



Good infection prevention practice - using ultrasound gel

Background and purpose of this communication

Contaminated ultrasound gel has been associated with outbreaks of infection in various settings and or identified as a potential vector for infection.^[1-9] Standard ultrasound gel is not produced as a sterile product. Ultrasound and ultrasound guided procedures are conducted routinely both in radiology and clinical areas, including use in high dependency care and among patients with immunosuppression. There is currently little available guidance on good practice in use of ultrasound gel for the UK setting.

This document provides interim guidance on the safe use of ultrasound gel to reduce risk of transmission of infection. It has been in part adapted from guidance produced elsewhere and should be considered in the wider context of standard infection prevention and control precautions.^[10,11]

Which type of ultrasound gel to use

Sterile ultrasound gel must be used in the following circumstances:

- for invasive procedures, ie any ultrasound guided procedure which involves passing a device through tissue such as intravenous line insertion or fine needle aspirate
 - N.B. this includes 'viewing/initial assessment' of the site by ultrasound prior to undertaking an aseptic procedure
- where there is contact with non-intact skin
- where there is contact with mucous membrane (eg for transrectal or transvaginal procedures)
- for examinations on immunocompromised, neonatal intensive care or critically ill hospitalised patients (such as in high dependency/intensive care settings)

Non-sterile ultrasound gel may be used in the following circumstances:

- during low risk, general examinations on intact skin (NOT relating to a procedure or immediately prior to a procedure)

Safe use of ultrasound gel

For use of sterile ultrasound gel:

- ensure that only unopened sachets/containers that are labelled as 'sterile' are used
- sterile gels are **single use only** and once opened must not be reused, either with other patients or stored and reused with the same patient

For use of non-sterile ultrasound gel:

- we recommend use of pre-filled bottles in preference to re-filling reusable bottles
- remove gel from skin after the procedure using a clean paper towel/tissue/wipe and clean/ cleanse the skin using patient skin wipes or equivalent
- nozzles of bottles should not come into contact with the patient, staff or instruments
- if the nozzle comes into contact with the patient's skin the bottle should be discarded

General principles:

- ensure to check and only use products within their expiry date and discard any product that has exceeded expiry or has exceeded the manufacturer's recommended time after opening

Practice when using reusable ultrasound bottles

Re-filling (non-sterile) reusable ultrasound gel bottles

The use of pre-filled bottles is preferable. Where refilling of reusable bottles is carried out, the following should be adhered to:

- ensure to check the expiry date of the bulk container- only use products within their expiry date and within the manufacturer's recommended time after opening
- reusable bottles must not be used beyond the expiry date of the bulk container; ie reusable bottles should be discarded and new bottles used when the bulk container is replaced. No attempt should be made to clean or disinfect the inside of bottles to extend their use life
- label on the bottle the date that the reusable bottle was re-filled. Discard the bottle and contents if the period since last re-fill exceeds one month
- avoid touching the openings of the dispensing container and the bottle
- reusable bottles should be filled with a dispensing device, such as a pump
- bottles should not be re-filled until they are empty (or as near to empty as practical)
- discard all containers, bottles and or gel pumps that show any sign of damage or if visibly soiled
- do not decant ultrasound gels into bottles/containers of a different product

Warming of gel

Where warming of gel is performed the use of dry heat is preferable to use of water. Gel bottles should be kept upright in warmers and not inverted

References

1. Viderman, D., Khudaibergenova, M., Kemaikin, V., *et al.* 2020. **Outbreak of catheter-related burkholderia cepacia sepsis acquired from contaminated ultrasonography gel: The importance of strengthening hospital infection control measures in low resourced settings.** *Infezioni in Medicina* 28(4) 551-557.
2. Solaimalai, D., Devanga Ragupathi, N., Ranjini, K., *et al.* 2019. **Ultrasound gel as a source of hospital outbreaks: Indian experience and literature review.** *Indian Journal of Medical Microbiology* 37(2) 263-267.
3. Yagnik, K. J., Kalyatanda, G., Cannella, A. P., *et al.* 2019. **Outbreak of Acinetobacter baumannii associated with extrinsic contamination of ultrasound gel in a tertiary centre burn unit.** *Infection Prevention in Practice* 1 (2) (no pagination) (100009).
4. Abdelfattah, R., Al-Jumaah, S., Al-Qahtani, A., *et al.* 2018. **Outbreak of Burkholderia cepacia bacteraemia in a tertiary care centre due to contaminated ultrasound probe gel.** *Journal of Hospital Infection* 98(3) 289-294.
5. Shaban, R. Z., Maloney, S., Gerrard, J., *et al.* 2017. **Outbreak of health care-associated Burkholderia cenocepacia bacteremia and infection attributed to contaminated sterile gel used for central line insertion under ultrasound guidance and other procedures.** *American Journal of Infection Control* 45(9) 954-958.
6. Nannini, E. C., Ponessa, A., Muratori, R., *et al.* 2015. **Polyclonal outbreak of bacteremia caused by Burkholderia cepacia complex and the presumptive role of ultrasound gel.** *Brazilian Journal of Infectious Diseases* 19(5) 543-545.
7. Chittick, P., Russo, V., Sims, M., *et al.* 2013. **An outbreak of Pseudomonas aeruginosa respiratory tract infections associated with intrinsically contaminated ultrasound transmission gel.** *Infection Control and Hospital Epidemiology* 34(8) 850-853.
8. Centers for Disease, C. & Prevention 2012. **Pseudomonas aeruginosa respiratory tract infections associated with contaminated ultrasound gel used for transesophageal echocardiography - Michigan, December 2011-January 2012.** *Mmwr Morbidity and mortality weekly report.* 61 262-264.
9. Hell, M., Abel, C., Albrecht, A., *et al.* 2011. **Burkholderia cepacia-outbreak in obstetric patients due to intrinsic contamination of non-sterile ultrasound gel.** *BMC Proceedings. Conference: International Conference on Prevention and Infection Control, ICPIIC 5 (SUPPL. 6).*
10. Australasian Sonographers Association 2013. **ASA Guideline: the safe use and storage of ultrasound gel.** https://www.sonographers.org/publicassets/15ff1612-1189-ea11-90fb-0050568796d8/0445_PUB_Gel_Useage_SEP18_FOR-WEB.pdf
11. NHS, National Services Scotland. National Infection Prevention and Control Manual. <http://www.nipcm.hps.scot.nhs.uk/chapter-1-standard-infection-control-precautions-sicps/#:~:text=1%201.1%20Patient%20Placement%2FAssessment%20for%20infection%20risk.%20...and%20Body%20Fluid%20Spillages.%20...%20More%20items...%20>