Original Article

The Efficacy of Surface Disinfectant Wipes After Exposure to Air by Un-capping the Container

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Abstract

The objective of this study is to determine whether air exposure of different disinfectant wipes by un-capping the container alter the bactericidal efficacy. Three commercially available disinfectant wipes with different active ingredients consisting of CaviWipes™ (QAC & Isopropyl alcohol), SporeClear™ (QAC & Biguanides) and Optim 33TB (Ionized H_2O_2) were used in the experiment. Forty milliliters of stimulated saliva were collected from 15 healthy volunteers in the morning before performing daily oral hygiene care. The saliva was spread on sterilized leather surfaces and air dry. The surfaces were then used to test the effectiveness of disinfectant wipes those had been air exposed for 1, 4 and 18 hours compared with a group that tightly cap the container. The remaining CFU/mL of bacteria on the surfaces were calculated to compare log reduction. Data were statistically analyzed by Kruskal-wallis test and Mann-Whitney U test. A value of $p<0.05$ was considered significant. This study revealed that air exposure seems to marginally affect the antibacterial capability of disinfectant wipes with different active ingredients as determined by log reduction. Despite non-alcohol containing formula of SporeClear™, air exposure seems to worsen its activity, though no statistically significant difference was observed. Bactericidal activity of CaviWipes™ and Optim 33TB were quite stable regardless of prolonged air exposure or the order of sheet pulled out from the container. The outermost sheet of SporeClear™ was more affected by prolonged air exposure. To sum up, bactericidal efficacy of disinfectant wipes was minimally affected by duration of air exposure. Activity of SporeClear™, a non-alcohol containing formula, was greater affected by time and order of sheet dependent according to its texture.

Keywords: Alcohol, Biguanides, Disinfectant wipes, Infection Control, Ionized Hydrogen peroxide

Received Date: May 17,2017 **Accepted Date:** Aug 3,2017

doi: 10.14456/jdat.2018.7

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