



Evaluation of Different Disinfectants on the Performance of an On-Meter Dosed Amperometric Glucose-Oxidase-Based Glucose Meter

Abstract

Potential disease transmission through the use of single glucose meter for multiple patients has become a concern. Therefore, in order to reduce disease transmission, off-meter dosing of the glucose meter test strips was developed. However, recent studies have verified that the percentage of glucose meters found to be contaminated with blood with off-meter versus on-meter dosing was not statistically significant emphasizing the need for disinfection and cleaning protocols regardless of meter dosing format. Accelerated Hydrogen Peroxide® (AHP®) is a Health Canada and EPA registered disinfectant which has a virucidal claim effective against both enveloped (easy to kill) and non-enveloped (hard to kill) viruses, including those most likely to be transmitted via glucose meter such as Human Immunodeficiency Virus (HIV), and Hepatitis B and C.

Background

To date, two case reports have been published documenting the effect of hydrogen peroxide based disinfectants on the performance of an off-meter dosed photometric glucose-oxidase-based glucose meter, revealing the glucose meters potential to show faulty results when hydrogen peroxide based products are used. Because off-meter dosed glucose meters require the insertion of blood-saturated test strips into the interior of off-meter dosed glucose meters, regular disinfection of the optical read-test strip holder needs to be conducted. When disinfection of the off-meter dosed photometric glucose-oxidase-based glucose meter is completed using hydrogen peroxide, if the hydrogen peroxide solution in the disinfectant was not adequately rinsed or removed from the off-meter dosed test strip holder, the residual hydrogen peroxide may enhance the reaction mechanism for glucose detection. On the contrary, on-meter dosed glucose meters only require external meter disinfection, suggesting that the use of hydrogen peroxide should not impact glucose readings.

Study

The objective of this study was to determine if a single application of an Accelerated Hydrogen Peroxide based disinfectant to disinfect an on-meter dosed amperometric glucose-oxidase-based glucose meter will influence its performance. External disinfection of the on-meter dosed glucose meter was accomplished by thoroughly wiping all external areas, including the test strip port, with the prescribed disinfectant wipes.

Results

The results of the study determined that the on-meter dosed glucose meter was not affected by the single application of Accelerated Hydrogen Peroxide mitigating concerns of hydrogen peroxide interference errors on the glucose meter test strips.

Conclusion

Because the disinfection protocols for off-meter glucose meters require internal and external disinfection, all hydrogen peroxide based products have the potential to cause meter reading errors. However, on-meter glucose meters only require external disinfection and therefore the use of Accelerated Hydrogen Peroxide has been proven to be effective at disinfecting without influencing the performance of the glucose meter.

Implications for AHP

AHP Disinfectants are One-Step Disinfectant Cleaners

- AHP has proven cleaning efficiency resulting in added confidence that disinfection can occur which leads to lower costs and faster results

AHP Disinfectants are compatible

- AHP formulations are tested to ensure compatibility that preserve your investments in equipment, furniture and building surfaces by reducing corrosion and wear

AHP Disinfectants provide the perfect balance between safety and efficacy

- AHP is designed to be easier on employees and occupants resulting in protocol compliance
- AHP provides a HMIS rating of "0", meaning it has been proven to be non-toxic, non-irritating to eyes and skin and non-skin sensitizing and does not require the use of personal protective equipment to handle

AHP Disinfectants are environmentally sustainable

- AHP's active ingredient, hydrogen peroxide, breaks down into water and oxygen leaving no active residues
- AHP is formulated to ensure that it will not negatively impact indoor air quality and has been approved as an asthma-safe product

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DISINFECTION DIGEST

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AHP Disinfectants have realistic contact times

- Short contact times ensure surfaces remain wet for the required contact time, providing comfort and confidence that disinfection has occurred
- AHP has been proven through peer reviewed studies to reduce HAIs

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