

NHS Greater Glasgow and Clyde	Paper No. 26/30
Meeting:	NHSGGC Board Meeting
Meeting Date:	26th February 2026
Title:	Assurance Summary
Sponsoring Director/Manager:	Professor Jann Gardner, Chief Executive

1. Purpose

The purpose of this paper is to set out the assurance measures for the QEUH and RHC hospital environment and the establishment of the Safety and Public Confidence Oversight Group (SPCG).

We have a healthcare facility which we work proactively and reactively to ensure the hospitals are safe to provide care to our patients each day. At the highest level we know that a hospital standardised mortality ratio remains consistently below the Scottish level. However, we remain vigilant throughout our system, this will be described further in this paper. When issues arise we take prompt action to ensure they are resolved and seek expert advice to assess further actions and next steps.

2. Executive Summary

The paper can be summarised as follows:

This paper outlines:

- The significant work and capital investment (over £50m) since 2018 to improve the hospital environment - a number of key improvements have taken place. which are detailed within this paper
- The proactive and reactive ongoing work to maintain our water and ventilation systems
- Where issues arise we investigate and manage appropriately
- The work underway to establish the new Safety and Public Confidence Oversight Group to provide additional assurance and confidence in the QEUH and RHC hospital environment, our approach to communications, public confidence and engagement, leadership and culture and addressing the Scottish Hospitals Inquiry (SHI) issues and future recommendations.

3. Recommendations

The NHS Board is asked to consider the following recommendations:

- Note the content of the QEUH & RHC Assurance Report.
- Note the draft proposed governance and reporting structure outlined for the Safety and Public Oversight Group, which is being established in the next week.

4. Response Required

This paper is presented for assurance.

5. Impact Assessment

The impact of this paper on NHSGGC's corporate aims, approach to equality and diversity and environmental impact are assessed as follows:

- | | |
|------------------------|------------------------|
| • Better Health | <u>Positive</u> impact |
| • Better Care | <u>Positive</u> impact |
| • Better Value | <u>Positive</u> impact |
| • Better Workplace | <u>Positive</u> impact |
| • Equality & Diversity | <u>Neutral</u> impact |
| • Environment | <u>Positive</u> impact |

6. Engagement & Communications

This paper has been developed for the Board to set out the assurance measures for the QEUH and RHC hospital environment and to provide an update on the establishment of the Safety and Public Confidence Oversight Group.

7. Date Prepared & Issued

Date prepared: 25 February 2026

Date issued: 25 February 2026



QEUH and RHC Assurance – 25 February 2026

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Section 1

1. Introduction and Context

1.1 Overview

- 1.1.1 The hospitals opened in 2015 and as noted in our closing submission to the Scottish Hospitals Inquiry, NHSGGC did not get the building that was paid for. The issues relating to these two hospitals are linked to the period of their build and since opening in April 2015.
- 1.1.2 This paper is complementary to the presentation prepared for the Board on Thursday 26th February 2026.
- 1.1.3 The purpose of this paper is to set out the assurance measures for the QEUH and RHC hospital environment. We have a healthcare facility which we work proactively and reactively to ensure the hospitals are safe to provide care, to our patients each day. At the highest level we know that our hospital standardised mortality ratio remains consistently below the Scottish average. However, we remain vigilant throughout our system, this will be described further in this paper.
- 1.1.4 When issues arise we take prompt action to ensure they are resolved and seek expert advice to assess further actions and next steps. This paper outlines:
- The significant work and capital investment (over £50m) since 2018 to improve the hospital environment - a number of key improvements have taken place. which are detailed within this paper
 - The proactive and reactive ongoing work to maintain our water and ventilation systems
 - Where issues arise we investigate and manage within our Incident Management Framework aligned to national policy
 - The work underway to establish the new Safety and Public Confidence Oversight Group to provide additional assurance and confidence in the QEUH and RHC hospital environment, our approach to communications, public confidence and engagement, leadership and culture and addressing the Scottish Hospitals Inquiry (SHI) issues and future recommendations
- 1.1.5 Significant maintenance, monitoring and audits are undertaken including the annual Independent Authorised Engineer Annual Water and Ventilation Audit reports and associated action plans. These are provided within Appendix 1 and 2 of this paper.
- 1.1.6 We continue to evolve and improve our approach to communication, learning from feedback from patients and families as part of the new Safety and Public Confidence

Oversight Group. We will review and further evolve our approach to communications with patients, families, the public and our staff.

- 1.1.7 This paper describes the new Safety and Public Confidence Oversight Group (SPCG) which will involve, co-participants of SHI including Families and Whistleblowers, External Experts, NHSGGC Colleagues, Partnership Representation, NHS Assure, ARHA, Healthcare Improvement Scotland, members of the public as well as representation from NHSGGC Executive and Non-Executive Director members.

SPCG will provide additional assurance through the consideration of:

- Public confidence and engagement
- Environment and facilities assurance
- Leadership and culture and
- SHI issues and future recommendations.

Section 2

2. Building Standards – Water and Ventilation

2.1. Overview

- 2.1.1 Healthcare building services design is directed by Scottish Healthcare technical memorandum, SHTM's. They provide detail of how environmental outcomes can be achieved, managed, and maintained.
- 2.1.2 For water services, SHTM 04/01 is the relevant document. For ventilation services, SHTM 03/01 is the relevant document.
- 2.1.3 Assurance for the management of these systems is through internal accredited persons:
- Competent persons (CP)
 - Authorised Persons (AP)
- 2.1.4 In addition, external assurance is provided by an Authorising Engineer (AE) who will review the internal governance processes to manage the systems as well as physical examination of the plant and equipment.
- 2.1.5 Regular water sampling and analysis is undertaken without of specification results being investigated by the IPCT and estates and facilities.

Section 3

3. Water – The Domestic Water System in QEUH & RHC

3.1 Overview – The Water Safety Plan

3.1.1 At QEUH and RHC measures are in place to maintain water safety within hospital environments.

- **Water Safety Plan:** A robust water safety plan is in place and there is a dedicated and fully accredited team responsible for the management of the domestic water system in QEUH and RHC.
- **Build/system quality:** The domestic water system (DWS) has been improved to reflect the recommendations directed through external water risk assessments, including those of 2015/17. This has included physical changes to the pipework and remote monitoring control systems (Building Management System (BMS)) as well as the installation of a continuous dosing chlorine dioxide (ClO₂) plant.
- **Maintenance:** An extensive planned maintenance programme is in place for the management of the DWS, and all water outlets. These maintenance activities are undertaken by our in-house maintenance teams as well as specialist contractors.
- **Monitoring:** The system is under continuous monitoring via the building management system (BMS) which will highlight any control issues in regard to temperature and flow. This is highlighted to our maintenance team as well as the BMS monitoring team. Water quality is monitored through agreed testing sentinel points to fulfil statutory requirements as well as actively sampling for other water borne species.
- **Authorising Engineer and Responsible People:** Fundamental to the effective management of the DWS is the appointment of accredited staff who will work on the system as Competent Persons (CP) and those with management oversight as Authorised Persons (AP). On a site as large as the QEUH campus this requires a number of staff to be formally appointed to provide 24/7 resilience. The domestic water system is internally managed by qualified estates staff supported and verified by an external Authorising Engineer (AE).
- **Independent Water and Ventilation Audits and Reports:** As part of the SHI review, independent expert Andrew Popplett's AE water and ventilation audits were undertaken in June 2025 ([Bundle 53 - Water and Ventilation Audit Reports and Domestic Water System Commissioning Review Report by Andrew Popplett and Associated Papers | Hospitals Inquiry](#)) with minimal observations noted and a positive summary was presented to the SHI team.
- **Governance and Escalation:** there is a Board wide water management & governance structure within NHSGGC, a site water safety group is in place for QEUH and RHC which has multidisciplinary representation, this feeds into the board wide water safety group and ultimately reports to the Infection Control in the Built Environment Group and the Board wide Infection Control Committee

and when required will report to NHSGGC Board. The responsibility and escalation matrix is set out in appendix 3. It illustrates the flow of escalation to ensure issues and risks are addressed at the appropriate level and escalated as required. Ultimately issues and risks are escalated to the Director of Estates and Facilities and onward to the Chief Executive as the accountable officer as required.

3.2 Water Sampling

3.2.1 An extensive and ongoing water sampling programme is in place across the QEUH and RHC, representing one of the largest surveillance activities of its kind within NHS Scotland. During 2025 there were over 30,000 individual water samples tested. Results demonstrate a consistently high level of compliance as follows:

- 99.97% of samples met extant national standards relating to Legionella, Pseudomonas aeruginosa, E. coli and coliforms. Beyond national requirements, NHSGGC also undertakes routine gram-negative organism sampling, a level of surveillance not routinely carried out by other hospital sites, further strengthening assurance and early detection capability.
- In addition - over 90% of samples were within the more stringent local action thresholds agreed with Infection Prevention and Control, which align with Chapter 4 of the National Infection Prevention and Control Manual.
- The water samples are processed by a UKAS (UK Accreditation Service) accredited laboratory with results shared simultaneously with IPC and estates teams. The water sampling results are reported to Hospital Sector Water Safety Group meetings, and exceptions are reported to the Board Water Safety Group meeting.

3.2.2 The QEUH and RHC has an extensive water testing plan, in terms of what is tested and the frequency and distribution of testing which is in excess of UK guidance. The plan has input from a multi-disciplinary team including an Independent Authorised Engineer (AE) for water. Overall, for a hospital this size with the extent of testing taking place these results show an extremely low level of out of specification results which are reassuring.

3.3 Annual External Water System Assessment by an Authorising Engineer

3.3.1 In addition, our internal management processes and our physical environment are audited by an external Authorising Engineer (AE). This process is undertaken annually and generally results in recommendations and an action plan. The external Authorised Engineer (AE) undertakes a full audit and assessment of the water engineering system measuring against the relevant Scottish Health Technical memorandum standards documentation SHTM 04-01 Water management and HSG274 – Legionella technical guidance. The audit assesses the compliance operation and maintenance of the safe system of water at the hospital in accordance with the discipline specific health technical memorandum, Acts, regulations and HSE guidance documents.

3.3.2 The annual full audit of the water management system was carried out by the external Authorising Engineer on the 13th January 2026. It recognised that “the level of knowledge and understanding of the onsite estates staff is extremely high and a

diligent approach is taken to ensuring that the water systems are operated in a manner required to delivery high quality risk reduction processes and procedures”.

3.4 Summary of Work Since 2018

3.4.1 Figure 1 sets out a summary of all key actions undertaken since 2018 to improve the management, maintenance of the QEUH and RHC Domestic Water System.

Figure 1: Summary of the key actions taken to Improve the water and ventilation systems in the QEUH and RHC
<p>A robust Water Safety Plan in place and there is a dedicated and fully accredited team responsible for the management of the water system. This includes outsourced service provider and authorised & competent individuals within the estates department and as per the requirements of the SHTM04-01. SHTM 04-01 requires NHS boards to design, run and monitor water systems to prevent infection risks, ensure legal compliance, and follow detailed operational protocols across flushing, testing, disinfection, materials, training, and governance.</p> <p>A layered approach has been undertaken to maintain water safety this includes:</p> <ul style="list-style-type: none">• mains filtration• chlorine dioxide dosing• Real time monitoring of temperatures of incoming cold water, hot water calorifier temperatures. Additionally monitoring flow and return to each calorifier. Additionally the BMS utilises end of line sensors to monitor cold and hot temperatures in the buildings• temperature control and sentinel temperature monitoring (~400 sentinel points within QEUH and RHC)• water circulation monitoring – to ensure water is moving• point of use filters in high-risk areas• water flushing regime• quarterly replacement of shower hoses and shower heads• quarterly replacement of flow straighteners on horne taps• an extensive water testing plan has been established in terms of what is tested and the frequency and distribution of testing. This is bespoke and far in excess of current requirements within the SHTM 04-01 guidance. <p>This is supported by ongoing monitoring, risk assessments, annual reviews and external audits collectively ensuring the effectiveness of the hospitals water safety management.</p>

3.4.2 All of the above actions support a robust water safety plan for QEUH and RHC.

Section 4

4. Ventilation in QEUH & RHC

4.1 Ventilation Standards and Definitions

- 4.1.1 Ventilation systems are managed in line with SHTM 03/01. The information below provides an overview of ventilation standards and definitions.

Ventilation Standards and Definitions

- **SHTM-03-01**
Governs the design, installation, and management of specialised ventilation in NHS Scotland healthcare premises.
- **Validation**
The initial, comprehensive confirmation that a new or significantly modified build is fit for purpose.
- **Verification**
Ongoing, Scheduled checking that the system continues to perform during operation.
- **HEPA Filters & Air Scrubbers**
Highly effective, multi-stage air purification systems used in clinical settings.
- **F7/F9 – Air Filters**
Filtration components designed for HVAC and heat recovery ventilation systems to capture pollutants.
- **Air Sampling**
Regular air sampling in Ward 4B, incident driven sampling in other clinical areas.

- 4.1.2 The ventilation systems in QEUH and RHC can be broadly split into two categories as follows:

- General Air Systems
- Critical Air Systems – these support the following areas: Paediatric Intensive Care Unit (PICU), Intensive Care Units (ICU) and High Dependency Units (HDU) Theatres and Ward Isolation Rooms.

4.2 Clinical Areas with Critical Air Systems

- 4.2.1 Areas with critical air systems are all verified and maintained to SHTM 03-01, this includes the Paediatric Intensive Care Unit (PICU), Intensive Care Units (ICU) and High Dependency Units (HDU), theatres and ward isolation rooms.

- 4.2.2 Critical air systems are subject to annual verification processes and maintenance to ensure that the original design parameters are operating effectively. In summary all critical air systems are:

- Verified and maintained to SHTM 03-01
- Maintained and cleaned to standards
- Monitored and reported to Ventilation Safety Group

- Subject to an annual Authorised Engineer Annual Ventilation Audit

4.3 Paediatric Haematology Ward Ventilation System

- 4.3.1 Ward reopened in March 2022 following extensive refit and refurbishment. The air handling unit was commissioned and validated prior to services relocating into the new Paediatric Haematology ward.
- 4.3.2 The Paediatric Haematology ward has three dedicated separate plant rooms to accommodate all of the air handling units, this new plant room was created on level 4. Each patient bedroom has its own Air handling Unit (AHU) providing further resilience.
- 4.3.3 The Paediatric Haematology air handling unit was designed and validated to SHTM standards and annual verification processes are in place.
- 4.3.4 The air handling unit system is:
- Designed in line with SHTM 03-01
 - Validated to standards SHTM 03-01
 - Maintained and cleaned to SHTM 03-01 standards
 - Monitoring and reported to the NHSGGC Ventilation Safety Group
- 4.3.5 In addition an External Authorising Engineer Ventilation Audit Report is undertaken on an annual basis.

4.4 Adult Bone Marrow Transplant Ward (Ward 4B) Ventilation System

- 4.4.1 A multidisciplinary derogation from SHTM 03-01 was agreed formally in 2017.
- 4.4.2 The system is annually verified to this agreed derogated standard. Within Ward 4B:
- Derogation agreed by NHSGGC IPC, Health Facilities Scotland and Health Protection Scotland
 - Validated to agreed derogated standards in 2017
 - Air is HEPA filtered at source
 - Air scrubbers are located in the corridor of 4B
 - Ventilation system maintained and cleaned to standards
 - Monitored and reported to the NHSGGC Ventilation Safety Group
- 4.4.3 In addition, an External Authorising Engineer Ventilation Audit Report is undertaken on an annual basis.
- 4.4.4 A key priority for NHSGGC is to ensure we have the best environment possible. This is a continuous process.
- 4.4.5 Issues can arise in any healthcare environment. These are identified either through:
1. Issues with the fabric or testing of the building. Or/and
 2. Through clinical monitoring and / or evidence of infection

- 4.4.6 When issues arise, we take immediate action to seek expert clinical and technical advice. Where there is concern over infection, we follow the NHSGGC Incident Management Framework working through as needed a Problem Assessment Group (PAG) or an Incident Management Team (IMT).
- 4.4.7 These are multi-disciplinary teams which are formed in response to a specific incident. Following full consideration, formal actions are agreed and updated to mitigate as a matter of priority. Professional risk assessments are undertaken to confirm that the situation is managed appropriately.

4.5 General Ward Areas

- 451 General ward areas have nominally 3 air changes per hour which meets the minimum building control standard, but not the 6 air changes per hour standard set out in SHTM 03-01. All general air systems have F7/F9 filters in place (this provides theatre quality air) and systems are maintained to SHTM 03-01 standards. In summary the general ward areas are:
- Maintained to SHTM 03-01 standards
 - Monitored and reported to Ventilation Safety Group
- 452 We will continue to explore further options to enhance our facilities.
- 453 General air systems are not subject to annual verification requirements.
- 454 Independent Ventilation Audits and Reports: As part of the SHI review, independent expert Andrew Popplet's AE water and ventilation audits were undertaken in June 2025 ([Bundle 53 - Water and Ventilation Audit Reports and Domestic Water System Commissioning Review Report by Andrew Poplett and Associated Papers | Hospitals Inquiry](#)) with minimal observations noted and a positive summary was presented to the SHI team.

4.6 Air Sampling

- 461 Reactive air sampling may be considered in certain circumstances. If sampling is carried out the results would be discussed by the IPC team to generate an appropriate investigation and management plan often involving multi-disciplinary colleagues.
- 462 Proactive air sampling is routinely carried out in Ward 4B, the Bone Marrow Transplant (BMT) ward.

4.7 Ventilation Systems – Inspection and Cleaning

- 4.7.1 The inspection and cleaning of our ventilation system is completed by an external specialist contractor, in line with SHTM 03-01. This is a rolling cleaning programme of work over a 12-month period, with the external specialist contractor overseen by the authorised person for the site for ventilation at the QEUH and RHC.

4.8 Annual External Independent Ventilation System Audit

- 4.8.1 The ventilation systems are internally managed by qualified estates staff supported by a third-party external specialist contractors who verify all critical air handling unit (AHU) systems.
- 4.8.2 The external Authorising Engineer (AE) undertakes a full audit and assessment of the ventilation systems measuring against the relevant NHS Assure standards.
- 4.8.2 The Independent Authorised Engineer Ventilation Audit was undertaken on 17th December 2025. The audit confirmed that overall the ventilation systems are well managed with verifications and inspections are all in date. This is contained within appendix 1.

4.9 Summary of Improvements in the Ventilation System Since 2015

- 4.9.1 Figure 2 sets out a summary of the significant actions taken to improve the water and ventilation systems since 2015.

Figure 2: Summary of the key actions taken to Improve the ventilation systems in the QEUH and RHC

A range of actions have been undertaken to improve ventilation systems:

- All critical air systems (ward isolation rooms, Paediatric Intensive care, HDU and ITU and theatre) have been verified
- The Paediatric Haematology ward was fully refitted and validated prior to re-opening in March 2022 and the ward is now fully complies with SHTM 03-01
- Ventilations systems are maintained in line with SHTM 03-01
- Air quality throughout the hospitals is F7 theatre quality filtration

The inspection and cleaning of ventilation systems is completed by an external specialist contractor.

4.10 Governance and Escalation

- 4.10.1 There is an NHSGGC ventilation management & governance structure. A site ventilation safety group is in place for QEUH and RHC which has multidisciplinary representation, this feeds into NHSGGC ventilation safety group and ultimately reports to the Infection Control in the Built Environment Group and the Board Infection Control Committee and when required will report to NHSGGC Board. The responsibility and escalation matrix is set out in appendix 3. It illustrates the flow of escalation to ensure issues and risks are addressed at the appropriate level and escalated as required. Ultimately issues and risks are escalated to the Director of Estates and Facilities and onward to the Chief Executive as the accountable officer as required.

Section 5

5. Infection Control

5.1 Overview

- 5.1.1 Infection Prevention and Control (IPC) is a corporate priority for NHSGGC. A range of activity, developments and improvements have taken place in the infection, prevention and control processes within NHSGGC.

5.2 Infection Risk

- 5.2.1 Infection risk, this is a multifactorial situation where there are:

- Micro-organisms with an ability to cause disease (pathogenicity)
- Its natural habitat (source)
- Ability to spread (mode of transmission)
- Susceptibility of the host to infection (opportunity).

5.3 Incident Management Framework

- 5.3.1 The Board's Incident Management Framework (IMF) has now been reviewed, updated and agreed by ARHAI.

5.4 Hospital Acquired Infection Reporting Template (HAIRT)

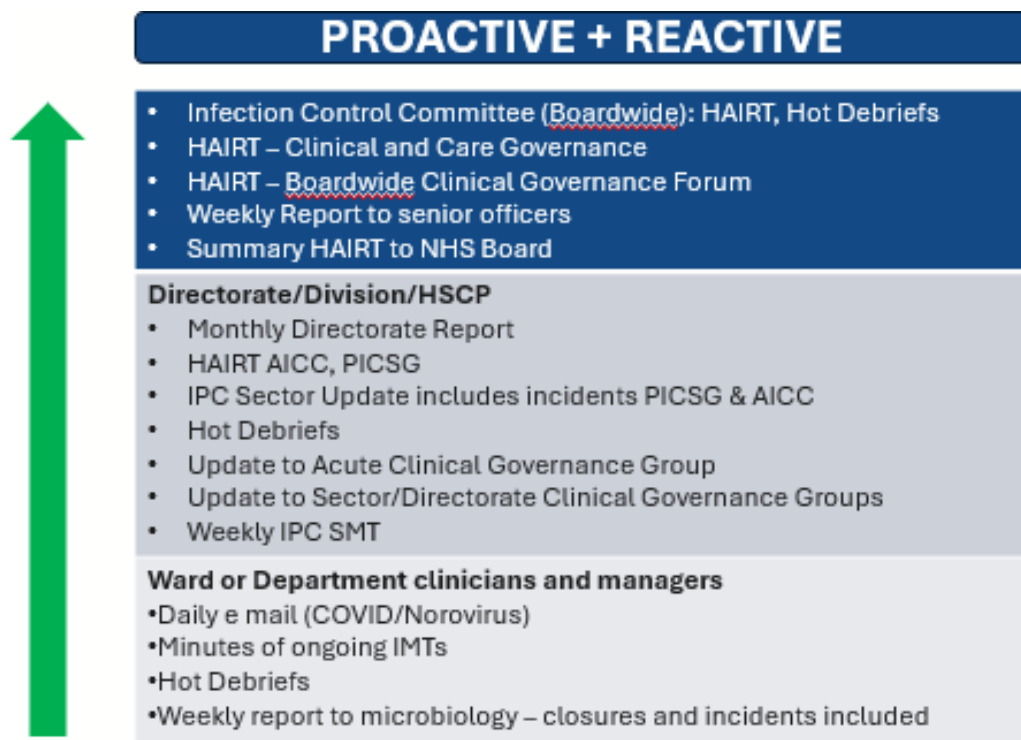
- 5.4.1 A range of activity and developments have taken place in the infection, prevention and control processes within NHSGGC. IPC remains a key corporate objective, NHSGGC hospitals consistently perform in line with or better than the Scottish Government Indicators for Healthcare Associated Infection. The Hospital Acquired Infection Reporting Template (HAIRT) provides an overview for NHSGGC of infection prevention and control measured against Scottish government performance indicators, together with the results from cleanliness monitoring and hand hygiene audit results.

5.3 Enhanced Local Surveillance – QEUH & RHC

- 5.3.1 We undertake enhanced local surveillance for ECB, CDI and SAB. This data is updated daily by the IC Data team and reviewed by IPC Leads/ICDs for each sector. Each sector has an upper warning limit which allows the IPCT to recognise potential increases and aim to put preventative measures in place to prevent reaching the upper control limit which has been set. Triggers identified are investigated by the IPCT for sources and possible transmission events. Statistical Process Control Charts (SPCC) are developed monthly for each ward and sent to SCN for their awareness. SAB figures and sources are provided to local SAB groups to aid improvement work in SAB reduction. These data is scrutinised through the agreed IPC assurance process.

- 5.3.2 There is scrutiny of IPC performance through Board governance structures including a HAIRT report presented at every public Board meeting. A key feature of this reporting provides an overview of NHSGGC's performance compared to NHS Scotland performance for the standards for healthcare associated infection indicators of CDI, ECB and SAB.

5.3.3 Figure 3: Infection Control Monitoring and Reporting



5.4 Escalation of Incidents

- 5.4.1 All incidents are assessed at Problem Assessment Groups or Incident Management Team meetings utilising the Healthcare Infection Incident Assessment Tool (HIIAT) and reported to Scottish Government via ARHAI using the electronic Online Reporting Tool (ORT).
- 5.4.2 Incidents which have been HIIAT assessed as Green, Amber or Red are reported weekly to senior management within NHSGGC and in monthly directorate reports. All incidents HIIAT assessed Amber or Red will be reported on the HAIRT. The HAIRT is a standing agenda item discussed at the Acute Infection Control Committee (AICC) and the Board wide Infection Control Committee (BICC).
- 5.4.3 The IPC responsibility and escalation matrix is set out in appendix 3. It illustrates the flow of escalation to ensure issues and risks are addressed at the appropriate level and escalated as required. Ultimately issues and risks are escalated to the Executive Nurse Director and onward to the Chief Executive as the accountable officer as required.
- 5.4.4 Matters of medical concern would also be escalated to the Executive Medical Director and onwards to the Chief Executive.

5.5 Professional Expertise

- 5.5.1 Within NHS Scotland and NHSGGC we have a significant number of experts, including:

Professional Expertise Within NHSGGC:

- Microbiology
- Infection Control
- Lead Clinicians

We also work collaboratively with external professional expertise including:

- External subject matter experts
- ARHA and NHS Assure
- Scottish Government - CNO/CMO

All professionals aspire to ensure we provide the highest level of care possible to our patients.

5.6 Development of a Resolution Framework

- 5.6.1 We recognise professional tensions have developed and it is essential we work through and improve these relationships by creating both the environment to collaborate and debate and find solutions. This is an essential component in providing high quality patient care.
- 5.6.2 We believe therefore that there is benefit in developing a structure that can help where professional tensions are evident and colleagues require a degree of additional support. We propose to develop a resolution framework. A resolution framework would support multiple levels of complexity from dealing with day-to-day issues e.g. business as usual informal discussions to the very complex issues that requiring input from external experts, ARHA or NHS Assure, Clinical Governance Committee, NHSGGC Executive team, NHSGGC Board and Scottish Government.

5.7 Hospital Standardised Mortality Ratio (HSMR) /Crude Mortality

- 5.7.1 Public Health Scotland (PHS) has provided quarterly reports on hospital standardised mortality ratios (HSMR) for all Scottish hospitals since 2009. These adjust mortality data to take account of some of the factors known to affect the underlying risk of death and allow for a snapshot comparison of adjusted mortality between Health Boards or individual hospitals.
- 5.7.2 NHSGGC is consistently below the national average for HSMR at 0.98. QEUA consistently reports the lowest HSMR of any hospital in GGC at 0.90-0.94 (2023-2025). All NHSGGC hospitals are within control limits for crude mortality. The QEUA had a crude mortality rate of 2.6% at quarter 2, 2025, compared to 2.8% for NHS Scotland. Since Quarter 1 2022, the QEUA has consistently had a lower crude mortality rate than NHS Scotland.
- 5.7.3 By comparison, crude mortality data is presented by quarter to show trends over time. NHSGGC has consistently been within control limits for HSMR and sits just below the

national average. Within NHSGGC, the QEUH has the lowest HSMR of all Glasgow hospitals (the RHC does not report HSMR data).

Section 6

6. Next Steps – NHSGGC Safety and Public Confidence Oversight Group (SPCG)

6.1 Overview

- 6.1.1 The main role and remit of the Safety and Public Confidence Oversight Group will be to develop and oversee a significant programme of work to build further public confidence in the environment in which services are delivered within the QEUH and RHC today. A key part of this work will be to involve a wide range of stakeholders.
- 6.1.2 The SPCG will report to the NHSGGC Board and onwards to the Scottish Government Chief Operating Officer Assurance Group. This will be jointly chaired by the Chief Executive of NHSGGC and Professor Sir Lewis Ritchie.
- 6.1.3 SPCG will have four sub-groups:
- Environment and Facilities - Compliance and Assurance
 - Leadership and Culture
 - Public and Political Confidence and Engagement
 - Implementation of the issues, findings and future recommendations of the Scottish Hospitals Inquiry
- 6.1.4 Membership of the SPCG and its sub-groups will include representation from:
- Co-participants of SHI including
 - Families
 - Whistleblowers
 - External Experts
 - NHSGGC Colleagues
 - Partnership Representation
 - Members of the Public
 - NHS Assure, ARHAI, HIS

6.2 Additional Assurance Reports

- 6.2.1 The Integrated Performance and Quality Report (IPQR) is the Board's new single, consolidated view of organisational performance and quality, bringing together operational, financial, clinical, care and corporate governance measures into one report. It includes, among other measures, Healthcare Associated Infections and Hand Hygiene, Significant Adverse Event Reviews (SAERs), Hospital environment indicators and the Hospital Standardised Mortality Ratio (HSMR). The report will provide a further layer of assurance to NHSGGC Board.
- 6.2.2 For Infection Prevention & Control (IPC), the IPQR reports the Scottish Government Healthcare Associated Infection indicators: Clostridioides difficile infections (CDI), Staphylococcus aureus bacteraemia (SAB), Escherichia coli bacteraemia (ECB),

alongside overall Hand Hygiene compliance. These indicators are presented Board-wide in the IPQR, with more detailed analysis reported to Board via the HAIRT.

6.2.3 Under Estates & Facilities, the IPQR covers:

- Maintenance performance (planned and reactive request volumes, completion rates and outstanding backlogs). These are reported as Board-wide figures, with supporting operational narrative on risk and resilience.
- Central support services (decontamination, laundry, and patient meals) activity and turnaround/compliance indicators. Reported on a Board-wide basis.
- Quality Assurance (QA) internal audits of cleanliness and related E&F standards (audit volumes, and average scores). Also reported as Board-wide figures, supporting assurance on the patient environment.
- In addition, to provide targeted assurance on the QEUH and RHC, the IPQR includes an overview of the most recent external audits of both water quality and ventilation systems at these locations. This section includes key identified risks, recommendations and specific comments from the respective Authorising Engineer.

6.2.4 Two further indicators, referenced earlier in this document, that further relate directly to patient safety and overall assurance are also included in the IPQR:

- SAERs: volumes commissioned and closed per month, timeliness (e.g., closed within target timescales), and narrative on improvement actions. These are reported as Board-wide figures.
- Hospital Standardised Mortality Ratio (HSMR) and crude mortality within 30 days of admission. The IPQR includes both the Board-wide position and site-level HSMR for acute hospitals.

6.2.5 The IPQR will be produced each month, using verified data from NHSGGC Business Intelligence or Public Health Scotland as appropriate. Supporting narratives for each section are reviewed and signed off by the responsible Executive Director, with the final document approved in the first instance by the Corporate Management Team and then presented to the NHSGGC Board and relevant committees which have lead responsibility for specific sections of the IPQR who will each review the IPQR at their regularly scheduled meetings. Specifically:

- Finance, Planning and Performance Committee
- Clinical and Care Governance Committee
- Population Health and Wellbeing Committee
- People and Staff Governance Committee

The first IPQR will be presented to NHSGGC Board on 26 February 2026.

6.2.6 The IPQR highlights the quality and safety of care, patient experience, and organisational effectiveness. Helping to ensure performance is not achieved at the expense of quality. Ultimately the IPQR supports more informed decision-making and better assurance, offering a clearer line of sight from the Board to frontline services.

Integral to this is monitoring the built hospital environment and maintenance, ensuring escalation of issues pertaining to the built environment and infection risk.

- 6.2.7 In addition to the IPQR a regular executive variance report will be developed, and in addition to this as part of the work of the SPCG a new hospital environment assurance reporting framework will be developed, shared and published.

6.3 Immediate Priorities for the Safety and Public Confidence Oversight Group

6.3.1

The key priority for the SPCG is to build patient and public confidence in the QEUH and RHC, in order to do this there will be a number of early priorities to be overseen including:

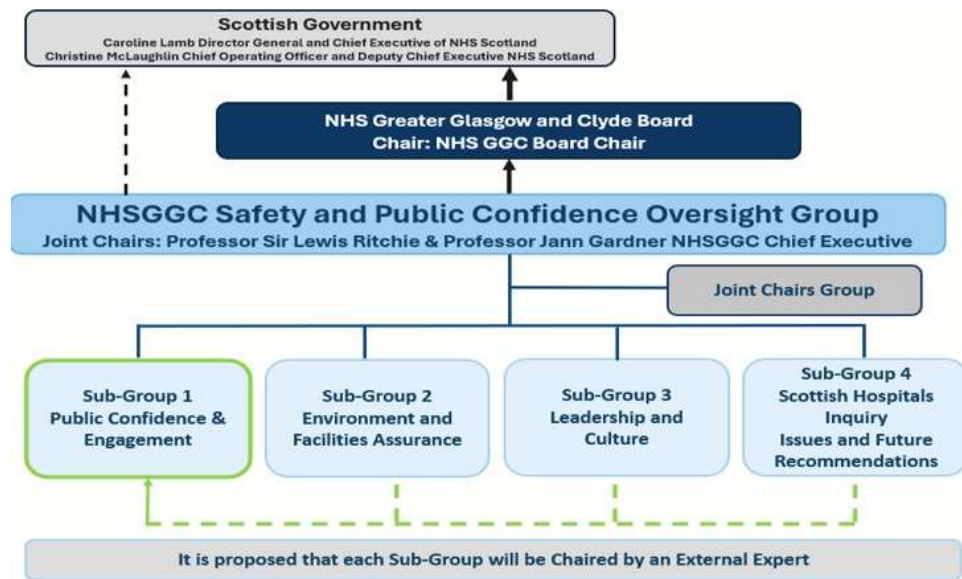
- Engagement and discussion with affected families and core participants to the SHI
- Development of a resolution framework to enable prompt resolution of issues with the necessary professional expertise at each level within the framework with appropriate escalation and support
- Developing a policy for the use of bottled water in clinical settings, to ensure agreed criteria for use
- Supporting the appraisal of options for further infrastructure improvements.

A clear programme plan with measurable outputs and a clear timeline for delivery will be developed and agreed.

6.4 Draft Governance and Reporting Structure

- 6.4.1 The proposed governance and reporting structure to support the establishment of the Safety and Public Confidence programme is set out in figure 4.
- 6.4.2 Draft terms of reference and membership for each of the groups is being discussed and finalised.

Figure 4: Proposed Governance for the Safety and Public Confidence Programme



Section 7

7. Summary and Next Steps

- 7.1.1 The purpose of this paper was to describe the assurance measures for the QEUH and RHC hospital environment. We have a healthcare facility which we work proactively and reactively to ensure the hospitals are safe to provide care to our patients each day. When issues arise we take prompt action to ensure they are resolved and seek expert advice to assess further actions and next steps.
- 7.1.2 NHSGGC and NSS have made a commitment to further build relationships between clinical colleagues in NHSGGC and ARHAI.
- 7.1.3 Significant capital (over £50m) to improve the hospital environment has been spent within QEUH and RHC, and a number of key improvements have been made to our water system and ventilation systems, the hospital buildings and environment are not the same as in 2015. Further investment may be required.
- 7.1.4 It is important to note complexities remain acknowledging the outcome of the Scottish Hospitals Inquiry will not report to the end of the year, there is an ongoing Crown investigation and there are multiple civil litigation against Multiplex and other sub-contractors as well as litigations against NHSGGC.
- 7.1.5 Work is underway to establish the new Safety and Public Confidence Oversight Group and its sub-groups to provide additional assurance and confidence in the QEUH and RHC hospital environment, our approach to communications, public confidence and engagement, leadership and culture and addressing the Scottish Hospitals Inquiry (SHI) issues and future recommendations.

Volume of Appendices

Appendix 1: Independent Authorised Engineer Annual Ventilation Audit Report – and NHSGGC associated Action Plan

Appendix 2: Independent Authorised Engineer Annual Water Audit Report and NHS GGC associated Action Plan

Appendix 3: NHSGGC QEUH and RHC Hospital Environment Assurance and Infection control & Responsibility Matrix

Appendix 1

<i>NHS Greater Glasgow & Clyde</i>	
Meeting:	GG&C Board Meeting
Meeting Date:	26 th February 2026
Title:	Authorising Engineer Audit, Ventilation
Sponsoring Director/Manager:	Tom Steele
Report Author:	Mark Riddell

1. Purpose

The purpose of this report is to provide visibility on the latest Authorising Engineer Ventilation Audit Report as undertaken in December 2025.

This covering paper provides an update on actions underway against the report recommendations.

2. Executive Summary

The recent Authorising Engineer report for Ventilation has provides assurance that our governance, monitoring arrangements, and improvement actions continue to strengthen. The findings reaffirm that our teams are maintaining safe systems of work and progressing a clear programme of risk reduction.

The latest Ventilation Authorising Engineer report recognises the progress made across our site and highlight clear opportunities to further galvanise improvement which is welcomed. These reports demonstrate a positive direction of travel with strengthened processes, improved oversight, and focused investment.

Our Authorising Engineer reviews for Ventilation provide encouraging feedback on the professionalism and commitment of our operational teams. The reports confirm that we have robust governance in place and that actions are being systematically managed.

Our latest AE report reinforces that our Ventilation system is being managed within an improving framework of risk control and compliance. The recommendations align well with our wider estates strategy and provide helpful direction for targeted investment.

BOARD OFFICIAL

AE Audit Summary 2017-Present

Ref	Actions	Risk Level	NHS Update	Target Completion Date
01	20231213/01 Test fire dampers in accordance with SHTM 03-01,Part B, Para 4.13.	20	Additional resource deployed to meet end of March completion date.	March 26
02	20231213/02 On campus it is recommended that at least 1 AP(V) is trained and appointed on each shift to cover shiftwork. 13/12/23 Reduced risk rating from 12 to 5.	5	AP Appointment complete	Complete
03	20231213/03 The information held in the shared drive documents register should be linked to SMARTSHEET if possible.	5	Compliance team in process of linking documentation to SMARTSHEET,	March 26
04	20231213/08 The general cleanliness of ventilation plant rooms has deteriorated since the previous audit with multiple examples of contractor waste not being removed. All plant rooms could benefit from a good clean to remove potential secondary contamination from ventilation.	12	Immediate review undertaken and all plantroom consumables are being removed to alternative storage area.	March 26
05	20231213/09 The practice of joinery and flooring contractors in plant room 31 should cease. It is not appropriate to conduct uncontained/extracted COSHH work in a ventilation plant room. There is a clear fire and explosion hazard that should be dealt with. Timber, solvents and sources of ignition such as bench top grinders and cross cut saws were witnessed adjacent critical plant. A fire alarm in this area will shut down multiple theatres. A fire and COSHH assessment should be completed as a priority.	20	All activity has been ceased and materials are being removed to alternative storage area.	March 26
06	20231213/12 Ventilation log books should be developed as per the requirements of SHTM 03/01 Pt A Para 13.15 these should be provided for each ventilation system in the inventory of ventilation.	5	The administrative duty of record keeping to be reviewed in line with guidance recommendation	March 26
07	20231213/13 The schedule of ventilation should be developed into an "inventory of ventilation" as per the requirements of SHTM 03/01 Pt B Para 1.35.	5	Asset review currently in progress to reflect Air Handling equipment against planned maintenance schedule on FM first.	March 26
08	20231213/15 A process map should be developed to inform the users and VSG/IPC of ventilation related issues such as verification failure or breakdowns. This is outlined in the policy but should be formalised through an SOP.	5	SLWG in progress to develop SOP / process	March 26
09	20231213/16	10	The current process is appropriate, action requires process to be ratified by Ventilation Safety Group (VSG)..	March 26

BOARD OFFICIAL

	Portable room self contained mobile filter/uv systems deployed anywhere on the estate should be approved by the VSG in cognisance of SHTM 03/01 Pt B Para 5.38 onwards. Where this is not agreed, there use should be stopped until approved and risk assessed. Ward 4B is an example where HEPA units are deployed during maintenance but stored locally without proper process before being re-deployed.			
10	20231213/19 There is a fire risk in plant room 31, Particular emphasis is given due to the levels of combustible material in the plant room. Some fire extinguishers were removed from their designated locations. Call points were obstructed by equipment to add to the issue.	15	All fire call points are currently accessible and maintained, Fire extinguishers and hand held equipment reinstated. See action under point 4.	March 26
11	20241212/01 Identified individuals should attend and pass suitable first aid training for AP's.	5	Training arranged for mid March	March 26
12	20241212/03 Individual identified should attend AP ventilation training and be assessed for duties at QEUH by the AE before being formally appointed by the DP.	5	Formal appointments made.	complete
13	20241212/06 The external ductwork on L12 of the A&C outside plantroom 121 has dislodged from it's struts and is warped to develop low points. In addition to the this, the insulation and cladding is in a very poor state and should be made good and water tight.	12	Authorised Persons (AP) notified by Authorising Engineer (AE). Specialised Contractors instructed to carry out necessary repairs.	March 26
14	20241212/07 Vegetation and organic material on the L12 open roof areas should be removed to mitigate risks to the fresh air intakes.	8	Contractor instructed to attend site and carry out works.	March 26
15	20251207/01 Suitable access equipment such as pulpit ladders or working platforms should be provided in L3 Neonatal plant room for the maintenance of top deck items.	10	Suitable access equipment required for level 3 has been replaced.	Complete
16	20251207/02 Clean and dirty filter condition stickers should be reviewed across the who campus and fitted/adjusted where required.	5	Work is currently underway to satisfy the recommendations of the AE	March 26
17	20251207/03 A review of surplus traps installed at the Neonatal plant room on the 3rd floor should be undertaken. Traps are not required at dry components and should be removed to reduce trap maintenance burden.	5	In-house teams are currently working on completion of this action.	March 26
18	20251207/04 A review of labels affixed to AHU's in the Neonatal plant room should be undertaken. AHU labels should be in line with the A&C label method. This should include "Critical Ventilation System - PTW Required" and correctly identify the area served.	5	Labelling for ventilation has been corrected to indicate appropriate area it serves.	Complete
19	20251207/05 Efforts should be made to source the commissioning and O&M data for the level 3 neonatal ventilation systems.	10	M&E Consultants appointed to review design	March 26

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	These should be provided to the verification contractor and reviewed against latest result for any observations.			
20	20251207/06 Drawings detailing the areas served by each AHU should be displayed at the AHU's in Neonatal L3 plant room. Some areas have multiple supply/extract AHU's that need clarifying and communicating.	5	Labelling for ventilation has been corrected to indicate appropriate area it serves, this details area served by each AHU.	Complete
21	20251207/06 Standing water was observed close to the duct penetration to below of AHU03 in the Neonatal L3 plant room. This should be investigated and rectified.	5	AP's investigated water issue, now addressed. Further monitoring in place.	Complete

3. Recommendations

Operational Estates to continue completing AE Actions within targeted completion dates.

Escalation through governance processes as required.

4. Response Required

This paper is presented for Noting

5. Impact Assessment

The impact of this paper on NHSGGC's corporate aims, approach to equality and diversity and environmental impact are assessed as follows:

- Better Health Positive
- Better Care Positive
- Better Value Positive
- Better Workplace Positive
- Equality & Diversity Neutral
- Environment Positive

6. Engagement & Communications

The issues addressed in this paper were subject to the following engagement and communications activity:

- Authorising Engineer (AE) to Compliance Team
- Site Operational Estates Teams
- Head of Corporate Estates and Assistant Director of Estates
- SMT team

7. Governance Route

Completed as part of QEUH/RHC assurance.

8. Date Prepared & Issued

24th February 2026



**M&M
COMPLIANCE
TRAINING**

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32/5-32/6 Hardengreen
Industrial estate,
Dalkieth, Midlothian,
EH22 3NX

0115 773 8760
Osprey House, Pegasus
Business Park, Castle
Donington, Nottingham,
DE74 2TQ

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

Hospital

Queen Elizabeth University Hospital Campus

Site Address

1345 Govan Road, G51 4TF inc
Royal Hospital for Children
QEUH Maternity Hospital

Date of Review

17-Dec-25

Reference

03/01/04/03/02

Terms of Reference

This audit was conducted in accordance with the following current reference documents:

- Scottish Health Technical Memorandum 00: Policies and principles of healthcare engineering.
- Scottish Health Technical Memorandum 03-01: Specialised Ventilation for Healthcare Premises.

Introduction

The purpose of this audit was to assess the compliance, operation and maintenance of the Safe System of Work at the Hospital(s) in accordance with the discipline specific Health Technical Memoranda, Acts, Regulations and HSE Guidance documents. The resulting Action Plan will be reviewed periodically. The appointments of the discipline specific Authorised Persons were also assessed during the audit.

Executive Summary

This was the third audit conducted by MMCTS at QEUH and since the release of SHTM 03/01 2022 and taking on service provision. The audit looked at existing actions from the previous AE action plan and updated / rationalised where required to create a new action plan. The action plan should be periodically reviewed by the operational estates team to drive improvements in the specialist discipline. Below are the key findings with a consolidated action plan to the rear of this report.

Progress has been slow but in a positive direction since the previous audit. There has been a change of staff and it will take a little time for those new in role to see progress but I have no concerns. Key aspects for this years report are:

- Fire dampers are now tested and identified but it remains a resource challenge to test all dampers every year. Some dampers are now 3 years since last drop tests.
- The practice of joinery including dust generating activity in plant room 31 is ongoing. There is also a large amount of COSHH and cement/gypsum based materials stored, cut and handled in the plant room that houses multiple critical ventilation systems such as UCV's. This was escalated at audit to the DDP and action is being taken.
- With the exception of Plant Room 31, plant room cleanliness has improved but could go further.
- The incumbent mechanical managers should attend AP(V) training at the earliest opportunity. AP provision is still adequate on the whole.

* 610 Permits to Work were issued since the previous audit demonstrating a good level of AP control and the standards of completion have improved greatly.


Overall, the ventilation systems are well managed with verifications and inspections all in date. Condition of plant inspected supports this. However, engineering works spaces and fire damper drop testing is hampering the overall tone of the audit and should be rectified.

Assessment Areas	Result
1. Assessment of the Management Policy.	5
2. Assessment of the Authorised Persons.	5
3. Assessment of the Competent Persons.	1
4. Assessment of Incidents, Accidents and Dangerous Occurrences.	1
5. Assessment of the Safety Documentation.	1
6. Assessment of the Operating Records.	20
7. Assessment of the Safety equipment & Access Control.	1
8. Assessment of the Engineering Systems.	5
9. Assessment of the Engineering Work Spaces.	20
Overall assessment of ventilation management	15

Risk Matrix

		<u>Severity</u>				
		INSIGNIFICANT	MINOR	MODERATE	MAJOR	EXTREME
<u>Likelihood</u>	ALMOST CERTAIN	5	10	15	20	25
	LIKELY	4	8	12	16	20
	POSSIBLE	3	6	9	12	15
	UNLIKELY	2	4	6	8	10
	REMOTE	1	2	3	4	5

Signature:



Date:

17-Dec-25

Name:

Jamie Minhinick

M&M Compliance Training Services LTD

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Hardengreen Industrial Estate

Dalkeith

EH22 3NX

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Distribution:**Client**

Prof Tom Steele	Director of Estates and Facilities
Mr Mark Riddell	Assistant Director Operational Estates
Mr Chris Haddow	Interim Head of Corporate Estates
Mr Euan Smith	Assistant Head Estates South Sector
Mr Hugh Brown	Interim Assistant Head Estates South Sector
Mr Hugh Brown	Site Manager Operational Estates
Mr Willam Fenn	Estates Manager (Mech) and AP (Vent)
Mr Max Thomson	Estates Manager (Mech) and AP (Vent) Des
Mr Matthew Feeney	Interim Mechanical Compliance Manager NHS GG&C
Mr George Walsh	Interim Mechanical Compliance Manager NHS GG&C

M&M Consultancy and Training Services

Mr J Minhinnick	Director and Authorising Engineer (Ventilation)
Mr B Martin	Director and Authorised Person (Ventilation)
File	03/01/04/03/02

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

REVIEW OF PREVIOUS ACTION PLAN

		Hospital	Queen Elizabeth University Campus		
		Site Address	1345 Govan Road, G51 4TF		
		Designated Person	Prof Tom Steele		
		Site Manager Operational Estates	Hugh Brown		
		Authorising Engineer	Jamie Minhinnick		
		Lead AP on Site	William Fenn		
Ser	Risk	Ref	Action Required	Remarks	
1	20	20231213/01	Test fire dampers in accordance with SHTM 03-01,Part B, Para 4.13.	Works continue at pace to address annual fire damper drop testing and it was reported that the whole site has been tested within the last 3 years but resources have hampered being able to complete annually. Additional resources should be allocated to ensure all dampers are tested annually or a risk assessment undertaken to reduce testing frequencies.	
2	5	20231213/02	Due to the size and scale of the systems a QEUH Campus it is recommended that at least 1 AP(V) is trained and appointed on each shift to cover shiftwork. 13/12/23 Reduced risk rating from 12 to 5 as majority of shifts now covered.	Shift 2 does not have a dedicated AP for ventilation but shifts either side with cross over do. Ideally Phil Duffie on shift 2 should be trained and appointed.	
3	5	20231213/03	The information held in the shared drive documents register should be linked to SMARTSHEET if possible.	Works in progress. Change of lead AP should complete this task. Review at next audit.	
4	5	20231213/07	The risk assessments for working on ventilation systems should include Covid19 as a hazard and appropriate mitigation included.	Overtaken by events. New action raised. Closed.	

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

5	12	20231213/ 08	The general cleanliness of ventilation plant rooms has deteriorated since the previous audit with multiple example of contractor waste not being removed. All plant rooms could benefit from a good clean to remove potential secondary contamination to ventilation. Updated 12/12/24: Visited plant room 121 and whilst not as pressing as PR 31 its clear all plant rooms require a deep clean to mitigate risk (cardboard waste in ponding water observed as a potential host for fungal/bacterial growth) under the AHU.	Plantroom 121 has seen a marked improvement with standing water and waste material removed. Other plant rooms require the same detail.
6	15	20231213/ 09	The practice of joinery and flooring contractors in plant room 31 should cease. It is not appropriate to conduct uncontained/extracted COSHH work in a ventilation plant room. There is a clear fire and explosion hazard that should be dealt with. Timber, solvents and sources of ignition such as bench top grinders and cross cut saws were witnessed adjacent critical plant. A fire alarm in this area will shut down multiple theatres. A fire and COSHH assessment should be completed as a priority.	This is an ongoing issue that has not improved in over 2 years. Increased RR to 20 and verbally communicated to senior management. Review at next audit.
7	5	20231213/ 12	Ventilation log books should be developed as per the requirements of SHTM 03/01 Pt A Para 13.15 should be provided for each ventilation system in the inventory of ventilation.	Works in progress with critical vent completed but more work required. Review at next audit.
8	5	20231213/ 13	The schedule of ventilation should be developed into an "inventory of ventilation" as per the requirements of SHTM 03/01 Pt B Para 1.35.	No progress to date, review at next audit.
9	5	20231213/ 15	A process map should be developed to inform the users and VSG/IPC of ventilation related issues such as verification failure or breakdowns. This is outlined in the policy but should be formalised through an SOP.	No progress to date. Review at next audit.
10	10	20231213/ 16	Portable room self contained mobile filter/uv systems deployed anywhere on the estate should be approved by the VSG in cognisance of SHTM 03/01 Pt B Para 5.38 onwards. Where this is not agreed, there use should be stopped until approved and risk assessed. Ward 4B is an example where HEPA units are deployed during maintenance but stored locally.	No progress to date. Review at next audit.

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

11	15	20231213/ 19	The is a fire risk in plant room 31, Particular emphasis is given due to the levels of combustible material in the plant room. Some fire extinguishers were removed from their designated locations. Call points were obstructed by equipment to add to the issue.	Minor progress with call points uncovered and visible but still unsatisfactory. Review at next audit.
12	5	20241212/ 01	Hugh Brown and John Hetherton should attend and pass suitable first aid training for AP's.	No progress to date. Review at next.
13	10	20241212/ 02	The lead AP should organise and deliver a toolbox talk to all AP's and CP's about the importance of correctly completing ventilation permits to work and the use of supporting evidence and comments where not practicable.	Completed. Closed.
14	5	20241212/ 03	Philip Duffy should attend AP ventilation training and be assessed for duties at QEUH by the AE before being formally appointed by the DP.	Updated to Philip Duffy only. Review at next audit.
15	8	20241212/ 04	A review of the LEV's should be undertaken at the Westmarc Building. Discharge stacks are too short and have downward rain cowls. Some internal flexible ducting is "very domestic" and should be changed to a more suitable material to prevent potential of discharge in the roof plant room.	Labelling and remedial works have been completed and these assets are now maintained and examined under contract arrangement with Correct Air. Closed.
16	8	20241212/ 05	The source of and standing water in plantroom 121 should be addressed and source of foul smell located and rectified.	Completed. Closed.
17	12	20241212/ 06	The external ductwork on L12 of the A&C outside plantroom 121 has dislodged from it's struts and is warped to develop low points. In addition to the this, the insulation and cladding is in a very poor state and should be made good and water tight.	No progress to date. Review at next audit.
18	8	20241212/ 07	Vegetation and organic material on the L12 open roof areas should be removed to mitigate risks to the fresh air intakes.	Some progress made but further works required. Vegetation and detritus still under ducts. Review at next audit.
19	15	20231213/ 19	The fire extinguishers in plant room 31 were last inspected in Oct 22 and are overdue. Particular emphasis is given due to the levels of combustible material in the plant room. Some fire extinguishers were removed from their designated locations. Call points were obstructed by equipment to add to the issue.	Completed, closed.

Additional Comments:

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

REVIEW OF TRAINING AND COMPETENCE

Hospital	Queen Elizabeth University Campus
Site Address	1345 Govan Road, G51 4TF
Designated Person	Prof Tom Steele
Site Manager Operational Estates	Hugh Brown
Authorising Engineer	Jamie Minhinick
Lead AP on Site	William Fenn

Name	Hugh Brown	Max Thomson	Ben Twaddle	Gary Donnachie
Role	AP(V)	AP(V) Des	AP (V)	AP(V)
Position	SMOE	Estates Manager	Shift Supervisor	Shift Supervisor
Based at	QEUH	QEUH	QEUH	QEUH
Appointment	Yes	NY	Yes	Yes
Issue	11/04/2022	NY	11/04/2023	13/06/2024
by	A Gallacher	NY	A Gallacher	A Gallacher
Expiry	10/04/2025	NY	10/04/2026	12/06/2027
Sites Appointed	QEUH Campus	NY	QEUH Campus	QEUH Campus
Training	Yes	NY	Yes	Yes
AP Vent	14/09/2018	NY	18/11/2022	18/11/2022
CP Vent	n/a	NY	n/a	n/a
First Aid	Expired	NY	21/04/2028	31/05/2026

Name	William Fenn	Thomas Ramsay	John Hetherston	Ryan Ogilvie
Role	AP (V)	AP (V)	AP (V)	AP (V)
Position	Trainee Estates Mgr	Shift Supervisor	Co-Ord Supervisor	Co-Ord Supervisor
Based at	QEUH	QEUH	QEUH	QEUH
Appointment	Expired	Yes	Yes	Yes
Issue	Expired	31/05/2023	31/03/2023	22/01/2025
by	Expired	A Gallacher	A Gallacher	Mark Riddell
Expiry	Expired	30/05/2026	30/03/2026	21/01/2028
Sites Appointed	QEUH Campus	QEUH Campus	QEUH Campus	QEUH Campus
Training	Required	Yes	Yes	Yes
AP Vent	15/07/2022	18/11/2022	15/11/2022	23/09/2024
CP Vent	n/a	n/a	n/a	n/a
First Aid	06/08/2022	13/04/2026	Expired	Expired
Safety Documents	<p>610 Permits to work were issued since the previous audit. This reflect the scale of critical ventilation on the QEUH Campus with an average of 4.8/Unit/Year well done.</p> <p>Following recent ventilation AP assessment, William Fenn should also attend AP (V) training within the next 6m as lead AP.</p>			

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

REPORT			
Hospital	Queen Elizabeth University Campus		
Site Address	1345 Govan Road, G51 4TF		
Designated Person	Prof Tom Steele		
Site Manager Operational Estates	Hugh Brown		
Authorising Engineer	Jamie Minhinnick		
Lead AP on Site	William Fenn		
1. Management Policy		Y/N	Comments
Is there a Board Ventilation Safety Policy or Policy Statement In place?	Y	Policy version 1.4 dated 03/02/23 was held on SMARTSHEET.	1
Is the Ventilation Safety Policy endorsed at Board level?	Y	Approved by the SCART steering group.	1
Is the Board Ventilation Safety Policy reviewed periodically?	Y	Overdue review as at 03/08/23.	5
Is the Board Ventilation Safety Policy a controlled Document?	Y	Uncontrolled when printed.	1
Is there a Ventilation Safety Group for the board and are TOR's agreed and in place?	N	The remit of the VSG was not detailed in the ventilation policy.	5
Is the Designated Person appointed in writing?	Y	Prof Tom Steele was appointed by Jane Grant on 13/09/24. Mark Riddell was appointed by Prof Tom Steele as the Deputy Designated Person (Operational Estates) on 16/09/24.	1
Has the Authorising Engineer (AE) (V) appointment been correctly made and is it in date?	Y	Jamie Minhinnick was appointed by Alan Gallacher on 01/05/24.	1
2. Authorised Persons (V)		Y/N	Comments
Are all APs (V) appointed in writing by the Designated Person?	Y	Appointments were in place for Thomas Ramsay, William Fenn and Ben Twaddle, Gary Donnachie and John Hetheron, Ryan Ogilvie. Records held on SMARTSHEET and the shared drive.	1
Are any APs (V) due for refresher training in SHTM 03-01 on the recommendation of the Authorising Engineer?	Y	Philip Duffy, should attend AP ventilation training and be assessed for duties at QEUH by the AE should they be required for duties.	5
Are the APs (V) due for training in emergency first-aid?	N	John Hetheron, Hugh Brown and Willaim Fenn have expired first aid training.	5
Are the APs (V) carrying out AP (V) duties on a regular basis?	Y	All appointed AP's are conducting regular duties.	1

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

Are the APs (V) formally monitoring the work-in-progress and are they recording their observations?	Y	A formal process of checking work is provided with the authorisation for disconnection.	1
Is the provision of APs (V) adequate?	N	Philip Duffy and Max Thomson should be trained and assessed for AP duties.	5
3. Competent Persons (V)			
	Y/N	Comments	
Have the NHS CPs (V) been formally assessed and appointed by an AP (V)?	Y	13 in house CPs have been assessed and appointed in writing by C Stepney. Records are held on SMARTSHEET and in the shared drive.	1
Is evidence of the competency of Contractor CPs (V) held in the Document Register?	Y	Good evidence was held for Correct Air Solutions, FREWS, H&V and Livingston Mechanical and Sweegon in the estates shared drive.	1
Are the roles and responsibilities of Contractor CPs (V) defined in writing?	Y	Verification reports produced by H&V and Correct Air Solutions detail the scope of works.	1
Are records held in the Document Register of the site induction for the Contractor CPs (V)?	Y	Inventory system is in use at the front door of estates.	1
Is there an up to date Register of CPs (V) appointed for the Board included in the Document Register?	Y	Held on SMARTSHEET.	1
Are the NHS CPs (V) carrying out their duties on a regular basis?	Y	No further comment.	1
4. Incidents, Accidents and Dangerous Occurrences			
	Y/N	Comments	
Have there been any accidents, incidents, dangerous occurrences or "near misses" in connection with the ventilation systems?	N	None reported by Estates Manager.	1
Have the details of incidents, accidents or dangerous occurrences been properly recorded and reported?	n/a		
5. Review of Sample Safety Documentation			
Job Number:	PTW 05784	Originating AP (V):	John Hetherington
	Y/N	Comments	
Was there a suitable & sufficient Risk Assessment to cover the work undertaken?	Y	Quarterly PPM of 124AHU04 by Correct Air Solutions. Risk assessments held by AP in the shared drive.	1
Was the permit-to-work completed by the AP (V) specifying the work to be carried out?	Y	By John Hetherington.	1
Was the permit-to-work signed by the User (V) to allow the work to proceed?	Y	By C O'Hara.	1
Was the permit-to-work issued to a CP (V)?	Y	Issued to Cole McGuigan of Correct Air. Formally appointed as a CP for QEUH by W Fenn on 11/06/25.	1

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

Was the permit-to-work cleared by a CP (V) and did they state that system was fit or unfit for use?	Y	Cole McGuigan of Correct Air. Formally appointed as a CP for QEUH by W Fenn on 11/06/25.	1
Was the permit-to-work cancelled by an AP (V) and did they acknowledge that the system was fit or unfit for use?	Y	By William Fenn.	1
Did the User (V) acknowledge that the system should or should not be brought back into use?	Y	Signed by Lisa Doncha.	1
Were the site records up-dated on completion of the work?	Y	40 point check filed on the shared drive.	1
Job Number: PTW 05717 Originating AP (V): Ben Twaddle Y/N Comments			
Was there a suitable & sufficient Risk Assessment to cover the work undertaken?	Y	Quarterly PPM of 41AHU34 by Correct Air Solutions. Risk assessments held by AP in the shared drive.	1
Was the permit-to-work completed by the AP (V) specifying the work to be carried out?	Y	By Ben Twaddle.	1
Was the permit-to-work signed by the User (V) to allow the work to proceed?	Y	By E Milligan.	1
Was the permit-to-work issued to a CP (V)?	Y	Issued to Daniel Kane of Correct Air. Formally appointed as a CP for QEUH by C Stepney on 09/12/24.	1
Was the permit-to-work cleared by a CP (V) and did they state that system was fit or unfit for use?	Y	Daniel Kane of Correct Air. Formally appointed as a CP for QEUH by C Stepney on 09/12/24.	1
Was the permit-to-work cancelled by an AP (V) and did they acknowledge that the system was fit or unfit for use?	Y	By William Fenn.	1
Did the User (V) acknowledge that the system should or should not be brought back into use?	Y	Signed by C Cameron.	1
Were the site records up-dated on completion of the work?	Y	40 point check filed on the shared drive.	1
6. Operating Records			
General Y/N Comments			
Are the ventilation operating record documents kept in a secure location?	Y	There is an electronic VDR held on the shared S drive. Access is restricted to APs and the compliance team. Each critical system has a hard file log book held securely in the managers office.	1
Is there a comprehensive inventory of ventilation systems for the site and any satellite sites?	Y	A comprehensive file structure is held in the shared drive.	1

SHTM 03-01 SPECIALISED VENTILATION FOR HEALTHCARE PREMISES

Does each ventilation system have a log (physical or electronic) containing the following information: The unique system identification reference; Purpose of the system; date of installation; Details of the installed equipment and ductwork layout; Detail of the fire plan, Any fire-rated ductwork and location of fire and smoke dampers; Design performance parameters, for example airflow rates, air-change rates, pressures, etc.; Commissioned date and performance; Record of the system validation and original acceptance; Records of the annual inspection and verification; Maintenance records and plant information, for example fan specifications and filter sizes.	Y	Work has already been done in this area at QEUH. However not all systems are yet captured as individuals and some data is not available such as fire damper locations and original validation and acceptance.	5
Do the APs (V) have access to copies of relevant SHTMs and other reference documents?	Y	Held on SMARTSHEET and free to download on-line.	1
Does the Document Register index include all of the subjects required by SHTM 03-01?	Y	A comprehensive index is held on SMARTSHEET	1
Is the working Ventilation Document Register periodically reviewed and out-of-date information transferred to the archive Ventilation Document Register?	Y	Maintained by the AP.	1
Are adequate technical drawings available to the APs?	Y	Drawings are held with the VSDR, section 18 and 21.	1
Are adequate O&M manuals available to the APs?	Y	O&M information was held electronically (Zutec) and on the shared drive for the Adult & Children's and the Lab Block. Original O&M information for the retained estate maternity theatres was reported to be held.	1
Are all of the ventilation systems included in the Boards planned maintenance programme?	Y	Reportedly so. FM first is used to schedule maintenance and hard check sheets are retained in section 6 of the VSDR.	1
Are the planned maintenance records suitable, sufficient and accessible to the APs?	Y	No further comment.	1
Are the Boards planned maintenance programmes formally reviewed annually to establish trends and gaps? Are these reviews recorded?	Y	No further comment.	1
Inspection and Verification		Y/N	Comments
Are all critical ventilation systems (including LEV's) being inspected at least quarterly?	Y	All systems completed including LEV's.	1
Are all Air Handling Units being subjected to a simple visual inspection at least quarterly?	Y	1M and 3m PPM sheets filed in the VSDR evidence compliance with SHTM 03/01 Pt B 5.6. Checked AHU 122/AHU/06.	1

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Are all non-critical systems (Excluding AHU's) being inspected at least annually?	Y	1M and 3m PPM sheets filed in the VSDR evidence compliance with SHTM 03/01 Pt B 5.6. Checked AHU 122/AHU/06.	1
Are the main components in AHUs serving critical and non-critical areas being cleaned at least annually?	Y	Additional check sheets provided with the Correct Air 40 point check to confirm done. 21/AHU/04 checked as example.	1
Are Active Chilled Beams being inspected and cleaned as appropriate at least quarterly?	Y	Under contract arrangement with Correct Air Solutions.	1
Are Split Air Conditioning Systems (including ceiling cassettes, and wall mounted units etc) being inspected and cleaned as appropriate at least quarterly including the drainage system?	Y	Under contract arrangement with Correct Air Solutions.	1
Are Fan Coil Units being inspected and cleaned as appropriate at least quarterly including the drainage system?	Y	Under contract arrangement with Correct Air Solutions.	1
Are all critical ventilation systems being performance verified at least annually in line with Table 1 of SHTM 03/01 Part B?	Y	All other critical ventilation has been verified.	1
Are the AHU inspections and verification reports being recorded as per SHTM 03-01, Part B, Appendices 1 & 2 and the records retained in the Ventilation Documents Register?	Y	No Further Comment.	1
Are records of annual verifications readily available and are AP's reviewing the reports and raising minor remedial actions identified on the maintenance system?	Y	William Fenn as lead AP reviews verification reports and defects actioned as appropriate.	1
Are critical systems that are unable to meet the required standards being taken out of service after receipt of condemnatory reports and is there a process in place to inform the users and VSG?	N	A process map for escalation to the VSG and users was not provided.	5
Are portable room air conditioning units or self contained mobile filter/uv systems deployed anywhere on the estate? If yes, is there evidence held of VSG consultation, weekly maintenance and hazardous filter changes including suitable risk assessments held?	Y	Units deployed as part of SOP for maintenance as part of the 4B maintenance. This has not been approved by the VSG and risk assessed.	12
Are all principle ducts from ventilation systems being inspected for visual contamination at least annually as part of the inspection programme?	Y	Part of the 40 point check.	1

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Are fire dampers being tested annually?	N	Works continue at pace to address annual fire damper drop testing and it was reported that the whole site has been tested within the last 3 years but resources have hampered being able to complete annually. Additional resources should be allocated to ensure all dampers are tested annually or a risk assessment undertaken to reduce testing frequencies.	20
Are LEV systems being examined and tested by a competent person at least every 14 months?	Y	All LEVs are subjected to thorough examination and testing at least every 14m by contract arrangement with Correct Air Solutions.	1
7. Safety Equipment & Access Control		Y/N	Comments
Do the APs (V) have sufficient isolation safety devices for the likely number of concurrent jobs?	Y	Held by the CP's and AP's with stock in the AP room.	1
Do the APs (V) have sufficient safety signage for the likely number of concurrent jobs?	Y	Held by the CP's and AP's with stock in the AP room.	1
Do the NHS CPs (V) have sufficient safety devices and signs for their routine work?	Y	As above.	1
Are records available of annual NHS safety and protective equipment inspections by an AP (V)?	Y	PPE toolbox talk records are held.	1
Do all NHS test instruments have in date calibration certificates?	N	None held.	1
Have contractors provided in-date calibration certificates for all of their test instruments and safety equipment?	Y	Provided by Correct Air Solutions for clean room validations.	1
Is there an effective and auditable system for the control of plantroom access in use?	Y	All visitors are required to sign in and will use the "inventory" system for inductions.	1
8. Engineering Systems			
Neonatal AHU 03 3rd Floor Plant Room		Y/N	Comments
Is each AHU clearly and uniquely labelled and does this label exactly correspond to the inventory of ventilation in terms of AHU number and area served? (100mm letters near the fan isolator)	N	Labelling in the L3 Neonatal plant room should be reviewed and updated as per the A&C.	5
Is the nature and direction of airflow marked on all main and branch ducts in the plant room?	Y	Directional flow arrows and labels are adequate systems easy to follow.	1
Are principle ducts and branches labelled as per the AHU?	N	Ducts labelled but require updating as per the AHU'S.	5
Are all air flow test-points properly located, clearly identified and is the size of the duct provided at each point?	Y	Labelled by Correct Air.	1

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Is the general condition of each AHU satisfactory?	Y	Condition is assessed as good for AHU03.	1
Is the AHU constructed according to the principles in detailed in SHTM 03-01 Pt A?	Y	The AHU's in neonatal plant room generally accord with the principles and most utilise RAC heat recovery.	1
Are the automatic controls fitted to critical systems capable of being overridden in the event of a software failure?	Y	Local controls are provided at the inverter with on/off/auto function. Heating and ancillaries by hand.	1
Are fresh air intakes sited correctly, constructed correctly and are access hatches or hinged louvres installed?	Y	AHU03, corrosion resistant with vermin screen and access hatch from inside.	1
Are drainage systems installed for wet components and are the drainage systems properly constructed?	Y	More than adequate. A review should be undertaken to rationalise and remove un-required traps.	4
Are belt driven fan drives fitted in the airflow?	N	V-Belt drives external to air flow in dedicated cage.	1
Is there adequate access around the AHU and are access doors provided for all major components?	N	Suitable equipment required for maintaining top deck items.	10
Are inspection windows and internal lights provided for cooling coils and filters?	Y	Suitable viewing ports are provided.	1
Are the filters the correct grade and correctly fitted to minimise bypass?	Y	Contract arrangement with Camfill for supply and Correct Air for changing.	1
Are the filters provided with a means of checking the differential pressure across them (either direct or BMS with capped tapping's for maintenance checks)?	Y	Magnehelic style fitted. Clean and dirty indicators required.	5
Are drawings or floor plans of the areas served displayed on each supply and extract system?	N	Not fitted but are required.	5
Local Exhaust Ventilation Systems - Westmarc Orthotics Workshop LEV 3			
Is the duct work and fan arrangement made so that internal ducts are negative to atmospheric pressure when in operation?	Y	LEV fan mounted under roof in attic void.	1
Is the extract fan and drive motor external to the building? Where this is not practical are suitable arrangements in place for the safe removal of condensation such as a trap and drain arrangement? Fan casing should not vent into the building	Y	As above.	1
Is the extract fan motor external to the airflow?	Y	No significant issues observed.	1
Does the LEV discharge vertically without cowls or downward discharge?	N	Rain cowl fitted. No access to roof top hence risk rating.	5

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Does the LEV discharge at least 3m above the roof level or more if required?	N	Circa 1m at apex of pitched roof. As above RR.	5
Are there any signs of damage to the ducting and is the capture hood and filter arrangement suitable for the application?	N	Maintained and inspected 1/4 as critical ventilation by Correct Air.	1
Are any access hatches hermetically sealed?	N	Not required as non-biological hazard.	1
Are duplex fans fitted to common extract systems? Are non-return dampers fitted in this instance?	N/A	Not applicable.	1
Are safe change housings provided to change extract filters by bag in bag out means etc?	N/A	Direct to atmosphere discharge.	1
9. Engineering work spaces			
Plantroom Neonatal L3 Plant Room	Y/N	Comments	
Is there a legible and secure safety sign displayed at the entrance to the plantroom?	Y	No issues found.	1
Is the name of the plantroom exactly the same as the inventory of ventilation?	Y	No further comment.	1
Is the correct contact telephone number shown?	Y	No further comment.	1
Plantroom security	Y/N	Comments	
Is the door soundly made and kept secure?	Y	No issues found.	1
Is there an emergency escape door and can it be opened from the inside?	Y	Good escape signage and marked routes.	1
Are walkways and escape routes clearly labelled and free from obstructions?	N	Step over hazards observed but managed access.	4
Is there a clear escape route outside the plantroom?	Y	Onto the fire escape stairwell or onto roof side.	1
Are adequate emergency communications systems available?	N	PDAs/mobile phones are carried by all staff entering the plant rooms.	1
Is adequate lighting installed?	Y	Good lighting levels observed.	1
Is emergency lighting installed and tested?	Y	No further comment.	1
Are there any unauthorised items stored in the plantroom?	N	No unauthorised items observed.	1
Is there any evidence of unauthorised or potentially hazards work carried out in the plantroom such as joinery/welding/painting etc?	N	None observed.	1

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Are the access arrangements to the plantroom adequately controlled?	Y	Access is by key to estates and competent contractors only. Keys managed in the Supervisors office of the CMB.	1
Plantroom structure			
Is the plantroom structure and condition satisfactory?	N	Standing water was observed close to the duct penetration to below of AHU03. This should be investigated and rectified.	5
Are posters and drawings displayed as required?	Y	Suitable warning labels fitted.	1
Fire Precautions		Y/N	Comments
Is combustion equipment located in the same fire compartment as ventilation?	N	No significant issues observed.	1
Are any rubbish or fire hazardous materials stored inside or immediately outside the plantroom?	Y	None observed in neonatal L3 plant room.	1
Is there at least one suitable fire extinguisher provided in the plantroom and has it been inspected in the last 12 months?	Yes	Next due 2025.	1
Has the fire containment been breached at any points?	N	No significant issues observed.	1
Is the fabric of the area served satisfactory?	Y	No significant issues observed.	1

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UPDATED ACTION PLAN

Hospital	Queen Elizabeth University Campus
Site Address	1345 Govan Road, G51 4TF
Designated Person	Prof Tom Steele
Site Manager Operational Estates	Hugh Brown
Authorising Engineer	Jamie Minhinnick
Lead AP on Site	William Fenn

Ser	Risk	Ref	Action Required	Action By	Due By
Actions Carried Forward					
1	20	20231213/01	Test fire dampers in accordance with SHTM 03-01,Part B, Para 4.13.	SMOE	ASAP
2	5	20231213/02	Due to the size and scale of the systems a QEUH Campus it is recommended that at least 1 AP(V) is trained and appointed on each shift to cover shiftwork. 13/12/23 Reduced risk rating from 12 to 5 as majority of shifts now covered.	DP/SMOE	16/06/2026
3	5	20231213/03	The information held in the shared drive documents register should be linked to SMARTSHEET if possible.	Lead AP	16/12/2026
4	12	20231213/08	The general cleanliness of ventilation plant rooms has deteriorated since the previous audit with multiple example of contractor waste not being removed. All plant rooms could benefit from a good clean to remove potential secondary contamination to ventilation.	SMOE	ASAP
5	20	20231213/09	The practice of joinery and flooring contractors in plant room 31 should cease. It is not appropriate to conduct uncontained/extracted COSHH work in a ventilation plant room. There is a clear fire and explosion hazard that should be dealt with. Timber, solvents and sources of ignition such as bench top grinders and cross cut saws were witnessed adjacent critical plant. A fire alarm in this area will shut down multiple theatres. A fire and COSHH assessment should be completed as a priority.	DP	ASAP
6	5	20231213/12	Ventilation log books should be developed as per the requirements of SHTM 03/01 Pt A Para 13.15 should be provided for each ventilation system in the inventory of ventilation.	Lead AP/AP	16/12/2026

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7	5	20231213/ 13	The schedule of ventilation should be developed into an "inventory of ventilation" as per the requirements of SHTM 03/01 Pt B Para 1.35.	Lead AP/AP	16/12/2026
8	5	20231213/ 15	A process map should be developed to inform the users and VSG/IPC of ventilation related issues such as verification failure or breakdowns. This is outlined in the policy but should be formalised through an SOP.	BWVL	31/01/2026
9	10	20231213/ 16	Portable room self contained mobile filter/uv systems deployed anywhere on the estate should be approved by the VSG in cognisance of SHTM 03/01 Pt B Para 5.38 onwards. Where this is not agreed, there use should be stopped until approved and risk assessed. Ward 4B is an example where HEPA units are deployed during maintenance but stored locally without proper process before being re-deployed.	SMOE	ASAP
10	15	20231213/ 19	There is a fire risk in plant room 31, Particular emphasis is given due to the levels of combustible material in the plant room. Some fire extinguishers were removed from their designated locations. Call points were obstructed by equipment to add to the issue.	SMOE	ASAP
11	5	20241212/ 01	Hugh Brown and John Hetherton should attend and pass suitable first aid training for AP's.	SMOE	16/03/2026
12	5	20241212/ 03	Max Thomson, Philip Duffy and Willaim Fenn should attend AP ventilation training and be assessed for duties at QEUH by the AE before being formally appointed by the DP.	SMOE	16/06/2026
13	12	20241212/ 06	The external ductwork on L12 of the A&C outside plantroom 121 has dislodged from its struts and is warped to develop low points. In addition to this, the insulation and cladding is in a very poor state and should be made good and water tight.	AP	ASAP
14	8	20241212/ 07	Vegetation and organic material on the L12 open roof areas should be removed to mitigate risks to the fresh air intakes.	AP	12/03/2024
New Actions Raised					
15	10	20251207/ 01	Suitable access equipment such as pulpit ladders or working platforms should be provided in L3 Neonatal plant room for the maintenance of top deck items.	AP	31/01/2026

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15	5	20251207/02	Clean and dirty filter condition stickers should be reviewed across the who campus and fitted/adjusted where required.	AP	16/12/2026
15	5	20251207/03	A review of surplus traps installed at the Neonatal plant room on the 3rd floor should be undertaken. Traps are not required at dry components and should be removed to reduce trap maintenance burden.	AP	16/12/2026
15	5	20251207/04	A review of labels affixed to AHU's in the Neonatal plant room should be undertaken. AHU labels should be in line with the A&C label method. This should include "Critical Ventilation System - PTW Required" and correctly identify the area served.	AP	16/06/2026
15	10	20251207/05	Efforts should be made to source the commissioning and O&M data for the level 3 neonatal ventilation systems. These should be provided to the verification contractor and reviewed against latest result for any observations .	AP	16/03/2026
15	5	20251207/06	Drawings detailing the areas served by each AHU should be displayed at the AHU's in Neonatal L3 plant room. Some areas have multiple supply/extract AHU's that need clarifying and communicating.	AP	16/03/2026
15	5	20251207/06	Standing water was observed close to the duct penetration to below of AHU03 in the Neonatal L3 plant room. This should be investigated and rectified.	AP	16/03/2026

Additional Comments:

The **Designated Person / Client** should sign this Action Plan to acknowledge the contents. The original copy should then be filed in the Ventilation Document Register.

Signature: _____

Date: _____

Name: _____

NHS Greater Glasgow & Clyde	
Meeting:	NHSGGC Board Meeting
Meeting Date:	26 th February 2026
Title:	Authorising Engineer (AE) Water Audit
Sponsoring Director/Manager:	Tom Steele
Report Author:	Mark Riddell

1. Purpose

The purpose of this report is to provide visibility on the latest Authorising Engineer Water Audit Report as undertaken in January 2026.

This covering paper provides an update on actions underway against the report recommendations.

2. Executive Summary

The recent Authorising Engineer report for Water has provided assurance that our governance, monitoring arrangements, and improvement actions continue to strengthen. The findings reaffirm that our teams are maintaining safe systems of work and progressing a clear programme of risk reduction.

The latest Water Authorising Engineer report recognises the progress made across our site and highlights clear opportunities for further improvement, which is welcomed. The report demonstrates a positive direction of travel with strengthened processes, improved oversight, and focused investment.

The Authorising Engineer reviews for Water provide encouraging feedback on the professionalism and commitment of our operational teams. The reports confirm that we have robust governance in place and that actions are being systematically managed.

Our latest AE report reinforces that our Water system is being managed within an improving framework of risk control and compliance. The recommendations align well with our wider estates strategy and provide helpful direction for targeted investment.

AE Audit Recommendations

Ref	Actions	Risk Level	AE Auditor review meeting comments	NHS Update	Target Completion Date
01	It is recommended that when the new risk assessment arrives, it is reviewed using this set of questions and if required suitable amendments will be made to the new Rock Compliance RA document.		28/1/26. Since the onsite element of this audit was undertaken the new RA document has been provided and will be audited by the AE. Closed	Risk Assessment Complete	Complete
02	It is recommended that a check is made to see whether the hydrotherapy pool that risk was assessed in 2023 is in line to be re-assessed.		28/1/26. It has been arranged that a new risk assessment will be completed in February. Closed.	As per AEs recommendation NHS GG&C have completed a check on status of hydropool RA for hydropool will be carried out and completed within required timescales. Current RA is still valid.	Complete
03	It is recommended that this governance structure issue in the water policy document is resolved as soon as possible and that the policy document is updated.		28/1/26. A meeting has been arranged to resolve this issue. The meeting will take place on Feb 13 th . Closed.	Policy review and revised reporting arrangements being updated.	End of March 26
04	It was recommended that the contractors, and in particular HSL Ltd were contacted with a view to getting updated training records.		28/1/26 HSL have confirmed that the staff will receive training at the end of February. The training certificates will be provided after the course has been completed. Closed.		Complete
05	It is recommended that a process for reviewing the ward completed flushing processes and record keeping is created in order to help ensure that the required flushing is taking place.		28/1/26. Since the onsite part of this audit was completed the records have now been provided. A LearnPro module will be constructed and delivered to the appropriate staff. Closed	Compliance Team are working with AE to develop water safety learnpro module board wide to help raise further awareness of all departments responsibilities	End of March 26
06	It is recommended that a process is implemented to ensure that the relevant paperwork that is completed when this hot water storage vessel task is undertaken and is placed in the paper record system.		28/1/26. The site is moving to the React electronic system and this will be used across the campus. This addresses this situation. Closed	Digital record keeping system has been identified and procured and currently being rolled out across the campus.	End of March 26
07	It is recommended that the details from this TMV servicing are moved to the Teams folder.		28/1/26. HSL have to upload the records which they have into the Teams folder and the links have been sent to enable this process. Closed.		Complete

3. Recommendations

Operational Estates to continue completing Authorising Engineer Recommendations within targeted completion dates.

Escalation through governance processes as required.

4. Response Required

This paper is presented for Noting

5. Impact Assessment

The impact of this paper on NHSGGC's corporate aims, approach to equality and diversity and environmental impact are assessed as follows:

- Better Health Positive
- Better Care Positive
- Better Value Positive
- Better Workplace Positive
- Equality & Diversity Neutral
- Environment Positive

6. Engagement & Communications

The issues addressed in this paper were subject to the following engagement and communications activity:

- Authorising Engineer (AE) to Compliance Team
- Site Operational Estates Teams
- Head of Corporate Estates and Assistant Director of Estates
- SMT team

7. Governance Route

Completed as part of QEUH/RHC assurance.

8. Date Prepared & Issued

24th February 2026

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Authorising Engineer Water Systems Management and Compliance Audit of NHS Water Systems

Site Address: Queen Elizabeth University Hospital and the Royal Hospital for Children Hospital, 1345 Govan Rd, Glasgow G51 4TF		
Date of Audit: 13 th January 2026	Auditor: Dennis H Kelly Snr – Authorising Engineer (Water)	Staff Interviewed: Kerr Clarkson – Operational Estates Manager Mark McGowan – AP Water Matt Feeney – Compliance Manager
Date of Previous Audit: 13 th January 2025		
Site General Description: This audit was completed on the NHS GGC QEUH and RHC properties only. The QEUH adult Hospital building comprises of 12 stories, with the basement housing mainly FM areas. Connected to the main building is the RHC Hospital comprising of 4 storeys. Both buildings are served by the same water system. There are two mains water supplies coming into the buildings and these are switched on a regular basis to limit the opportunity for stagnation in the mains water supply pipework. Raw mains water is held in raw water tanks before being passed through a 0.02 micron membrane filtration process, The water is then stored in treated water storage tanks prior to being distributed around the building. Cold water is then distributed through the hospitals via booster pump sets located in the tank room. Hot water is provided by a number of calorifier heating stations installed throughout the hospitals.		

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Authorising Engineer Water Systems Management and Compliance Audit of NHS Water Systems

The hospital water systems are secondary disinfected with chlorine dioxide via multiple retrofitted dosing systems located throughout the hospitals.

Given the size of the two hospitals the water systems are large and complex. There are around 1400 en suite bedrooms and in excess of 6000 TMV/TMT's in the buildings.

Executive Summary:

The previous audit was completed on January 13th 2025. This audit has 7 recommendations compared to 3 that were made in the 2025 audit process.

At the time of this audit the new risk assessment process was in the process of being undertaken. The on-site element of the risk assessment process had been completed and the new risk assessment document was in preparation. A recommendation is made to review the new risk assessment document using the Risk Assessment set of questions in this audit report.

A summary of the current situation with regard to the water systems at the QEUH/RHC hospital is that the delivery of the Estates Department controlled required risk reduction processes and procedures is being well delivered and is being constantly monitored. Since the previous audit was completed, the electronic filing system is in the process of being implemented.

At the time of the audit there was an issue identified in regard to whether all the NHS GGC groups at the hospital, who have responsibility for flushing little used outlets, were completing the flushing tasks. Subsequent to the audit, all five wards that were visited did provide flushing records to evidence that flushing was being undertaken. A recommendation has been made to review the flushing reporting process and it is noted that an educational LearnPro module will be created to increase the level of staff understanding on the need for flushing.

The level of knowledge and understanding of the onsite Estates' staff is extremely high and a diligent approach is taken to ensuring that the water systems are operated in a manner required to deliver high quality risk reduction processes and procedures.

Thanks are due to Kerr Clarkson and Matt Feeney of NHS GGC for their help and support in completing this audit.

'The Deputy Designated Person (Corporate) will sign this report to confirm the final audit's completion, adherence to the AE Audit SOP, and that all parties' agree with the audit content and associated action plan. The draft and final reports will then be filed on the associated Smartsheet action plan and the respective site document register.'

Signature and date –

Pro Lp Consulting Ltd

Authorising Engineer Water Systems Management and Compliance Audit of NHS Water Systems

Description of Levels of Risk:

Very High	Urgent Remedial Action – Lp growth and aerosol opportunity with susceptible people present on site
High	Remedial Action is needed but not immediately – Lp growth opportunity is present
Medium	Acceptable risk but some concerns– Lp likely to be controlled but improvements should be sought
Low	Risk controlled and acceptable

Levels of Risk found during the Audit:

The levels of risk detailed below reflects the highest level of risk identified during the audit of that particular topic.

The audit process reviews the following 9 areas:-

Audited Topic	Level of Risk
Risk Assessment	Medium
Schematic Drawings	Low
Management and Competency	Medium
Written Scheme Monitoring and Records	Medium
Task Completion	Medium
On Going Water Treatment	Low
Cleaning and Disinfection Procedures	Low
New Build and Refurb Capital Projects	Low
Water Safety Group	Low

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Authorising Engineer Water Systems Management and Compliance Audit of NHS Water Systems

Summary of Actions				
Actions		Risk Level	Completion Date	Signature
1.	It is recommended that when the new risk assessment arrives, it is reviewed using this set of questions and if required suitable amendments will be made to the new Rock Compliance RA document.		28/1/26. Since the onsite element of this audit was undertaken the new RA document has been provided and will be audited by the AE. Closed	
2.	It is recommended that a check is made to see whether the hydrotherapy pool that risk was assessed in 2023 is in line to be re-assessed.		28/1/26. It has been arranged that a new risk assessment will be completed in February. Closed.	
3.	It is recommended that this governance structure issue in the water policy document is resolved as soon as possible and that the policy document is updated.		28/1/26. A meeting has been arranged to resolve this issue. The meeting will take place on Feb 13 th . Closed.	

Pro Lp Consulting Ltd

Authorising Engineer Water Systems Management and Compliance Audit of NHS Water Systems

4.	It was recommended that the contractors, and in particular HSL Ltd were contacted with a view to getting updated training records.		28/1/26 HSL have confirmed that the staff will receive training at the end of February. The training certificates will be provided after the course has been completed. Closed.	
5.	It is recommended that a process for reviewing the ward completed flushing processes and record keeping is created in order to help ensure that the required flushing is taking place.		28/1/26. Since the onsite part of this audit was completed the records have now been provided. A LearnPro module will be constructed and delivered to the appropriate staff. Closed	
6.	It is recommended that a process is implemented to ensure that the relevant paperwork that is completed when this hot water storage vessel task is undertaken and is placed in the paper record system.		28/1/26. The site is moving to the React electronic system and this	

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			will be used across the campus. This addresses this situation. Closed	
7.	It is recommended that the details from this TMV servicing are moved to the Teams folder.		28/1/26. HSL have to upload the records which they have into the Teams folder and the links have been sent to enable this process. Closed.	
Question Set and Associated Comments from the Audit				
Section 1 Risk Assessment	Y/N	Comments		Risk Level

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		U/K, N/A or Partial		
<p>At the time of undertaking this review the onsite work for a new risk assessment had been completed some months previously and the delivery of the first draft of the new risk assessment document was awaited imminently. Some of the comments below therefore relate to the extant risk assessment which will shortly be replaced.</p> <p>It is recommended that when the new risk assessment arrives, it is reviewed using this set of questions and if required suitable amendments will be made to the new Rock Compliance RA document.</p>				
1.1	Is there a written risk assessment in place for the building water systems?	Y		
1.2	Was the risk assessment completed and delivered to site within the past two years?	Y	The new risk assessment was started in 2025 and the first draft of the write up was expected as this audit was being completed.	
1.3	Does the site/organisation have plans about reviewing or redoing the risk assessment?	Y	It is understood by the auditor that NHS GGC have a process that involves redoing the risk assessments of acute sites on a minimum two-yearly cycle. It was planned that a new risk assessment would be completed by Rock Compliance Ltd in 2025 and this has been done.	
1.4	Does the risk assessment address all the water systems in the building?	Partial	<p>Section 3 of the extant risk assessment details the various other water systems in the QEUH RHC and includes a comment as to whether the system was included in this new risk assessment.</p> <p>During the 2025 audit the compliance manager evidenced the communications between Estates and other departments where nebulisers etc are used.</p> <p>Communications have also been held with dental regarding water and its use in the dental chair in the RHC.</p> <p>It was then stated at the time of the audit that discussions have taken place on addressing the audits of the other water systems not covered by the DMA Canyon risk assessment. The hydrotherapy pool has been risk assessed.</p>	

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			It appears therefore that the QEUH RHC hot and cold water systems are being looked after from a risk assessment point of view, and that the other systems, which are outside the control of the Estates Department, are being addressed by others..	
1.5	Are there any systems that are defined as being excluded from the assessment in the RA scope?	U/K	Although the Hydrotherapy pool was mentioned in the list of additional water systems in 2023, the risk assessment document did state that the pool was assessed separately by a specialist pool supplier. The Hydrotherapy pool was risk assessed by the BRIO in 2023. It is recommended that a check is made to see whether the hydrotherapy pool that risk was assessed in 2023 is in line to be re-assessed.	
1.6	Does the risk assessment review the current risk reduction processes and procedures that are currently in use at the site?	Y	The current risk reduction processes are reviewed in Section 9 of the extant RA document.	
1.7	Does the risk assessment contain details of the people/organisations who are involved in the risk reduction processes and procedures? This should include comments on the dutyholder, the responsible person, any deputy responsible persons and also service providers and contractors.	Partial	In a DMA extant risk assessment this information is normally contained in Section 9 of the risk assessment document. In section 9 it references the fact that this review is completed during the annual AE audit and that there is therefore no need to repeat this process during the risk assessment. It was stated during this audit that the new risk assessment which will be completed in 2025 will include a separate management review section.	
1.8	Is there an assessment of the competency of all involved parties in the risk assessment?	N	While there is no assessment of the competency of the involved parties in the extant 2023 RA document, section 9 of the RA does reference the fact that this issue is covered on an annual basis in the AE audit. Details of this can be found in Section 3 of this, and previous AE audit reports.	

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			While this does not comply with the requirements of a risk assessment as detailed in the HSE's HSG 274 document, the actions completed in the QEUH are in excess of the HSE requirements and these required actions are referenced in the risk assessment document.	
1.9	Does the risk assessment specifically address and comment on evidence of the current defect/remedial action processes and procedures?	Y		
1.10	Is there an assessment of the susceptibility of persons who may be affected by the building water systems?	Y	This is covered in Section 1 of the extant risk assessment document on page 13 of the new risk assessment.	
1.11	Is there a schematic diagram provided with the risk assessment?	N	There are no schematics in the risk assessment document as this was not part of the scope of supply, but as fitted drawings for both hospitals are available in the Zutec system and are stored electronically.	
1.12	Is there a new written scheme provided as part of the risk assessment?	U/K	This may not have been part of the scope of supply agreed with the risk assessment supplier. Guidance is provided in section 10 of a DMA risk assessment as to what should be included in a written scheme. Site has created a comprehensive water safety plan.	
1.13	Does the assessment contain details of all the component parts of the water systems? This could include tanks, calorifiers, pipework and pipework layout, outlets, TMV's, expansion vessels etc etc etc.	Y		
1.14	Is consideration given to system design, flow, temperature and the	Y		

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	opportunity for bacteria to grow and develop in the water systems?			
1.15	Does the risk assessment identify any areas of spray and aerosol creation?	Y	The previous risk assessment format included details of all water outlets, and on the same page comments were made as to whether the outlet was considered to be little used, or whether it was likely to lead to the creation of spray. Discussions with the RA provider stated that the only areas of spray generation were the showers. Therefore, no other areas of spray generation were identified in the RA document.	
1.16	Are areas of low use and low flow identified in the risk assessment?	N	It was stated by the RA provider that all outlets were in use and that there were no areas with LUO's. Where there are LUO's in the plant rooms these are flushed under contract by DMA Canyon Ltd. Additionally, the Estates department write to clinical heads of the various departments every three months asking that any outlets which are now little used are notified to Estates and that flushing procedures are put in place.	
1.17	Are deadlegs specifically detailed in the risk assessment?	Y	Deadlegs are mentioned in various sections of the RA report. On page 3 of section 2 there is a statement saying details of deadlegs are mentioned in section 5 of the risk assessment. Section 5 has remedial recommendations for storage tanks and which contains some information on deadlegs. Deadlegs are also covered in the remedials action section of the RA report.	
1.18	Is there a set of remedial actions clearly identified in the risk assessment?	Y	The remedial actions are detailed in section 2 in the RA document in the section titled Recommendations.	
1.19	Is there a clearly explained risk scoring system in the risk assessment?	Y		

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1.20	Are there any areas of augmented care in the hospital?	Y	There are areas of augmented care in the hospital as per the criteria detailed in HPS guidelines.	
Actions on the Risk Assessment				
<ol style="list-style-type: none"> 1. It is recommended that when the new risk assessment arrives, it is reviewed using this set of questions and if required suitable amendments will be made to the new Rock Compliance RA document. 2. It is recommended that a check is made to see whether the hydrotherapy pool that risk was assessed in 2023 is in line to be re-assessed. 				
Section 2 Schematic Drawings		Y/N U/K, N/A or Partial	Comments	Risk Level
2.1	Are schematic drawings available in the written scheme, or in some other place in the property?	Y	There is a note in the Smart Sheet electronic data management system detailing the locations of the soft copies of the drawings as being available on ZUTEC (electronic data storage system). Copies of the drawings are also available in the water safety plan.	
2.2	Do the schematic drawings show all the components of the water systems?	Y	The drawings are as fitted and they detail the entire system configuration including all component parts.	
2.3	Are the water system return legs shown on the schematic drawings?	Y		
2.4	Are secondary and tertiary loops shown on the schematic drawings?	Y		
2.5	Have any amendments been made to the schematic drawings?	N/A	Since the previous audit no changes have been made to the water systems.	
2.6	If amendments have been made are they signed and dated?	N/A		

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2.7	Is there any indication that drawings are regularly inspected and updated if required?	Y	It was stated that drawings will be checked during the working year as and when required. An annual review is now also performed and detailed in the Teams folder. This completed a recommendation made in the previous annual AE audit.	
Actions on Schematic Drawings				
None				
Section 3 Management and Competency		Y/N U/K, N/A or Partial	Comments	Risk Level
3.1	Is there a nominated duty holder?	Y	There is an electronic copy of an NHS GGC Policy Document in the Smartsheet system. In appendix 4 of the policy document, it states that the Duty Holder is the Chief Executive.	
3.2	Is there a responsible person nominated in writing?	Y	In NHS GGC, the sector estates manager is regarded as the responsible person and this is recorded, and is up to date, in the on-site WSP. The responsible person covering the QEUH is Euan Smith and a copy of the appointment letter was available during the audit.	
3.3	Is there a clearly defined management structure which includes the relevant on-site personnel and all service providers and contractors?	Y	The management structure is defined in appendix 4 of the NHS GGC water policy. It is further defined in Section 1 of the Water Safety Plan document.	
3.4	Is there a clearly defined line of communication in the written scheme?	Y	The management structure is defined in Section 1 of the NHS GGC water safety plan document. It is further defined in Appendix 4 of the Water Policy document.	

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3.5	Are the responsibilities of all involved parties clearly defined in the written scheme?	Y	Roles and responsibilities are defined in Appendix 2 of the NHS GGC water policy document.	
3.6	Does the organisation have an up to date and current policy document?	Y	NHS GGC has a policy document dated as being approved in March 2024. The document states it was due to be reviewed in October 2025. This review process has been completed with the exception of Appendix 5 – Governance Structure that sits above the Board Water Safety Group. A copy of this can be found in the Teams folder. It is recommended that this governance structure issue in the water policy document is resolved as soon as possible and that the policy document is updated.	
3.7	Does the organisation have an up to date and current procedures document?	Y	NHS GGC has a water safety plan document (version L) for the QEUH Campus. It is dated June 2025.	
3.8	Do all staff have relevant up to date training in place?	Y	Details of the staff training records can be found in the NHS GGC Smartsheet system. The details of the training records are available in the WSP in section B, Governance. The board wide water skills register is available on Smart Sheet. Training is up to date with any required courses currently booked in.	
3.9	Are copies of the site personnel training records available in the written scheme?	Y	Site training records were examined, and all certification was in place in the Smartsheet system.	
3.10	Is there evidence available in the written scheme of the competency of service provider and contractor staff?	Y	This issue is normally addressed at the procurement stage. The water hygiene contractor, HSL Compliance Ltd, is a member of the LCA. Updated training records are required for the onsite HSL staff. HSL stated that a staff training course is booked for 5 th and 6 th of February. It is known that the framework plumbing contractor, Livingston Mechanical, have also had their plumbing staff undertake Legionella	

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			<p>Awareness training and that this training appears to be updated on a regular basis.</p> <p>Rock Compliance Ltd are currently completing risk assessments on site and the competence of the assessors is supplied with the RA document.</p> <p>Scotmas Ltd supply and service the chlorine dioxide limited dosing systems. Proof of competency is found on their web portal and a link was supplied to NHS GGC some time ago.</p> <p>It was recommended that the contractors, and in particular HSL Ltd were contacted with a view to getting updated training records.</p>	
3.11	Are service providers and contractors LCA registered?	Y	HSL Compliance Ltd is LCA registered. Evidence of the registration is available on the LCA website. The main plumbing contractor is not LCA registered but it should be noted that not many plumbing contractors are registered in the LCA system.	
3.12	If the suppliers are not LCA registered, do they have other means of proving competence?	Y	Staff training certificates have been supplied by Livingston Mechanical who are the framework plumbing contractor for NHS GGC. It should be noted that very few plumbing organisations are registered with the LCA organisation.	
3.13	Is there a formal contractor management process in place or any evidence available in the written scheme of review meetings with service providers and contractors?	Y	Section 5.6 of the water safety plan details that regular review meetings should be held with contractors. Monthly meetings are held with the main contractor, HSL Compliance Ltd, and minutes of these meetings, and any subsequent required actions, are kept.	
3.14	Is there any evidence in the written scheme of management reviews of the data and results produced by the monitoring and control processes and procedures?	Y	<p>Minuted meetings are held monthly with HSL Compliance Ltd and Scotmas Ltd. HSL Compliance Ltd who also submit monthly updates as to the various actions that are being undertaken on the water systems.</p> <p>There is close working cooperation between NHS GGC Estates and HSL Compliance Ltd.</p>	

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			<p>An out of spec summary document is produced and this is reviewed at the quarterly WSG meetings.</p> <p>The consultant microbiologist holds informal monthly meetings with Estates on out of spec microbiological results.</p> <p>Minuted meetings are also held with Scotmas, this supplier of the chlorine dioxide dosing equipment.</p> <p>All information relevant to the meetings can be found in the Teams channel in Section B, Governance 05, Contract and Reviews.</p>	
3.15	Is there evidence that authorised person competency checks have been completed?	Y	<p>AP competency checks are carried out by the AE Water as and when requested by site.</p> <p>There are some AP competency checks that require to be updated and these are now set up for completion in the next few weeks.</p> <p>The Compliance Manager at the QEUH maintains a record of AP competency checks and these are currently up to date.</p>	
Actions on Management and Competency				
<p>3. It is recommended that this governance structure issue in the water policy document is resolved as soon as possible and that the policy document is updated.</p> <p>4. It was recommended that the contractors, and in particular HSL Ltd were contacted with a view to getting updated training records.</p>				
Section 4 Written Scheme, Monitoring and Records		Y/N U/K, N/A or Partial	Comments	Risk Level
4.1	Is there a water safety plan in place?	Y	The written scheme is entitled 'QEUH Campus Water Systems - Written Scheme – Controlling the risks to Legionella and other harmful bacteria in Water Systems – June 2025, Revision L	
4.2	Is a copy of the water safety plan available on site?	Y	A copy of the WSP was provided electronically and is available in the Teams folder.	

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4.3	Is there a statement in the water safety plan of the expected "correct and safe operation" processes detailing targets for temperatures and other control measures?	Y	There is a statement of correct and safe operation in the WSP document and can be found in section 5.3.16 and 17 of the WSP.	
4.4	Is there evidence in the water safety plan that any deadlegs have been removed?	Y	This can be found in the Smartsheet System.	
4.5	Is temperature the primary means of control within the water systems?	Y	While temperature is the primary means of control it is supported by the use of chlorine dioxide as a secondary disinfectant.	
4.6	Is there any form of water treatment being applied to the water systems?	Y	The hot and cold water systems in the hospitals are dosed with chlorine dioxide on a continual basis.	
4.7	Is there any seasonal difference in the use profile of the water system?	N		
4.8	Are any pieces of duty standby equipment that require to be switched on a weekly basis, and do the records show that they are being switched?	N	Pump sets automatically change the lead pump on a daily basis and there is a record of checks on the pump sets in the logbook.	
4.9	Is there a logbook, either paper or electronic, defining all the required tasks for the risk reduction processes and procedures?	Y	Most of the data is held online although the water system checks completed by the Estates staff were reported on paper. These records are being migrated on to the new React.	
4.10	Are all tasks in the records signed and dated?	Y		
4.11	Are little used outlets (LUO's) listed and are they then flushed?	Y	The required LUO flushing is completed by HSL Compliance Ltd. Specifically, HSL Compliance Ltd flush the following:- <ul style="list-style-type: none"> Three times per week flushing of supply pipes to unused or removed water coolers 	

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		<ul style="list-style-type: none">• Flushing of temporary dosage connections in the plant rooms twice per week• Daily flushing on any out of spec areas or areas where work is being completed <p>Records for this were found in the Teams folder for the HSL Compliance Ltd flushing.</p> <p>Some of the flushing is completed by clinical staff and they make returns to the Estates department on a quarterly basis. These records are held in Estates. The level of returns (WSO1 document) is said to be improving and the process for quarterly reminders for returns is now automated.</p> <p>Domestic staff run every wash hand basin every day for a period of 1 minute and records of this were presented at the time of the audit. It is a decision for the WSG at NHS GGC to define whether the daily one minute flush is considered suitable enough to ensure that the microbiological risk level is acceptable. Areas that are closed at weekends do not receive 7 daily flushes and instead receive 5 flushes.</p> <p>A visit to five wards was made to ask for copies of the flushing records. Wards 8B did have some records but they appeared to be "patchy". Ward 6A records appear to show only weekly flushing. Ward 4B had comprehensive records showing that the required flushing was being completed. Ward 1E produced complete records and these were provided by the Housekeeper. Ward 2A failed to produce any records. During the review to prepare the final audit document it was confirmed that the ward based flushing evidence was available. It is also noted that a LearnPro module will be made available for the ward staff in the near future which will emphasise the importance of flushing and keeping appropriate records.</p>	
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			It is recommended that a process for reviewing the ward completed flushing processes and record keeping is created in order to help ensure that the required flushing is taking place.	
4.12	Is the flushing of little used outlets recorded in the records system?	Y	Records were available for the HSL Compliance Ltd completed flushing procedures as well as the clinical and domestic staff flushing.	
4.13	Are the remedial actions from the risk assessment being completed and are they signed and dated?	Y	The DMA risk assessment actions are filed in Smart Sheet. Evidence of the remedial actions being addressed for earlier risk assessments can be found in Teams. At the time of the audit the completion level of the risk assessment actions was 97% compared to 94% in the previous audit. There are 6 outstanding actions linked to the cold water storage tanks. The planned replacement of the CWSTs will address the majority of the outstanding actions.	
4.14	Does the written scheme contain any incident plans?	Y	This is covered in section 6.5 – Incident Management, of the WSP.	
4.15	Are non-conformances addressed in a timely manner?	Y	There is an incident report procedure which ensures that any out of spec situations are handled quickly	
4.16	Does the written scheme contain an “audit trail” for out of specification situations that allows for remedial actions to be tracked through to completion?	Y	A job would be raised on FM First which automatically produces an audit trail. There is also an incident reporting process which ensures that there is an audit trail for all of spec situations	
4.17	Is there a specific escalation procedure for positive Legionella results?	Y	There is a response to a positive legionella result in section 5.4.2 of the QEUH WSP.	
4.18	Are Legionella samples being taken and who is taking the samples?	Y	Legionella samples are taken by HSL Compliance Ltd on an NHS GGC agreed basis throughout the year.	
4.19	Are Legionella samples being taken in accordance with BS7592:2022?	Y		
4.20	Are Pseudomonas samples taken as part of the written scheme?	Y	Pseudomonas samples are taken by HSL Limited Ltd on an NHS GGC designated area basis throughout the year. A sweep of samples	

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			is taken every month. The level of sampling is at 99.82% of the guidance level.	
4.21	Are the Pseudomonas samples taken in line with the guidance given in the relevant NIPCM documents?	Y		
4.22	Are there copies of method statements for any procedures that are completed in house?	Y	Site monitoring tasks method statements are available in the WSP document in Section A – Water procedures.	
4.23	Are there copies of method statements for any procedures that are completed by external providers?	Y	Site monitoring tasks method statements are available in the WSP document in Section A – Water procedures.	

Actions on Written Scheme, Monitoring and Records

5. It is recommended that a process for reviewing the ward completed flushing processes and record keeping is created in order to help ensure that the required flushing is taking place.

Section 5 Task Completion		Expected Task Levels	Actual Records Completed or Planned	Comments	Risk Level
5.1	Tank Inspections	2	1	Tank inspections were previously completed on a monthly basis but in 2025 were scheduled for 2 inspections. One inspection has been completed and one is due in January 2026. From February onwards the tanks will go back to monthly inspections.	
5.2	Hot Water Storage Vessel blowdowns	4	12	These checks are completed by Estates staff and paper records, which will be loaded into the Teams system, were available at the time of this audit. Not all paper copies of the task completion were	

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				<p>available at the time of the audit, but the appropriate FM First task work number, evidencing completion, was available for every task. The intention here is for the paper system to become electronic by the end of Q2.</p> <p>It is recommended that a process is implemented to ensure that the relevant paperwork that is completed when this hot water storage vessel task is undertaken and is placed in the paper record system.</p>	
5.3	Hot Water Storage Vessel Internal Inspections	1	1	These checks are completed by Estates staff and the records were available at the time of the audit.	
5.4	Shower/Spray Heads	4	4	Shower heads and hoses are renewed every three months by HSL Compliance Ltd and the records can be found in the Teams system.	
5.5	Hot Water Storage Vessel F and R Temps	12	12	These tasks are completed by NHS GGC Estates staff. Temperatures can also be found by interrogating the BMS system and temperatures are further checked and documented on the shift reports.	
5.6	PH Ex F and R Temps	12	N/A		
5.7	Hot Sentinel Temps	12	12	These temperatures are recorded when the monthly ClO2 checks are completed.	
5.8	Hot Secondary Loop Temps	4	Continual	There are BMS sensors are fitted on secondary loops on all levels of the adults and children's hospitals. These temperatures are also checked on the shift reports.	
5.9	Hot Tertiary Loop Temperatures	1	1	When the TMV's are being serviced, any lack of time in getting hot water to the outlet would be taken as an inference that the tertiary loops may not be operating correctly.	
5.10	Hot Representative Temperatures	1	Multiple	These are completed when microbiological sampling is undertaken as well as when the TMV's are being serviced.	

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5.11	Cold Sentinel Temperatures	12	12		
5.12	Cold Sub Loop Temps	12	N/A		
5.13	Cold Rep Temps			These are completed when microbiological sampling is undertaken as well as when the TMV's are being serviced.	
5.14	POU Heater Temps	1 – 6 times per year	N/A		
5.15	Expansion Vessel Flushing	2 – 12 Monthly to six-monthly	Partial	All hot expansion vessels are flow through, but these vessels are also flushed manually on a weekly basis. Flushing records for monthly flushes can be found on the calorifier expansion vessels. Flushing of cold water vessels in the basement tank rooms is completed.	
5.16	TMV's/TMT's	1	1	The servicing is completed by HSL Compliance Ltd. At the time of this audit, it was stated that the site now programmes one service per year. The details of this are stored in the DMA TMV folder. It is recommended that the details from the TMV servicing are moved to the Teams folder.	
5.17	Little used outlet flushing	104	Multiple	As evidenced earlier in this report the LUO's under the control of the Estates department are being flushed where required by HSL Compliance Ltd, and records were available. There is a concern however that it is not possible to evidence that all the required flushing is being completed when supplied by other NHS groups who have flushing responsibilities at the hospital. This evidence has now been provided prior to the review of this draft document. This issue is covered by a recommendations made earlier in this report in section 4.11.	

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5.18	Check on the cold-water distribution pipework thermal insulation	1	1	This is a recommendation in the HSG 274 document which can also be found in the SHTM 04-01 document. Any defects with the insulation would be reported on the contractor monthly report sheet and this would result in an entry into the water system defect report and the appropriate tasks would be completed as required. The insulation is viewed at least in part on a regular basis as staff visit plant rooms or look behind lift off panels.	
5.19	Tank Clean and Disinfection	1	1	This work is completed by a contractor. The completion certificates for the recently completed disinfections are still to be added to the Teams folder.	
5.20	Legionella sampling	Multiple samples		Samples are taken by HSL Compliance Ltd.	
5.21	Pseudomonas Sampling	Multiple samples		Samples are taken by HSL Compliance Ltd.	
5.22	TVC Samples	Multiple samples		Samples are taken by HSL Compliance Ltd.	
5.23	Chlorine dioxide testing	12	12	All sentinel outlets are now tested	
5.25	Diffuser swaps	4	4	This is not an HSE required risk reduction process but is completed at the QEUH site.	
5.26	Looking over the past twelve months have the required risk reduction tasks been completed on the site?		Y	The records, as detailed above, indicates that tasks are being completed. There is an issue with some of the evidential paperwork is not making its way back to the record system. An individual recommendation is made earlier on in this section.	
Actions on Task Completion					
6. It is recommended that a process is implemented to ensure that the relevant paperwork that is completed when this hot water storage vessel task is undertaken and is placed in the paper record system.					

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7. It is recommended that the details from the TMV servicing are moved to the Teams folder.

Section 6 On Going Water Treatment		Y/N U/K or Partial	Comments	Risk Level
6.1	Is there any form of water treatment in use on site?	Y	Incoming mains water is treated via a membrane filtration system and is filtered down to 0.02 micron. The filtered mains water is then secondary disinfected using chlorine dioxide dosing.	
6.2	Is there any form of secondary disinfection in place on site?	Y	Chlorine dioxide checks are completed monthly at all sentinel outlets. The BMS system monitors the chlorite levels as well as the chlorine dioxide levels constantly at the tank. Alarms are built in if certain chlorite levels are measured.	
6.3	Are the required checks for secondary disinfection levels being completed and recorded on site?	Y		
6.4	Are the required levels of disinfection being achieved in the water systems?	Y	Cold water and blended water chlorine dioxide residuals are generally within accepted limits. The hot water chlorine dioxide levels are reduced as would be expected in a hot water system as chlorine dioxide is a gas in solution.	
6.5	Is there a record of stock levels of biocide in the written scheme?	Y	Biocide stock levels are checked as part of the Scotmas monthly contract. These checks should be made on a weekly basis but there are automatic measurements made of chemical stocks in the dosage tanks and these would alarm if the amounts of chemical dropped to an unacceptable level.	
6.6	Is any of the water base exchange softened?	N/A		

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6.7	Are service records for the base exchange softeners available in the written scheme?	N/A		
6.8	Is filtration in use in any of the water systems?	Y	Mains water is treated via a membrane filtration system. There are three membrane filtration sets in the hospital to allow for servicing of any unit if required.	
6.9	Are service records for the filtration equipment available in the written scheme?	Y	Veolia, the equipment supplier, has a service contract for the filtration equipment. The Veolia service records are held online in Smartsheet and can be accessed when required. The records were accessed and demonstrated to the auditor during this audit.	
Actions on Ongoing Water Treatment				
None				
Section 7 Cleaning and Disinfection Procedures		Y/N U/K or Partial	Comments	Risk Level
7.1	Are system cleaning and disinfection procedures in use on site?	Y	Cold water storage tanks are cleaned and disinfected on an annual basis.	
7.2	Are the cleaning and disinfection procedures completed by in house staff?	N		
7.3	Are the in house staff trained and competent to complete cleans and disinfections?	N/A		
7.4	Are the contractor's staff trained and competent to complete cleans and disinfections?	Y		

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7.5	Are cleaning and disinfection procedures completed as a matter of procedure?	Y	Cold water storage tanks are normally cleaned on an annual basis and were recently cleaned in December 2025. Some tank cleaning for the raw water tanks is still ongoing.	
7.6	Are these cleaning and disinfection procedures completed in response to sampling/inspection results?	N	Any cleans and disinfections that would be required because of the ongoing risk reduction processes and procedures would be undertaken as required.	
7.7	Are there suitable method statements available in the written scheme covering the cleaning and disinfection procedures?	Y	The method statements are held electronically. RAMS are held in the Teams folder.	
7.8	If chlorine is used, is the impact of pH considered in the disinfection process.	Y		
7.9	Are there completion certificates in the written scheme covering any disinfection procedures that have been undertaken?	Y	This can be found on the Teams system	
7.10	Are localised outlet disinfections in use on site?	N	Localised outlet disinfections would be completed if it was deemed that they were required.	
7.11	Is there a suitable method statement available in the written scheme covering the localised cleaning and disinfection procedures?	Y	HSL Compliance Ltd have method statements for localised cleans and disinfections.	
Actions on Cleaning and Disinfection Procedures				
None				
Section 8		Y/N	Comments	Risk Level

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New Build and Refurb Capital Projects		U/K or Partial		
8.1	Have any new build or refurbishment projects, which impacted on the water systems, been completed in the past 12 months	N/A	No major projects have been completed in the past 12 months in the QEUH RHC hospitals.	
8.2	Were the implications of this work risk assessed?	N/A		
8.3	Was the assessment added to the logbook and water system records?	N/A		
8.4	Was the written scheme amended to account for the implications of the new build/amended water systems?	N/A		
8.5	Were the details of the new systems discussed with the Estates Department and any other involved personnel?	N/A		
8.6	Are minutes of discussions regarding the new water systems recorded and entered into the logbook?	N/A		
8.7	Were systems, if required, cleaned and disinfected?	N/A		
8.8	Are records of all cleans and disinfections available in the record systems?	N/A		
Actions on New Build and Refurb Capital Projects				
None				

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Section 9 Water Safety Group		Y/N U/K or Partial	Comments	Risk Level
9.1	Is there a Water Safety Group in place?	Y	NHS GGC holds WSG meetings on a quarterly basis	
9.2	Does the WSG have all the required groups represented?	Y	It is recommended that a check is made to ensure that all the required groups are attending the water safety group meetings.	
9.3	Are WSG meetings held on a quarterly basis?	Y		
9.4	Are minutes and actions produced and followed through with the WSG?	Y	Minutes of water safety group meetings are held in the Teams folder.	
Actions on the Water Safety Group				
None				

Appendix 3

QEUH and RHC Hospital Environment Assurance and Infection Control & Responsibility Matrix

	Route of escalation from left to right							
	SITE LEVEL				Directorate Level			Executive Level – Accountable Officer
Water and Ventilation	Competent Person (CP)		Authorised Person (AP)	Site Manager	Assistant Head of Estates	Assistant Director of Estates	Designated Person (DP) Director of Estates and Facilities	Chief Executive
PPM & Reactive / Emergencies	Competent Person (CP)	Site Supervisor	Authorised Person (AP)	Site Manager	Assistant Head of Estates	Assistant Director of Estates	Designated Person (DP) Director of Estates and Facilities	Chief Executive

	Route of escalation from left to right			
	Acute Sector Level (Clyde, North, South & HSCPs, Paeds)	IPC SMT	Directorate Level	Executive Level
IPC	Sector ICPT Lead Nurses & ICDs	Lead ICD, Director of IPC, Associate Nurse Director IPC	Executive Nurse Director	Chief Executive

Glossary

AE – Authorising Engineer
AICC – Acute Infection Control Committee
AHU – Air Handling Unit
AP – Authorised Person
ARHAI – Antimicrobial Resistance and Healthcare Associated Infection
BICC – Board Infection Control Committee
BMS – Building Management System
BMT – Bone Marrow Transplant
BS 8680 – British Standard: Water Safety Plan – Code of Practice
CDI – Clostridioides difficile Infection
CP – Competent Person
E. coli – Escherichia coli
E&F – Estates and Facilities
ECB – Escherichia coli Bacteraemia
FCU – Fan Coil Unit
HAI – Healthcare Associated Infection
HAIRT – Hospital Acquired Infection Reporting Template
HDU – High Dependency Unit
HEPA – High Efficiency Particulate Air
HIIAT – Healthcare Infection Incident Assessment Tool
HIS – Healthcare Improvement Scotland
HSE – Health and Safety Executive
HSMR – Hospital Standardised Mortality Ratio
ICD – Infection Control Doctor
ICU – Intensive Care Unit
IMPF – Incident Management Framework
IPC – Infection Prevention and Control
IPC QIN – Infection Prevention and Control Quality Improvement Network
IPCT – Infection Prevention and Control Team
IPQR – Integrated Performance and Quality Report
ITU – Intensive Therapy Unit
NHSGGC / GGC – NHS Greater Glasgow and Clyde
NHS – National Health Service
NSS – NHS National Services Scotland
ORT – Online Reporting Tool
PICU – Paediatric Intensive Care Unit
PHS – Public Health Scotland
QEUH – Queen Elizabeth University Hospital
RHC – Royal Hospital for Children
SAB – Staphylococcus aureus Bacteraemia
SCN – Scottish Cancer Network
SHI – Scottish Hospitals Inquiry
SHTM – Scottish Health Technical Memorandum
SPCC – Statistical Process Control Charts
SPCG – Safety and Public Confidence Oversight Group
SSI / SSISS – Surgical Site Infection / Surgical Site Infection Surveillance Service
UKAS – United Kingdom Accreditation Service