

NHS Greater Glasgow and Clyde	Paper No. 25/31
Meeting:	NHSGGC Board Meeting
Meeting Date:	29 April 2025
Title:	Hospital Safety Actions
Sponsoring Director:	Dr Scott Davidson, Executive Medical Director Professor Angela Wallace, Executive Nurse Director
Report Author:	Dr Scott Davidson, Executive Medical Director Tom Steele, Director of Estates and Facilities Sandra Devine, Director of Infection, Prevention and Control

1. Purpose

The purpose of the attached paper is to: provide an update on the ongoing work to ensure environmental risks to patients in relation to water safety and ventilation at the Queen Elizabeth University Hospital (QEUH) and Royal Hospital for Children (RHC) are minimised.

2. Executive Summary

The paper can be summarised as follows: The report provides a high level summary of work to ensure environmental risk to patients are minimised and includes:

- A summary of internal and external audits including government commissioned reports and HIS inspections
- A summary of local measures and actions to improve ventilation and water quality and planned maintenance
- Implementation of actions from the various reports including HIS recommendations.

3. Recommendations

The NHS Board/ is asked to consider the following recommendations:

- Note the ongoing activity underway in NHSGGC in relation to water and ventilation to ensure environmental risks to patients are minimised;
- Note the number of internal and external scrutiny reports which have been commissioned both internally and externally to review systems and ensure safety;
- Note the NHSGGC position update as of March 2025 in relation to two recommendations and four requirements from the HIS inspection visit to QEUH in November 2022

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

6. Engagement & Communications

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

The issues addressed in this paper have been discussed and shared with the NHSGGC Senior executive team, infection, prevention control and estates and facilities teams.

7. Governance Route

The various component parts of this paper have been previously considered by a number of groups internally, including both our clinical governance and infection control committees. The safety of the QEUH/RHC campus remains a core subject within the Scottish Hospitals Inquiry

8. Date Prepared & Issued

Paper prepared on: 01/04/2025

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1. Introduction

This paper describes the significant work that NHSGGC have carried out and continue to undertake to ensure the environmental risks at the Queen Elizabeth University Hospital (QEUH) and the Royal Hospital for Children (RHC) specifically in relation to water and ventilation issues are minimised. It also provides a summary of the internal and external scrutiny which has taken place to improve and ensure patient safety.

This paper is provided for assurance.

2. Background

NHSGGC provides health services to a population of around 1.3 million with the QEUH and RHC also providing a number of highly specialised regional and national services, caring for some of the most vulnerable patients in Scotland and, indeed, the UK.

The Queen Elizabeth University Hospital / Royal Hospital for Children campus is the biggest in Scotland and one of the biggest in Europe. The 1,610-bedded campus incorporates QEUH, RHC, the Institute of Neurosciences and Spinal Unit, a Maternity Unit and the Langlands Unit.

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The highly specialist teams working in the QEUH and RHC care for, treat and support some of the most vulnerable adults, young people and children in the country.

Our sole aim is to deliver high-quality, person-centred care to our patients and focus on what matters most to them; fundamental to this is the strong working relationship between our clinical teams and infection prevention and control teams to support and ensure patient safety.

Hospitals are of course busy places with many people coming and going throughout any given day and with a huge number of factors affecting the environment in which they provide care.

3. Assessment

3.1 Overview and Key Messages

This report provides an overview of the ventilation system safety, and the scrutiny of safety issues at Queen Elizabeth University Hospital (QEUH) and the Royal Hospital for Children (RHC). Since the opening of the hospitals in 2015, significant work has been carried out and continues to be undertaken to reduce the environmental risks in our hospitals to help us to provide high quality care. Multiple internal and external reviews, including Scottish Government-commissioned reports and Healthcare Improvement Scotland (HIS) inspections, have scrutinised hospital safety. The findings indicate improvements in IPC measures, governance, facility upgrades, and adherence to recommendations aimed at enhancing patient safety.

Key Messages include:

The QEUH and RHC Hospitals are 100% mechanically ventilated and have in excess of 300 air handling units. The systems are categorised as “general and critical” air systems.

- Whilst the hospital's general ward ventilation systems did not meet Scottish Health Technical Memorandum (SHTM) guidance, they did meet the minimum regulatory standards.
- Some critical air systems did not initially fully meet the standard, but have since had further works done to attain this, or have a multidisciplinary derogations in place.
- All critical air systems are subject to full annual verification process, this is a full system overview by internal Authorised Persons (AP) and our Authorising Engineer (AP) All systems are subject to regular maintenance checks in line with guidance recommendations.
- NHSGGC has implemented governance structures, regular audits, and a quality improvement strategy, leading to strong IPC performance and as always aligned with national standards.
- Multiple internal and external reviews have led to a number of improvements via their recommendations and requirements which has included the following:

Ventilation

- An extensive refurbishment of Ward 2A/2B in the RHC has been completed, including replacement of the ventilation systems (Critical) - the ward reopened in March 2022, and was officially renamed the 'Schiehallion' unit;
- Ventilation system (Critical) for our adult Bone Marrow Transplant unit in Ward 4B;
- Specialist ventilation systems (Critical) in our, endoscopy, ITU and HDU, Neonatal Intensive Care Unit and Paediatric Intensive Care Units.
- Our systems have an ongoing planned maintenance programme in place and where required have annual verifications, supported by external assurance.

Water

- For the domestic water systems (drinking water), in addition to other control measures a Chlorine Dioxide dosing system is used throughout the hospitals to ensure the water is suitable for use;
- In high patient risk areas, point-of-use tap filters add an extra level of protection;
- We have in place clear infection prevention and control processes which allow us to be vigilant and act quickly to minimise harm.

3.2 Ventilation Systems Safety

A background to the ventilation systems and their maintenance is outlined, focusing on the derogations, corrective actions and ongoing scrutiny.

3.2.1 Building Standards and Derogations

It is accepted, as it always has been, that the majority of the built ventilation systems in the QEUH and RHC do not comply with guidance as set out in SHTM 03-01 from its opening in 2015. However, there has been no factual evidence placed before the Scottish Hospitals Inquiry, which is currently examining these issues, of any suggested link between ventilation and any known case of infection. To date, this point has not been answered by the evidence laid before the Inquiry.

A significant number of steps have been taken to ensure a safe environment within the QEUH, with a focus on ventilation safety. These include, at the point of design, the use of single en-suite rooms, through prophylaxis where clinically appropriate as well as PPE in line with national guidance, air filtration, air pressure differential, staff vaccination, cleaning, routine testing and monitoring of water and, specifically for Ward 4B, routine and regular air sampling.

3.2.2 Planned Maintenance

All general ward and critical air systems such as our critical care facilities - theatres, endoscopy, ITU and HDU, Neonatal Intensive Care Unit and Paediatric Intensive Care Unit – are subject to planned maintenance and where required formally inspected annually both by our own experts and by an independent Authorising Engineer. These inspections ensure that the systems provide adequate airflow and

function correctly, using measurements and assessments to verify performance and compliance with the design standards.

3.2.3 Ward 4B – Bone Marrow Transplant Unit.

The ventilation system for Ward 4B does not fully achieve the SHTM standard, however prior to re-opening, an agreed derogated design solution was implemented. In line with other critical air systems, Ward 4B also undergoes an annual inspection and verification to ensure that the ventilation system continues to comply with the agreed derogated standard for the unit. As an additional precaution, the unit undergoes monthly air sampling, the results of which are reviewed by an IPC doctor who is also clinical lead for microbiology.

4 Infection Prevention and Control

A range of activity and developments have taken place in the infection, prevention and control processes within NHSGGC. These include:

- There is full scrutiny of IPC performance through Board governance including a HAIRT report presented at every public Board meeting.
- NHSGGC hospitals consistently perform in line with or better than the Scottish Government Indicators for Healthcare Associated Infection.
- NHSGGC has had a dedicated quality improvement collaborative for four years, demonstrating improved performance in relation to key infections across all sites.
- NHSGGC has developed an IPC Strategy, which is currently in final draft, and was the first Board to develop an assurance and accountability framework.
- Two healthcare scientists have been appointed to support the work of the infection control team.

5 Scrutiny of Safety Issues at QEUH/RHC

A significant number of internal and external reviews have taken place to obtain assurance about the safety of QEUH/RHC since 2018

5.1 Internal Review (2019)

The Chief Executive commissioned an internal review in 2019, the aim of which was to provide a strategic overview of key issues and concerns and identify actions and further areas for improvement to address the problems identified. A Programme Board oversaw the internal review, focusing on three principal areas of activity:

- a) Review of Facilities and environmental issues in respect of QEUH and RHC.
- b) Review of Capacity and Flow to assess the position against the original model and planning assumptions.
- c) Review of clinical outcomes over the period to provide assurance.

The following outcomes were noted from each workstream:

- a) Review of Facilities and environmental issues

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A work programme to resolve the issues identified in an external technical advisor's report was taken forward. This included the full upgrade of the ventilation system within Wards 2A/B which reopened in March 2022. A Rectification Project Board was established and continues to meet regularly. A business case on the technical issues has been submitted to Scottish Government.

b) Review of Capacity and Flow

Actions included alteration of the triage model, new clinical streaming models to ED and improvements in the resuscitation department. Changes were also made to the ambulatory care pathways and the bed profile within the Emergency Complex was reconfigured. Further joint working with NHS 24, Out of Hours providers and the Ambulance service took place to support early and appropriate clinical triage and direction. The introduction of a dedicated minor injuries facility at QEUH and the development of a redirection policy was also taken forward.

c) Review of clinical outcomes

The internal review provided assurance around the overall clinical quality and safety provided at the QEUH Campus, work continues daily to ensure patient safety.

5.2 Internal Review (2023)

A further internal audit of IPC was undertaken in 2023. Findings noted that good infection prevention controls are in place to ensure patients, staff and the public are protected from the spread of infection. Further, it was noted that NHSGGC has a suite of policies and procedures around infection prevention and control that align to national guidance and are available to staff. There is also a range of guidance available on the intranet on topics related to infection prevention such as hand hygiene.

The review then noted that other well established and operating controls, including reporting throughout the governance structure and implementing actions from HIS reviews were in place. With regards to training, there are several infection prevention and control modules some of which are mandatory and others optional for NHSGGC staff. However, the review found that compliance rates with these was not in line with expected levels and the monitoring of this through reporting could be strengthened.

5.3 External Reviews (2020 and 2021)

Three independent Scottish Government-commissioned reviews have taken place into issues being further examined by the Scottish Hospitals Inquiry.

- I. Independent Review, Fraser and Montgomery – published June 2020
- II. QEUH/NHSGGC Oversight Board – interim report published December 2020, final report published March 2021
- III. Case Note Review – published March 2021

In total, there were 108 recommendations from the three external reviews, the implementation of which was monitored through the Scottish Government's AARG (Audit, Assurance and Review Group) and Board governance committees. All 108

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recommendations have been fully implemented and the schedule of actions taken is attached in Appendix 1.

In summary, the 108 recommendations covered the themes of governance, communications, infection prevention and control, built environment, data management and duty of candour. Key actions in relation to hospital safety included:

- Strengthening IPC with additional resource commitment.
- Strengthening of governance for groups that provide safety in relation to the built environment, e.g. Board Ventilation and Water Safety Groups and Infection Control in the Built Environment Group.
- Achieving compliance with NHS Assure processes.
- Completion of the Ward 2A and B refurbishment.
- Implementation of multi-disciplinary clinical review of any patient with GNB in Ward 2A.

Compliance with the recommendations has been audited at intervals, including most recently in October 2024, when the attached schedule was submitted to the Scottish Hospitals Inquiry. This demonstrates that all actions remain complete.

5.4 HIS Inspections (2022 and 2024)

QEUH/RHC have received various HIS safety inspections over this period. These included:

- I. May 2022
- II. November 2022
- III. April 2024.

Detail of inspections and actions is enclosed at Appendix 2. In summary, actions taken included:

- Improvement in governance arrangements in estates and infection, prevention and control
- Completion of planned negative pressure rooms - all validated and fully functioning
- Flushing standard operating procedure for little used outlets implemented
- Guidance for the use of bladed and bladeless portable electric fans
- Retraining of domestic staff and revision to the cleaning of Patient Trolleys Standard Operating Procedure
- Review of standard Operating Procedure for cleaning near patient healthcare equipment
- Increase in domestic schedules and staffing for INS and retraining of domestic staff
- Hand Hygiene audits completed and continue as per regular cycle of monthly audits
- Continual improvement maintenance programme for minor works and capital investment projects and regular updates to the SAMS (Strategic Asset Management System) to prioritise the clinical and non-clinical areas

Action plans for all inspections have been completed.

5.5 HIS Unannounced Inspection of QEUH (2022)

The report, published November 2022, was commissioned by the Scottish Government to provide independent assurance of infection prevention and control measures at the QEUH campus, including prevention and control of Aspergillus.

This examined infection prevention and control at QEUH/RHC and highlighted a number of positive findings about the culture of the hospital, its infection control procedures, the skills of its staff and its leadership.

The report followed a series of unannounced inspections in June 2022 and highlighted a number of areas of good practice including:

- An open, transparent and supportive culture in relation to infection prevention and control.
- Good communication with patients and their representatives on infection prevention and control.
- Good knowledge of roles and responsibilities among senior managers and leaders.
- Good infection prevention and control leadership within the hospital campus
- A vigilant approach towards infections related to Aspergillus.
- A clear process to identify infection prevention and control alert triggers, and a clear process to act and minimise risks.
- Good staff compliance with infection control and transmission-based precautions.
- Good cleanliness and condition of the hospital environment.

In addition, the report noted that, despite the pressures on services and staffing levels facing all hospitals in the country, staff within clinical areas said they felt supported by senior leadership.

In view of closing statements submitted by Counsel to the Inquiry on ventilation, the undernoted sets out in detail the actions taken initially in 2022 following the HIS audit and then in the 16-week follow up.

The inspection resulted in two recommendations and four requirements. These are outlined below.

Recommendation 1
<i>Standard 7: NHS Greater Glasgow and Clyde should consider the method of sharing information with patients about their invasive devices. This will support patients to proactively care for their devices and be aware of risks and signs and symptoms of infection.</i>
Action:
The following actions were established: <ul style="list-style-type: none"> • Patients to have access to paper information leaflets • The IPCQI Operational Group would involve patient consultation and review of best practice across Scotland.
Action Update March 2025:

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Progress on this was updated at the meetings of the IPCQI Group and involved consultation with patients. Actions include:

- Narrated videos on the care of peripheral vascular devices have been developed
- Posters are being developed for clinical areas which will include a QR code so that patients and staff can access the information video.

Recommendation 2

Standard 8: NHS Greater Glasgow and Clyde should consider a review of the electronic estates reporting system, to enhance the prioritisation allocation and communication for both the estates team and staff within the clinical areas.

Action:

The following actions were established:

- As several Boards already use FM First, modifications to the front end to allow clinical staff to highlight priorities to be discussed with the supplier.
- Estates issues will continue to be reported at the site huddle meetings which occur throughout the day and which members of the estates team attend.

Action Update March 2025:

Progress has been made on these actions as outlined:

- A new flag has been created to indicate if the location of works is an issue in terms of patient flow and the availability of in-patient beds.
- A new field in the Task Type has been created to indicate the escalated priority for in-patient bed availability. This has means that when saving a ticket, if the location is a bed area, a question will be asked asking if this is causing unoccupied beds to be unavailable to use. If answered no this works carry on as normal. If answered yes, the task priority will be changed to the escalated priority in the task type. In either case, an event will be created indicating the action taken and by who.

Requirement 1

Standard 3: Ensure that specialist infection prevention and control advice is recorded within the ward-level patient care record to inform care planning. This will ensure that patients are well informed, including information on when their isolation period will end.

Action:

The following action was established:

- The IPCT put in place a method to record all Infection Prevention and Control advice on the patient notes in clinical portal in addition to the notes held in ICNet. This record includes the estimated date of removal from isolation if appropriate.

Action Update March 2025:

Progress has been made on this action as outlined:

- Standardised IPC advice was developed to ensure consistency across the board. This is now routinely provided to ward staff in clinical portal. This occurred in November 2022.

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Requirement 2
<i>Standard 6: Ensure cleaning of tracheostomies is in line with guidance, not performed in clinical wash hand basins and staff have the correct information and support to do this safely.</i>
Action: The following action was established: <ul style="list-style-type: none">• Ensure Tracheostomy guidance meet the requirements in Standard 6.
Action Update March 2025: Progress has been made on this action as outlined: <ul style="list-style-type: none">• Tracheostomy Guideline was ratified by Acute Clinical Governance in August 2022. This guideline contains all aspects of care for a patient with a tracheostomy.• The guidance in relation to managing tracheostomies and the inner tube guidance was shared with the Chief Nurses on 22/06/2022 for dissemination to all wards and departments.

Requirement 3
<i>Standard 6: Ensure that systems and processes in place support clinical staff who are assuming a more senior role in managing a clinical area. This will include but is not limited to the senior charge nurse's responsibilities concerning infection prevention and control.</i>
Action: The following action was established: <ul style="list-style-type: none">• Band 6 roles and responsibilities to be discussed at Lead Nurse Meeting and role descriptor developed. Band 6 Development Programme for Regional Services to commence Jan 23.
Action Update March 2025: Progress has been made on this action as outlined: <ul style="list-style-type: none">• Regional Services ran a Regional Band 6 Programme over a period of weeks and IPCT deliver at one of these sessions. Topics include hand hygiene, HIS visits, Information finding (National IPC Manual and IPC Webpage) and Standard Infection Control Precautions.

Requirement 4
<i>Standard 8: Take steps to improve the governance and reporting of critical systems within the built environment.</i>
Action: The following action was established: <ul style="list-style-type: none">• The AICC and the Partnership Infection Control Support Group (PICSG) ToR to review and add a section on this action to ensure that approval is sought from committee members on all policies and guidelines to ensure clear accountability within IPC governance structures. The ToR of each Committee will be approved at the next relevant committee meeting
Action Update March 2025: Progress has been made on this action as outlined: <ul style="list-style-type: none">• The ToR have been reviewed, and an additional section has been approved.

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| <ul style="list-style-type: none">• EFM colleagues bring exception reports to all IPCT governance committees. |
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The action plan for the inspection has been completed.

6. Conclusions

From 2019 onwards, there has been significant scrutiny of issues relating to safety at QEUH/RHC. A series of internal and external reviews have been undertaken with full compliance from NHSGGC. All actions and recommendations have been considered and implemented, and all reviews have been reported through internal governance processes.

We have been closely monitoring data and quality outcomes, locally and nationally, for patients treated within QEUH and RHC and all available data, including our testing of water and air quality and our independent testing of our ventilation systems, indicate that our confidence in the hospitals' environment is well-founded. In summary,

- The water quality in our hospitals' domestic system is closely monitored, and the testing and monitoring we have in place is amongst the most comprehensive in the country
- Our specialist ventilation systems are inspected annually by our teams and independent experts to ensure that they continue to work correctly
- For the adult Bone Marrow Transplant Unit, we also carry out monthly air sampling to give additional assurances.
- We also regularly review patient clinical outcomes including healthcare associated infections and mortality to ensure that they are within expected limits
- The QEUH has better mortality rates than predicted for the hospital – this is despite the hospital treating amongst the most unwell patients in Scotland. In addition, national surveillance of healthcare associated infections shows that NHSGGC hospitals are in line with or below the national average for all three Healthcare Associated Infection indicators.

We remain confident, through our evidence and ongoing monitoring processes that our hospitals provide an environment where risk is effectively managed every day to support safe, high quality patient care.

4. Recommendations

Board members are asked to note the update and continued actions to monitor safety and wellbeing of patients and staff.

5. Implementation

Implementation of actions in this report are managed through various established groups within NHSGGC including ICEBEC, (Infection Control in the Built Environment), Board Water Safety Group, Board Ventilation Group and Acute Clinical governance Forum.

6. Evaluation

Not Applicable

7. Appendices

Not Applicable