From 0 to 1,000

The past, present and future of ultrasound probe high level disinfection

Nanosonics celebrates the installation of the 1,000th trophon® device in the UK

Nanosonics' trophon technology is a market leader in automated ultrasound reprocessing systems delivering consistent high level disinfection (HLD) of ultrasound probes.

Manufactured in Sydney, Australia, this innovation made its way across to the UK in 2013, with the first UK device installed at Kings Mill Hospital, thanks to funding from the Sherwood Forest NHS trust.

Coming full circle, in 2021 the UK Nanosonics team has hit their milestone 1,000th trophon device installation with the same hospital that took the important first steps in recognising the importance of automated HLD for ultrasound probes.

Nanosonics UK would like to thank all who have contributed to this achievement and recognise the valuable impact this has had on improving patient care by driving positive best practice change for how ultrasound probes are processed and decontaminated.

Since the first trophon device launched in July 2013, there has been significant updates to the published guidance on the reprocessing of ultrasound probes in Wales, Scotland, and Northern Ireland.

It is now recommended in guidance that HLD and automation should be used when reprocessing semi-critical ultrasound probes. In England, the College Society of Radiographers (CSoR) and British Medical Ultrasound Society (BMUS) have taken this one step further by stating that automation is the preferred best practice for ultrasound probe decontamination.

"Disinfectant-impregnated wipes that contain an effective disinfectant are widely used but the assurance that all surfaces are in contact with liquid disinfectant for the required time is not as easy to achieve as a high-quality assurance standardised and automated process. Therefore, best practice is the use of an automated system."

– AXREM, BMUS, SCoR 2021[1]

Louise Cordon, Lead Sonographer at Kings Mill Hospital (above, right of trophon device) sat down with Bryn Tudor Owen, Nanosonics UK Country Manager (above, left of trophon device) to discuss why they chose and continue to choose trophon technology across the Sherwood Forest NHS trust. She explained, *"We chose trophon primarily due to its ease of use – it provides high level disinfection at the touch of a button."*

When asked about the main benefits she saw from installing trophon technology, she outlined the following:

- How user friendly it is
- The easy installation and maintenance of the technology
- Reductions in exposure to chemicals and spills due to the system being sealed
- Its cleanliness and efficiency
- The speed of the disinfection cycle – giving back 7 minutes to the operator to fulfil other tasks such as room prep and patient notes
- The built-in failsafe features such as the chemical indicator

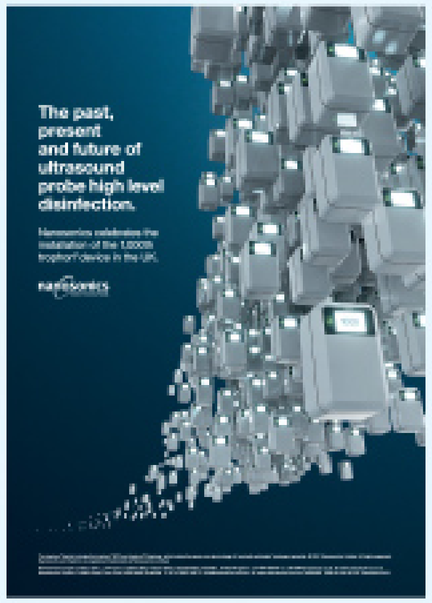
Following an upgrade to the latest trophon2 technology, Ms Cordon pointed out additional benefits such as *"improved traceability with AcuTrace®, improved probe placement within the system, reduction in the number of manual steps and the reduction in user error thanks to the fully automated process."*

Looking to the future, Ms Cordon *"acknowledges the government-led initiative of the development of diagnostic treatment centres within the community setting, with an increase in more specialist and interventional procedures developing within the hospital setting."*[19]

Therefore, she recommended that *"having a reliable disinfection system increases productivity and is vital in providing a safe, efficient service to our patients and healthcare colleagues."*

"If you're looking for a reliable, traceable, efficient and safe method of probe disinfection, trophon may be the answer for you, so give it a go!"

– Louise Cordon, Lead Sonographer, Kings Mill Hospital, Sherwood Forest Hospitals NHS Foundation Trust.



The achievement of the 1,000th trophon installation in the UK reflects the acknowledgement of trophon technology becoming the Global Standard of Care for ultrasound probe HLD

As awareness grows about the risks associated with not disinfecting ultrasound probes appropriately, so too does the installation rates of trophon technology across the globe. In fact, trophon devices are now available in 30 countries worldwide with*:

- 1,000 units in the UK across 216 hospitals and clinics
- 1,600 units in total EMEA
- 23,500 units in North America across 5,000 institutes, including all luminary hospitals

There are now more than 150 procedures that use ultrasound probes across a wide variety of healthcare settings, including but not limited to early pregnancy, gynaecology, fertility, cardiovascular, radiology, urology and emergency medicine.

Each of these carries a risk of cross-contamination between patients due to contact with mucous membranes, non-intact skin and/or sterile tissues. Whether or not an ultrasound probe requires sterilisation, HLD or low level disinfection (LLD) depends on its Spaulding Classification.[2-4]

For example, endocavitary probes (which include transvaginal ultrasound probes) are classified as semi-critical medical devices, meaning they require HLD between patients and the additional use of a sheath.[1-3,5-17]

Any ultrasound probes that come into contact with sterile tissues or the bloodstream are considered critical medical devices. Contact with sterile tissues can occur in procedures such as biopsies, scanning open wounds and intra-operative procedures.

Many ultrasound probes cannot be sterilised and some guidelines permit HLD in lieu of sterilisation for critical probes so long as a sterile sheath is also used.[4,7]

In a first of its kind, a large population study commissioned by national health authorities in Scotland, it was revealed that there was an "unacceptable risk" of patient infection following LLD.

Almost one million people (982,911) were followed over a 6 year period via linked national health databases. Of these, 60,698 patients underwent transvaginal (TV) ultrasound.

Results showed that:

- **41% of people in this group had a greater risk of infection than patients who had not undergone a TV ultrasound[18]**
- **26% of these patients had a greater risk of antibiotic prescription in the 30 days following a TV ultrasound[18]**

It is encouraging to see the growing number of trophon devices being installed throughout the healthcare systems of the UK and Europe. The number of devices reflect the strengthening fundamentals for adoption seen as international guidelines show support for automated HLD practices.

European guidelines, including those from the UK, recommend automated disinfection for semi-critical medical devices, including ultrasound probes.[1,3,5,8,10,12-14,16]

When it comes to HLD, automation is recommended as best practice for several reasons.

Prevention of human error

The first is the introduction of human error when manual processing is done, from error in the disinfection procedure itself to errors in record-keeping.

In addition, manual processing and record-keeping can be time consuming and complex which may have a knock-on effect on patient workflow efficiencies.

Validated and reproducible results

Automation provides greater reliability and reproducibility of the disinfection process for every patient.

It ensures the disinfection process achieves expected microbiological outcomes consistently and produces reliable documentation.

Traceability

Finally, automation allows for digitised traceability capabilities. Traceability is essential to protect institutions and patients with documented evidence of effective HLD.

Nanosonics recognises the need for continued education and support in this space, which is why they have supported the development of the Ultrasound Infection Protection Toolkit, a free peer-reviewed resource brought to life by a collective of clinical decontamination experts in the UK and Ireland.

The kit contains four editable tools to assist with locating ultrasound probes within an organisation, assessment of procedure-specific ultrasound policy and practice, the development of ultrasound reprocessing and the use of risk assessments and the development of policies that can be implemented at various levels.

Access the Ultrasound Infection Prevention Toolkit at: www.ultrasoundinfectionprevention.org.uk

Looking to the future, Nanosonics is pleased to announce that they have partnered with Soluscope, an Ecolab company, to provide exclusive distribution for the Soluscope Serie TEE probe washer-disinfector in the UK.

The reliable, fast and efficient device provides complete cleaning and disinfection to the machine function integrated leak test cycle in only 14 minutes and a single handling, reducing probe damage risks to a minimum.

The addition of the Soluscope Serie TEE probe washer to the product offering in the UK will allow Nanosonics to continue to champion and support the adoption of HLD for ultrasound probes.

Up to 22 million patients are protected every year from the risk of ultrasound probe cross-contamination by Nanosonics' trophon technology. By transforming the way infection prevention practices are understood and conducted, Nanosonics seeks to deliver improved standards of patient care.

*As at end June 2021. **References: 1.** AXREM, BMUS, SCoR. Ultrasound Transducer Decontamination – Best Practice Summary. 2020. p.2. **2.** Health Protection Scotland (HPS), Health Facilities Scotland (HFS), National Services Scotland (NHS). NHS Scotland Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. 2016. **3.** 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. **4.** Rutala WA, Weber DJ, and the Healthcare Infection Control Practices Advisory Committee (HICPAC). CDC 2008. Guideline for Disinfection and Sterilization in Healthcare Facilities. [illegible] **5.** World Federation for Hospital Sterilisation Sciences. Guideline for Reusable Medical Devices. [illegible] **6.** Abramowicz JS, Evans DH, Fowlkes JB, Marsal K, terHaar G. Guidelines for Cleaning Transvaginal Ultrasound Transducers Between Patients. Ultrasound in Medicine & Biology. 2017;43(5):1076-9. **7.** Nyhsen CM, [illegible] Infection prevention and control in ultrasound – best practice recommendations from the European Society of Radiology Ultrasound Working Group. Insights Into Imaging. 2017;8(6):523-35. **8.** 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. **9.** Society and College of Radiographers and British Medical Ultrasound Society. Guidelines For Professional Ultrasound Practice. 2019-2020. **10.** Welsh Health Technical Memorandum (WHTM). WHTM 01-06 – Decontamination of flexible endoscopes Part C: Operational management. NHS Wales Shared Services Partnership – Specialist Estates Services. 2014. **11.** Svensk Förening för Obstetrik och Gynekologi (SFOG). [illegible] 2018. **12.** [illegible] **13.** Ministère des Solidarités et de la Santé. [illegible] 2018. **14.** Werkgroep Infectie Preventie. [illegible] 2017. **15.** [illegible] 2015. **16.** Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO), und Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM). [illegible] 2012. **17.** [illegible] 2002. **18.** Scott D, et al. Ultrasound [illegible] **19.** https://www.gov.uk/government/news/40-community-diagnostic-centres-launching-across-england [illegible] January 2022. **Nanosonics Europe Limited (Distributor).** [illegible]

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