An overview of ultrasound probe reprocessing

Critical Summary

- There are multiple steps involved in ultrasound probe reprocessing and decontamination: Cleaning, disinfection, storage and documentation.
- Each of these unique steps is paramount to the overall success of the reprocessing of ultrasound probes.
- Many guidelines across Europe provide detail on how facilities may accomplish each of these steps.

Appropriate reprocessing of ultrasound probes is required to prevent transmission of infection when probes are used on subsequent patients. There are three important stages involved in effective reprocessing – ***cleaning, disinfection and storage*** as illustrated in Figure 1 below.

The term "reprocessing" is often used to describe one or all of the cleaning and disinfection steps. Manufacturer instructions as well as local regulations and guidelines should be referred to before commencing reprocessing to ensure the processes are compatible and compliant.

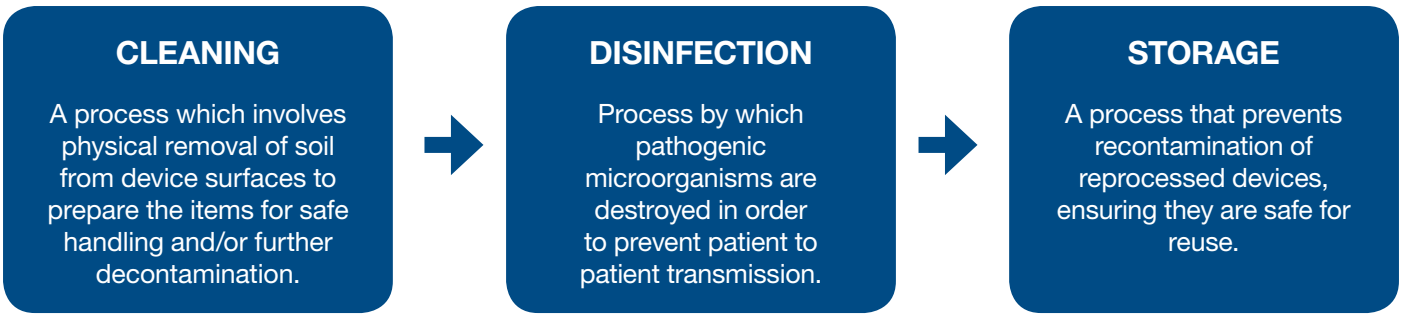

Figure 1. The stages of medical device reprocessing.

Cleaning

Cleaning is generally defined as the physical removal of soil (e.g. blood, protein substances, microorganisms and other debris) from the surfaces of devices to prepare the items for safe handling and/or further reprocessing.

Cleaning is an important and mandatory first step of reprocessing as it ensures that soil does not interfere with any subsequent disinfection process. Cleaning is generally validated by visual inspection of the device or by quantitative methods.

Common cleaning methods for ultrasound probes include soaking in detergent and water, wiping with a moist cloth or detergent wipe or soaking in an enzymatic cleaning solution. The probe manufacturer instructions should be consulted to determine which cleaning methods are compatible with the device. The probe should be completely dry after cleaning so as to not interfere with the subsequent disinfection process.

Disinfection

Disinfection is the process by which pathogenic micro-organisms are destroyed in order to prevent transmission to the next patient via a medical device.

Disinfection can be further broken down into subcategories including low and high level disinfection and the specific spectrum of antimicrobial activity of these processes is described below in Figure 2.

Selection of the appropriate level of disinfection is based on the risk associated with the intended use of the device.

Ultrasound probes that will only contact intact skin can be low level disinfected before use while probes that contact mucous membranes or non-intact skin should undergo high level disinfection.

The ultrasound manufacturer instructions must also be consulted to ensure that the disinfection process is compatible with the instrument and will not cause damage.

Comprehensive guidance is available in Europe and the United Kingdom, to assist users in determining the appropriate disinfection level required for specific ultrasound probe procedures.[1-10]

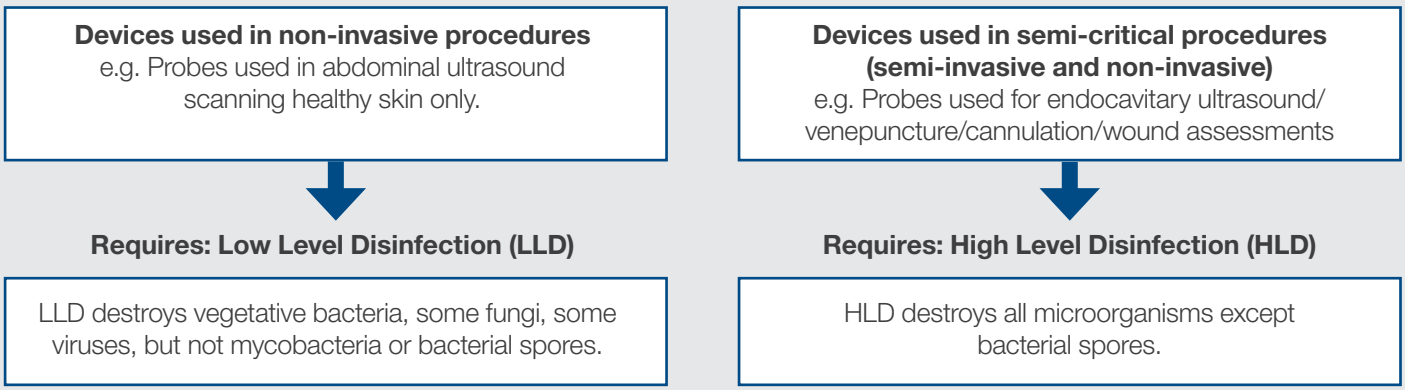

Figure 2: Levels of disinfection and criteria governing their use. Low level and high level disinfection all have different spectrums of efficacy against microorganisms. An appropriate level of disinfection should be performed before reuse according to the intended use of the device.

Storage

Appropriate storage is required to prevent recontamination of reprocessed probes.

Standard storage conditions such as being clean, dry, away from extreme heat and UV light should be observed.

High level disinfected probes should be stored in single use clean covers for optimal protection.

Low level disinfected probes carry a similar status to other common patient contact surfaces in the patient environment and can optionally be stored in a cover. All probes should be completely dry before entering storage and should be labelled to facilitate easy identification of disinfection status.

Documentation

All processes should be documented and users should be trained on commencement and at regular intervals.

The cleaning, disinfection and storage processes should incorporate traceability of specific probes and critical parameters indicating successful reprocessing.

These records should be linked to the patient and procedure the ultrasound probe is used in.

Contact us today for your specific needs on point-of-care reprocessing, understanding when to HLD or for an educational session at your facility.

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References 1. H.P. Loveday, et. al. National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. J Hosp Infect. 2014;(86) Suppl 1:S1-70. **2.** Health Service Executive (HSE) Quality Improvement Division. HSE Guidance for Decontamination of Semi-critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. Document: QPSD-GL-028-1. 2017. **3.** Health Protection Scotland (HPS), Health Facitlities Scotland (HFS), National Services Scotland (NHS). NHSScotland Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. 2016. **4.** Nyhsen CM, Brady A, D'Onofrio M, Sidhu P, Humphreys H, Nicolau C, et al. Infection prevention and control in ultrasound - best practice recommendations from the European Society of Radiology Ultrasound Working Group. Insights Imaging. 2017;8(6):523-35. **5.** Kollmann C, Salvesen K. Best Practice recommendations for cleaning and disinfection of ultrasound transducers whilst maintaining transducer integrity. European Committee for Medical Ultrasound Safety (ECMUS). 2017. **6.** Abramowicz JS, Evans DH, Fowlkes JB, Maršal K, terHaar G. Guidelines for Cleaning Transvaginal Ultrasound Transducers Between Patients. Ultrasound in Medicine & Biology. 2017;43(5):1076-9. **7.** Ministére des Solidarités et de la Santé. Proposition technique du groupe de travail national. Prevention du risque infectieux associe aux actes d'echographie endocavitaire. 2019. p. 28 **8.** Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO), and Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM),. Anforderungen an die Hygiene bei der Aufbereitung von Medizinprodukten. Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz2012. p. 66. **9.** Svensk Förening för Obstetrik och Gynekologi (SFOG). SFOG råd angående transducerskydd och desinfektion av ultraljudsprober vid all gynekologisk och obstetrisk ultraljudsundersökning inom öppen och slutenvård. 2019. **10.** Institut SS, Miljøstyrelsen og Central Enhed for Infektionshygiejne (CEI). Principper for anvendelse af desinfektionsmidler i sundhedssektoren i Danmark. Konsensusnotat udarbejdet af infektionshygiejnisk fagekspertise i Danmark Overordnede principper.

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