AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

STATEMENT

Document No: S686
Approved: Nov-2018
Last Revised: Nov-2018
Version No: v1

STATEMENT ON CLEANING AND DISINFECTION OF ULTRASOUND TRANSDUCERS THAT ARE USED FOR NEEDLE-BASED PROCEDURES

1. PURPOSE

This statement outlines the position of the Australasian College for Emergency Medicine (ACEM) on cleaning and disinfection of ultrasound transducers that are used for needle-based procedures.

Emergency departments (EDs) should be aware that if ultrasound transducers are not cleaned/disinfected between patient contact then they may act as potential sources of infection. In 2017, the Australasian Society for Ultrasound in Medicine (ASUM) and the Australasian College for Infection Prevention Control (ACIPC) suggested that if transducers are to be used to assist needle guidance for procedures they should undergo high level disinfection (HLD).

By contrast, the American College of Emergency Physicians (ACEP) and the American Institute of Ultrasound in Medicine (AIUM) recommend use of low level disinfection (LLD) and a sterile transducer cover for ultrasound guided transcutaneous procedures.

ACEM is actively collaborating with ASUM and ACIPC to ascertain best practice with the practical minimisation of risk, while ensuring access to the considerable benefits of ultrasound to assist needle-guided procedures.

2. SCOPE

This statement applies to Australian and New Zealand EDs, although practical considerations may be applicable to other health care settings, e.g. intensive care units and hospital inpatient wards.

This statement does not relate to transducers that are used on non-intact skin, body cavities or mucus membranes. Transducers used in this regard should be reprocessed (cleaned and disinfected) as per the Australian/New Zealand Standard *Reprocessing of reusable medical devices in health service organisations* (AS/NZS 4187:2014) and ASUM/ACIPC *Guidelines for reprocessing ultrasound transducers.*

3. DEFINITIONS/ABBREVIATIONS

LLD refers to low level disinfection that kills vegetative bacteria, some fungi, and some viruses.

ILD refers to intermediate level disinfection. As per LLD, ILD kills vegetative bacteria, as well as mycobacteria, viruses and most fungi, but does not kill bacterial spores.

HLD refers to high level disinfection that kills all with the exception of high levels of bacterial spores. Prolonged HLD is nearly equivalent to disinfection.

Sterilisation destroys microorganisms, rendering devices free from viable microorganisms.

Non-critical medical device only comes into contact with intact skin and not mucus membranes.

Semi-critical medical device is a medical device that comes into contact with mucus membranes or non-intact skin.

4. BACKGROUND

Recent concerns have been raised regarding the potential for ultrasound equipment to act as a potential source of infection. In this regard, ASUM has collaborated with ACIPC to produce the *Guidelines for reprocessing ultrasound transducers.* These guidelines have been written within the framework of Australian/New Zealand Standard *Reprocessing of reusable medical devices in health service organisations* (AS/NZS 4187:2014).

Most notably, the published guidelines can be interpreted to recommend that transducers undergo high level disinfection (HLD) after every single ultrasound guided procedure, in addition to the use of a transducer cover. This appears to suggest that all transducers that are used for peripheral nerve blocks, peripheral vascular access or central vascular access should undergo HLD after every use and clear documentation should be recorded to that effect.

The application of this standard has significant implications. It risks restricting patient/physician timely access to ultrasound equipment. The use of ultrasound to guide procedures has been shown to enhance patient care and reduce complications.

At present, there appears to be little evidence that the application of this standard would improve patient care or significantly reduce infection potential.

5. ACEM POSITION

ACEM recognises that current infection control processes for ultrasound machines and transducers in EDs may require change as further evidence becomes available. To this end, ACEM is actively working with ASUM and ACIPC to better determine processes and standards to ensure the provision of the best possible patient care. ACEM also recognises that improvements to current practice is required.

Ultrasound is a key element in guiding and improving safety of procedures in emergency medicine. Internationally accepted guidelines specifically recommend the use of ultrasound for certain procedures, e.g. central vascular access.

ACEM is concerned that the requirement for the combination of both sterile probe covers and HLD for certain selected procedures (e.g. needle guided procedures) may be unnecessary. This costly intervention has unclear incremental benefit over the use of a sterile probe cover and LLD performed both before and after a procedure.

ACEM is concerned that the logistics of rigidly implementing this guideline could threaten the provision of a meaningful point of care ultrasound service. The use of ultrasound to guide clinical procedures has clear established patient benefit in the medical literature.

Current literature is limited as to the actual infection risk posed by transducers that are used to guide needle-based clinical procedures. To this end, ACEM commits to actively collaborate with ASUM in an attempt to better quantify risks.

6. RECOMMENDATIONS

Emergency clinicians who use ultrasound to guide procedures should endeavour to use all practical measures available to them to minimise cross-infection risk.

Hospital infection control services should direct their efforts towards assisting clinicians and ensuring the seamless provision of service rather than restriction of that service.

Where it is determined that HLD should be performed on a transducer, all EDs should be supported to ensure that this can occur in a timely manner. The local logistics may vary but it can be expected that most ultrasound transducers will require HLD at some point. Hospitals should ensure that this can occur without any significant disruption in service, either by local provision of HLD services/equipment within the ED or by efficient use of pooled resources within the hospital.

As a minimum level of infection control, ACEM recommends that EDs immediately treat the probe in a similar fashion as for hand hygiene. Clean and disinfect the probe carefully before and after every use with the additional use of a protective cover when performing procedures.

7. SUPPORTING DOCUMENTS

This Statement should be read in the context of the following supporting documents.

1. "Guidelines for Reprocessing Ultrasound Transducers" AJUM February 2017 20 (1): 30-40.
2. Australian/New Zealand Standard AS/NZS 4187:2014 "reprocessing of reusable medical devices in health service organizations"
3. Keys M, Sim BZ, Thom O, Tunbridge MJ, Barnett AG, Fraser JF. Efforts to Attenuate the Spread of Infection (EASI): a prospective, observational multicentre survey of ultrasound equipment in Australian emergency departments and intensive care units. Crit Care Resusc. 2015 Mar;17(1):43–6
4. Frazee BW, Fahimi J, Lambert L, Nagdev A. Emergency Department Ultrasonographic Probe Contamination and Experimental Model of Probe Disinfection. Annals of Emergency Medicine. Elsevier Inc; 2011 Jul 1;58(1):56–63.
5. ACEP Policy: Guideline for Ultrasound Transducer Cleaning and Disinfection. 2018
6. AIUM official statement. Guidelines for Cleaning and Preparing External- and Internal-Use Ultrasound Probes Between Patients & Safe Handling and Use of Ultrasound Coupling Gel. 2018

8. RELATED DOCUMENTS

- P21 – Policy on the use of focussed ultrasound in emergency medicine

9. DOCUMENT REVIEW

Timeframe for review: every year, or earlier if new evidence.

9.1 Responsibilities

Authoring group:	Emergency Department Ultrasound Subcommittee
Document authorisation:	Council of Advocacy, Practice and Partnerships
Document implementation:	Standards Committee
Document maintenance:	Department of Policy and Research

9.2 Revision History

Version	Date of Version	Pages Revised / Brief Explanation of Revision
v1	Nov-2018	Approved by CAPP