

Scoping activity – Endoscopy final rinse water guidance

**SBAR (Situation, Background,
Assessment, Recommendations)**

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Version history

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Approvals

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1. Situation

A review of NHS Scotland guidance for the interpretation and clinical management of endoscopy final rinse water,¹ published in 2019, is required to determine if the guidance requires an update or archiving (if a recently published guidance of sufficient quality is available).

2. Background

The current guidance, was informed by a national survey of endoscope final rinse water testing (2013/2014), a data linkage study to quantify possible HAI risk related to endoscopy procedures (2016/2017), both conducted by Health Protection Scotland (now ARHAI Scotland) and current Scottish guidance documents.

A systematic review was not used to underpin the previous guidance. The current guidance has no fixed review date.

3. Assessment

A scoping review exercise was carried out by ARHAI Scotland in January 2025 to identify guidance documents on the interpretation and clinical management of endoscopy final rinse water, published in England, Wales, Northern Ireland, the Republic of Ireland and by international organisations (for example WHO, CDC, ECDC).

This scoping review involved a grey literature search, using search terms [Endoscope, Endoscope final rinse water, Endoscopy, Final rinse water, Endoscope decontamination, Endoscope cleaning], of the following sources:

- UK Health Security Agency (UKHSA)
- NHS England
- Public Health Wales
- Public Health Scotland (PHS)
- Health Protection Surveillance Centre (HPSC) Ireland
- Public Health Agency (PHA) Northern Ireland
- World Health Organization (WHO)

- Centers for Disease Control and Prevention (CDC)
- European Centre for Disease Prevention (ECDC)
- NHS Education for Scotland (NES) - the Knowledge network
- Department of Health and Social Care (DHSC)
- Scottish Government DHSC
- UKHSA Research Portal
- Society for Healthcare Epidemiology of America (SHEA)
- National Resource for Infection Control (NRIC)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- European Society of Clinical Microbiology and Infectious Diseases (ESCMID)
- The National Institute for Health and Care Excellence (NICE)
- Scottish Intercollegiate Guidelines Network (SIGN)
- Health and Safety Executive (HSE)
- Barbour
- Infection Prevention and control Canada (IPAC)
- National Health and Medical research Council Australia (NHMRC)
- Google and Google Scholar

Where additional resources were linked out to by international organisations (for example the CDC), these were also considered.

Evidence sources were excluded if they were published prior to 2019 (the current guidance was published on 30 January 2019).

Identified relevant resources were appraised using the AGREE II tool. If the resource was graded AGREE II 'Recommend' or AGREE II 'Recommend with modifications', it was then cross-checked against the current guidance to identify any gaps.

3.1 Evidence summaries

3.1.1 Current NHS Scotland Guidance re-appraisal

The grey literature evidence used to underpin the 2019 guidance were re-appraised and those that have been updated are discussed below:

- The British standard BS EN ISO 15883-4:2008 has been withdrawn and superseded by BS EN ISO 15883-4:2018 which has additional annexes for establishing endoscope type test groups and endoscope product families.²
- Scottish Health Technical Memorandum 01-06 Parts A–E: decontamination of flexible thermolabile endoscopes and Transoesophageal Echocardiograph (TOE) ultrasound probes in Endoscope Decontamination Units (EDUs), published in 2023, replaces the 2016 version of HTM 01-06.³ SHTM 01-06 provides detailed guidance to assist in compliance with HFS guidance GUID 5013: NHS Scotland Requirements for Compliant EDUs Version 3 (updated in April 2024)⁴ and replaces sections of SHTM 2030 (2001) related to Endoscope Washer Disinfectors (EWDs).⁵
- The Health Protection Scotland literature review of harms associated with unsuccessful or inappropriate decontamination of reusable surgical instruments and endoscopes, 2015 was not published and has not been updated.

3.1.2 Grey literature search evidence summary

A limited amount of evidence was found for this topic. The majority are expert opinion or narrative reviews on the importance and different processes of reprocessing endoscopes and position statements that are not generalisable to Scottish health and care settings. A guidance document from Singapore was excluded as it is not underpinned by a systematic review methodology, therefore could not be appraised using the AGREE II tool. It provided similar recommendations to the 2019 Scottish guidance in terms of microbiological monitoring tests, schedule, and contamination limits.⁷

3.1.3 Final rinse water quality for flexible endoscopy to minimize the risk of post-endoscopic infection. Report from Healthcare Infection Society Working Party. Published 2022.⁶

- Graded AGREE II 'Recommend'.

Cross-check with NHS Scotland Guidance

- This guideline is underpinned by both systematic reviews, for evidence-based recommendations, and expert opinion recommendations.
- The 2019 NHS Scotland guidance is cited as one of the few guidance available, along with the 2016 versions of HTM 01-06 from the Department of Health and NHS Wales.
- It is noted that where deviations from Scottish guidance have been made a full rationale for this is documented within the guideline.
- Comprehensive recommendations are provided for healthcare practitioners on what is considered as adequate microbial quality, how to monitor the quality and actions to take in response to microbial contamination.
- Recommendations are intended for the decontamination of flexible endoscopes that do not undergo further reprocessing after decontamination in an EWD, those that undergo an additional sterilization process are excluded from these guidelines.

Variation

- The NHS Scotland 2019 guidance recommends weekly water quality testing for TVCs and *Pseudomonas aeruginosa*, while the HIS guideline recommends weekly TVC testing and quarterly tests for the presence of environmental mycobacteria and *Pseudomonas aeruginosa*.
- The HIS guideline recommends that laboratories must provide the report of the final rinse water testing regardless of the results, while the NHS Scotland 2019 guidance recommends that testing laboratory should provide detail on the number and type of indicators of bacterial contamination for TVC counts of >10 cfu/100ml.

- Within the NHS Scotland 2019 guidance algorithm, the recommended action following results 10-100 cfu/100ml is to reprocess scopes, with high-risk endoscopes reprocessed in a different EWD. The HIS guideline does not recommend recalling reprocessed endoscopes.
- Where testing results demonstrate >100 cfu/100ml the HIS guideline recommends there is no need for follow up of patients. Within the 2019 Scottish guidance, there is the recommendation that there is consideration of investigation +/- treatment of individuals who have undergone ERCP. HIS have noted that patient tracing is expensive, resource intensive, and potentially disruptive to endoscopy services. They state there is now a better understanding of the real risk posed to patients by contaminated final rinse water. And that there are now much more robust systems in place for the management of final rinse water, meaning that the possibility of final rinse water being contaminated to levels likely to cause clinical concerns (>1000 cfu/100 mL), or the chance of high-risk endoscopes being processed in a machine with these counts, are now reduced.

Additional recommendations or elements

This guideline made some additional recommendations which are not included within the NHS Scotland Guidance. This includes:

- Using engineering and physical controls to ensure the quality of the water system which supplies the final rinse water and ensuring that final rinse water meets other non-microbial water contaminants standards of safety for potable water.
- Using molecular methods to test for the presence of micro-organisms of significance (for example, *Pseudomonas aeruginosa*, environmental mycobacteria, *Legionella pneumophila*).
- Encouraging participation in an external quality assurance scheme for testing and interpreting results of the water quality.

Gaps

- The HIS guideline recommends using a flow chart to assess the final rinse water testing result and to decide which actions are required. There is one included within the guideline, but it does not focus on actions to be taken to the level of detail currently within the Scottish guidance algorithm. The algorithm provided in the NHS Scotland 2019 guidance is focussed on actions to be taken.
- In comparison to the NHS Scotland 2019 guidance, this guideline contains no specific recommendations for testing laboratories accreditation and the recommendation on testing staff training requirements is not clearly laid out.

Update schedule

It is stated in the guidelines that a review will be scheduled at least every four years and the guideline updated if change(s) in the evidence are sufficient to require a change in practice.

4. Recommendations

The 2022 report from Healthcare Infection Society Working Party appears to be the most recent and relevant guideline available. It provides recommendations that are in line with the NHS Scotland 2019 guidance, underpinned by a comprehensive systematic review process, includes up to date evidence on the topic and expert opinion. Where there is variation from the Scottish guidance, this is discussed within the guideline with a clear rationale for the variation.

It is therefore recommended that the 2022 HIS guideline report and its recommendations are adopted and used to inform guidance for Scotland, following consultation and agreement with NHSS Assure engineering (decontamination) colleagues and the ICBED Working Group.

References

1. Health Protection Scotland (HPS). [NHSScotland Guidance for the interpretation and clinical management of endoscopy final rinse water. V1.0](#), (2019).
2. BS EN ISO 15883-4 Requirements and tests for washer disinfectors employing chemical disinfection for thermolabile endoscopes. .
3. Health Facilities Scotland. [Scottish Health Technical Memorandum 01-06 Parts A–E: decontamination of flexible thermolabile endoscopes and TOE ultrasound probes in EDUs \(SHTM 01-06\)](#). (2023).
4. Health Facilities Scotland. [NHSScotland Requirements for Compliant Endoscope Decontamination Units \(EDUs\) \(GUID 5013\)](#), (2024).
5. Health Facilities Scotland. [Scottish Health Technical Memorandum 2030, Decontamination - Washer-disinfectors \(SHTM 2030\)](#), (2001).
6. Walker JT BA, Marsden G, Spencer W, Griffiths H, Stanton GA, Williams C, White LJ, Ross E, Sjogren G, Bradley CR. Final rinse water quality for flexible endoscopy to minimize the risk of post-endoscopic infection. Report from healthcare infection Society Working Party. *Journal of Hospital Infection* 2022: 79-96.
7. Ministry of Health Singapore. [The National Infection Prevention & Control Guidelines for Endoscopy Centres](#), (2023, accessed 30/01/2025).