

# Bacterial Contamination of Ultrasound Probes at a Tertiary Referral University Medical Center

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## ABSTRACT

Healthcare-associated infections (HAIs) are among the leading causes of death in the United States. Although HAIs may seem irrelevant to radiology, ultrasound examinations may be an unaccounted contributing factor for their development. There are established guidelines for disinfection and sterilization in general, but a lack of compliance and misuse of disinfectants has led to numerous outbreaks. According to the CDC, there are seven factors affecting the efficacy of disinfection which in turn impacts compliance: the number and location of microorganisms, innate resistance of microorganisms, concentration and potency of disinfectants, physical and chemical factors, presence or absence of organic and inorganic soils and the presence or absence of biofilms. Accelerated Hydrogen Peroxide<sup>®</sup> (AHP<sup>®</sup>) is a synergistic blend of commonly used, safe ingredients that has unparalleled germicidal efficacy and has been proven to reduce HAIs.

## BACKGROUND

For ultrasound examinations, the same nonendocavity probes are being used on skin surfaces of different patients, resulting in higher potential risks of cross-contamination and secondary hospital acquired infections. Therefore, the facility in this study wanted to assess their protocols for disinfecting ultrasound probes, identify areas for improvement if required, assess whether their protocols were compliant with general disinfecting guidelines, and implement change where needed.

## STUDY

This study assessed the prevalence of bacterial contamination by swabbing all ultrasound probes in the radiology department and culturing the samples. To determine efficacy of the facilities probe disinfecting protocols, the probes were contaminated with MRSA and then disinfected with 0.5% AHP<sup>®</sup>. The probes were then swabbed to assess bacterial growth.

## RESULTS

The results of the study revealed that 22.6% of the probes were positive for bacterial growth. 28.6% of the visibly soiled probes showed bacterial growth and 57.1% of probes positive for bacteria were visibly soiled demonstrating the risk of potential transmission of ultrasound probes and the need to adequate disinfection. Additionally, the results of this study show that cleaning ultrasound probes with 0.5% AHP<sup>®</sup> is adequate for removal of MRSA with the appropriate contact time according to the manufacturer's instructions.

## STUDY CONCLUSION

The results of the study allowed the facility to conclude that their protocols for disinfecting ultrasound probes were compliant with current guidelines. While AHP<sup>®</sup> has been proven an effective disinfectant, an intermediate level disinfectant such as AHP<sup>®</sup> should only be used on nonendocavity ultrasound probes, while a high level disinfectant should be used on endocavity probes as these are considered semi-critical items. With the use of an effective disinfectant, education, and implemented

changes, the goal is to decrease bacterial contamination rates and thus decrease the potential for bacterial transmission.

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## REFERENCE

Chu K, Obaid H, Babyn P, Blondeau J. (2014). Bacterial contamination of ultrasound probes at a tertiary referral university medical center. *AJR*. 203(5): 928-32.