Regional Anaesthesia Block placement contamination risk

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PREVENTION IS BETTER THAN CURE 100%

Ultrasound-guided Regional Anaesthesia (RA) has become a cornerstone for block placement.

With quick turnaround times, performing 10 to 30 blocks per day, including single-shot injections and catheter placements, it is often not practical to move probes to and from Central Sterilisation Departments for disinfection. Due to ultrasound probes reusable nature, they are ideal vectors for cross contamination if not protected and cleaned correctly.

Common practice (conventional technique*) is low-level disinfection and placed inside a sterile probe cover. If the integrity has been compromised during the procedure, deterioration of the cover (microperforation or macroperforation) occurs, high-level disinfection is necessary.[1] However, this integrity is subjectively estimated rather than factually proven. Most clinicians performing these procedures on a routine basis with high patient turnover can attest to the fact that perforation of the cover does occur, exposing the patient procedure site to cross-infection risk.[2]

A recent research study showed an alternative technique using UV-C High Level Disinfection technology that requires only 3 Steps:

STEP 1:	Pre-cleaning probe with dry paper towel to remove the gel
STEP 2:	Clean the probe with disinfectant-impregnated wipe.
STEP 3:	UV-C High Level Disinfect technique for ultrasound probe reprocessing

The research study, highlighted key advantages over the conventional techniques.[2]

The HLD process is ultrafast. Indeed, the duration of the sterile covering strategy is certainly longer than the 90 second UV-C disinfection cycle.

UV-C HLD probe used with no probe cover, as stated by the authors of the study, "enables enhancement of ultrasound contrast, which can facilitate better visualisation of anatomic landmarks and improve the feasibility of ultrasound-guided regional anaesthesia."

UV-C technique automated traceability.

UV-C disinfection 90 second process allows probe to be immediately disinfected before a new procedure.

The process has important practical advantages over conventional techniques for ultrasound probe management.

In similar studies in Transoesophageal Echocardiography (TOE) studies question whether the cover sheath offers any advantage in reducing infection risk.[3-4] As cleaning and disinfection are still needed to prevent probe contamination, it is not clear whether the cover sheath offers any advantage over standard measures for infection prevention.[3,5] Sheaths are subject to perforation which may be undetectable to the naked eye. Perforation rates are as high as 4.4%. Therefore, TOE probes should undergo high level disinfection before each procedure and question whether sheath covers provide any advantage in reducing cross-infection risk.[6-8]

*Conventional technique - Interventional percutaneous procedure transducers

References: 1. AIUM – Official Statement - Guidelines for Cleaning and Preparing External- and Internal-Use Ultrasound Transducers Between Patients, Safe Handling, and Use of Ultrasound Coupling Gel Approved 5/16/2017; Revised 3/25/2018; Revised 11/3/18 https://www.aium.org/accreditation/Guidelines_Cleaning_Preparing.pdf **2.** Bloc S1, Mercadal L, Garnier T, Komly B, Leclerc P, Morel B, Ecoffey C, Dhonneur G. (2011) Evaluation of a new disinfection method for ultrasound probes used for regional anesthesia: ultraviolet C light. J Ultrasound Med. 2011 Jun;30(6):785-8. https://www.ncbi.nlm.nih.gov/pubmed/21632992 **3.** Geneviève Côté, André Denault. Review Article: Transesophageal echocardiography-related complications [Complications associées à l'échocardiographie transoesophagienne] Can J Anesth 2008 / 55: 9 / pp 622–647. **4.** Fritz S, Hust MH, Ochs C, Gratwohl I, Staiger M, Braun B. Use of a latex cover sheath for transesophageal echocardiography (TEE) instead of regular disinfection of the echoscope? Clin Cardiol 1993; 16: 737–40. **5.** Khandheria BK. The transesophageal echocardiographic examination: is it safe? Echocardiography 1994; 11: 55–63. **6.** Richard Steeds. et al. Guidelines for transoesophageal echocardiographic probe cleaning and disinfection from the British Society of Echocardiography Article in European Heart Journal – Cardiovascular Imaging · October 2011. **7.** Cote G, Denault A. Transoesophageal echocardiography-related complications. Can J Anesth 2008; 55(9): 622-647. **8.** Fritz S, Hust MH, Ochs C, et al. Use of latex cover sheath for transoesophageal echocardiography (TEE) instead of regular disinfection of echoscope? ClinCardiol 1993;16:737-40.

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