

Effect of Disinfectants on Glucose Monitors

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Abstract

Background:

Monitoring blood glucose levels is an integral part of routine diabetes management. To minimize the risk of transmission of bloodborne pathogens during monitoring, the Centers for Disease Control and Prevention (CDC) recommends that glucose meters be disinfected after each use whenever they are used to test multiple patients. The objective of this study is to assess the compatibility of some common disinfectants with certain blood glucose meter systems.

Methods:

We tested six disinfectants for adverse impact on meter performance or the exterior meter surfaces. The disinfectants tested were 0.525% sodium hypochlorite, 20% 2-propanol and 10% ethanol, 17.2% isopropanol, 55% isopropanol, 70% isopropanol, and hydrogen peroxide. To assess meter performance, we tested OneTouch[®] Ultra[®] blood glucose monitoring systems with control solution before and after application of either water or disinfectant. To assess the effect on exterior meter surfaces, we performed a soaking test to simulate long-term exposure to disinfectant.

Results:

Paired *t*-test results showed that the control solution data associated with disinfectant and with water application were not significantly different for each meter type. However, most of the meter types were adversely affected by hydrogen peroxide and/or by the higher concentrations of alcohol-based disinfectants.

Conclusions:

Although none of the six disinfectants affected meter performance, hydrogen peroxide and isopropanol >20% adversely affected the exterior surfaces of the tested meters. When complying with CDC instructions for meter disinfection, users should use caution and choose disinfectants that have been validated by the meter manufacturer.

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Abbreviations: (AMBG) assisted monitoring of blood glucose, (CDC) Centers for Disease Control and Prevention, (FDA) Food and Drug Administration, (HBV) hepatitis B virus, (MSDS) material safety data sheet

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