Infection Control & Hospital Epidemiology (2020), **41**, 737–755
doi:10.1017/ice.2019.379

Letter to the Editor

Re: Evaluation of dilute hydrogen peroxide technology for continuous room decontamination of multidrug-resistant organisms

Eric Schlote
Synexis LLC, Overland Park, Kansas

To the Editor—I read with great interest the study by Rutala et al,[1] in which they attempted to determine whether low-dose hydrogen peroxide gas could provide effective room decontamination in a "model patient room." I am writing to provide clarification on this study, performed in 2015, which must be considered when interpreting the results.

Dr Rutala et al reported that the appropriate level of dilute hydrogen peroxide (DHP, 0.1 ppm) was not achieved throughout the study. This is a key point because previous research, in which the appropriate level of DHP was achieved, has demonstrated effective microbial reduction. In fact, a 2015 study in which our technology successfully reduced microbial colonization in an occupied 34-bed cardiovascular telemetry unit using continuous deployment was awarded the William A. Rutala Abstract Award in 2015.[2,3]

This study was an experimental design; however, it does not represent a true evaluation of our microbial reduction technology. The study design appears to be similar to previous experiments developed to test liquid surface contact disinfectants which are intended to be effective within seconds. This allows for the use of low inoculation levels (eg, the 100–500 organisms used in this study) because natural die off is a minimal consideration during short exposure times. As such, rapid reductions in low inoculation levels would not be expected within a short period (eg, the 6–48-hour window in this study). However, this method is fundamentally contrary to the concept of DHP deployment. Providing a concentration of DHP that is safe for continuous use in occupied areas necessitates using a low concentration of DHP. A low concentration of any disinfectant acts slowly. The primary benefit of DHP, however, is that it acts continuously and indefinitely. Gradual reduction is offset by extended exposure times, which uniquely results in a sustained lowering of steady-state microbial contamination levels as the DHP concentration reaches equilibrium.

Since the study was conducted in 2015, additional modifications and advancements have been made to our technology, which has been validated and has demonstrated effective microbial reduction in a variety of applications including food service, bottling, agriculture, and hospitality. Additionally, the technology continues to provide significant bioburden reductions within the healthcare arena. Our healthcare clients have experienced at least a 95% steady-state reduction in bioburden from their baseline. I welcome any inquiries to review our impressive results.

Unfortunately, Dr Rutala was unable to work with us in conducting another study and to acknowledge the improvements made, which are supported by our most recent data. We welcome the opportunity to work with him in the future.

Acknowledgments. None.

Financial support. No financial support was provided relevant to this article.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

References

1. Rutala WA, Kanamori H, Gergen MF, *et al.* Evaluation of dilute hydrogen peroxide technology for continuous room decontamination of multidrug-resistant organisms. *Infect Control Hosp Epidemiol* 2019;40:1438–1439.
2. Herman CK, Hess J, Cerra C. Dilute hydrogen peroxide technology for reduction of microbial colonization in the hospital setting. *Am J Infect Control* 2015;43(6):S25–S26.
3. Abstract Awards. *Am J Infect Control* 2015;43(6):S1–S2.

Author for correspondence: Eric Schlote, E-mail: eschlote@synexis.com
Cite this article: Schlote E. (2020). Re: Evaluation of dilute hydrogen peroxide technology for continuous room decontamination of multidrug-resistant organisms. *Infection Control & Hospital Epidemiology*, 41: 737, https://doi.org/10.1017/ice.2019.379