Emergency Department POCUS
A New Frontier

BE AWARE OF ULTRASOUND PROBE CROSS-INFECTION RISKS

Point-of-care ultrasound (POCUS) has become a cornerstone in the diagnosis and treatment of patients in the emergency and critical care departments.

To achieve the full ultrasound benefits in patient care, medical teams need to consider the contamination risk over repeated use of probes as a vector for pathogen transmission. Ultrasound probes are used for various applications and based on the level of infection risk probes are classified by the Spaulding Classification, as non-critical (low risk), semi-critical (medium risk) and critical (high risk). The classification also determines the probe disinfection level – Low Level Disinfection, High Level Disinfection, Sterilisation.[1-4]

The ultrasound probe can be compromised by contamination in various ways, allowing the probe to be a vector for pathogen transmission from patient procedure site, probe cover microtears, poor aseptic technique or contaminated gel. These common contamination risks can be transferred to the next patient. In a recent outbreak of *Burkholderia cepacia bacteraemia* in a tertiary care centre resulted from contaminated ultrasound probe gel. The *B. cepacia* was isolated from the blood cultures of 14 patients resulting from contamination of the gel applied to the ultrasound probe used to guide the insertion of a central venous catheter.[4-6] This case clearly demonstrates that contaminated gel can lead to infections, but also highlight that a probe can be a vector for pathogen transmission.

In a study that examined ultrasound equipment used in five emergency departments and five intensive care units, 61% of samples tested positive for blood contamination and 48% tested positive for microbiological contamination. Of the items in direct patient contact, 14 of 16 (88%) transducer leads (cable) and 21 of 37 (57%) transducers showed blood contamination. Ten of 16 transducer leads (62%) and 17 of 37 transducers (46%) showed microbial contamination.[7]

The organisms identified included:

Gram-negative *bacilli (Enterobacter, Klebsiella, Pantoea, Raoultella, Pseudomonas, Acinetobacter, Proteobacteriaand Aeromonas)*

Gram-positive *cocci (Staphylococcus, Enterococcus and Micrococcus)*

Medical staff need to know how to effectively reprocess an ultrasound probe prior to use on the next patient. Further, reduce the risk for infection and colonisation using evidence-based aseptic technique that diminish the entry of endogenous or exogenous organisms via invasive medical devices[2,3,8]

Up to 70% of HAIs are preventable using existing infection prevention practices.[9-10]
Infectious transmission occur due to:

Inadequate cleaning.

Improper selection and use of a disinfecting agent.

Failure to follow recommended cleaning and disinfection procedures[7] before a new procedure.

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GER0041-GL-PDF-B-V02

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