TITLE: Ultraviolet Light for the Disinfection of Ultrasound Probes: Clinical Effectiveness, Cost-effectiveness, and Guidelines

DATE: 24 November 2011

RESEARCH QUESTIONS

1. What is the clinical effectiveness of ultraviolet light for the disinfection of ultrasound probes?

2. What is the cost-effectiveness of ultraviolet light for the disinfection of ultrasound probes?

3. What are the evidence-based guidelines and recommendations for the use of ultraviolet light for the disinfection of ultrasound probes?

4. What are the evidence-based guidelines and recommendations for the disinfection of ultrasound probes?

KEY MESSAGE

The evidence suggests that disinfection of ultrasound probes with ultraviolet-C (UVC) light is effective; however, it should be noted that UVC disinfection should begin following cleaning of the probe with a disinfectant-impregnated paper towel.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2011, Issue 11), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2006 and November 18, 2011. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines.

One randomized controlled trial and two non-randomized studies, were identified regarding the effectiveness of ultraviolet light for the disinfection of ultrasound probes. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One randomized controlled trial\(^1\) evaluated three methods for disinfecting ultrasound probes. The disinfecting methods included dry wiping with a soft, dry, non-sterile paper towel, antiseptic wiping with a towel impregnated with disinfectant spray, or dry wiping followed by a ten minute ultraviolet C (UVC) cycle in a disinfection chamber. The authors reported the greatest microbial reduction and the greatest percentage of negative specimens following the UVC method, consequently affirming that UVC may be an effective means of disinfecting ultrasound probes.

One non-randomized study\(^2\) sought to assess the anti-bacterial efficacy of the UVC disinfection method for disinfecting uncovered ultrasound probes after anesthesia block placement. It was noted that the disinfection method consisted of cleaning the probe with dry and disinfectant-impregnated paper followed by a ninety second UV disinfection cycle in a decontamination chamber. The authors concluded that UVC disinfection is a simple, fast, and effective means to disinfect unprotected ultrasound probes after block placement. Another randomized controlled trial\(^3\) aimed to determine the rate of bacterial and viral contamination of ultrasound probes after cover removal following endorectal or endovaginal examination and to assess the antimicrobial efficacy of a UVC disinfection following cleaning with a disinfectant-impregnated towel. The authors identified pathogens after removal of probe covers and found disinfection with UVC after cleaning with a disinfectant-impregnated towel to be a useful method for disinfecting ultrasound probes.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials

Non-Randomized Studies


Economic Evaluations
No literature identified.

Guidelines and Recommendations
No literature identified

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APPENDIX – FURTHER INFORMATION:

Guidelines and recommendations (methodology not specified)


Additional References