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“Effects of contact time and concentration on bactericidal efficacy of 3 disinfectants on hard nonporous surfaces”

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Methodology/Study Design: In vitro/ laboratory experiment design; not randomized

Experiment

- Objective was to evaluate the influence of off-label contact times and concentrations on the bactericidal efficacy of 3 disinfectants on hard, nonporous surfaces (stainless steel).
- The 3 types of disinfectants included accelerated hydrogen peroxide [AHP- Oxivir Five 16 Concentrate at 1:16 dilution], quaternary ammonium compounds [Quats- Virex II 256 at 1:256 dilution], and sodium hypochlorite (Clorox Germicidal Bleach 8.25% at 1:32 dilution).
- Part 1: Bactericidal efficacies of the 3 disinfectants were measured at 6 contact times (1, 2, 3, 4, 5, and 10 minutes) at the concentrations listed on the labels.
- Part 2: Bactericidal efficacies of the 3 disinfectants were measured using 8 different concentrations (25%, 50%, 75%, 100%, 125%, 150%, 175%, and 200% of label concentrations) with a constant contact time of 5 minutes. Efficacies were tested against *Staphylococcus aureus* and *Pseudomonas aeruginosa*.
- Four control (phosphate-buffered saline-treated) and disinfectant-treated coupons were tested in each treatment × organism combination in triplicate.

Results/Conclusions

All the study disinfectants were less efficacious at contact times and concentrations that were different than the label instructions for use.

Overall, the bactericidal efficacy of the sodium hypochlorite disinfectant was most tolerant to the decreases of contact times and concentrations, followed closely by AHP disinfectant, and quat disinfectant was most affected by contact time and concentration.

Limitations

- Not a randomized study.
- All disinfectants were from concentrate solutions that require dilution.
- Only two vegetative bacteria used for testing.
- Quat is a plain quat and not a quat/alcohol.
- The quat is a cleaner and requires 10 mins for being a disinfectant; vs the AHP and bleach disinfectants used (contact time of 5 min).
- This study states that “label contact times are measured based on continuous wet contact” which applies to liquid disinfectants (used in the study) not wipes. This may be confusing to our wipe customers.
- Study supported by Diversey Sealed Air.