

MUNSTER ARTICLE REVIEW CRITICAL ANALYSIS

Article Reviewed

Schmitze, J et al. Disinfection of Transvaginal Ultrasound Probes by Ultraviolet C – A clinical Evaluation of Automated and Manual Reprocessing Methods. Munster University Hospital (Germany) DOI <https://doi.org/10.1055/a-0874-1971> ; Published online: 2019 ; Ultraschall in Med.

CRITICAL ANALYSIS

The study described in this article is clearly invalid from a scientific point of view. While all studies on disinfection systems, notably on ultrasound probes, are done with quantitative microbiological analysis methods, the discussed study used a qualitative method, which is often done in pharmaceutical research, but is invalid for the evaluation of semi-critical medical devices.

The discussed study finds more contamination after disinfection than before disinfection. This alone shows that the study design was inappropriate and did not have scientific value: "In some cases in our study, bacteria was found in the second swab taken after disinfection, which we had not found in the first swab taken before disinfection including 19 in the Antigermix group and 7 in the wipes group (12 % and 4.4 %)."

Interestingly, the authors consider microorganisms found after disinfection are an abnormal findings only if said microorganisms were absent before disinfection. However, since the finding clearly establishes the applied methodology is flawed by reintroducing contamination after disinfection, the author should consider that all microorganisms found after disinfection are doubtful and irrelevant since they may have been reintroduced and not present before disinfection.

Below is a table (Table 1) showing obvious cases of recontamination during the study.

Microorganism	Number of positive before disinfection	Number of positive after disinfection
Micrococcus spp	2	15
Micrococcus luteus	0	2
Corynebacterium tuberculoearicum	0	2
Corynebacterium spp	1	2
Lactobacillus	0	1

Table 1: Obvious recontamination after disinfection due to improper methodology

Additional breaches from scientific standards are highlighted:

- The required neutralisation step was not performed as in standardised protocols used for such research.
- An environmental contamination qualification, that has substantial value given the qualitative approach chosen, was not performed during this study.
- The detection limit was not defined.

CONCLUSION: This study has no scientific value as it has proven to reintroduce very frequently contamination after disinfection. Other meaningful flaws in the design are highlighted.

