added to 96-well plates containing serially diluted disinfectants including ethanol, bleach, glutaraldehyde and several commercial products. The plates were incubated for 24 hours and visually inspected for growth, spot plated and quantitatively measured at OD590nm. For the MBEC assay, biofilms were grown in the CBD for 48 hours. The MBEC lids were then placed in a similar serially diluted 96-well plate containing disinfectants and incubated for 24 hours. The biofilms were