



## Quality Control is Indispensable for Automated Dilution Systems with Accelerated Hydrogen Peroxide (CJIC, Vol. 24, No.4, Winter 2009)

### Abstract

Accelerated Hydrogen Peroxide® (AHP®) is a patented synergistic blend of commonly used, safe ingredients that when combined with low levels of hydrogen peroxide dramatically increase its germicidal potency and cleaning performance. To ensure maximum efficacy, AHP concentrated products can be diluted with automated dilution control systems. However, just as we wouldn't run our automobiles without regular oil changes and tire rotations, so to we shouldn't operate these systems without regularly scheduled preventative maintenance. This evaluation focused on an AHP disinfectant and its associated dilution system to emphasize the importance of performing quality checks on other hospital grade disinfectants that are diluted and dispensed from automated control systems.

### Background

As disinfectants are more widely used throughout healthcare facilities, so too are automated dilution control systems for quick and efficient dispensing of the chemicals. Although these systems are typically highly accurate, their use does not replace the need to implement quality control measures to monitor proper dilution. These systems are not infallible, irrespective of the type of disinfectant dispensed.

### Study

This study was conducted over a 30 day period in late 2008 at a large Canadian teaching hospital that utilized automated dispensing systems to dilute concentrated Accelerated Hydrogen Peroxide (AHP) products for disinfection and cleaning. Further assessment of an issue pertaining to slightly higher nosocomial infection rates of methicillin-resistant *Staphylococcus aureus* (MRSA) revealed that the findings may be related to disinfectant concentration. This ultimately led to the evaluation of the dilution control systems to determine their accuracy.

### Results

The result was a calculated 10% failure rate of the tested systems (9 failures over 90 tests) over the 30 day period. Most likely due to poor or non-existent maintenance over their lifespan, the failures demonstrated the importance of performing regular quality control testing. Improper dilution can result in disinfectants that are too weak and thus ineffective in achieving the level of disinfection they're intended to, or too strong which can be detrimental to environmental surfaces and potentially raise unnecessary occupational health concerns.

### Conclusion

In order to prevent potential issues with the improper dilution of concentrated cleaning and disinfectant products, quality control testing should be conducted as part of a preventative maintenance program. Ontario's Provincial Infectious Disease Advisory Committee (PIDAC) shares this sentiment and strongly recommends that automated dispensers are monitored regularly for accurate calibration in their Best Practices for Environmental Cleaning for Prevention and Control of Infections. This includes the use of Chemical Indicator Strips or Test Strips. These strips are intended to indicate whether there may be a glaring issue with dispensing such as water quality, water pressure, proportioning tip malfunction, etc. It is important to clarify that these **strips are not pass/fail** and are therefore **not absolute**. The colour coding also means the results may be subjective. Therefore, **test strips for surface disinfectants are meant for periodic testing of dilution systems** to ensure quality control and periodic checks on staff practices for facilities that are free pouring.