Clinical Bulletin

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trophon: reprocessing at POC for ultrasound workflows

- Segregation of clean and dirty processes
- Probe inventory minimised
- Staffing requirements eased
- No installation requirements

trophon®: workflow solution at point of care (POC)

trophon® is a state of the art point of care (POC) high level disinfection (HLD) device for ultrasound probes. Prior to the introduction of this technology, ultrasound probes have routinely been high level disinfected in a centralised location outside of the patient examination room. This workflow is common due to the safety limitations of disinfection with bulk liquid disinfectants (e.g. glutaraldehyde and *ortho*-phthalaldehyde) and guidelines for reprocessing more complex medical devices such as endoscopes.[1] New technologies such as trophon make POC disinfection possible, supporting the expansion of ultrasound procedures to many clinical settings including outpatient and primary care. trophon is regularly used at POC in the USA, UK, EU, Australia and New Zealand. The joint Australiasian College for Infection Prevention and Control (ACIPC) and Australasian Society for Ultrasound in Medicine (ASUM) Guidelines for Reprocessing Ultrasound Transducers support point of care reprocessing of ultrasound probes when the products used are safe and measures are taken in designing clinical workflows.[2]

trophon: reprocessing at POC for ultrasound workflows

- **Segregation of clean and dirty processes**

It is extremely important to separate clean and dirty processes to prevent recontamination of clean probes, a central concept in medical device reprocessing. This goal is often achieved through segregation of clean and dirty areas with physical barriers or by demarcation of zones.

In the patient room the same outcome can be achieved by adopting a structured workflow.

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Under normal circumstances the patient room becomes 'dirty' during a patient stay or procedure and the room must be returned to a 'clean' state ready for the next patient.

When trophon is used at POC, handling of the dirty probe occurs only when the room is dirty and handling of the clean probe occurs only when the room is clean (Table 1). While the disinfection cycle is running, high touch surfaces (e.g. door and cupboard handles, console) can be disinfected and the patient room is turned over so the disinfected probe is removed in a clean environment.

Cross contamination can be prevented at the POC by clear designation of clean and dirty zones and processes. Additionally, probe transportation (seen in centralised workflows) is not required, eliminating the risk of cross contamination during handling as well as reducing the chance of mixing up dirty and clean instruments.

Table 1: Segregation of clean and dirty processes for a typical ultrasound workflow.

Workflow

Step	Examination Room	Probe
Patient procedure is performed.	Dirty	Dirty
Probe is cleaned (gel removed, checked to see all visible matter removed, dried).	Dirty	Dirty
Patient leaves room, probe is placed inside trophon and HLD cycle is started.	Dirty	Dirty
Patient room is turned over for next patient, high touch surfaces (e.g. door handles, consoles) disinfected.	Clean	Clean
Probe is removed from trophon, covered and stored for next patient.	Clean	Clean

Clean/Dirty Line

• Probe inventory minimised

The POC workflow minimises the number of probes in circulation since the probe does not need to leave the patient room. The probe is reprocessed after the patient examination and returned directly to the console after the 7 minute disinfection cycle in time for the next exam. Probe tracking and traceability is simplified by housing the examination and reprocessing in a single room.

In contrast centralised workflows have greater time delays associated with probe turnaround, necessitating the need for expanded probe inventories (or lower patient throughput) at significant cost to the facility. This could also occur if the probe is damaged during transportation between locations.

• Staffing requirements eased

Sonographers carrying out the exam are also able to perform reprocessing. This negates the need for separate reprocessing staff often required for centralised workflows. The sonographer performing reprocessing with trophon does not require extensive personal protective equipment apart from the gloves located in the examination room. trophon is designed with usability in mind so as not to interfere with the clinical workflow.

• No installation requirements

trophon does not require plumbing and can be placed on a bench top or stand for maximum flexibility. trophon does not require installation of a fume hood or sink for rinsing or disposal of large amounts of hazardous liquid so there is no incursion of construction/ facility upgrade costs. A typical ultrasound examination room is appropriate for use of trophon at POC.

Drawbacks of centralised reprocessing in ultrasound

Centralised reprocessing requires the ultrasound probe be removed from the patient examination room (POC) and transported in a container to a separate location where reprocessing occurs. After reprocessing the probe is transported back to the patient examination room. The centralised workflow has contamination risks associated with probe transportation as well as the time and resource constraints discussed above. These can be mitigated by shifting to a POC workflow enabled by trophon.

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trophon: enabling efficiency at POC

The POC workflow minimises probe inventory, probe turnaround time and reprocessing staff requirements. There are no additional installation requirements. The risk of cross contamination is mitigated by eliminating the need to transport probes in containers to other locations and by clear designation of clean and dirty processes in the patient room. POC use of trophon enables significant time and cost savings compared with centralised resource workflows.

References: 1. Gastroenterological Society of Australia (GESA), Gastroenterological Nurses College of Australia (GENCA), Australian Gastrointestinal Endoscopy Association (AGEA). Infection Control in Endoscopy. Third Edition 2010. **2.** Australasian College of Infection Prevention and Control (ACIPC) and Australiasian Society for Ulrasound in Medicine (ASUM). Guidelines for Reprocessing Ultrasound Transducers. Australasian Journal of Ultrasound in Medicine. 2017;20(1):30-40.

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