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THE MATER HOSPITAL

Quality Improvements for Decontaminating TOE probes

The new way of cleaning !

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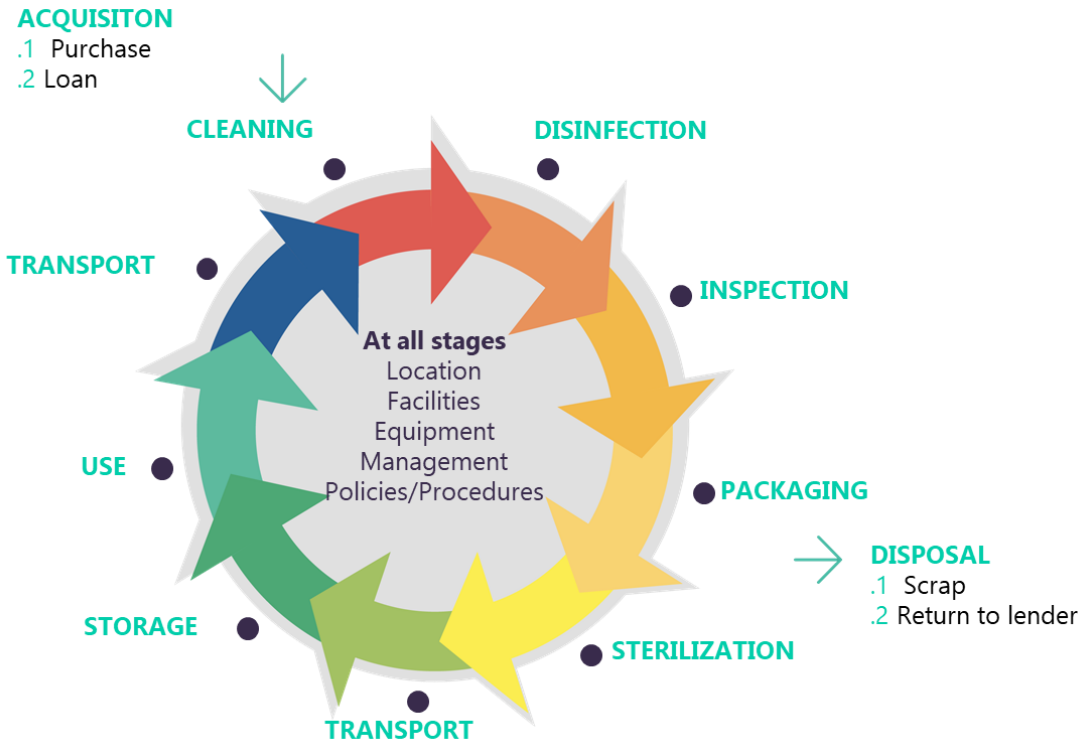
The Mater provides decontamination and sterilization services for a wide range of Reusable Invasive Medical Devices (RIMD) Including Semi-critical Ultrasound Probes, Semi-invasive and Non-invasive Ultrasound Probes.

- *National Heart Surgery Centre*
- National Heart and Lung Transplant Centre
- National Spinal Injuries Centre
- National Isolation unit for Infectious Diseases
- National Trauma Centre

STANDARDS & RECOMMENDED PRACTICES

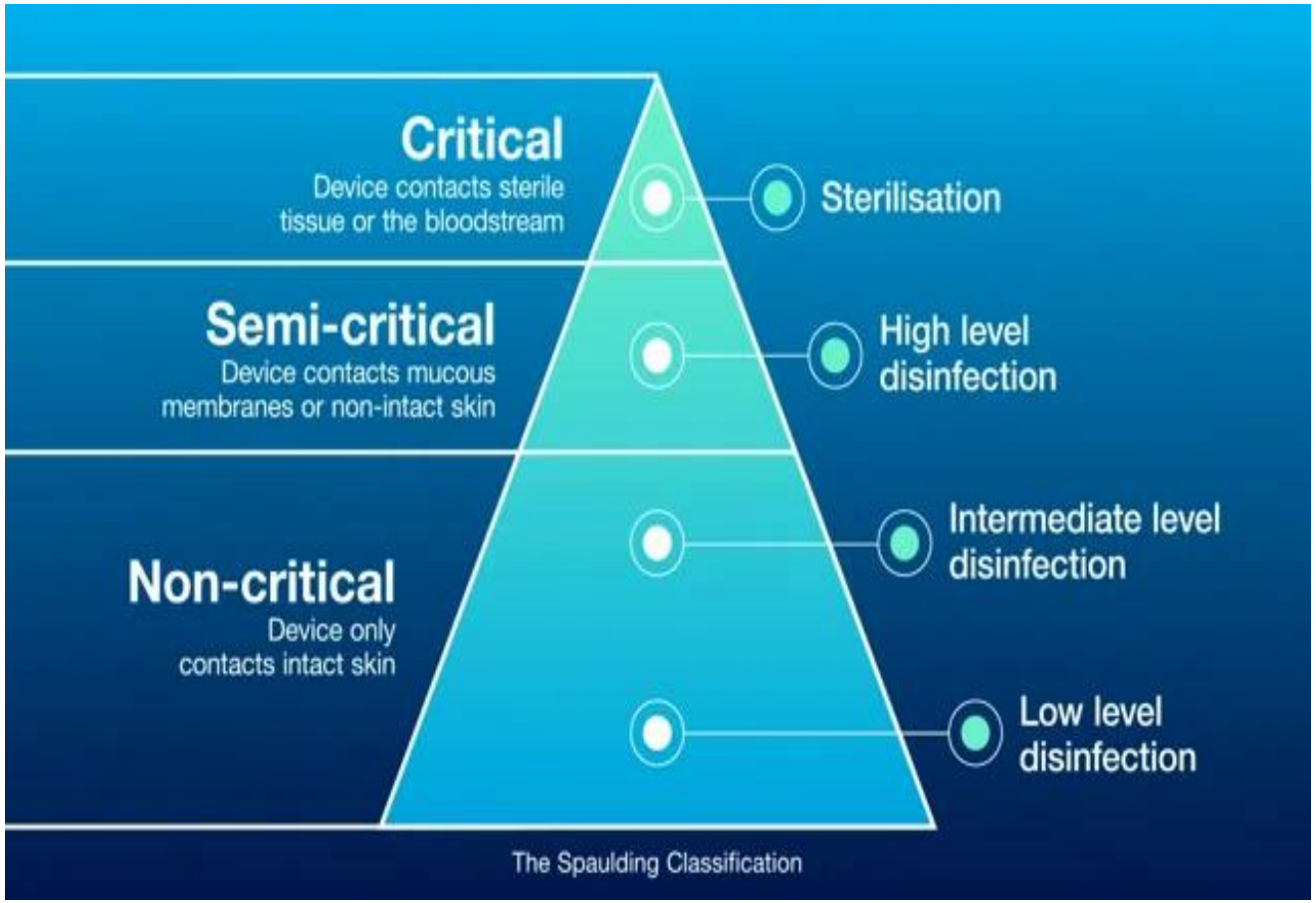


College of Radiographers, Guidelines for Professional Ultrasound Practice

NHS, Scotland Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes

HSE, Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes

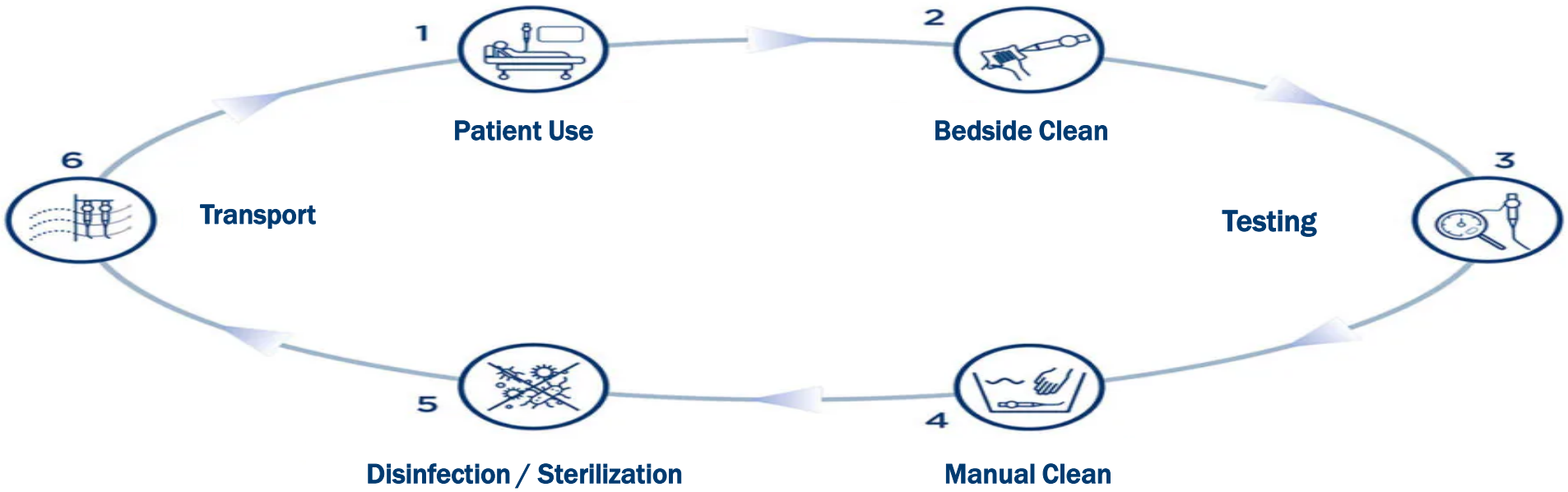
SPAULDING CLASSIFICATION



Semi–critical

- Devices that come into contact with mucous membranes or non – intact skin


What's really behind your ultrasound probe failure?


1
Patient Use
2
Bedside Clean
3
Testing
4
Manual Clean
5
Disinfection / Sterilization
6
Transport

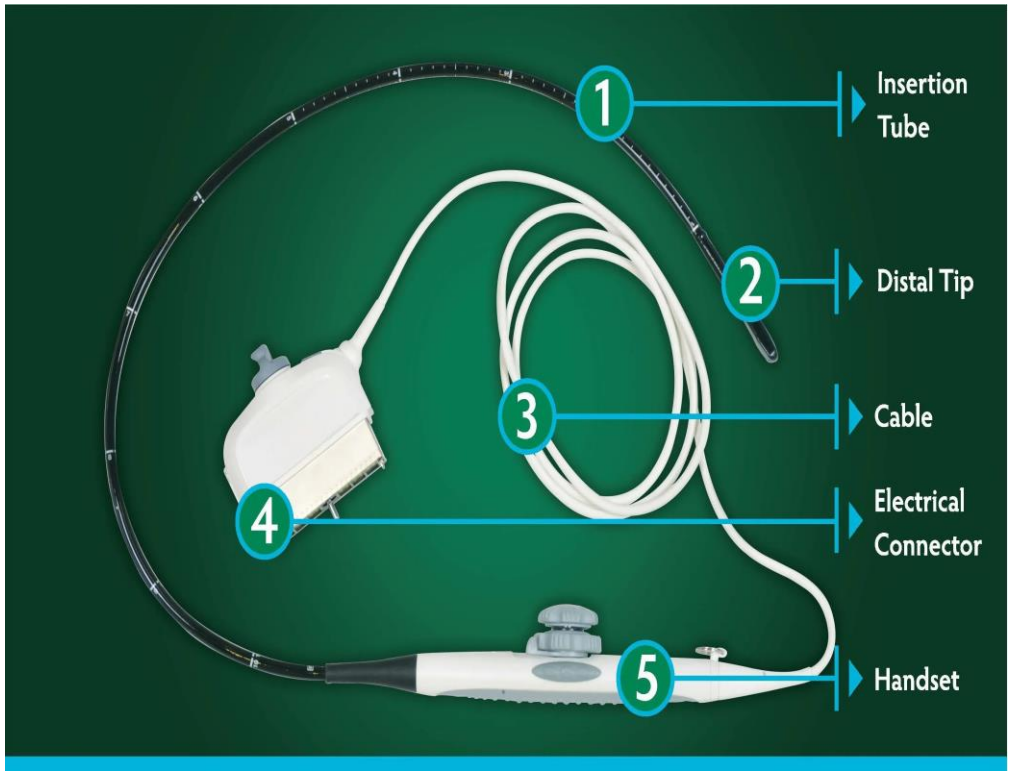
TOE PROBE

TEE ultrasound probes consist of five main parts

The long **insertion tube** (1) with transducer at the **distal tip** (2) can be difficult to handle during pre-cleaning, cleaning, high-level disinfection, drying and subsequent storage and transportation.

The **cable** (3) of the probe connects the **handset** (5) to the electrical connector. This steering mechanism and handle are not water tight and should not be submersed in liquid.

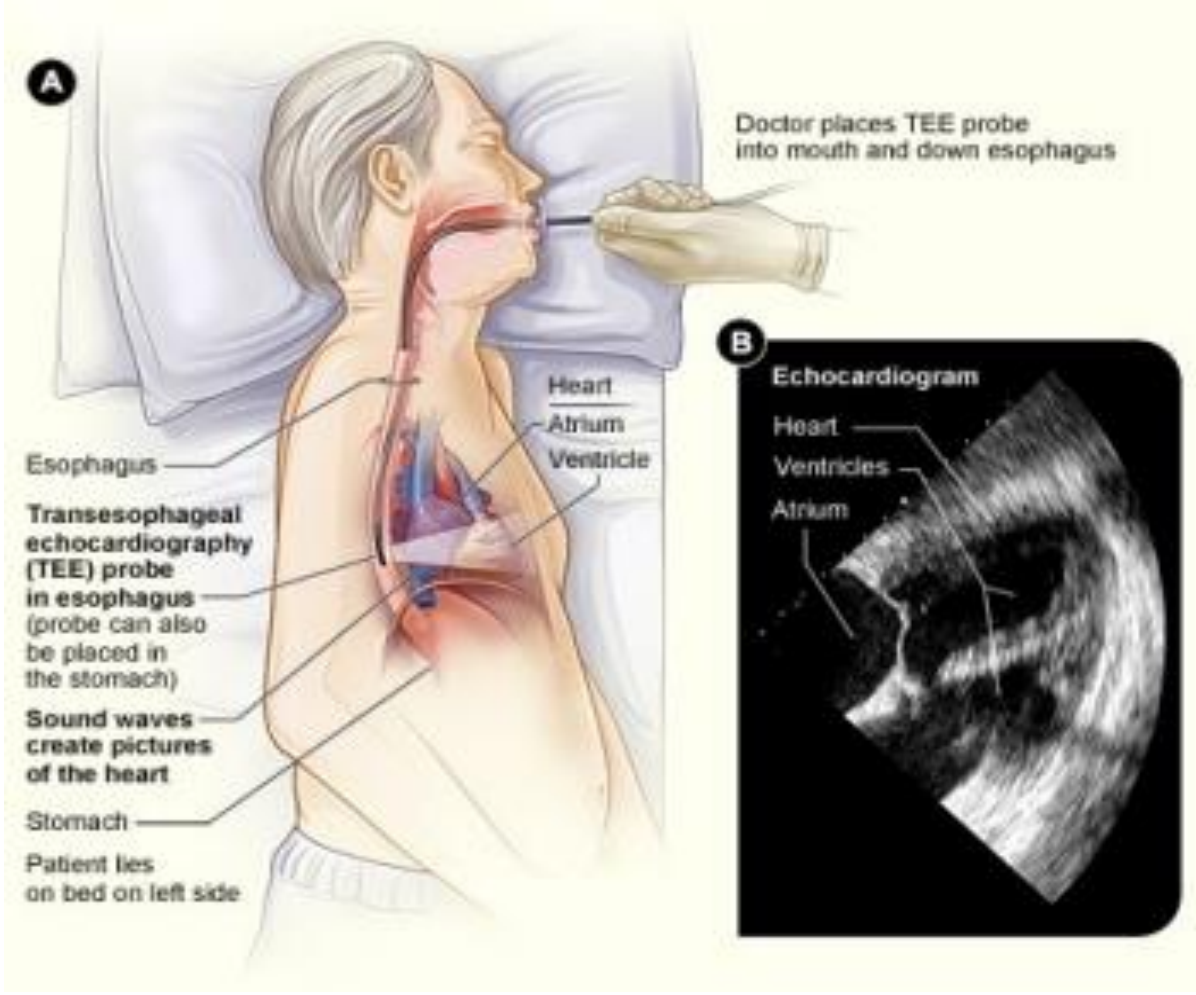
The **electrical connector** (4) connects the ultrasound machine to the probe.



REPROCESSING CHALLENGES

Reprocessing is one of the most sensitive steps in the life of transesophageal echocardiography (TOE) probes.

- To provide a probe fit for purpose
- To ensure the same level of disinfection at each reprocessing
- To ensure probe integrity
- To ensure patient safety
- To optimize service workflow



QUALITY IMPROVEMENTS

Framework for Improving Quality in our Health Service

COMPLETE SITE REVIEW

- Mater Hospital set about making improvements in the area of Simi-critical RIMD decontamination
- Risks were identified and categorized
- Medical devices types and complexities were reviewed
- Patient safety standards to be maintained and if possible improved

DECONTAMINATION CLASSIFICATION

Probe used on Mucous membranes or broken Skin?

No

Non-invasive procedure
i.e. Intact skin (No blood or body fluid exposure anticipated)
- Abdo U/S
- Pelvic U/S

If required ensure recommendation sheath is correct size for probe required

Blood or body fluids noted during Procedure?

Yes

No

Follow local IPC and manufacturers cleaning guidance

Pre – Clean
- Following U/S scan remove & dispose sheath in clinical waste stream
- Inspect probe and cable
- Remove U/S gel residue by wiping with a non- linting cloth
- Dispose of probe accessories in clinical waste stream
- Disconnect probe (if possible) and take to area approved for probe decontamination
- inspect probe & cable for damage

Cleaning procedure
- Clean probe and cable with a compatible detergent wipe
- Rinse and dry probe and cable
- Inspect probe & cable for damage
- Clean probe holder with a compatible detergent wipe
- Rinse and dry probe holder

- Replace cleaned probe in probe holder
- Dispose of waste in clinical waste stream

Yes

Semi-critical procedure (semi-invasive and non-invasive)
i.e. Mucous membranes
- TOE/TVR/TR probes

i.e. Non intact skin
- Venepuncture/Cannulation
- Wound/cavity/assessment

If required ensure recommendation sheath is correct size for probe

High Level Disinfection (HDL) Procedure

Following one of the HLD methods set out in HSE Guidance for decontamination of Semi-critical (semi-invasive and non-invasive) Ultrasound Probes
- **Ultra-violet light**
- **Hydrogen Peroxide**
- **Manual wipe (chlorine dioxide)**

TOE probes where **pre arranged** can be transferred to an Endoscopy Decontamination Unit (EDU) for decontamination
***Pre arranged requires the Decontamination Lead and IPCT to approve local procedures**

The procedures set out in this algorithm should be undertaken following;

- **Local Infection Prevention and Control and Decontamination Guidelines.**
- **Manufacturers instructions**
- **The HSE Guidance for Decontamination of Semi-critical (semi-invasive and non-invasive) Ultrasound Probes**
- **Decontamination procedure for HLD of semi-critical Ultrasound Probes (semi-invasive and non-invasive) using;**
  - **Ultra-violet light [add link]**
  - **Hydrogen Peroxide [add link]**
  - **Manual wipe (chlorine dioxide) [add link]**

METHODS OF DECONTAMINATION

- Endoscope Washer Disinfectors
- Using Hydrogen Peroxide
- Using Ultraviolet Light
- Using Manual Multi-wipes

MANUFACTURES REQUIREMENTS

As per IFUs

“Performing electrical checks of TOE probes ensures electrical safety and prevents harm to both sonographers and patients. It requires TOE probe electrical checks between each use “Passed” or “Failed” must be recorded in the routine TOE probe cleaning/maintenance log along with action taken if” “Failed”

“The manufacturer’s guidelines must be followed for the appropriate care of the TOE transducer and adhere to the appropriate structural and electrical integrity of the transducer must be checked between each use”

“The electrical safety leakage current test should be performed on the TOE transducer prior to each exam”

PHILIPS Healthcare

GE HealthCare

OLYMPUS

EVALUATION PROCESS

Quality Improvements for Decontaminating TEE probes - Mater

AUTOMATED DECONTAMINATION

SERIE TEE – Mater Hospital 2020

- A high level **disinfection cycle** in 14 minutes
- **Compatibility** with probes manufactures
- **Safety for patient, probe and user**
- **Automated** and reproducible process
- **Compliance** with standards

SERIE TEE WASHER

User Friendly Display

Graphical touch screen interface with individual user access

Traceability

Printer and barcode reader included
Extended traceability with local IMS (optional) depending on site requirements

Compliance & Testing

Electrical leak test for each TOE
Prevents cross-contaminations and handling related damages

Footprint

Compact and small footprint.
Only power and electrical connections

SAFETY FOR USERS AND PROBES

- **Secure** closing of the lid can be completed in one single move

- **Lid** ensures that no harmful fumes of chemicals are released durning the process

User does not come into contact with chemistry

- **Cycle** will only start if a probe or system cap is present

WORK FLOW FOR YOUR TEE PROBES

- **Non-waterproof parts**

Are isolated and ultra sound electrical connector is securely attached & locked

- **Safety steps**

Once a probe is inserted the lid of the system **can not** be opened

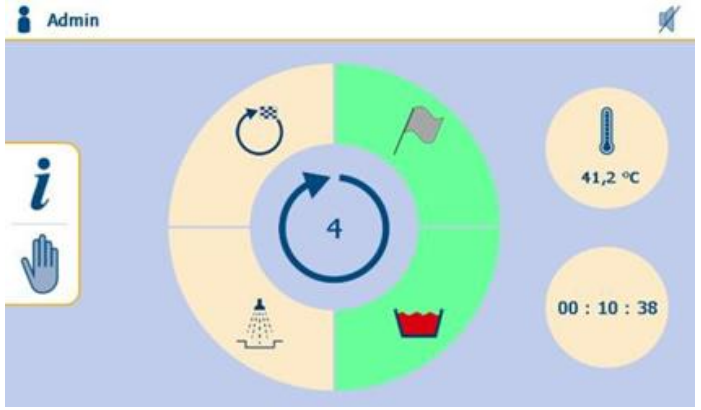
A fully completed cycles in one Manipulation

- **Monitoring**

Critical parameters of the process are monitored throught the process

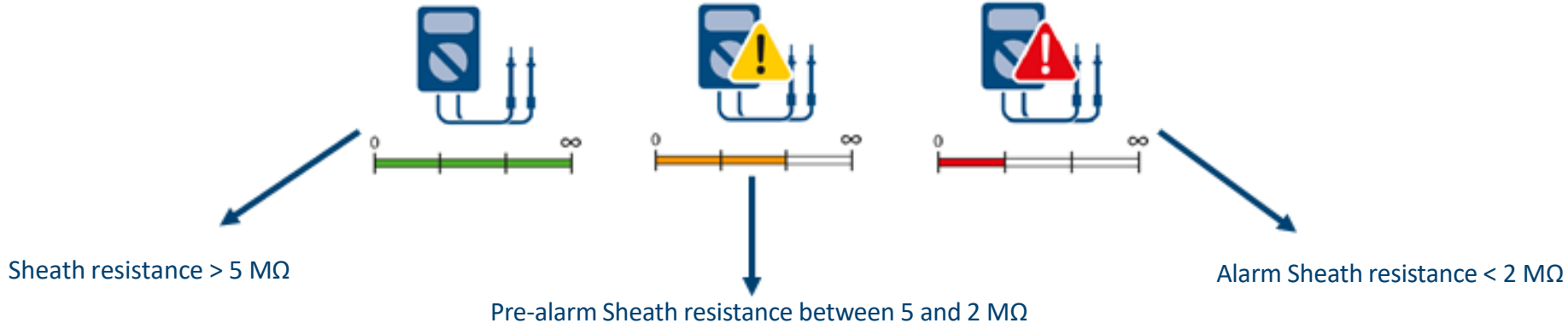
- **Chemistry**

Low temperate and contact time



ELECTRICAL LEAK TEST

QUALITY IMPROVEMENTS



- Automatically controls the integrity of your probe according to EN 60601-1 as required manufactures

PHILIPS Healthcare

GE HealthCare

OLYMPUS

ELECTRICAL LEAK TEST

Risks associated

- Patient injury - **electrical shock** or **severe burn**
- Interference with **implanted medical devices**
- Operator injury
- Legal action
- Loss of **reputational damage**
- Significant **equipment damage**
- **Downtime** and **repair costs**

PROBE INTEGRITY

Improvements made 2023 compaired to 2020

- **TOE Reprocessed 2020**
  - 737

- **TOE Reprocessed 2023**

  - 1,536

  - From 2019 - **20** repairs where recorded the average repair cost was 300 euros for **13** TOE's and **7** TOE's needed to be replaced at a cost of 25 thousand euros. **Total cost 178,900 euros**

  - From 2023 – **8** repairs where recorded the average repair cost was 300 euros for **8** TOE's, thankfully no TOE's needed to be replaced. **Total cost 2,400 euros**

BENEFITS OF AUTOMATED REPROCESSING

SOLUSCOPE SERIE TEE

- Automated and repeatable process
- User safety – no contact with chemicals
- Probe integrity
- Automatic traceability
- Electrical leak test

COMPLIANT TO STANDARDS

- Self-disinfection cycle
- Inbuilt water filtration

  (2 pre-filters + 1 terminal filter 0.2 µm)

- Compliant to ISO 15883-1
- Tested in accordance to ISO 15883-4
- CE Marked

TRAINING AND SUPPORT

Stake holders and suppliers

- On-site training dedicated to user practical and work sessions
- Yearly or base on departmental needs
- Workshops or network events

Mater Misericordiae University Hospital

Policy Title	**Decontamination of Semi-critical Ultrasound Probes, Semi-invasive and Non-Invasive Ultrasound Probes**		
Directorate/Department/ Organisational	**Corporate** **Infection Prevention And Control Department**		
Qpulse No		**Revision No**	**1**
Active Date	**01/12/2023**	**Review Date**	**01/12/2026**
Policy Author	**Trevor Duffy** **Decontamination Lead**	**Policy Owner**	**The Decontamination Committee** **The Infection Prevention and Control (IPC) Department**
Approved by	The Decontamination Committee		

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Strategic Plan 2019 – 2021

Leading innovation to transform patient care

National Inpatient Experience Survey

- Patient safety standards improved
- Automated reproducible process per device
- Risks were lowered or removed
- Fully automatic electronic traceability
- Accreditation

GRACIAS OBRIGADO شُكراً

THANK YOU

ありがとうございました MERCI 谢谢

DANKE धन्यवाद спасибо

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21st May 2024

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