SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2025 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Witness Statements – Volume 1

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Scottish Hospital Inquiry
Witness Statement of
Dr Dominique Chaput

Witness Details

1. My name is Dominique Chaput. I am a Healthcare Scientist in Infection Prevention and Control at NHS Greater Glasgow and Clyde and am based in the Scottish Microbiology Reference Laboratories, Glasgow (hereinafter referred to as the "Reference Laboratories"). I first joined the Reference Laboratories as a Healthcare Scientist in May 2021, and in August 2022, I moved to my current role, which is split between the NHS GGC Infection Prevention and Control Team (IPCT) and the Reference Laboratories. I have two direct line managers: the Consultant Clinical Scientist in the Reference Laboratories and the Deputy Lead Infection Control Doctor for NHS GGC.

Qualifications

2. I obtained a Bachelor of Science with First Class Honours in Biochemistry and a Minor in Mathematics from Mount Allison University (Canada). I was then awarded a Rhodes Scholarship to attend the University of Oxford, where I first obtained a MSc in Environmental Change and then a DPhil in Microbial Ecology. My doctoral work used DNA-based methods to characterise microbial communities that form biofilms in extreme environments.

Professional Background

3. After my doctorate, I moved to Washington, DC (USA) to take up the Secretary's Distinguished Research Fellowship at the Smithsonian National Museum of Natural History. My postdoctoral research focused on microbial communities and biofilms in natural and engineered water systems. I also collaborated with scientists at NASA and at the Joint Genome Institute to characterise environmental microorganisms, including by whole genome sequencing. After 4.5 years at the Smithsonian, I moved back to the UK for a postdoctoral research position at the University of Exeter, where I was the senior Postdoctoral Research Associate on a large Biotechnology and Biological Sciences Research Council-funded consortium project looking at the microbiomes of aquaculture systems in Bangladesh, Malawi and India. I have maintained ties to collaborators at various institutions in the UK and abroad and continue to publish academic papers (listed at orcid.org/0000-0002-9736-2619 and on Google Scholar). I am a peer reviewer for the journals FEMS Microbiology Ecology, Microbial Ecology,

mSphere, Soil Research, Aquatic Microbial Ecology, Transboundary and Emerging Diseases, Virus Research, and Viruses.

Role as Healthcare Scientist

4. I have held various laboratory and data analysis roles since I joined the NHS in 2021. In the Reference Laboratories, I was trained to carry out bioinformatics analysis for our routine bacterial whole genome sequencing service, including assessing the similarity of bacterial isolates and alerting Public Health Scotland of any closely-related cases. More recently, I established a pan-bacterial testing service for NHS GGC, which went live in August 2023. Prior to this, NHS GGC was sending samples to UK Health Security Agency (Colindale) for testing, as no other NHS laboratory in Scotland offers this specialist service. I oversee the day-to-day running of this service, including processing samples from receipt to final result, and coordinating a small team to ensure continuous cover. The service serves two purposes: detecting bacterial DNA directly from primary clinical samples to confirm infection, and identifying unusual bacterial isolates that the routine diagnostic laboratory obtained from clinical samples but that are proving difficult to identify by the usual methods. Finally, I provide scientific and data support to the IPCT and to the Water Safety Technical Group, for example during the recommissioning of RHC Ward 2A/2B prior to its reopening, and I maintain a research programme into the microbiology of the hospital-built environment.

Review of expert panel's position with regard to Gram negative bacteria, fungi, and mycobacterial species in paediatric haemato-oncology BSI data

Overview report

5. As further detailed below, I have produced a report, entitled, "*Overview of Gram negative bacteria, fungi, and mycobacterial species in paediatric haemato-oncology BSI data; GGC versus four comparator units*", dated 6 December 2024 (the "Report").[1]

6. The Report is incorporated herein for the sake of brevity.

The nature of the review

[1] Bundle 44, Volume 4, Document 1, Page 3.

7. I undertook this review, the results of which formed the Report, to consider the position taken by Mr. Mookerjee and Dr. Mumford/ Ms. Dempster in their reports and oral evidence, in respect of the list of GNBs and fungi present in the Schiehallion BSI data (set out in Mr. Mookerjee's report[2], par 8.1.16, pp 25-26). Mr. Mookerjee was instructed by Dr. Mumford to focus on the species in that list in formulating his expert report. These organisms have been variably presented to the Inquiry as 'rare', 'unusual', or 'environmental'.

8. Mr. Mookerjee requested comparator data from other hospitals by Freedom of Information ("FOI") requests. He obtained agglomerated tables of organisms identified in paediatric haemato-oncology blood stream infections over the period 2015-2022. The data from those comparator sites was then measured against the Schiehallion BSI list. The exercise did not appear to take into account any other 'rare', 'unusual', or 'environmental' organisms that were found in the comparator sites but not in the Schiehallion. The methodology used in this analysis, therefore, appeared to be flawed from the outset. For a valid comparison, the Inquiry's experts would have had to draw up a list of all 'rare/unusual/environmental' organisms found across Schiehallion and all of the comparator sites, and then calculate infection rates based on the totality of that list. Mr. Mookerjee should also have presented the full list of organisms found across all sites in his report instead of listing only those found in the Schiehallion unit.

9. During the course of Dr. Mumford's and Ms. Dempster's oral evidence on 12 and 13 November, I realised that the focus only on GGC's list of organisms was a fundamental flaw in the experts' methodology.

10. Having become aware of the flaw in their approach from their oral evidence, I liaised with the legal representatives for GGC, and Counsel immediately posed the Rule 9 question on 13 November, namely:

    - "*Were any environmental organisms found in the comparator hospitals' blood culture data that were not in the 2A blood culture data? If so, were these included in Mr. Mookerjee's analysis? Would excluding these not artificially increase the comparative rate of 'environmental' infections in 2A?"*

11. This was interpreted and asked by Counsel to the Inquiry to Dr. Mumford, as follows:

[2] Bundle 21, Volume 1, Document 1, Page 3.

- "*Is there a risk or a problem with this methodology that it might be the case that in, I mean, one of those other units, there's another group of organisms that occur in the environment, perhaps a couple of species that didn't happen to occur in Glasgow and, therefore, weren't on the Mookerjee list? Because they weren't in Glasgow but they are in one of those other hospitals and, therefore, might that distort the conclusions that can be drawn from his work?*"

12. Dr. Mumford's response was that there might have been a few, but the numbers were so low that it would not have impacted on the results of their analysis.

13. My review of the data followed thereafter. In my review, I examined the lists of organisms reported in the FOI returns from GOSH, Leeds, Cardiff, and Oxford to assess the accuracy of the position taken by Mr. Mookerjee and by Dr. Mumford/ Ms. Dempster that 'rare/unusual/environmental' organisms occurred predominantly in GGC but not in the other hospitals.

14. My methodology was first to use the same filtering criteria as Mr. Mookerjee described in his expert report, removing all Gram positive bacteria, those Gram negative bacteria that were not identified to genus level (e.g. 'Gram negative bacillus'), and all species belonging to the genera Escherichia, Campylobacter, Fusobacterium, Haemophilus, Moraxella, and Neisseria. Dr. Mumford confirmed that she instructed Mr. Mookerjee to carry out these filtering steps. Like Mr. Mookerjee, I also kept the fungal entries.

15. However, unlike Dr. Mumford and Mr. Mookerjee, I also examined the prevalence of nontuberculous mycobacteria in GGC and in the four comparator hospitals, as these organisms are well known to occur in water distribution systems and have been a focus of the Inquiry due to cases of *Mycobacterium chelonae* at the QEUH.

Unusual environmental bacteria found in the comparator hospitals

16. All comparator hospitals had Gram negative bacteria and fungal species that would be considered rare, unusual, and/or environmental by Dr. Mumford / Ms. Dempster / Mr. Mookerjee's definition.

17. Across all five sites (GGC plus the four comparators), a total of 105 different organisms met Dr. Mumford/ Mr. Mookerjee's filtering criteria: 88 Gram negative bacterial species and 17 fungi. Of the 88 different Gram negative bacterial species found across the five sites, fewer than half were detected at any one site. GGC saw 36 out of 88 GNB species, meaning 52 species of 'environmental/rare/ unusual' GNBs were seen elsewhere but not in GGC. Similarly, GGC saw only 5 out of the 17 fungal species.

18. Of the 36 GNB species seen in GGC, 21 were also seen at one or more of the other sites, as were three of the yeasts. Fifteen GNB species and two fungal species were seen only in GGC, but each of the comparators also saw numerous Gram negative bacteria and fungi that were not detected at any of the other four sites: 14 GNB and five fungal species were unique to GOSH, 14 GNB and one fungal species were unique to Leeds, six GNB species were unique to Oxford and five GNB species were unique to Cardiff. As expected, larger hospitals with higher numbers of beds, admissions, and positive blood cultures, as well as more complex referred patients, have longer lists of 'rare/unusual/environmental' organisms.

19. Blood stream infections due to Mycobacteria or presumptive mycobacteria occurred at all sites except Cardiff, and more frequently at these sites than in GGC. These cases included five named species (*M. chelonae*, *M. fortuitum*, *M. mucogenicum*, *M. ratisbonense*, and *M. smegmatis*), cases identified to genus level only (*Mycobacterium* species), as well as cases identified as 'acid fast bacilli' (presumptive mycobacteria). GGC saw one of these species, *M. chelonae*, which is also the only named mycobacterial species seen at multiple sites (*M. chelonae* cases were also reported at GOSH and Leeds).

20. The Report sets out these data in more detail, including lists of the organisms found at single and across multiple sites. The Report also highlights caveats around how each site deduplicated their data. Mr. Mookerjee claimed that BSI data from GGC and from all comparators were deduplicated in the same way to allow comparison of rates of infection, but the FOI returns make it clear that he has either misunderstood or misrepresented the data provided by each site. The comparison he carried out is not valid and should not have been attempted with these data sets.

The effect of this discovery on the conclusions reached by Mr. Mookerjee, Ms. Dempster and Dr. Mumford

21. Focusing only on the list of organisms seen at GGC without providing the broader context, namely the lists of organisms seen at other sites, is highly prejudicial and paints an inaccurate picture of NHSGGC having higher infection rates and a greater diversity of 'rare/unusual/environmental' organisms than the comparator hospitals.

22. Throughout the Glasgow III hearings, the Inquiry frequently highlighted lists of organisms seen in the Schiehallion unit and asked various witnesses, including Dr. Inkster and Dr. Mumford, whether the individual species on these lists have a background rate of infection. As these witnesses stated that there should be no background rate for most of the organisms on GGC's list, the clear implication is that the mere detection of these species in GGC points to deficits in the built environment and/or negligence on the part of GGC. However, my review shows that a similar diversity of 'rare/unusual/environmental' organisms was seen at the comparator hospitals, and had Dr. Mumford or Dr. Inkster been asked what the background rate of infection should be for these species instead of those on GGC's list, in all likelihood their answers would have been similar: that for many species on the comparators' lists, there should be no background rate of infection.

23. The Report does not support the opinion of Dr. Mumford, Ms. Dempster and Mr. Mookerjee. As part of their ongoing obligation to the Inquiry, it is submitted that they should reconsider the data and the conclusions which flow therefrom. Mr. Mookerjee, Dr. Mumford, and Ms. Dempster requested and reviewed the infection data from the comparator hospitals, and they had a duty to disclose to the Inquiry any evidence that might contradict their opinion.

Data examined

24. The data examined as part of this analysis were the lists of organisms reported in the responses to the Inquiry's FOI requests, from GOSH, Leeds, Cardiff and Oxford. I was a member of the sub-group which reviewed the expert reports of Mr. Mookerjee; and of Dr. Mumford and Ms. Dempster, so had had sight of that information as part of that process. However, the sub-group's focus, given the short timescales involved, was to respond to the content of Mr. Mookerjee's and Dr. Mumford/ Ms. Dempster's reports, not to scrutinise the FOI data on which these reports were based. As such, I did not

examine the lists of organisms in the original FOI returns until after Dr. Mumford's and Ms. Dempster's oral evidence.

Further assistance

25. Should the Inquiry require any further assistance with other matters relevant to the Inquiry's Terms of Reference, I would be happy to assist.

Declaration

26. I believe that the facts stated in this witness statement are true to the best of my knowledge, information, and belief. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.

Signed: Dominique Chaput Print Name: Dominique Chaput

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 21 Volume 1 - Expert Reports

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 – Bundle 44 Volume 4 – Reports by Dr Chaput and Dr Mumford & Miscellaneous Documents

Scottish Hospitals Inquiry - Glasgow 4 Part 2
Witness Statement of
Shona Cairns

Personal Details and Professional Background

1. This statement is provided in response to a request made by Counsel to the Scottish Hospitals Inquiry. NHS National Services Scotland (NSS) submitted a closing statement (**A51651537 – NSS Closing Statement**[1]) following the Glasgow III Hearing. Counsel to the Inquiry has invited NSS to provide information relating to a number of areas covered within that closing statement and to provide information on follow up questions to aid the Inquiry.

2. I am Shona Cairns, BSc (Hons), PgDip, MSc. I hold the post of Consultant Healthcare Scientist/Epidemiologist at Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland and have done so since 2021. I am the Clinical Lead for the Healthcare Associated Infection Surveillance and Epidemiology (HCAISE) programme and I am the Professional Lead for healthcare science in ARHAI Scotland. I am a registered Clinical Scientist with the Health and Care Professions Council and have worked in a national epidemiology role for more than 20 years, focusing on developing epidemiological evidence to reduce the burden of infection and antimicrobial resistance (AMR) in healthcare.

3. I graduated from the University of Strathclyde with a Bachelor of Science (Honours) degree in Immunology and Pharmacology in 1999 followed by a Postgraduate Diploma with Distinction in Information Technology (with Database Development) from the University of Paisley in 2003. I completed a Master of Science in Epidemiology at the London School of Hygiene and Tropical Medicine part-time by distance learning in 2008 whilst employed by NSS .

4. I started my scientific career working as a research assistant in a University of Glasgow laboratory researching links between human genes and diseases. I

[1] Hearing Commencing 19th August 2024 Core Participants' Submissions – Document 8, page 147.

returned to university to develop the data and database experience required to move into epidemiology roles. Following the completion of my Postgraduate Diploma, I was recruited by NSS in November 2003 in what was then called the Scottish Centre for Infection and Environmental Health (SCIEH) and then Health Protection Scotland (HPS). Throughout my NHS career, I have worked in various roles within teams responsible for reducing the burden of healthcare associated infection (HCAI) and AMR. Since June 2021, this has been the remit of ARHAI Scotland as part of NHS Scotland Assure.

5. My first NHS role was as a data manager in the Scottish Healthcare Associated Infection Programme (SSHAIP) when I was recruited in November 2003. This role introduced me to HCAI epidemiology and I was supported by NSS to develop into a healthcare science career as an Epidemiologist, including support to undertake an MSc in Epidemiology. I moved into my first Healthcare Scientist/Epidemiologist role in 2006 and progressed from there to Advanced Healthcare Scientist, Principal Healthcare Scientist, Lead Healthcare Scientist before my current role as Consultant Healthcare Scientist/Epidemiologist.

Experience and Current Role

6. In my current role, I am the Clinical lead for the HCAISE clinical programme and the Data and Intelligence team of healthcare scientists and data/information managers. The team is responsible for providing high-quality epidemiological data analysis using advanced statistical methods and software tools to analyse complex datasets from multiple sources including data provided by NHS Boards and large nationally held datasets. The programme includes the national mandatory healthcare associated infection surveillance programme (*Staphylococcus aureus* bacteraemia, *Escherichia coli* bacteraemia and *Clostridioides difficile* infection); other non-mandatory surveillance programmes (hospital onset respiratory virus surveillance); epidemiological monitoring of outbreaks/incidents reporting via the outbreak reporting tool; epidemiological support to local and national incidents/outbreaks; and is responsible for the scoping and development of novel surveillance systems based on clinical need.

7. I collaborate closely with infection prevention and control (IPC) and public health professionals, clinicians, microbiologists, data analysts, statisticians, and policymakers to ensure the data and intelligence we produce is robust and actionable.

8. As Consultant Healthcare Scientist, I have a national leadership role within the Scottish and UK-wide HCAI and AMR agendas. I am a member of the Scottish One Health AMR Strategic Oversight Group. I work closely with UK partners and I am the Scottish lead for the UK Four Nations HCAI and AMR surveillance group and a member of the UK Government AMR Human Health Delivery Board.

9. I am the professional lead for healthcare science in ARHAI Scotland. The cohort of 35 healthcare scientists develop highly specialised data, intelligence and evidence reviews to provide the evidence base strategies to inform IPC and reduce the burden of healthcare associated infection and AMR.

10. I have a healthcare science workforce education and development leadership role in ARHAI Scotland. I was a core member in several workforce education initiatives including the development of healthcare science career frameworks and competency matrices; and development of a healthcare science epidemiology fellowship training programme. A key aim of the clinical programme I lead in ARHAI Scotland is to develop a competent IPC workforce in epidemiological methods and I have developed and lead facilitated a number of epidemiology training courses for internal and external stakeholders. Most recently, we have delivered 5 training days to nearly 200 Scottish IPC professionals in Surveillance and Epidemiology for IPC.

11. I have led large scale national epidemiological surveys in Scotland. Following contribution to two national point prevalence surveys of healthcare associated infections and antimicrobial use in 2005/2006 and 2011 as an Epidemiologist, I led the Scottish National Point Prevalence Survey of Healthcare Associated Infection and Antimicrobial Use in 2016. Following analysis and interpretation of the epidemiological evidence, I led multi-disciplinary collaboration with clinicians to identify key evidence-based priorities areas for IPC interventions, antimicrobial stewardship initiatives and surveillance activity. The results from the survey

informed the Scottish Government policy and played a key role in local and national IPC and stewardship strategies.

12. I have provided epidemiological expertise to healthcare outbreak investigations, supporting local teams with epidemiological intelligence to inform control measures. This support to NHS Boards can include analysis of data routinely held by ARHAI Scotland to support NHS Boards and may occasionally involve mobilisation of a team of epidemiologists to the NHS Board to undertake review of case notes.

13. During the COVID-19 pandemic, I led a highly skilled team on the development of epidemiological evidence to inform Scottish COVID-19 policy and guidance. I was a member of the Scottish Government Chief Nursing Officer's COVID-19 Nosocomial Review Group and regularly presented epidemiological data to support decision making.

14. I report to Laura Imrie, Clinical Lead, NHS Scotland Assure. She reports to Julie Critchley, Director, NHS Scotland Assure. Julie Critchley reports to Mary Morgan, Chief Executive, NSS.

Comparator data

15. Comparison of patient populations is a complex area of epidemiology. With regard to **A52240258 - Counsel to the Inquiry's Closing Submission**[2] **paragraph 313 of chapter 7**, (page 613), ARHAI Scotland acknowledges the challenges with undertaking comparative analysis between hospitals and/or haematology units. This is a challenge faced when undertaking any epidemiological comparison, due to the epidemiological concept of confounding. Confounding occurs when the difference in the measure being compared across different haemato-oncology populations i.e. the rate of infection is affected by other differences between the populations being compared.

16. There are epidemiological and statistical methods for adjusting comparisons for the

[2] Available on the Inquiry website - Closing Statement by Counsel to the Inquiry - Glasgow 3 | Hospitals Inquiry

effects of confounding, though these require extensive patient level risk factor data and larger datasets. These methods are often used for large scale epidemiological studies where the results are being used to identify risk factors for interventions or to inform policy. They are often a requirement for publishing results in peer-reviewed journals. An example of an analysis undertaken by ARHAI Scotland to adjust for confounding is the comparison of the prevalence of HCAI reported in Scottish National Point Prevalence Surveys of 2011 and 2016. One objective of the survey was to determine whether the prevalence of HCAI had changed in the intervening period, in part to contribute to understanding of whether interventions to reduce HCAI had been successful. As the inpatient population had changed in the intervening period e.g. age, underlying co-morbidities, it was important to account for this when comparing the 2011 HCAI prevalence with the 2016 HCAI prevalence. Statistical modelling was used to compare the prevalence adjusted for differences in the patient population and concluded that the HCAI prevalence was lower in 2016 compared with 2011 after the comparison had been controlled for differences in the two populations.

17. There are information governance considerations when requesting and holding the required granularity of patient data. Ideally, patient level datasets would be available for both populations being compared. The data would include information about factors that can confound the comparison by their uneven distribution across populations, e.g. age, sex, underlying co-morbidities, and treatment regimes, alongside contextual factors such as staffing levels, occupancy on the unit, and facilities available. This level of data was not available to Mr Mookerjee or NSS during the production of their reports as discussed during the Glasgow III Hearing. Without adjustment for confounding, the limitations of the analysis should be acknowledged and conclusions drawn in the context of the limitations.

18. With regard to Counsel to the Inquiry's Closing Submission **paragraph 337 of chapter 7, (page 622)**, these issues were also a limitation in the comparator analyses undertaken by NSS, where the best available data at the time was used and the limitations understood. It is important to note that obtaining comparative data for specialist units in Scotland is challenging, given the size of the population and the fact that many specialist services are delivered via regional/national

centres. There is some merit in undertaking unadjusted comparisons but the limitations of such should be described and conclusions drawn in the context of the limitations.

19. With regard to Counsel to the Inquiry's Closing Submission **paragraph 424 of chapter 7, (page 654)**, it is not commonly recognised that a large sample size will adjust for the effects of bias and confounding. The way to reduce the effects of confounding when comparing data is by design such as selection of similar comparator organisations or units e.g. comparing a Bone Marrow Transplant (BMT) unit with another, or by using analytical techniques such as statistical modelling. Often it is necessary to work with the data available, but ensuring that the limitations, including the potential for confounding, are well described, and that the strength of any conclusions drawn is understood in the context of the data available is essential.

Correlation and causation

20. With regard to Counsel to the Inquiry's Closing Submission **paragraphs 315 to 321 of chapter 7, (pages 614-616)**, NSS acknowledge the challenges faced by Mr Mookerjee in his analysis to determine an association between water positivity and rates of infection. As previously provided in NSS feedback (**A48986808 - NHS National Services Scotland – Response to Expert Report of Sid Mookerjee**[3] and **A49860374 – NHS National Services Scotland – Response to Supplementary Expert Report of Sid Mookerjee**[4]), we considered there to be a number of methodological limitations that should be considered when interpreting the limited data. These included a small number of data points and a small number of water sample results included in some years. Mr Mookerjee stated in his oral evidence that, "I accept the hypothesis that there is a strong association between the exposure variable, which is the water contamination, and the occurrence of infections from environmental bugs in the Schiehallion cohort" (**Transcript – Sid Mookerjee**[5] **– 05.11.2024 - transcript column 132, page 68**). It is my opinion, the

[3] Bundle 21, Volume 3, Document 4, page 15.
[4] Bundle 21, Volume 7, Document 2, page 16.
[5] Available on the Inquiry website - Transcript - Sid Mookerjee - 05.11.2024 | Hospitals Inquiry.

strength of this conclusion should be considered in the context of the limitations of the data available and methods used.

Statistical Process Control (SPC) Charts

21. The selection of a baseline for use in SPC charts can be challenging. The baselines are calculated using available data and there is often more than one option available. The baseline should ideally reflect the “normal” background rate to enable instances outside of normal variation to be identified. With regard to Counsel to the Inquiry’s Closing Submission **paragraph 339 of chapter 7, (pages 622-623)**, NSS was asked to clarify the baseline used in the "Review of NHSGG&C paediatric haemato-oncology data” report of October 2019. The SPC charts used the mean of rates prior to the move to the Royal Hospital for Children (RHC) (July 2013 to May 2015). This choice of baseline has limitations as this assumes that the “normal” background rate in the paediatric haemato-oncology patient population is that observed whilst the population was cared for in Yorkhill Hospital, an older estate rather than the new purpose-built hospital where the risk from the environment may be expected to be lower. Baselines are calculated using retrospective data and if the rates have historically been high, the baseline will be high making it more difficult for the limits in the graph to be breached or other signals to be detected. This baseline was chosen to describe what might normally be expected in this population though the limitations of using a Yorkhill Hospital baseline are acknowledged.

22. SPC charts and analysis can be used both prospectively and retrospectively. Prospective use of SPC charts is common in IPC where IPC Teams (IPCTs) maintain charts for key organisms or infections. As new cases are identified and added to the SPC chart, instances of unusual variation can be identified near real-time to prompt action and further investigations to determine whether there is an outbreak. SPC charts can be used retrospectively to analyse data and identify instances of unusual variation that have occurred historically to support investigations and the Incident Management Team (IMT). This is how SPC charts were used in the HPS reports. It is important to note that the HPS SPC charts were not used in real time and were not used to identify or declare an outbreak.

23. The monthly HPS SPC charts were intended to provide a level of granularity that enables signals in the data to be identified during an incident that progressed over time, with specific points of concern during the year. Annual data may not be granular enough for incident/outbreak management and important points during the outbreak would not have been identified in the data.

24. There are acknowledged limitations to SPC charts and the HPS SPC charts were not intended to be considered in isolation. They were intended to support the IMT and to be considered, with the caveats acknowledged, alongside other information and evidence available to the IMT.

Epidemiology and surveillance

25. There are often several options when selecting a denominator for measuring the incidence of infection. This should be based on the population at risk, though is often driven by the availability of denominator data. Bed day denominators are a better measure of the duration that a patient is at risk in the hospital environment. This measures the time at risk differently based on length of stay. For example, a patient who is admitted to hospital for ten days contributes 10 bed days to the denominator versus a patient who is admitted for one day who will contribute 1 bed day. This better reflects time and population at risk than an admission denominator where both patients, irrespective of the time spent in hospital, contribute 1 to the denominator. Furthermore, a patient with 10 admissions for one day will contribute 10 to an admission denominator versus 1 in a patient with a length of stay of ten days, who is likely to be sicker. Counsel to the Inquiry's Closing Submission **paragraph 355 of chapter 7, (page 629)**, recounts Mr Mookerjee's evidence that there is no evidence that someone who is an inpatient for 10 days is at more (or less) risk than someone who is a day patient on 10 separate days. However, Mr Mookerjee's choice of admissions as the denominator does not reflect this. It is acknowledged that Mr Mookerjee did not have access to the data that would have been required to fully capture the level of time-at risk in the denominator. NSS agree that there is a risk associated with care provided during day case admissions, and that time at risk for all patients receiving treatment (combined for inpatient and day case admissions) would be the most appropriate denominator. However, such a

combined dataset was also not available to Mr Mookerjee. It is important to acknowledge this limitation in the denominator when drawing conclusions.

26. Counsel to the Inquiry's Closing Submission **paragraph 383 of chapter 7, page 639**, recounts Mr Mookerjee's evidence that a child admitted to ward 2A in 2017 had a 16% chance of catching a bloodstream infection. This figure is in fact the observed number of infections per 100 admissions or percentage of admissions resulting in an infection, not the probability or percentage chance of a child in the cohort developing a bloodstream infection. Individual risk or probability of infection developing in an individual is difficult to estimate particularly with a heterogeneous population. Risk of developing a bloodstream infection will be different for each patient in the cohort and will depend on individual factors including underlying conditions and length of stay.

27. ARHAI Scotland has been piloting a methodology for local surveillance of environmental organisms in high-risk units. A key aim of the pilot is to develop candidate triggers that can be incorporated into monitoring systems and that would identify areas for further investigation locally. The first phase of the pilot is complete and a preliminary pilot report was prepared with recommendations for further development (**A52957484 - Environmental Pathogens Surveillance Pilot Report**[6]). Feedback from NHS Boards was positive and suggested triggers were useful for detecting trends and areas of concern for action. Further work is necessary to refine the triggers ensuring there is a balance between the resource implications of multiple triggers and associated investigations alongside identifying potential risk to patients in high-risk units. A second phase of the pilot is planned for financial year 2025/26 and the final report will include recommendations to support NHS Boards in their local monitoring of environmental organisms. The inclusion of flexible alert organism surveillance and triggers to support local investigation are also important considerations for the proposed national IPC e-surveillance solution.

28. The Scottish Government has been leading on the development of an outline

[6] Bundle 44, Volume 2, Document 47, page 709.

business case for a national IPC e-surveillance solution. This was completed in April 2025. It is intended that this system will have local and national functionality. ARHAI Scotland is contributing to the development of the national requirements for this system to ensure that that intelligence on healthcare associated infections, including unusual organisms and those presenting environmental risk, can be captured and integrated consistently and promptly within national datasets. Scottish Government published a Prior Information Notice (PIN) for the National Infection Prevention Control Intelligence Solution in January 2025 which notifies of intention to tender future planned procurements (**A52969637** - **Public Contracts Scotland - National Infection Prevention Control Intelligence Solution**[7]).

HEAT targets for potentially environmentally related HCAI

29. NSS was asked in an email from the Inquiry dated **26 March 2025** to consider whether there should be a HEAT target for potentially environmentally related HCAI. For the purposes of clarity, the Scottish Government system of HEAT targets monitoring is no longer in place. The Scottish Government issued new standards for HAIs on 27 March 2025 (DL(2025)05) - **A52969638** - **Scottish Government - Update on Standards of Healthcare Associated Infections - 27 March 2025**[8]. The new standards are that there should be no increase in the incidence (number of cases) of *Clostridioides difficile* infection (CDI), *Escherichia coli* bacteraemia (ECB), and *Staphylococcus aureus* bacteraemia (SAB) by March 2026 from the 2023/2024 baseline. These infections were selected initially for HEAT targets and subsequently HCAI standards due to their high incidence and endemicity in healthcare settings.

30. There is currently no national surveillance system in place for monitoring HCAI that are potentially linked to the healthcare environment (other than the requirements to report outbreaks or incidents as per Chapter 3 of the National Infection Prevention and Control Manual). In order to develop HCAI standards, a national HCAI surveillance system with baseline HCAI data would be required. For the purposes of surveillance, the designation of an infection as healthcare associated requires a

[7] Bundle 44, Volume 2, Document 91, page 1377.
[8] Bundle 44, Volume 2, Document 90, page 1375.

clear epidemiological definition. There is currently no agreed definition for designating an infection caused by an organism with a potentially environmentally related source as healthcare associated making development of such a surveillance system and HCAI standard challenging. Furthermore, the assessment of the likelihood of the source being the environmental is complex and requires consideration of the multi-factorial nature of these infections.

31. ARHAI Scotland suggest that rather than national surveillance and HCAI standards, the focus should be robust local monitoring of alert organisms and standardised reporting of incidents and outbreaks involving infections with a potentially environmental source to ARHAI Scotland, in line with Chapter 3 of the NIPCM. This focus on local monitoring, assessment/investigation and reporting to ARHAI Scotland will be supported by the development of triggers to support local monitoring and the proposed national IPC e-surveillance solution.

Declaration

I believe that the facts stated in this witness statement are true. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.

Signed: Shona Cairns Print Name: Shona Cairns

The witness was provided the following Scottish Hospitals Inquiry documents for reference when they completed their statement.

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19th August 2024 Core Participants' Submissions

A52240258 - Counsel to the Inquiry's Closing Submissions (available on the Inquiry website)

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 21 - Volume 3 - Responses to Expert Report of Sid Mookerjee

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 21 - Volume 7 - Substantive Core Participant responses to Supplementary Expert Report

of Sid Mookerjee

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 - Bundle 44 - Volume 2 - Expert Reports in Response to GGC Expert (HAD) Report and Associated Documentation

Scottish Hospitals Inquiry
Glasgow 4 Part 2
Consequential Witnesses statement of
Angela Howat

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. Please see a brief summary of my role below; I was the Ward manager/senior charge nurse from 2006 of the Schiehallion day care unit..
I was in charge of the day to day running of the day care unit. Haemato/oncology children and young people attended Schiehallion day care unit for investigations pre, diagnosis, pre, during and post chemotherapy, for bolus chemotherapy and chemotherapy infusions. Patients attend for central line care; change of dressing, sampling and flushing central line (this needed to be carried out weekly), for administration of blood products, intravenous antibiotics and for admission for in patient chemotherapy and for febrile/ neutropenia during 0830-1830.

I would attend the weekly Friday MDT meeting to discuss inpatients and patients to come in the following week. Blood cultures, bacterial, virology swabs would be discussed at this meeting and any change of Intravenous antibiotics, anti-fungal or anti-viral medication would be discussed.

The microbiologist would directly phone the ward and speak to medical staff or Oncologist when a patient's blood cultures were positive, had a blood stream infection.

I have no expertise or any detailed knowledge of environmental bacteria. I would follow the infection control policy, ask for advice from the infection control nurses and complete any mandatory on line or face to face infection control learning. The microbiologist and clinicians and infection control would advise if there were any actions to be taken if BSIs were from environmental microorganisms.

My understanding is that it is recognised that immunocompromised haemato/ oncology patients are at higher risk of developing blood stream infections, either from being neutropenic, due to toxicity from chemotherapy, from their own oral and gut mucosa breaking down and having a central line, foreign body inside them, and from the surrounding environment.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. Even with the benefit of hindsight it does not feel that there was a 'significantly higher number of environmentally relevant bacteraemia cases from 2005-2015 in Schiehallion in Yorkhill'. I found it hard to compare the data from the 2 hospitals as there were many variables.

I felt that there was a higher incidence of environmental bacteraemia over a shorter period of time in the RHC, i.e. during 2017-2019, I was asked to attend many IMTs where we discussed the incidence of environmental microorganisms causing BSIs.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I cannot recall the incidence of environmental bacteraemia with accuracy from Yorkhill, but there were many changes from 2017 to decrease the incidence of BSIs in RHC from setting up the CLABSI group, IMTs, ANTT, aseptic non-touch techniques and control measures from IMT's put in place from 2018 onwards, Root cause analysis, PAGs.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

4. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. The awareness of and management and risk of environmental bacteria causing BSIs would be discussed at the weekly Friday MDT meetings. The clinical microbiologist would discuss any BSIs including from environmental microorganisms from inpatients. The microbiologist would update medical staff

daily on BSIs and advise and discuss with the clinicians any relevant changes to their current antibiotic cover or the need for central venous line removal if the BSI could not be treated. In my role we continued this practice when we transferred to the RHC in 2015.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

5. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. I do not recall if there were any significant changes to policies to promote line safety at the Schiehallion Unit at Yorkhill. I would have adhered to the infection control policy/ manual, febrile/neutropenia antibiotic policy, and central venous access guideline/policy as advised.

Additional information to assist the Inquiry

6. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. No I do not have any additional information.

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted]

Print name: Angela Howat

Scottish Hospital Inquiry
Glasgow 4 Part 2
Consequential Witness Statement of
Emma Somerville

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. I was not the Senior Charge Nurse during this timeframe, I was a Senior Staff Nurse who reported to Jean Kirkwood, my duties would have involved patient care and assisting with the running of the ward. I would not have been involved in any discussions about environmental relevant bacteria at Yorkhill Hospital.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. Unable to answer, unsure of accuracy of the report.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I cannot recall the bacteraemia rates in Yorkhill hospital, there was an increase in infections in QEUH as advised by Microbiology colleagues at this time.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

4. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. Cannot comment as this was not part of my role during this timeframe. Data was collected and managed by Sister Nan McIntosh.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

5. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. I cannot recall the efforts back then, however this would have been managed by Sister Nan McIntosh back in Yorkhill.

Additional information to assist the Inquiry

6. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. I do not have any further information to assist.

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed*:* [redacted]

Print name: Emma Somerville

Scottish Hospitals Inquiry
Consequential Witnesses Statement for
Melanie Hutton

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. No involvement and no knowledge as did not cover or work in this area at this time.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. Unable to comment.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. Unable to comment.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

4. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. Unable to comment

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

5. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. Unable to comment

Additional information to assist the Inquiry

6. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. No

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted]

Print Name: Melanie Hutton

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 - Bundle 44 - Volume 1 - NHS GGC Expert (HAD) Report.

Scottish Hospital Inquiry

Glasgow 4 Part 2
Questionnaire for 'Consequential Witnesses'
Dr Milind Ronghe

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. My name is Dr Milind Ronghe. I am currently a Consultant in Paediatric Oncology at the Royal Hospital for Children (RHC) and I work in Women and Children's acute directorate at RHC. As Paediatric Oncologist my main role is treating patients with malignant solid tumours and brain tumours. I am part of the solid tumour team, and my working day consists of ward rounds, Day Care reviews, various MDT's, clinics, and patient related administrative related work along with teaching and training of junior doctors. My patients are treated by chemotherapy, radiotherapy, and more recently by immunotherapy. My role at Yorkhill Hospital was the same. I started working there in 2002 so was there for the whole period 2005 to 2015.

I am not an Infection Control Specialist and do not have detailed knowledge about environmental relevant bacteraemia in Yorkhill. My patient group who receives chemotherapy / immunotherapy / radiotherapy are immunosuppressed and are prone for infections. There are National and Unit guidelines for the management of patients receiving chemotherapy who developed temperatures, febrile neutropenia, and where the risk of infection is felt to be significant, we use prophylactic antibiotics (i.e. Septrin is a commonly used antibiotic for PCP prophylaxis). These guidelines ensure prompt and appropriate treatment as per current recommendations. At Yorkhill, we used to

have weekly meetings with Infection Control Doctors, Microbiologists and we used to take advice from them when an environmental bacteria is isolated in blood cultures from our patients.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. I do not have a detailed recollection of the environmentally relevant bacteraemia cases at Yorkhill. I do not know if I would even have had knowledge of that data at the time. That is the role of the infection control team and not clinical staff such as myself. However, it is not my recollection that there was a significantly higher number of environmentally relevant bacteraemia cases at Yorkhill. My impression is that it was worse at QEUH during 2017 to 2019. I am not sure that it is helpful to compare one 10-year period with another 10-year period.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically

significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. Once again, I would like to emphasise that I am not an Infection Control Specialist, or do not have enough experience in Microbiology. I do not recollect that there were significantly higher infections associated with environmental bacteria in Paediatric Haem-Onc population in Yorkhill from 2005 – 2015.

A few years after the move we started noticing infections with organisms that we have not commonly encountered in our patient population during their treatment. These were unusual infections and literatures research suggested that these could be environmental infections. This was discussed with Microbiologists and Infection Control Doctors, including possible source of infection. We saw an increased infection rate between 2017 – 2019 and during that time it affected our patients' management as they needed more prolonged antibiotic treatment, or their central lines had to be removed. We did not anticipate this significant increase in a newly purpose-built hospital facility. I would like to stress that there were no significant modifications to our febrile neutropenia protocol to account for increased number of infections.

Although the hospital HAD reports that there was a decrease in the incidence and cases of bacteraemia attributed to environmental relevant micro-organisms following transfer of services from Yorkhill to Queen Elizabeth – it did not seem like that during the three years from 2017 – 2019. So, I feel, from a clinician's perspective, that this conclusion is not consistent. I do not have any obvious data to substantiate this

Comparison between the susceptibility of adult haemato-oncology patients and paediatric haemato-oncology patients to bacteraemia attributed to environmentally relevant microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

A. Once again, I would like to emphasise that I have no expertise in answering this question as I am not an Infection Control Specialist. As a clinician, my understanding is that the susceptibility depends on a number of factors including the host factors (innate immunity), type of treatment – intensity of the protocol, and the environment

Specific infections of microorganism species of environmental concern at Yorkhill from 2005 to 2015

a. Accepting that much time has passed please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106). Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents' and/or reported to HPS?

A. I do not remember any specific investigations that were carried out during that period at Yorkhill related to healthcare infection incidence.

IPC practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

b. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. I cannot remember or recollect any specific investigations done by the IPC Team which were reported to Health Protection HPS.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

c. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. Awareness of and management of risk of life-threatening infection has always been a significant part of oncology practice, because all our patients are immuno-compromised. At Yorkhill, whenever a bloodstream infection was detected, patient's management was discussed with Infection Control Specialist, Microbiologist who gave guidance with respect to the choice and course of antibiotics +/- removal of central venous line. Appropriate antibiotics were prescribed, and central lines were removed for those patients who were significantly unwell and those with infections that were difficult to get rid of with antibiotic treatment. The management was always discussed with Microbiologist.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

d. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. These were microbiology / infection control issues. I assume that microbiology colleagues would be able to advise the Inquiry as to what protocols were introduced and when. We have always had high standards and strict infection control policies because our patients were immuno-compromised. Schiehallion Unit at Yorkhill had various guidelines - strict hand hygiene, infection control

policies, CVL line dressing policy, and febrile neutropenia protocol to which we adhere to. I expect, there were regular audits done be the Infection Control Team during Yorkhill time as well as in the Queen Elizabeth University Hospital at the new campus. We used to follow national guidelines for febrile neutropenia management.

Enteric Infections

e. The Inquiry has heard evidence that some BSI can arise by breakthrough from the patient's gut. It has been suggested that that the Inquiry would be entitled to assume that if you and your colleagues considered that one of your patients had such an infection as a result of gut breakthrough such a case would not require to be escalated to a PAG or IMT within the IPC system. Do you have a view on this?

A. As mentioned before, all bloodstream infections are discussed with the Infection Control Team. If Infection Control Team feel that this is due to the endogenous source, then there may or may not be need for PAG or IMT for root cause analysis to be done or not. This decision would be taken by the Infection Control Team, not the clinicians.

Additional information to assist the Inquiry

f. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. Nothing more to add. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or

causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: Milind Ronghe **Print name**: Milind Ronghe

Scottish Hospitals Inquiry
Consequential Witness statement of
Dr Penelope Redding

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your Professional Practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/ knowledge/understanding of environmentally relevant bacteremia at Yorkhill?

A. I was not involved with the microbiology services at Yorkhill, other than a managerial responsibility in my role as Clinical Director from 2008-2011. I was therefore not involved in any of the day-to-day service provision of the clinical service. This was the responsibility of Prof Craig Williams, Dr Alison Balfour and the clinical scientists, which included Dr Kathleen Harvey-Wood.

Incidence of Environmentally Relevant Bacteremia Cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)** and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology pediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteremia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the

basis of your answer?

A. I have no access to any result and was not involved within GGC after I retired in March 2018. I do not feel I can comment when I cannot verify the data that has been used in this document. Dr Peters, Dr Inkster and Dr Harvey-Wood are better placed than me to answer this question.

That said, I feel that one of the problems in comparing information is that different databases have been used and, as a result, the data is difficult to unravel in order to compare like with like. However, I believe that the external experts must be given respect for their opinions. GGC provided them with data, which may or not have been complete. There was no reference to the whistleblowers to see if it was complete or accurate.

The investigation of a possible outbreak/ IPC problem is not always simple. It requires experience to know which questions to ask. You may not always get it right first time, especially when searching a database. You sometimes must review your questions and try again. This will depend on several factors, including the results you find. This will enable you to understand what is happening. The results can be influenced by the data that is analysed.

Rate of Change of Incidence of Environmentally Relevant Bacteremia Cases Between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it **(Bundle 44, Volume 1, Pages 116 to 119)** and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I have no access to any result and was not involved within GGC after I retired in March 2018. I do not feel I can comment when I cannot verify the data that has been used in this document. Dr Peters, Dr Inkster and Dr Harvey-Wood are better

placed than me to answer this question.

Comparison Between the Susceptibility of Adult Haemato-oncology Patients and Paediatric Haemato-oncology Patients to Bacteremia Attributed to Environmentally Relevant Microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteremia attributed to environmentally relevant microorganisms?

A. I have no experience of managing paediatric patients, so do not feel able to give you an accurate opinion on this.

Specific Infections of Microorganism Species of Environmental Concern at Yorkhill from 2005 to 2015

5. Accepting that much time has passed please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106).** Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents' and/or reported to HPS?

A. I have no direct knowledge of what happened at Yorkhill. I was not involved with day- to-day infection control at Yorkhill.

IPC Practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

6. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteremia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)** (a) formed a part of IPC

practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. I have no knowledge of any investigations, as I was not involved with the Yorkhill service.

Awareness of Risk of Bacteremia from Potentially Environmentally Relevant Microorganisms at Yorkhill from 2005 to 2015

7. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteremia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. I have no knowledge of any investigations, as I was not involved with the Yorkhill service.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

8. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. I have no knowledge of any investigations, as I was not involved with the Yorkhill service.

Your Last Day Working for as Lead ICD for NHS GGC

9. The issue of precisely when you worked your last day as Lead ICD for NHS GGC has now become of some importance. What was your last day working as Lead ICD for NHS GGC and how can you be sure of that date?

A. I was never Lead ICD for GGC. Tom Walsh asked me if I was interested in applying early in 2008. I had just taken on the role of Clinical Director in March 2008 and realised that I could not manage the workload of ICD

as well. I was the Lead ICD for South Glasgow, which did not include Yorkhill. Prof Craig Williams was appointed Lead ICD for GGC. This was a new role within the new structure. I gave up my role as IDC for South Glasgow at the latest August 2008. I believe I waited for the first Lead ICD for Glasgow to be appointed.

Subsequent Involvement in the New SGH project

10. Once you had ceased to be Lead ICD for NHS GGC what were your duties in 2009 to 2014 and did you have any involvement (however minimal) in the design, procurement or construction of the new South Glasgow Hospital in that period?

A. Once I gave up my South Glasgow ICD duties, I no longer had any involvement with the design, procurement or construction of the new South Glasgow Hospital. I was indirectly involved in overseeing the design of the laboratory building in my role as Clinical Director. The direct involvement for each of the laboratory disciplines, I think, was the responsibility of the Heads of service.

11.23 June 2010 PMI

11. Were you aware of a Project Manager's Instruction to remove HEPA Filters from some rooms in the proposed Adult Haematology Ward in the new SGH dated 23 June 2010 **(Bundle 16, Document 24, Page 1674)** and if so what was the reason given?

A. I was not aware that any instruction was given to remove these HEPA filters, and it is certainly something I would have challenged had I been aware of it.

Additional Information to Assist the Inquiry

12. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that

you consider would assist the Inquiry in understanding that issue?

A. When I became involved in raising concerns, even before the hospital opened, I was reporting the concerns of others. However, I knew from my years of experience as an ICD that there was a potential risk to patients from a water system or ventilation system. I understood the importance of ensuring that these systems met the Standards as a minimum. I had been involved in managing outbreaks and risks that had been linked to water and ventilation in my role as ICD over the years. I was confident in reporting the concerns of several of my colleagues about the risks before and after the hospitals opened, as their concerns were justified with patient safety as the priority.

Following the opening of the QEUH, Dr Harvey-Wood was very anxious about the pattern and number of organisms that she was seeing, knowing this did not follow the pattern she was used to at Yorkhill. She has presented, with Dr Peters, the evidence. The Inquiry has a copy of this presentation. See "Bacteremia rates and Resistance Paediatric Haematoncology 2014-2018" **(Bundle 27, Vol. 6,Document 9, Page 107).**

There were also several outbreaks/ infection control incidents in the QEUH that were reported by my colleagues.

What we were seeing was not the usual pattern of infections. By this, I mean that the pattern of infections/ types of organisms that were being seen, was not what experienced microbiologists were used to seeing. Dr Harvey-Wood had the details of the base line infections that she had seen at Yorkhill. There were also several incidents, which have already been reported, which should not have been happening in a new hospital.

There were many colleagues who were too frightened to speak out but would report concerns at meetings, the weekly ones being minuted. Once Dr Peters was appointed, I was only working two days a week but would occasionally pick up obvious issues that needed to be managed by ICP.

None of us knew the exact reason for what we were seeing at that stage but knew that investigations had to be carried out. The water and ventilation systems were the obvious areas of concern and the safety of these systems understood.

Some defects in the water and ventilation systems had been identified and were being reported by microbiologists and infection control doctors from 2015, onwards, but the full extent of the problems was not understood. Barriers were put up to stall identifying exactly what the problems were. Further, there appeared to be no acceptance that there might be a problem.

Along with others, I reported these concerns and the problems with IPC to senior management, where some action was taken. However, GGC chose not to accept the expertise of some very experienced microbiologists and, instead, listened to a small number of voices, who sang the tune that GGC wanted to hear. There was a refusal to bring in external experts to try and resolve the differences of opinion, a solution which I had suggested to them on several occasions. As a result, the more microbiologists were seeing that nothing was happening, the more stressful it became.

Further, the more confrontational the atmosphere became, the fewer microbiologists were prepared to stand behind those directly raising concerns. This left the whistleblowers very isolated and gave GGC the opportunity to say that we were in a minority and, therefore, wrong and just troublemakers.

But we, the whistleblowers, knew there were problems. The pattern of infections had changed. Dr Peters, Dr Inkster and Dr Harvey-Wood have provided details/evidence. I no longer have access to data.

I don't think any of us knew the extent of the problems and failures to meet the minimum standards. I believe that appointing managers to posts with responsibilities they had no knowledge or understanding of and believing they no longer needed the experts to give them advice, had a significant impact on some of the errors made and then the failures to commission and validate the hospital systems.

Declaration

13. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Print name: Dr Penelope Redding

Signed: [redacted]

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Bundle 16 – Ventilation PPP

Scottish Hospitals Inquiry - Bundle 27, Volume 6 – Miscellaneous Documents

Scottish Hospitals Inquiry - Bundle 44, Volume 1 - NHS GGC Expert (HAD) Report

Scottish Hospitals Inquiry
Glasgow 4 Part 2

Consequential Witness Statement of
Dr Jairam Sastry

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. My name is Jairam Sastry. I am a Consultant Paediatric Oncologist at the Royal Hospital for Children ("RHC") at the Queen Elizabeth University Hospital ("QEUH") in Glasgow. I am employed by Greater Glasgow and Clyde Health Board within the National Health Service (NHS). My line manager is Dr. Phil Davies, who is the Clinical Director for Women and Child Health.

I am responsible for the diagnosis, management and aftercare follow up of children and young adults with solid and Central Nervous System (CNS) tumours who are referred to our unit. I do autologous bone marrow transplantation for children with solid and brain tumours. I also care for those children and young adults who unfortunately do not survive cancer and require palliative and terminal care.

I have no expertise or detailed knowledge of environmental bacteria in general. As clinician I see and treat infections in children who are immuno-compromised. We are used to seeing and treating infections caused by certain types of bacteria which are commonly encountered in our patient population. These are endogenous bacteria. Endogenous bacteria are those that naturally reside in or on the body, while environmental bacteria are those found outside of the body, in the surrounding environment. Endogenous bacteria, also known as the normal flora, can become pathogenic under certain circumstances. Environmental bacteria can cause infections when they enter the body, often through contaminated surfaces or from other individuals. We take advice from microbiologists and Infection control team when an environmental bacteria is isolated from our patients.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern ' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. I don't accept the premise of the question. I do not believe that there was significantly higher number of environmentally relevant bactaraemia cases in paediatric haemato-oncology patient population at Yorkhill from 2005-2015. The number of environmental bacteraemia in our patients at Yorkhill in the defined period was consistent with the number I would expect from my experience and expertise of treating immunocompromised patients. As clinician, without any doubt, I saw increased number of infections with both endogenous and environmental bacteria in our patient population within a few

years after moving to QEUH. Our patients are prone to develop bacterial infection as they are immuno-compromised whether they were at Yorkhill or at QEUH.

Our antimicrobial policy or Central venous line care policy had not changed in any way to explain the increased number of infections. I note with interest the data compares periods from 2005-2015 at Yorkhill to 2015-2022 at QEUH. We saw all the increased infection in 2017-2019, i.e over a three year period, which is point of time in question here. Hence, I believe it is not a true comparison.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. The conclusion in the HAD report is not consistent with my experience of treating patients at Yorkhill and QEUH. My experience of blood stream infections in children under our care was significantly higher at QEUH compared to Yorkhill. As you can see from the figure 20 of the Bundle 44, volume 1, page 116, the incidence between the years 2016-2019 is higher. We were seeing significantly more than expected environmental bacteria in blood stream of our patients leading to more central venous lines being removed, prolonged antibiotic treatment and hospitalisation for children. Hence conclusion of the HAD report is not consistent with my experience.

Comparison between the susceptibility of adult haemato-oncology patients and paediatric haemato-oncology patients to bacteraemia attributed to environmentally relevant microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

A. Children are not mini-adults for disease presentation or treatment of infections because they are smaller, their anatomy and physiology are different, and, most importantly, their immune system and immunological exposure history are less mature. In addition, children have different behaviors and lead different lives than adults, which put them at risk for different infections from their peers and their environment. Even larger differences distinguish infants from older children and adults. Diagnosis and treatment must be customized to accommodate the differences in size and physiology of children. Hence I believe the susceptibility to bacteraemia is different for children compared to adults

Specific infections of microorganism species of environmental concern at Yorkhill from 2005 to 2015

5. Accepting that much time has passed please review the list of 'microorganism species of environmental concern 'from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106). Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents 'and/or reported to HPS?

A. I do not recollect or remember any specific investigations during that period in Yorkhill as "healthcare infection incidents ".

IPC practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

6. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. I cannot recollect or remember any specific investigations such as discussing at the PAG (Problem assessment group) or Root Cause Analysis (RCA) during Yorkhill time that involved clinicians.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

7. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. We as clinicians were aware of environmental bacteria as cause of blood stream infections. Risk of environmental bacteria were minimised with our antibacterial policy and infection control policies. When a potential environmental bacteria was isolated from our patients at Yorkhill, it was discussed with the microbiologist who used to attend our daily meeting midday. Appropriate antibiotics were prescribed for those organisms that could be cleared from the line. CVL was removed for those patients that had grown bacteria unlikely to be cleared or those patients who were unwell clinically.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

8. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. As per national practice Schiehallion unit had strict hand hygeine, infection control policy, central venous access policy, febrile neutropenia guidelines and general infection prevention control policies in place. These were held at highest standards during Yorkhill times too. Clinicians were not involved in RCA/ PAG if they happened in Yorkhill. I am unable to comment whether they happened when environmental bacteria was found in the blood stream of a child.

Enteric Infections

9. The Inquiry has heard evidence that some BSI can arise by breakthrough from the patient's gut. It has been suggested that that the Inquiry would be entitled to assume that if you and your colleagues considered that one of your patients had such an infection as a result of gut breakthrough such a case would not require to be escalated to a PAG or IMT within the IPC system. Do you have a view on this?

A. All Gram negative blood infections are escalated to PAG or IMT by the team. We understand that BSI can arise by breakthrough from the patient's gut. However we escalate all GNB blood stream infection. PAG will decide if RCA needs to be done or not.

Additional information to assist the Inquiry

10. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. I have no further information regarding this. As per my previous statements, I can reinforce that we as clinicians saw a higher number GNB, many of which were environmental bacteria at QEUH.

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: Print name: Jairam Sastry

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 - Bundle 44 - Volume 1 - NHS GGC Expert (HAD) Report

Scottish Hospitals Inquiry
Glasgow 4 Part 2

Consequential Witness Statement
of Pamela Joannidis

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. Between 2005 – 2007 I was a member of the Infection Control Team (IPCT) covering the Royal Hospital for Sick Children, Yorkhill (RHSC). My title was Senior Nurse, IC and I had a team of 2 Infection Control Nurses (IPCN). We were led by our Infection control doctors (ICD), Dr Williams and Dr Balfour and supported by 4 principle clinical scientists, Dr Lucas, Dr Harvey Wood, Dr Kennedy (bacteriology and mycology) and Dr Mackie (virology). I was line manager to the 2 IPCNs and my line manager was the Director of Nursing, Ms Brenda Townsend. At this time, I was also the Clinical Waste Advisor and managed the paediatric tissue viability nurse specialist until RHSC merged with Greater Glasgow. We did not have a dedicated Infection Control Manager (ICM) but the role was undertaken by the Director of Nursing.

We did not have an electronic reporting system as such but relied mainly on reports from our Infection Control Doctors (ICD) and scientists to make us aware via phone call, of any organisms such as MRSA and VRE and any clusters of organisms such as Pseudomonas or Serratia. The team covered the IPC service for the RHSC, the Department of Child Psychiatry, and the Queen Mother's Maternity Hospital. This would have included the Schiehallion unit in the RHSC. The Schiehallion clinical team had a weekly microbiology meeting to which the ICDs and or clinical scientist would attend to discuss microbiology results. The IPCNs would be informed by the ICD or clinical scientist if anything required action following the meeting.

If there were concerns of an unusual organism or a cluster of organisms, the IPCNs would be directed by the ICD to arrange an OCT (Outbreak control meeting). We followed what was the Scottish Infection Control Manual, a guideline published I think about 1999. This document provided advice on the membership of the OCT and agenda. The nursing team undertook IPC audit, visited to give advice on isolation of children with infection and also at staff request, would speak to parents / patients about basic IPC matters. Our work also included undertaking training and awareness sessions for staff. If work was required to complete estates repair we would support the completion of the HAI SCRIBE and attend during any works daily to ensure the actions agreed in the HAI SCRIBE were adhered to.

A lot of our work was focused on virology. We did not see much MRSA or CDI in the hospital. Our role would be to ensure standard infection control precautions (SIPC) were in place and provide advice on transmission-based precautions where relevant. The clinical scientists would undertake weekly (?) air sampling in Schiehallion and make us aware of any results that required action. We would act on the direction of the ICDs and could include supporting domestic services to undertake extra cleaning or on occasion undertake the air sampling if the onsite lab was short staffed. We had good working relationships with the nursing and domestic services teams in Schiehallion.

We also supported the unit accreditation by reviewing cleaning and other standard operating procedures (SOP). In 2007, the IPC service in RHSC merged with the IPCT for NHS Great Glasgow.

At this time my nursing team continued to cover the RHSC but with a restructure of the service we were asked to cover all maternity and neonatal services across Southern General, Royal Alexander and Glasgow Royal hospitals. Shortly after this a second restructure was announced and my team of IPCNs joined the IPCN teams for the Southern General referred to as the South Sector IPCT.

It wasn't until about 2012 (I think) that a system was purchased for electronic reporting of alert organisms to the IPCNs and we up to this point, continued to rely on the microbiology staff to contact us with new results or in the case of the Southern General, to write results in a folder kept in the lab.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. It would appear from tables 11A-F that there were more positive isolates on the RHSC site compared to the QEUH/RHC. It is difficult to understand the significance of these numbers without more detail.

The RHSC IPCNs did not have an electronic reporting system therefore relied on reports either by phone call or email from the laboratory to let us know if there were unusual singe organisms or a cluster of the same organism that required a meeting of the Infection Control Team (ICT) to review their significance.

We were only ever informed of results that had been authorised by either the clinical scientists or ICD. I think it is important to say that many of these organisms would not have been reported to the IPCNs at this time unless the ICD wanted us to undertake investigation. IPCNs would have been told about some environmental organisms such as Pseudomonas, Serratia or aspergillus where it was considered significant as a single case or potential cluster. I think nationally we have a broader understanding of the significance of environmental organisms now as demonstrated by the addition of some of these to the alert organism list in Appendix 13 of the National IPC Manual. I think it is fair to say that IPCTs were being directed nationally to focus on organisms such as MRSA and CDI (especially after the Vale of Leven incident) and that Gram negative bacteria were not reported to the IPCNs unless a cluster of the same organism associated in time and space was identified by the ICD. In Scheihallion I can recall investigating clusters of vancomycin-resistant Enterococci, Klebsiella and other organisms.

Not all positive blood cultures would have been reported to the IPCNs and certainly not all environmental bacteria especially if the isolate was thought to be linked to the community or was not linked to a cluster. I don’t know if the frequency of taking blood cultures was high in the unit or how it compared to other similar units. I do not recall being made aware of isolates of Delftia or Elizabethkingia prior to moving to RHC/QEUH. I note that neither of these organisms is listed in the alert organism list in Appendix 13 nor the A-Z of pathogens in the NIPCM. The Scottish Government developed a mandatory template for health boards to use around 2009/2010.

This listed surveillance to be reported at board level and to be published as part of board papers for the general public. The Healthcare Associated Infection Reporting Template 2009 (HAIRT) included national surveillance of MRSA and CDI initially and was updated to include Escherichia coli in 2010.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2-fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I know that many of these environmental organisms were not reported to the IPCNs to review. The National Infection Prevention and Control Manual was published 2012 and after that Appendix 13 which lists the alert organisms. At some point Appendix 13 was reviewed and 4 environmental bacteria were added to the list. These were Pseudomonas, Serratia, Acinetobacter and Stenotrophomonas in high-risk units. Prior to this, environmental bacteria would be referred to the IPCNs where there was a cluster (2 or more of same organism linked by time and place) that required investigation. We would not be made aware of every individual positive blood culture.

In 2009/10 the Scottish Government set out national surveillance reporting which included Meticillin-resistant Staphylococcus aureus, Clostridioides difficile and Escherichia coli reporting. At this time there was also interim guidance published on the Health Protection Scotland website for investigation of outbreaks of Pseudomonas aeruginosa. Two or more linked cases of the same organism in time and place was investigated through an incident team. By 2012 the IPC service had purchased an electronic reporting system which allowed IPCNs to get direct reporting of specimen results from the laboratory. Appendix 13 was used as the guide to set up electronic reporting to IPCNs. Even now, not all organisms in this NHS GGC report are listed in Appendix 13, therefore there is a reliance on microbiologist interpretation of data and decision to alert the IPCNs to support investigation. IPC services have evolved over time and the role of the IPCN has developed in that time also.

For all these reasons what would have been reported to the IPCNs has changed and therefore my experience of working as an IPCN in RHSC and RHC/QEUH was different, that is, I felt there were more Gram-negative blood cultures reported to the IPCNs when I moved to RHC/QEUH. I don't know if this is due to different ways of reporting, different emphasis on the healthcare-built environment, new laboratory reporting, the purchase of a new electronic system and /or a change in national focus and publication of new national guidance. I think in the past, there was significant focus on Gram positive organisms. Over time the impact of Gram-negative environmental organisms and their significance with regards healthcare infection has changed.

Comparison between the susceptibility of adult haemato-oncology patients and paediatric haemato-oncology patients to bacteraemia attributed to environmentally relevant microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

A. I think susceptibility in adults depends on their age, medical condition and whether they are immunocompromised. I believe children are different. They are not small adults and their body, metabolism and microbiome are different. Medication and treatments are different and for that reason, paediatric medicine is a separate discipline. Children's immune systems are still developing and can have a less robust response to infection. I am not an expert but I read that paediatric cancer protocols can be more aggressive, especially for leukaemia, meaning that children can be more immunosuppressed and for longer. Children are at higher risk of mucositis with intensive chemotherapy. The lining of the gut is damaged and this creates a path for gut bacteria to enter the blood stream.

Younger children have a less mature gut microbiome more susceptible to damage. This can make them more susceptible to infection. Other external factors may be important: the care of a child in hospital can be provided by live-in parents or other family members during hospital stay. In my experience children play on the floor, put things in their mouths and pull at their wound dressings and central lines. Children often want to go out on pass during their treatment, go to school or play with siblings and friends. I think children could have more opportunity for exposure to environmental organisms.

Specific infections of microorganism species of environmental concern at Yorkhill from 2005 to 2015

5. Accepting that much time has passed please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106). Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents' and/or reported to HPS?

A. I was not part of the paediatric team between 2013 – 2015 therefore my response only includes 2005 – 2013. I am struggling to remember dates and details of incidents. I do remember being asked to support the unit advanced nurse practitioner review central line practice due to what was felt to be an increase in positive blood cultures over time. I don't think this was a single organism but a range of organisms and the focus was on improvement work around in-patient and at home care of central lines. This was early in 2000s. I don't recall an OCT nor reporting to Health Protection Scotland. This was a few years before the NIPCM was published and either we were still following the old Scottish IPC guidance as mentioned previously or the Public Health guidance on outbreaks perhaps.

I am sorry I don't remember details of incidents but I do know that there was dedicated microbiology support to clinicians for the haematology-oncology service and feel anything of significance would have been discussed at the weekly microbiology meeting and referred to the IPCNs should it require further investigation. It is fair to say that I had never heard of some of these organisms listed in table 11 A-F prior to moving to QUEH when I took up the Lead IPCN role again.

IPC practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

6. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. I know that between 2005-2013, there was robust audit of line infection (through line surveillance undertake by the nurse practitioner, nurse educator and research nurse) for accreditation of the unit, there was IPC audit of standard infection control precautions, a minimum of weekly walk round of the unit by the IPCNs, attendance by the ICDs/ microbiologists at the weekly microbiology meeting to discuss laboratory results and antimicrobial prescribing. There was close working relationship with domestic services, the Senior Charge Nurse and the IPCNs to ensure a clean and safe environment therefore, I can say with certainty that there was appropriate scrutiny of infection control practice. I feel that anything that was considered by the clinical and microbiology teams to be of significance would have been investigated. I have a vague recollection of chicken pox, norovirus, adenovirus, Klebsiella and Enterobacter incident investigations but no detail. I don’t recall using any kind of template to report these to HPS.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

7. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. I feel my response to Q6 is relevant for this question. Please see my response to Q.6.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

8. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. As previously mentioned, Scheihallion had an advanced nurse practitioner, nurse educator and a research nurse who monitored rates of line associated infection. They also had outreach nurses who supported parents and patients with line care in the community. I think this was a necessity as part of the audit programme for unit accreditation as a bone marrow transplant unit. I remember the unit developed a line care booklet and ran education sessions for parents. The IPCNs would be invited to participate in parent meetings or education sessions. Also as previously mentioned, weekly meetings with microbiology were held to discuss all microbiology results for the unit.

Involvement of the IPC team in the new SGH project

9. Please review the 'Update on infection control input into the new SGH, 1 October 2014' (Bundle 27, Volume 8, Document 2, page 37) to what extent do you consider it to be an accurate statement of the involvement of the IPC team (whether the ICM, any ICN or any doctor with ICD sessions) in the new SGH project?

A. The new hospitals took many years to plan, design and build. The staff in the IPCT changed during that time. The Clinical Director, ICM and Lead ICD changed as did the Head Nurse/Associate Nurse Director. In considering my response, there are a number of things I do not know in detail such as; specifically who from the IPC service was involved in the decision to build the new hospital on the Southern General site or what their role was at this time; who signed off the original and subsequent HAI SCRIBE documents for the project; how much input the IPCT had for design and building of the ventilation and water systems; what arrangements were in place for commissioning of the hospitals in terms of IPC input.

I can see from the list provided by the project team, what myself and my colleagues were involved in during the project, however this does not tell me if the advice given was followed. I also know that decisions were taken for example, by the Scottish Government (SG) with regards single room accommodation for the RHC. I believe the project team accessed all available published guidance where available. I think when asked by the project team to provide IPC advice, this was given. However, I don't know if any decisions were taken without IPC input that should have. Therefore, I don't feel I can agree with this statement entirely for these reasons.

Additional information to assist the Inquiry

10. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. I have no further information I feel would assist the inquiry.

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: Pamela Joannidis Print name: Pamela Joannidis

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 - Bundle 44 - Volume 1 - NHS GGC Expert (HAD) Report

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 27 - Miscellaneous Documents - Volume 8

Scottish Hospitals Inquiry
Glasgow 4 Part 2
Consequential Witnesses Statement of
Sandra Devine

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your professional practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. In 2009 I became the ANDIPC and as such Ms Joannidis as lead nurse for this area reported directly to me. I did not have any involvement with the unit directly. Bacteria associated with the environment only became part of the alert list in the national manual in 2017, so active surveillance was not in place before this date. I do not recall any outbreaks of environmental bacteria in Yorkhill Hospital reported during this time.

Incidence of environmentally relevant bacteraemia cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. There was no specific surveillance programme before 2017 so I am unable to comment.

Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I was not directly involved with IPC work in Yorkhill therefore I feel I cannot comment.

Comparison between the susceptibility of adult haemato-oncology patients and paediatric haemato-oncology patients to bacteraemia attributed to environmentally relevant microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

A. Both groups of patients share similar risk factors because the treatments needed to manage or cure their condition suppress the immune system, reducing the body's natural defence against infection. Invasive devices breach the skin barrier and allow bacteria to enter, increasing the risk of blood stream infections. Patients often receive antimicrobial treatment, which can alter their microbiome and result in the loss of the protective effect of a balanced microbiome. Steroid treatment, common in these patients, also suppresses the immune system. Children often have additional risk factors such as the increased risk of skin colonisation with gut microflora due to the use of nappies. They need close social interactions with family members to assist their development and will share toys with playmates and siblings. They are also more likely to be accompanied by a parent, which can increase the bioburden in their room. They are less likely to follow hand hygiene practices and may not understand that they should avoid touching their line or the line site.

Specific infections of microorganism species of environmental concern at Yorkhill from 2005 to 2015

5. Accepting that much time has passed please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106). Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents' and/or reported to HPS?

A. I was not directly involved in the IPC work in Yorkhill Hospital. It also needs to be acknowledged that there was no active surveillance of infections caused by environmentally relevant bacteria before 2017. Chapter 3 of the national Infection Prevention and Control Manual was only launched in September of 2016.

IPC practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

6. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. NHSGGC teams have always followed the principle of outbreak detection and investigation, but I am unable to comment on the extent of these investigations in relation to environmentally relevant bacteria.

Awareness of risk of bacteraemia from potentially environmentally relevant microorganisms at Yorkhill from 2005 to 2015

7. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. I am unable to comment on this as I have not worked in the Schiehallion Unit.

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

8. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. This question should be directed to staff within Yorkhill/RHC. This work was not led by IPCT.

Your involvement with the procurement of the new South Glasgow Hospital

9. After you became Associate Nurse Director for Infection Prevention and Control in 2009 what involvement did you have with the procurement of the new South Glasgow Hospital ("new SGH"):

a) Prior to the start of the competitive dialogue?

A. None

b) Between the end of the competitive dialogue and the signing of the contract on 18 December 2009?

A. My only recollection is the meeting in which I attended where there was a discussion about a paper developed by Dr Redding, Dr Hood and Ms Rankin regarding various IPC proposals/recommendations. This took place on 18th May 2009 (Bundle 14, Volume 1, Page 75).

c) During Stage 2 and the Reviewable Design Period in 2010?

A. None

d) During Stage 3 from authorisation to proceed on 16 December 2010 until the end of 2014?

A. None although I was part of some of the working groups, e.g. Generic Ward Operational Policy Group and I attended one meeting of the critical care group that I can recall.

IPC involvement in late 2009

10. Which members of the NHS GGC IPC team (whether the ICM, any ICN or any doctor with ICD sessions) were involved to any extent in decision making around ventilation in the proposed new SGH in the period between the end of the competitive dialogue and the signing of the contract on 18 December 2009?

A. My only recollection is the meeting in which I attended where there was a discussion about a paper developed by Dr Redding, Dr Hood and Ms Rankin regarding various IPC proposals/recommendations. This took place on 18th May 2009.

Experience of members of the NHS GGC IPC team in 2009 and 2010

11. Which members of the NHS GGC IPC team in 2009 and 2010 had sufficient experience to give advice on the IPC implications of proposed features of water and ventilation systems that were to be included in the new SGH?

A. To answer this question, I would need to know what is considered as sufficient experience. The level of experience and required knowledge base for an IPC practitioner involved in building projects is still undetermined. I cannot comment on the experience of individual colleagues but any question re water or ventilation would have been directed to the ICD.

Secondment of an ICN to NHS GGC Project Team

12. During 2009 what steps did you take as Associate Nurse Director for Infection Prevention and Control to ensure that a member of the IPC was seconded to the NHS GGC Project Team for the new SGH after Annette Rankin left for HPS?

A. When Ms Rankin left the project team, I initiated an internal recruitment process. To the best of my recollection, Jackie Barmanroy was the sole candidate. These processes normally take some time to complete.

ICN support to the NHS GGC Project Team from 2012 to 2015

13. Who provided ICN support to the NHS GGC Project Team after Jackie Stewart's secondment to the team ended in the summer of 2012?

A. It would have been on an ad hoc basis. Several of the senior nurses had experience of new builds. The secondment could have been extended but as I recall, the project team at that time considered that they no longer required a specific IPC representative on the project team.

HAI-Scribe Training

14. Once Jackie Stewart was appointed ICN in the NHS GGC Project Team for the new SGH what training did you arrange for her to receive in respect of HAI Scribe and the terms of SHFN 30 Part B (Bundle 43, Volume 3, Doc 3, Page 9)?

A. There was no such specific training available. All of the teams had access to training delivered by Health Facilities Scotland on general aspects of the HAI Scribe process at various times, but this was not mandatory then and is not now. There is no specification of what qualifications IPC professionals need to be part of a project team to date despite ASSURE being in place for several years.

Stage 2 HAI-Scribe

15. When did you first become aware that Jackie Stewart had completed a Stage 2 HAI-Scribe for each of the adult and children's hospitals (Bundle 43, Vol 3, Documents 18-19, Page 1114) on 7 July 2010? Are you satisfied that the documents have been completed in conformity with the terms of SHFN 30 Part B (Bundle 43, Volume 3, Doc 3, Page 9)?

A. I became aware of it when Jackie gave evidence to the inquiry. I cannot comment on conformity.

Stage 3 HAI-Scribe

16. As Associate Nurse Director for Infection Prevention and Control what steps did you take to ensure that a Stage 3 HAI-Scribe was completed for the new SGH in conformity with the terms of SHFN 30 Part B (Bundle 43, Volume 3, Doc 3, Page 9)?

A. This was the responsibility of the project team.

a) Was a Stage 3 HAI-Scribe completed for the new SGH and if so, when?

A. I don't know this.

Stage 4 HAI-Scribe

17. Was a Stage 4 HAI-Scribe completed for the new SGH and if so, when?

A. I have no knowledge of this.

Update on infection control input into the new SGH, 1 October 2014

18. Please review the 'Update on infection control input into the new SGH, 1 October 2014' (Bundle 27, Volume 8, Document 2, page 37) to what extent do you consider it to be an accurate statement of the involvement of the IPC team (whether the ICM, any ICN or any doctor with ICD sessions) in the new SGH project?

A. I consider this to be an accurate summary of IPC involvement at this time, I recall this was focusing on 'snagging' issues as the build neared completion. Now it involved directing any issues to the appropriate staff member, including the LICD if needed. The purpose of consulting the hand hygiene coordinator was to seek guidance on the optimal placement of soap, hand towels, and gel dispensers. We anticipated that our input would be required for this type of advice.

IPCT Incident Management Framework

19. In her evidence to the Inquiry on 25 October 2024 Angela Wallace (transcript, Columns 49-52) referred to an NHS GGC SOP entitled 'Incident Management Framework' (Bundle 27, Volume 17, Document 28). This is version 2. When was the first version of this SOP first developed and when was it approved by the BICC?

A. It was approved in December 2021 and developed in response to an action required of GGC from the SG Oversight Board which recommended that local SOP be stood down in favour of referring to the national guidance. On the front page of the framework document you will see that the two documents that were referred to were Chapter 3 of the National Infection Prevention and Control Manual and the GGC Outbreak and Incident Management Plan which is based on the document, the Management of public health incidents: guidance on the roles and responsibilities of NHS led incident management teams.

a) Section 2.1 of Is the effect of the SOP (and in particular section 2.1) that a separate assessment is carried out locally prior to deciding if an assessment using the NIPCM HIIAT is required, and if so why is this the case?

A. No this is an incorrect interpretation. The NIPCM's definition of an outbreak/incident is open to interpretation, but it does require the assessment of cases to determine if they are linked. Section 2.1 of NHSGGC Incident management Framework talks about this initial assessment to determine if this link exists. After reviewing the clinical and epidemiological information if the members of the PAG, which includes an Infection Control Doctor, determine that the cases are not connected then they do not meet the reporting criteria in chapter 3, i.e. there is no incident or outbreak then there is no requirement to report. This is entirely consistent with the guidance in the Management of public health incidents: guidance on the roles and responsibilities of NHS led incident management teams' section 6.4. Please also note that the NIPCM lists this document as the reference for Chapter 3 of the NIPCM.

b) Is the effect of the SOP (and in particular section 2.1) that if a PAG concludes that there is "No significant risk to public health and/or patients" then even when the events considered would otherwise meet the conditions to be characterised as a HIIAT Amber or Red no HIIAT assessment will be carried out in accordance with Chapter 3 of the NIPCM?

A. No this is not the case. If the clinical opinion of members of the PAG is that there is no outbreak or incident, then it does not meet the definitions in chapter 3 and by inference it does not require a HIIAT assessment or reporting.

c) Is the effect of the SOP (and in particular section 2.1) that healthcare infection incidents, outbreaks and data exceedance in NHS GGC will not necessarily be reported to ARHAI if, notwithstanding other concerns, a PAG concludes that there is “No significant risk to public health and/or patients”?

A. Please refer to answers above. For context, from January 2024 to February 2025, IPCT in GGC reported over 200 incidents to ARHAI Scotland, averaging nearly one per working day. This is a significant reporting requirement on frontline IPCTs.

Additional information to assist the Inquiry

20. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. No

Declaration

I believe that the facts stated in this witness statement are true based on my recollection. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted] Print name: Sandra Devine

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2025 - Bundle 44 - Volume 1 - NHS GGC Expert (HAD) Report

Scottish Hospitals Inquiry - Hearing Commencing 13 May 2025 - Bundle 43 - Volume 3 - Procurement, Contract, Design and Construction, Miscellaneous Documents

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 27 - Miscellaneous Documents - Volume 8

Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 27 - Miscellaneous Documents - Volume 17

Scottish Hospitals Inquiry
Consequential Witness Statement of
Prof Craig Williams

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your Professional Practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. I was one of 3 Consultant Microbiologists at Yorkhill, the other 2 being Dr Alison Balfour and Prof Robert Masterton, who along with 2 clinical scientists Dr Helen Kennedy and Mrs Kathleen Harvey-Wood provided clinical advice to the Schiehallion unit at Yorkhill.

The term “environmentally relevant bacteraemia” is not widely used in the microbiology literature but has been developed by the authors of the HAD report presumably in an attempt to bring clarity to the question. It is important however not to misinterpret “environmental” as only the hospital environment. This type of organism referred to is widespread in the wider environment and there is a complex interchange of organisms between people, both healthy and with any defect in their immune system and the wider environment. For example it is possible that Cystic Fibrosis (CF) patients living near natural water courses have a higher rate of colonisation with Pseudomonas infection. Goeminne suggests that adult CF patients without P. aeruginosa infection live

significantly further from blue space, i.e. natural open water, than CF patients with chronic P. aeruginosa colonisation. They conclude that this may indicate that natural open water represents a source of infection by P. aeruginosa in CF [1] but this remains uncertain as are many areas in this field [2].

In the case of Stenotrophomonas a study by Brooke in 2021 lists 12 known hospital sources but also 17 known community sources [3]. Detailed studies of the oral microbiome in healthy adolescents have shown that 10% of teenagers carry this organism in the mouth, so it is not unusual for this organism to be present. The likely pathophysiology of bacteraemia with these organisms is that when the patient develops a serious disease or is treated with chemotherapy, bacteria carried in the oropharynx spread throughout the gut and respiratory tract. This is compounded if the patient is treated with an antibiotic to which the organism is resistant, such as Meropenem which has the effect of reducing the protective normal flora allowing space for the overgrowth of the Stenotrophomonas. The underlying disease and chemotherapy then reduce the effectiveness of the normal mucosal barriers to infection in the gut and oropharynx allowing the bacteria to pass, or translocate, into the bloodstream. To say that the hospital environment is the only source of these bacteraemia's is incorrect. The hospital environment is one possible source which should be considered and in my view this is how this problem should be presented to patients and their parents not that the hospital environment is the definitive cause.

References:

1) J Cyst Fibrosis. 2015 Nov;14(6):741-7. doi: 10.1016/j.jcf.2015.04.004. Epub 2015 May 2.

2) Infect Med (Beijing). 2024 Aug 10;3(3):100125. doi: 10.1016/j.imj.2024.100125. eCollection 2024 Sep

3) Front. Cell. Infect. Microbiol., 16 November 2023 Sec. Bacteria and Host. Volume 13 - 2023 | https://doi.org/10.3389/fcimb.2023.1265777

Incidence of Environmentally Relevant Bacteraemia Cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)** and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. I have answered this question based upon my reading of the report provided to me. In my view the evidence presented in bundle 44 referring to the interrupted time series presented in bundle 44 volume 1 page 118 figure 22 shows no evidence of a 2 fold decrease in the incidence of bacteraemia attributed to "environmentally relevant micro-organisms" The rate at Yorkhill, reading from the chart without access to the data behind the chart, is from 4-6.5 per 1000 bed days compared with 3-5.5 per 1000 bed days at QEUH. This to my mind does not look like a 2 fold reduction but looks like the rate was broadly similar before and after the move from Yorkhill to the QEUH. The initial drop in numbers at QEUH could be explained by the pausing of the bone marrow transplants while the ventilation on the unit was rectified. An interrupted time series is a valid way of looking at data of this type so I think it is reasonable to interpret this as a lack of evidence of change in the rates of bacteraemia attributed to "environmentally relevant micro-organisms" in paediatric patients between Yorkhill and the QEUH.

Rate of Change of Incidence of Environmentally Relevant Bacteraemia Cases between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it **(Bundle 44, Volume 1, Pages 116 to 119)** and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. Given my previous caveats around the need to understand the broad distribution of "environmentally relevant microorganisms", referring to the interrupted time series presented in bundle 44 volume 1 page 118 figure 22 I see no evidence of a 2 fold decrease in the incidence of bacteraemia attributed to "environmentally relevant micro-organisms" The rate at Yorkhill, reading from the chart without access to the data behind the chart, is from 4-6.5 per 1000 bed days compared with 3-5.5 per 1000 bed days at QEUH. This to my mind does not look like a 2 fold reduction. The initial drop in numbers at QEUH could be explained by the pausing of the bone marrow transplants while the ventilation on the unit was rectified.
There is however a 2 fold reduction in bloodstream infections attributable to infections with no environmental relevance, again reading from the chart in **Bundle 44 volume 1 page 117 fig 121** from 12-16 per 1000 bed days at Yorkhill to 4-21 per 1000 bed days at QUEH. I would surmise that this reduction was due to an intensive focus on line care on the unit at that time and that much of it was driven by the reduction in gram positive bacteraemia.

The fact that there is a differential between these two " sources" of bacteraemia suggests to me that the " environmentally relevant microorganisms" bacteraemia's, which are not being impacted by intensive infection control inputs, are more likely to be an inherent result of

patient/treatment factors such as high levels of carriage of these organisms, shift of the normal bacterial flora due to antibiotic treatment or easier translocation as a result of mucositis following intensive chemotherapy and that these organisms are not producing bacteremia as a result of first colonising and invading through central lines.

If the findings of the HAD report, **Bundle 44 vol 1**, and my interpretation of this data are accepted, the fact that an interrupted time series, **Bundle 44 vol 1 page 118 fig 2**, has shown no difference in the rate of " environmentally relevant microorganisms" bacteraemia's between 2 completely different hospital environments shifts the balance of probability for the causation of these bacteraemia's away from the immediate hospital environment to inherent patient/treatment or wider environmental factors. If that was not the case it would be necessary to posit that 2 completely different hospital environments, one with a dedicated stainless steel recirculating local water supply and another with a completely different provision of water system had the same impact on the rate of these bacteraemia's.

The other variable, the patient group, stayed broadly constant across the interrupted time series.

This information should have important implications across the broader NHS (in England) which is about to commit large amounts of resources to "improve" the water supplies across a large number of wards in all NHS hospitals to prevent the spread of waterborne pathogens [NHS Estates Technical Bulletin (NETB) no 2024/3]. If the direct hospital environment is not impacting upon these "environmentally relevant microorganisms" bacteraemia's then it would be important that the evidence presented to the inquiry is used to inform this debate.

I would also suggest, given two groups of experts have reviewed the same data and reached different conclusions about the increase in bacteraemia due to "environmentally relevant microorganisms" that this is now a difference of professional opinion rather than established fact.

A difference in professional opinion would be in no way unusual in a complex

situation such as this where the underlying biological and clinical sciences are still evolving.

Comparison Between the Susceptibility of Adult Haemato-Oncology Patients and Paediatric Haemato-Oncology Patients to Bacteraemia Attributed to Environmentally Relevant Microorganisms

4. From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

A. I have no experience of adult haemato-oncology so am unable to comment

Specific Infections of Microorganism Species of Environmental Concern at Yorkhill from 2005 to 2015

5. Accepting that much time has passed please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)**. Can you recollect any details of any of the investigations into the infections there listed at Yorkhill from 2005 to 2015 and whether any that occurred after the publication of the National Infection Prevention and Control Manual in 2012 were investigated as 'healthcare infection incidents' and/or reported to HPS?

A. I have no recollection of the management of individual infections in Yorkhill at that time

IPC Practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

6. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)** (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

A. I have no recollection of individual cases of infection from that time nor what the requirements for reporting to HPS were at that time

Awareness of Risk of Bacteraemia from Potentially Environmentally Relevant Microorganisms at Yorkhill from 2005 to 2015

7. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which the awareness of and management of the risk of bacteraemia from potentially environmentally relevant microorganisms was a significant part of practice at the Schiehallion Unit at Yorkhill from 2005 to 2015?

A. The term “potentially environmentally relevant microorganisms” is not in wide use in the microbiology community and seems to have been developed specifically to address concerns raised by the potential role of the environment in the QUEH.

The Schiehallion unit at Yorkhill had a dedicated stainless steel recirculating water supply which was regularly tested and as far as I can recall presented no problems. The same was true of the ventilation units. If it is to be postulated that the hospital environment was the source of these infections I would be unsure where that environmental source would be.

In terms of the HAD report’s interpretation of clustering the authors definition

of Probable clustering, **Bundle 44 vol 1 page 67**, i.e. same ward <1 month apart, is problematic when there is only one ward in the hospital housing severely immunocompromised patients. The authors also note on page 109 of their report, **Bundle 44 vol 1 page 109**, that epidemiological clustering may overestimate clustering for Stenotrophomonas maltophilia so I think their allocation of clusters in the case of the paediatric patients in the absence of any typing is unhelpful in terms of understanding the situation. The data presented in recent literature where typing is available and multiple cases were present on the same unit within a year, which would meet the authors epidemiological definition of a cluster showed that the infections were not genetically related [1].

References:

1)Stenotrophomonas maltophilia Infections in Paediatric Patients – Experience at a European Center for Paediatric Haematology and Oncology. Front Oncol. 2021 Oct 12;11:752037

CLABSI in the Schiehallion Unit at Yorkhill from 2005 to 2015

8. Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 any particular efforts were made to promote line safety of the sort later carried out at QEUH/RHC under the CLABSI (Central Line Associated Blood Stream Infections) from 2016?

A. There was a specialist nurse who was part of the Schiehallion clinical team who worked full time on the management and care of these lines and to the best of my knowledge all relevant guidance was in place at Yorkhill

Polymicrobial BSI

9. Can you assist the inquiry as to whether there was any change in the number of patients presenting with multiple microorganisms in a single blood culture (that might be referred to as polymicrobial BSI) between Schiehallion at Yorkhill and Schiehallion at the RHC?

A. I have no recollection of the details of individual episodes of bacteraemia from that time

Experience of Members of the NHS GGC IPC Team in 2009 and 2010

10. Which members of the NHS GGC IPC team in 2009 and 2010 had sufficient experience to give advice on the IPC implications of proposed features of water and ventilation systems that were to be included in the new SGH?

A. In **Bundle 14 vol 1 page 75** Drs Penelope Redding and John Hood and Annette Rankin had provided the IPC advice on isolation rooms, renal dialysis, day beds, theatre recovery and endoscopy. The meeting at which Annette Rankin was present considered the paper and agreed the final infection control position. I have no knowledge of the qualifications that Drs Redding and Hood and Mrs Rankin had at that time.

Communication with Dr John Hood or Peter Hoffman

11. Did you have any communication with Dr John Hood or Peter Hoffman about ventilation in the proposed new SGH at any point prior to the email exchange about Renal Dialysis from 25 October 2010 **(Bundle 17, Doc 79, Page 3032)**.

A. No and I was not involved in this conversation but just copied in

a) Regarding the email dated 5 June 2009 from John Hood to Heather Griffin, which you were copied into which relates to Filters fitted to the new Beatson

Cancer Centre **(B6 - Email re filter spec 2009)**, do you have any recollection of the email and if he took any action on it?

A. I saw the e mail as a result of the Police Scotland investigation but do not recall being sent it in 2009. I do not remember any requests from Heather Griffin or anyone else concerning the specification of the filters for the New Schiehallion.

PMI of 23 June 2010

12. Were you aware of a Project Manager's Instruction to remove HEPA Filters from part of the proposed Adult Haematology Ward in the new SGH dated 23 June 2010 **(Bundle 16, Document 24, Page 1674)** and if so what was the reason?

A. No

2013 Decision to Add an Adult BMT Ward to the New SGH

13. What involvement did you have in decision making around the decision to add an adult BMT Ward (that became Ward 4B) to the new SGH in a Change Order in 2013 (see 2 July 2013, Quality and Performance Committee, **Bundle 34, Document 62 at page 552)**? You may wish to make reference to a paper later produced by you for Dr Armstrong **(Bundle 20, Document 2, Page 13)**.

A. I had no involvement in the decision making around the decision to add an adult BMT to the new SGH.

The document that I prepared, **Bundle 20 Document 2 p13**, was not in any way related to the decision to add an adult BMT to the new SGH build. It was prepared after the deficiencies in the adult BMT unit had been uncovered and was an attempt to summarise what I could uncover about the original specification provided to the contractors and detailing the deficiencies uncovered in the unit.

Stage 2 HAI-Scribe for the New SGH

14. When did you first become aware that Jackie Stewart had filled out a Stage 2 HAI-Scribe for each of the adult and children's hospitals **(Bundle 43, Vol 3, Documents 18-19, Page 1114)** on 7 July 2010.

A. I became aware that Jackie Stewart had filled out a stage 2 HAI-Scribe when I was sent this questionnaire. I had no involvement nor was I asked to be involved in the completion of any HAI-Scribe documentation related to this project

a) Are you satisfied that the Stage 2 HAI Scribe documents have been completed in conformity with the terms of SHFN 30 Part B **(Bundle 43, Volume 3, Doc 3, Page 9)**?

A. It is not for me to be satisfied. In **Bundle 13 vol 3 page 479,** The Project Owner/Sponsor shall identify an appropriate individual to lead the HAI-SCRIBE process and ensure that HAI-SCRIBE is completed for all major Development Stage 1 Projects
The main responsibilities of the identified HAI-SCRIBE Project Manager are: · taking ownership of and leading the HAI-SCRIBE process ensuring that HAI-SCRIBE is completed for all Development Stage 2, 3 and 4 projects.
The roles of IPC team outlined in **Bundle 13 p481** are to advise, assist and contribute. I was not asked to advise, assist or contribute to any part of the HAI-Scribe process for the new hospital build

b) Are you satisfied that Jackie Stewart had the necessary information and experience to complete the Stage 2 HAI Scribe process in completed in conformity with the terms of SHFN 30 Part B **(Bundle 43, Volume 3, Doc 3, Page 9)**?

A. I do not know what information Jackie Stewart had and I am unaware of her qualifications and experience

Stage 3 HAI-Scribe

15. As lead ICD what steps did you take to ensure that a Stage 3 HAI-Scribe was completed for the new SGH in conformity with the terms of SHFN 30 Part B **(Bundle 43, Volume 3, Doc 3, Page 9)**?

A. It was not my role as lead ICD for NHSGGC to ensure that the stage 3 HAI Scribe was completed. As I stated in question 14 this was the role of the individual appointed by the project sponsor. I was not offered nor did I accept any role as ICD for the new hospital build. My role as outlined in my job description related to the functioning hospitals in NHSGGC and not the new build project

a) Was a Stage 3 HAI-Scribe completed for the new SGH and if so, when?

A. I have no knowledge as to whether a stage 3 HAI scribe was completed for the new SGH

Stage 4 HAI-Scribe

16. Was a Stage 4 HAI-Scribe completed for the new SGH and if so, when?

A. I have no knowledge as to whether a stage 4 HAI-Scribe was completed for the new SGH

Infection Control Input into the New SGH, 1 October 2014

17. Please review the 'Update on infection control input into the new SGH, 1 October 2014' **(Bundle 27, Volume 8, Document 2, page 37)** to what extent do you consider it to be an accurate statement of the involvement of the IPC team (whether the ICM, any ICN or any doctor with ICD sessions) in the new SGH project?

A. I was not involved in this e mail discussion **Bundle 27 vol 8 p 37-39** or in the production of the document **Bundle 27 vol 8 p40-42**. However, the discussion in the e mail trail and the document matches my understanding of the IPC input into the new SGH project. In addition, **Bundle 14 vol 1 page 75** suggests that Dr John Hood also had involvement to the input in 2009. Jackie Barmanroy was the infection control nurse seconded to the project. Sandra McNamee, Dr Teresa Inkster and I met infrequently early on in the project to discuss any issue that Jackie Barmanroy raised. These were entirely about sink fittings and our response was that they should be installed following the relevant guidance. I also suggested at this stage that as Dr Inkster was developing an interest in infection control in the built environment that she might wish to liaise with Jackie. At no time were detailed specifications for either water or ventilation systems discussed by me. My direct involvement began in late 2014 after the decision to move the infectious diseases unit to the new south Glasgow site. This was to seek guidance as to whether the PPVL rooms provided complied with the existing MDRTB guidance, **Bundle 27 vol 8 p45**, and ensuring the safest possible ingress and exit of patients with Ebola to the new ID unit which was to be situated in the centre of the tower block in the new south Glasgow site.

The e mail trail, **Bundle 27 vol 8 p37-38**, also clarifies a point given in oral evidence to the inquiry by Fiona McCluskey, her evidence (transcript 15 May 2025 at column 97). It is clear from the e mail from David Loudon that she was given the responsibility to provide the relevant updates to the infection control committees and also that she was asked by Tom Walsh to attend a committee to provide such an update. She was not being asked to provide an update around infection control but an update to infection control about any infection control related aspects of the project. My expectation would have been that the lack of validation of the new build to the relevant standards or any concerns around the completeness of validation should have formed a key part of any such update to the infection control committees.

IPC Sign Off of the Ventilation Systems of the New SGH

18. It is the evidence of Mary Anne Kane **(Statement Bundle Week Commencing 13 May 2025, Question 55(h) and (i), Statement Page 435)** that you completed the system sign off for the hospital as you were the Chair of the Board Ventilation Group. Accordingly:

a) Did you, as lead ICD, approve or sign off the ventilation system that was installed in Ward 2A RHC at handover? If not, who in IPC did?

A. Mary Anne Kane's statement at Question 55 (h) and (i) makes clear that she "assumed" I was involved. She provides no evidence to say I had actually done anything.

As far as I am aware there was no board ventilation group in NHSGGC and I am not aware of seeing the minutes from such a meeting in any of the evidence that I have reviewed. The only ventilation group I am aware of was the Theatre users' group which I did not chair but was a member of. The remit of this group was to ensure that all of the existing operating theatres met the requirements for annual revalidation of their ventilation systems.
I did not approve or sign off the ventilation system that was installed in ward 2A RHC at handover. **Bundle 13 vol 3 page 478** states that Stage 4: "Pre-handover check should be carried out by the Project Team and ongoing maintenance" should be carried out by the Estates team

HAI scribe needs to be read in conjunction with SHTM 03-01 2014 entitled Ventilation for healthcare premises Part A – Design and validation, as one of the key questions in the HAI scribe ventilation checklist at page 4 is compliance with SHTM 0301

In this document validation of specialised ventilation systems begins on page 114 and more detail is provided on pages 116-117

Commissioning - Commissioning is the process of advancing a system from physical completion to an operating condition. It will normally be carried out by

specialist commissioning contractors working in conjunction with equipment suppliers. Commissioning will normally be the responsibility of the main or mechanical services contractor.

Validation - A process of proving that the system is fit for purpose and achieves the operating performance originally specified. It will normally be a condition of contract that “The system will be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.”

On Page 125 paragraph 8.64 states that following commissioning and/or validation a full report detailing the findings should be produced. The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.

8.65 The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:
· the user department;
· infection control (where required);
· estates and facilities

As the responsibility for HAI-Scribe stage 4 is with the HAI Scribe project manager appointed by the project sponsor and given the fact that a validation report forms a key part of that process there is no role outlined in the guidance for the Lead ICD within a health board or any member of the ICP team to sign off ventilation in a new build hospital.
In clarification of other oral evidence given by Mary Anne Kane to the inquiry, her evidence page 155, I left NHSGGC in April 2016 not August 2017.

b) Did you, as lead ICD, approve or sign off the ventilation system that was installed in Ward 4B QEUH at handover? If not, who in IPC did?

A. No for reasons outlined in 18a

c) Did you, as lead ICD, approve or sign off the ventilation system of the isolation rooms in the QEUH and RHC at handover? If not, who in IPC did?

A. No for reasons outlined in 18a

Validation of the Ventilation Systems

19. What did you do to ensure that the Ventilation Systems of the new SGH were validated in compliance with SHTM 03-01 before patient migration started?

A. It is not the role of the Lead ICD to ensure that ventilation systems of the new SGH were validated. **Bundle 13 vol 3 page 478** states that Stage 4: "Pre-handover check should be carried out by the Project Team and ongoing maintenance" should be carried out by the Estates team

HAI scribe needs to be read in conjunction with SHTM 03-01 2014 entitled Ventilation for healthcare premises Part A – Design and validation, as one of the key questions in the HAI scribe ventilation checklist at page 4 is compliance with SHTM 0301
In this document validation of specialised ventilation systems begins on page 114 and more detail is provided on pages 116-117

Commissioning - Commissioning is the process of advancing a system from physical completion to an operating condition. It will normally be carried out by specialist commissioning contractors working in conjunction with equipment suppliers. Commissioning will normally be the responsibility of the main or mechanical services contractor.

Validation - A process of proving that the system is fit for purpose and achieves the operating performance originally specified. It will normally be a condition of contract that "The system will be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine

maintenance in order to remain so for its projected life."

On Page 125 paragraph 8.64 states that following commissioning and/or validation a full report detailing the findings should be produced. The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.

8.65 The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:
· the user department;
· infection control (where required);
· estates and facilities

As the responsibility for HAI-Scribe stage 4 is with the HAI Scribe project manager appointed by the project sponsor and given the fact that a validation report forms a key part of that process there is no role outlined in the guidance for me to ensure that the Ventilation Systems of the new SGH were validated in compliance with SHTM 03-01 before patient migration started.

Additional Information to Assist the Inquiry

20. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. I have had sight of the statement provided by Robert Calderwood, the former CEO of NHS GGC. Mr Calderwood refers to me having sessions provided in my job plan to advise the Project Team. This is incorrect, no such sessions were made available to me and I did not have a formal role in the project.

Declaration

21. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed:  Print name: Craig Williams

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

Scottish Hospitals Inquiry - Bundle 16 – Ventilation PPP
Scottish Hospitals Inquiry - Bundle 17 – Procurement History and Building Contract PPP
Scottish Hospitals Inquiry - Bundle 20 – Documents referred to in the Expert Report by Andrew Poplett and Allan Bennett
Scottish Hospitals Inquiry - Bundle 27, Volume 8 – Miscellaneous Documents
Scottish Hospitals Inquiry - Bundle 34 – Performance Review Group and Quality and Performance Committee Minutes and Relevant Papers
Scottish Hospitals Inquiry - Bundle 43, Volume 3 – Procurement, Contract, Design and Construction, Miscellaneous Documents
Scottish Hospitals Inquiry - Bundle 44, Volume 1 - NHS GGC Expert (HAD) Report
Scottish Hospitals Inquiry - Statement Bundle, Volume 1 - Week Commencing 13 May 2025
Scottish Hospitals Inquiry – B6 Email re filter spec 2009

Scottish Hospitals Inquiry
Consequential Witness Statement of
Dr Teresa Inkster

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The questions and answers are produced within the statement.

Your Professional Practice at Yorkhill

1. Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

A. I was not involved with the paediatric haemato-oncology service in Yorkhill.

Incidence of Environmentally Relevant Bacteraemia Cases at Yorkhill

2. Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report **(Bundle 44, Volume 1, Pages 97 to 106)** and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

A. I cannot comment definitively as to whether there was a higher number of cases in Yorkhill as there are flaws with the methodology in the HAD report. This has been discussed in detail by other witnesses but issues include; the lack of clear case definitions (HAI vs HCAI), analysis of two different time periods, omission of some micro-organisms namely non-tuberculous mycobacteria and inclusion of others for which the reason is not clear e.g. *Proteus mirabilis*. From the data presented it can be deduced that there were cases of environmentally related bacteraemias in Yorkhill. However, that in no way minimises the situation at RHC/QEUH, which was a new build hospital, and it remains my view that the comparison with Yorkhill is an inappropriate one. Knowledge of the risks from hospital water systems and Gram-negative organisms has evolved and became much more apparent following the Northern Ireland NICU *Pseudomonas aeruginosa* outbreak of 2011-2012 and the subsequent development of guidance. Data from as far back as 2005 has been analysed with no context provided.

IPCTs may not have been aware of the potential link to water and drainage systems of these organisms and therefore would not have implemented targeted control measures. ARHAI Scotland receive outbreak/ incident reports from all health boards in the country. We do not expect such historical comparison with older units to determine whether there is an outbreak/incident and consequently for IPCTs to act. Outbreak definitions have evolved and the outbreak definitions in Chapter 3 of the National Infection Prevention and Control manual (NIPCM) manual are applicable. It is noteworthy that the authors have utilised their own rigid outbreak definition and not applied those detailed in Chapter 3 of the NIPCM to their analysis. Neither have they plotted any infection control interventions on any of the graphs to assess the impact of these.

You would expect to find higher levels of environmental organisms in an older building particularly if there were no additional control measures employed during its lifespan e.g. biocide dosing, refurbishments, or ventilation upgrades. The HAD report lacks context and there is no information provided which

relates to water testing results, ventilation specifications, outbreak investigations and environmental control measures. Key documents from the QEUH/RHC incidents have been omitted and it is not clear if the authors have read these e.g. DMA reports, Intertek reports, internal and external SBARs/reports

The authors have used their own methodology for cluster analysis which is problematic for environmental outbreaks which may be polymicrobial **(see Bundle 44 part 3)** and where there may be long periods of time between cases. From the data presented in this section, it would appear there have been outbreaks of environmental bacteria in Yorkhill, the magnitude is not possible to assess without further information. I disagree with the HAD report authors conclusion that the pattern of *Acinetobacter baumanii* was the norm in Yorkhill and may be the usual representation and not that of an environmental source. Those with expertise in dealing with Acinetobacter spp outbreaks will know that these organisms can lead to protracted outbreaks over years due to the hardy nature of this species in the environment. Once present in a unit it can be very difficult to eradicate due to its ability to survive well in both dusty and moist surfaces.

Throughout the report the ethos of prevention is lost. Whilst zero tolerance will be difficult to achieve for environmental organisms in this high-risk group, IPCTs should be striving for the lowest possible numbers with each HAI case presenting an opportunity for learning and prevention of further patient cases. The presence of these organisms in Yorkhill should not be used to provide assurances that the environment in QEUH/RHC did not represent a risk.

The authors appear to be dismissive of single cases, stating that sporadic cases are unlikely to have an environmental source. I disagree with this statement. The first *Cupriavidus pauculus* case in the RHC was a single case which was investigated and found to be linked to the hospital water system. There have been publications of single cases linked to environmental source.

Examples include 1) Faury HB, Awad Z, Jolivet S, Le Neindre K, Couturier J, Godmer A,
Colle R, Levi LI, Cambau E, Barbut F. Investigation of a *Mycobacterium fortuitum* catheter-related bloodstream infection in an oncology unit. Infect Control Hosp Epidemiol. 2023 Aug;44(8):1342-1344. doi: 10.1017/ice.2022.263. Epub 2023 Feb 20. PMID: 36804097. 2) Gonzalez et al. *Cupriavidus pauculus* infection associated with extracorporeal membrane oxygenation in a pediatric patient, Cureus 17 (1): e78203

Rate of Change of Incidence of Environmentally Relevant Bacteraemia Cases Between Yorkhill and QEUH/RHC

3. Please review Figure 22 of the HAD Report and the text discussing it **(Bundle 44, Volume 1, Pages 116 to 119)** and the conclusion of the authors in the second bullet point on page 119 that "Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

A. I do not have any experience at Yorkhill to relate to however we would expect to see a reduction in environmental organisms following the move to a new hospital from an older building. New build hospitals are not just about service delivery and are designed with IPC in mind with guidance recommending IPC involvement from the outset to design out infection risk. There may also have been reduced clinical activity in the initial months post QEUH/RHC opening. Over time we can see the incidence increase again peaking in 2017-2018. This likely relates to the continual proliferation of bacteria in the water system resulting in more extensive biofilm formation coupled with a lack of maintenance of the system. There is a reduction in incidence following the

introduction of environmental control measures. This is particularly so following the move of 6A back to the refurbished 2A.

Definition of an 'Outbreak'

4. At section 2.2 the authors of the HAD report discuss what is meant by an outbreak. Do you have any comment on their approach either in general or by reference to the application of such an approach to IPC practice?

A. The authors of the HAD report have applied a very rigid definition of an outbreak. Those with experience in dealing with hospital outbreaks will know that this definition is not always met but that does not mean an outbreak has not occurred. Often, despite best efforts, we do not find the source of an outbreak.

Furthermore, this definition does not consider polymicrobial or polyclonal outbreaks **(see the bundle of documents entitled "Examples of Polyclonal and Polymicrobial Outbreaks")**. Typing is not always available /accessible, particularly for more unusual organisms and outbreaks may be declared on the basis of epidemiological links.

As we have learned more about micro-organisms and hospital outbreaks, definitions have evolved over time. Chapter 3 of the National Infection Prevention and Control Manual lists the following definitions in relation to incidents/outbreaks;

An exceptional infection episode;

A single case of rare infection that has severe outcomes for an individual AND has major implications for others (patients, staff and/or visitors), the organisation or wider public health for example, high consequence infectious disease (HCID) OR other rare infections

A healthcare infection exposure incident;

Exposure of patients, staff, and public to a possible infectious agent as a result of a healthcare system failure or a near miss e.g. ventilation, water or decontamination incidents.

A healthcare associated infection outbreak;

Two or more linked cases with the same infectious agent associated with the same healthcare setting over a specified time period.
or

A higher-than-expected number of cases of HAI in a given healthcare area over a specified time period.

A healthcare infection data exceedance;

A greater than expected rate of infection compared with the usual background rate for the place and time where the incident has occurred.

A healthcare infection near miss incident;

An incident which had the potential to expose patients to an infectious agent but did not e.g. decontamination failure.

A healthcare infection incident should be suspected if there is:

A single case of an infection for which there have previously been no cases in the facility (e.g. infection with a multidrug-resistant organism (MDRO) with unusual resistance patterns or a post-procedure infection with an unusual organism)

Outwith Scotland other guidance documents containing outbreak definitions include;

- NICE Healthcare associated infections, Quality Standard 113. ‘An outbreak is usually defined as 2 or more people experiencing a similar illness linked in place and time or a single instance of a rare of particularly harmful organism’

- SHEA expert guidance 2017; ‘the authors consider a facility outbreak to be a situation in which the number of cases exceeds the facility’s normal baseline and intra facility transmission is suspected or proven. Even a single case may be considered an outbreak if normally there are no cases.’

- World Health Organisation ‘ A disease outbreak is the occurrence of disease cases in excess of normal expectancy’.

- CDC ‘When there are more disease cases than what is usually expected for a given time, within a specific location, for a target population

I would also draw the Inquiry’s attention to a paper by Hiroshi Nishiura entitled ‘Early detection of nosocomial outbreak caused by rare pathogens: A case study employing score prediction interval’. The findings of this work support that on diagnosis of an index case an outbreak investigation should start when caused by a rare pathogen. Nishiura H. Early detection of nosocomial outbreaks caused by rare pathogens: a case study employing score prediction interval. Osong Public Health Res Perspect. 2012 Sep;3(3):121-7. doi: 10.1016/j.phrp.2012.07.010. PMID: 24159503; PMCID: PMC3738705.

Email Thread of 23 to 24 August 2012

5. Please look at the email thread of 23 to 24 August 2012 **(Bundle 14, Volume 1, Document 2 at pages 25 to 26)** which appears to involve Jackie Stewart arranging a meeting between Professor Williams and “the technical guys” in September 2012 about “water and ventilation system in generic format”. In the thread you volunteer to attend the meeting that is scheduled for 17

September 2012. Did you attend such a meeting? What did you learn then about the amount of air changes in bedrooms, the amount of air changes in treatment rooms, the ventilation of TB isolation rooms and controlled ventilation rooms, including isolation rooms?

A. I stated in an email that I would be interested in attending this meeting but I do not recall whether I did and I do not have any records/minutes of it. Whether I attended would have depended on my clinical commitments at Glasgow Royal Infirmary on that day. At subsequent meetings, I learned about plans for PPVL rooms and BMT rooms in the renal ward. I acted on both by contacting Peter Hoffman for advice and emailing CDC guidance to meeting attendees. (See paragraphs 184 and 188 of Dr Teresa Inkster's statement submitted to the public inquiry).

Scope of Proposed Review by HPS

6. Please refer the minute of the IMT meeting on 6 June 2018 at which you were present and a proposed piece of work by HPS **(Bundle 1, Document 24, Pages 99 to 104)**. Was there any discussion at this meeting or any other in 2018 of the need to extend any such piece of work by HPS back to 2005 in order to capture the incidence and cases of bacteraemia attributed to environmentally relevant microorganisms at Yorkhill back to that date?

A. I do not remember any discussion about extending work back to 2005. I would not have requested this. As far as I was concerned, the definitions of an outbreak were met in 2018 and the priority was dealing with that incident.

Additional Information to Assist the Inquiry

7. The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you

have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

A. I remain concerned about the ongoing culture of reporting infection control incidents/outbreaks in NHSGGC. The culture is not one of openness and transparency and therefore puts patients at risk. This observation relates to incidents at the QEUH/RHC. The reporting of incidents at other sites in NHSGGC is comprehensive with lots of detail provided in the ORTs submitted.

The following are recent examples of concern;

Cupriavidus cases

In November 2024, ARHAI were notified of two cases of Cupriavidus pauculus bacteraemias in QEUH/RHC (one case was in ward 2A).

Following some initial correspondence, I sent some further questions from ARHAI and NHS Assure engineering colleagues on 26/11/24. Responses were not forthcoming. I prompted NHSGGC for a response on 3/12/24 before eventually receiving one on 15/1/25. I sent a further question seeking clarification on 21/1/25 which was not responded to. **(See the email chain entitled "FW: ARHAI Scotland request for further information regarding HIIAT2024-GGC-South-369" dated 19 November 2024 to 21 January 2025)**

From the responses I did get, I was surprised that the lead ICD appeared to be unaware of historical issues with this organism and the relevance to the current public inquiry. They also stated that the isolates did not require typing. It remains unclear whether the four hypotheses put forward were tested. These four hypotheses were; 1) the source of infection is exposure to the water system in the hospital, 2) the source of infection is exposure to a water system outside of the hospital, 3) Cross contamination in the laboratory, 4) Contamination of solutions used for line flush.

ARHAI also challenged the HIIAT score of Green in relation to this incident. Our view was that the risk of transmission was at least moderate and that public anxiety would not be minor. Assessing an incident as Green means it is not detailed in the HAIRT report so it is unlikely that the Board would become aware of it. I feel that further cases of the rare pathogen Cupriavidus pauculus would be something they should be informed about.

It is extremely unusual for an ICD to simply ignore an email from ARHAI asking for further information. It makes it very difficult for us to work effectively. It suggests a lack of willingness to work openly and candidly with us.

Cryptococcal data.

On 27/11/24 I emailed colleagues in the Scottish Microbiology and Virology Network (SMVN) to request data in relation to Cryptococcal cases, following a request for such from the Scottish Government ('SG'). The response from the NHSGGC ICD was to enquire as to whether ARHAI had Caldicott approval. No other board raised this question.

I was surprised to see this query arise as it had been advised on previously in relation to another request involving the same ICD (September 2023). The NSS deputy medical director at the time had sent the ICD information relating to data sharing which I resent to him on this occasion.

NHSGGC went on to provide anonymised data which poses difficulties for ARHAI to analyse. Following a review of the national data received and a subsequent SBAR submitted by ARHAI to SG, SG colleagues requested further information from two health boards where there may have been links between Cryptococcal cases. A proforma was issued to both boards for completion. One health board responded to this in a timely fashion with the information requested. With respect to NHSGGC, an initial response from

Professor Angela Wallace advised that GGC would undertake this request within the timeframe. The deadline for return (14/3/25) was missed and NHSGGC contacted ARHAI to advise that they needed an extension; this appeared to be due to the need to involve relevant clinicians to acquire the information sought. However, on 8/4/25 a further email was received stating that NHSGGC ICDs required answers to several questions to provide context to clinicians with regards disclosing patient sensitive information. At this point the issue was escalated to the NSS Medical director for resolution who contacted Scott Davidson, NHSGGC Medical Director. I am also aware that the CNO contacted NHSGGC. Information was eventually received albeit in breach of the second deadline (18/4/25) and, as I answer this questionnaire (13/6/25), information for one of the cases is still awaited. This delay in information sharing appears to be due to NHSGGC ICDs not accepting the intra- NHS Scotland Information sharing agreement. I considered this to be obstructive.

<u>Cases of resistant Staphylococcus epidermidis in PICU patients.</u>

Microbiology colleagues in QEUH spotted an unusual resistance pattern in cases of bacteraemia due to Staph epidermidis. Cases were linked in time/place/person and whole genome sequencing was conclusive. Although the cases were reported to ARHAI, in the dialogue that commenced the situation was downplayed. There was reference to the organism being of limited clinical significance and there appeared to be no acknowledgement that this was an outbreak situation.

Whilst this is the case for healthy individuals, patients in PICU most of whom will have invasive devices and may be on ECMO, are at risk of bloodstream infections requiring treatment.

In Dr Sara Mumford’s oral evidence, she states that curiosity is an important thing to have when dealing with IPC issues and I feel this is lacking in NHSGGC. I feel there remains a rigidity to guidance and the national manual

alert list as I have previously described in my statement and oral evidence. My concern is that this alert list is used as an excuse not to be forthcoming with information that NHSGGC do not wish to disclose.

This situation was escalated to Laura Imrie in ARHAI who I am aware contacted Sandra Devine, I do not believe she received a response.

Declaration

8. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted] Print name: Teresa Inkster

The witness was provided access to the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A42909010 - Scottish Hospitals Inquiry - Bundle 1 – Incident Management Team Meeting Minutes (IMT Minutes)
A49384241 - Scottish Hospitals Inquiry - Bundle 14, Volume 1 – Further Communications
A52317814 - Scottish Hospitals Inquiry - Bundle 44, Volume 1 - NHS GGC Expert (HAD) Report

The witness provided the following documents to the Scottish Hospital Inquiry for reference when they completed their questionnaire statement.

Appendix B

A52821836 - A bundle of documents entitled “Examples of Polyclonal and Polymicrobial Outbreaks” submitted to the SHI on 7 May 2025
A53129492 - Email chain entitled “FW: ARHAI Scotland request for further information regarding HIIAT2024-GGC-South-369” dated 19 November 2024 to 21 January 2025.

Scottish Hospital Inquiry

Glasgow 4 Part 2
Questionnaire for 'Consequential Witnesses'
Annette Rankin

The Inquiry has decided to hear the evidence of Professor Hawkey, Dr Agrawal and Dr Drumwright in respect of their report on the evidence of risk of infection from the water and ventilation systems at the QEUH/RHC ("the HAD Report") [Bundle 44, Volume 1, Document 1, Pages 5 to 223]. As a consequence, the Inquiry is seeking further evidence from certain witnesses who previously gave evidence in Glasgow 2 or Glasgow 3.

You have been identified as someone likely to have direct knowledge of key issues arising from that report. To assist in gathering this information effectively, we have provided you with a short questionnaire. This includes questions tailored to your prior involvement, along with access to relevant documents in the Objective Connect space, including Bundle 44, Volume 1 (the report by Professor Hawkey, Dr Agrawal, and Dr Drumwright), and Bundles 6 and 7. We ask that you respond to each question as fully as possible, to help ensure the Inquiry's understanding is accurate and complete.

To answer the questions please type your answer in the answer area marked [Type your answer here] below the question, you will note that your type comes up in a different font from that of the question – this is to allow your answer to be read with ease.

Please do not insert pictures or documents into your written answers. All our hearing bundles are on our website https://www.hospitalsinquiry.scot/. If you would like to refer to a document within our bundles which captures your answer to the question, then please refer to the relevant document in the format (Bundle X, Document Y, Page Z).

If you wish to refer to your own document, then describe the document in your statement, list all such documents at the end of the statement and provide us with a copy of that document in order that we can process the document in accordance with Inquiry protocols.

1. Your professional practice at Yorkhill

Whilst you have already provided a detailed CV in your earlier statement. Please could you summarise your connection to, involvement with or association with the paediatric haemato-oncology service in the Schiehallion Unit at Yorkhill from 2005 to 2015 and the extent of your experience/knowledge/understanding of environmentally relevant bacteraemia at Yorkhill?

Q1 response

Please note that my response to the nine questions set out in this consequential witness questionnaire is based on memory rather than having available documentation from this period to review.

As noted in my CV which I provided to the Inquiry in my earlier witness statement (**Annette Rankin – Witness Statement - A49764255**), in 2005 I was the Lead Infection Control Nurse for the Victoria Infirmary, NHS Greater Glasgow and Clyde (NHSGGC) and had no involvement in any aspects of infection prevention and control (IPC) at Yorkhill/ Schiehallion Unit.

In 2006 I became the Head of Nursing for Infection Control (acute sector) at NHSGGC. Yorkhill was one of the areas within the remit of this role. This role was predominantly a strategic role with no direct operational IPC responsibilities. As each sector had its own Lead IPC Nurse (IPCN)/ Team (IPCT), I had no day-to-day operational involvement with any of hospital sites, including the Yorkhill/ Schiehallion Unit. As I had overall responsibility for the IPC Nursing service and IPC oversight for the acute service, I met with the Lead IPCNs at a Lead Nurse meeting on a weekly basis and I was updated by the Lead IPCNs of any significant issues or any outbreaks/ Incident Management Teams (IMTs) within their area and often provided IPC support and advice. I would only attend an IMT if requested by the local team, or if I felt the local team required additional support.

Around 2006/2007 I, along with the lead Infection Control Doctor (ICD) and the General Manager for Diagnostics (the department where the IPC service resided), reviewed the IPC cover/ teams at the Yorkhill site and reconfigured the structure to align with the wider directorate structure within NHSGGC. This widened the remit of the Lead IPCNs to include IPC overview of the acute service directorate. The Lead IPC Nurse at Yorkhill became the Lead IPC Nurse within the Women and Children's Directorate, of which Yorkhill was part.

I subsequently established directorate reports as part of the overall directorate IPC reporting protocol. I cannot provide a specific date when these were first produced, however, from memory, this was not long after the IPC structure review around 2007. These were produced monthly for each directorate within the NHSGGC Acute Sector and issued to the relevant directorate team, which included the Director and Head of Nursing for each directorate. Each month the directorate IPC Lead provided me with the relevant data to populate these reports. I, along with administrative support, produced the reports based on the information provided by the local teams. Directorate reports covered all directorate activity from the previous month including audits, cleanliness champion training, and surveillance details, which included surgical site infection, Staph aureus bacteraemia, and alert

organisms. This process provided me, the IPCT and the directorate with a level of IPC oversight of each directorate.

Any unusual organisms reported to the IPCT at Yorkhill/ Schiehallion Unit would have been included within these reports. During my time producing these reports/ having oversight of this area, I do not recall the IPCT at Yorkhill/ Schiehallion Unit escalating or reporting any unusual/ environmental organisms, specifically gram negative organisms (e.g. Pseudomonas), which fell within the alert organism list of the NHSGGC infection control manual. As I had not dealt with any reports of the more unusual/ uncommon organisms such as Cupriavidus, Achromobacter, Burkholderia prior to the 2018 incident at the QEUH/ RHC, I am therefore confident in my recollection that no blood stream infections with these types of organism were reported either as part of these reports, or at any of the other meetings (Area Infection Control Committee (AICC), Board Infection Control Committee (BICC) or Lead IPCN meetings).

In 2009 I left my role within NHSGGC to join Health Protection Scotland (HPS) (now ARHAI Scotland) and therefore have not been involved in any local NHSGGC reported incidents since leaving NHSGGC. From 2017 I became involved with the RHC through incidents reported to HPS.

2. Incidence of environmentally relevant bacteraemia cases at Yorkhill

Please review the list of 'microorganism species of environmental concern' from 2005 to 2022 listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) and the conclusion of the authors expressed on page 109 of the bundle that refers to the "significantly higher number of cases observed historically when the haemato-oncology paediatrics service was located at Yorkhill compared with QEUH cases". On the basis of your expertise and experience, to what extent would you accept that there was a significantly higher number of environmentally relevant bacteraemia cases in the paediatric haemato-oncology patient population at Yorkhill from 2005 to 2015 compared to the QEUH/RHC from 2015 to 2022? Please explain the basis of your answer.

Q2 response

I am not an epidemiologist nor do I have a specific qualification in epidemiology, however, my experience as an IPCN and my infection control qualifications (including a master's degree in IPC) encompassed epidemiology in outbreak settings. My response to this question is provided within the context of my own knowledge and experience of epidemiology within IPC.

I accept that looking at this data as laid out in tables 11A to 11F, there are a number of positive samples that could have an environmental link in both Yorkhill and

QEUH/RHC. A Healthcare Associated Infection (HAI) bacteraemia would require to be reviewed to establish a potential source. Therefore, reviewing numbers without context from an IPC perspective does not allow conclusions to be made.

It is also worth noting that concern over environmentally linked cases was not reported via the management structure or to the relevant governance committees (AICC, BICC) or to HPS.

Furthermore, as demonstrated from the 2018/19 water incident at the QEUH/RHC, it is often not increased numbers of cases which may cause concern but the nature and type of organisms being identified. Therefore, the cases presented in this data and those identified from 2015 onwards in the QEUH/ RHC are not comparable as many of the cases identified since 2015 have been unusual organisms, not previously reported in this clinical cohort and many samples have been polyclonal, which would be suggestive of an environmental source. When considering HAIs and clinical samples, it is remiss to view and review these through a purely numerical lens; consideration of the organism type, nature of organism and potential source/ environment is crucial.

When reflecting on this data from the perspective of any clinical concerns, the senior paediatric Haemato-oncology clinical team remained the same at Yorkhill and the RHC. From 2017 the clinical team at the RHC started to note concerns that, whilst they had previously observed gram negative infections in their patients at Yorkhill, these infections were of a different type. The clinical team had not seen these types, number and variety of environmental gram negatives before. The clinical team verbalised concerns over 2017-2019 and as noted in the evidence of Dr Murphy (**Transcript – Dermot Murphy - 15 June 2023**) and Professor Gibson (**Transcript – Brenda Gibson - 12 June 2023**).

From an IPC perspective, the types of organisms and polyclonal episodes being reported from the RHC, particularly in 2018/19, were those that neither I nor my colleagues within HPS had seen or had reported before.

3. **Rate of change of incidence of environmentally relevant bacteraemia cases between Yorkhill and QEUH/RHC**

Please review Figure 22 of the HAD Report and the text discussing it (Bundle 44, Volume 1, Pages 116 to 119) and the conclusion of the authors in the second bullet point on page 119 that “Among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant”. To what extent is this conclusion consistent with your experience at Yorkhill and subsequently at the QEUH/RHC? Please explain the basis of your answer.

Q3 response

I do not agree with the statement presented that "among paediatric haemato-oncology patients, we see an ~2 fold decrease in incidence and cases of bacteraemia attributed to environmentally relevant microorganisms following transfer of services from Yorkhill to QEUH; lower incidence at QEUH was statistically significant". In addition, this statement does not align with my experience working within NHSGGC and in HPS (from 2009).

Whilst I accept that on transfer to the QEUH/ RHC the numbers of blood stream infections from 2015 through 2016 declined, this was not sustained beyond 2016. From 2017 blood stream infections with unusual environmental organisms were being identified. This was considered, at IMTs held in 2018/2019, to be related to the water system and potentially linked to the level of biofilm being identified in the system. The hospital opened in 2015 and as biofilm develops over time, whilst it may have been present, it is unlikely to have been significant and present considerable risk when the hospital opened in 2015. This does however change over time if conditions for biofilm are optimal and could be the reason that the numbers of infections were lower in 2015/16, rising from 2017. This view was supported by Dr James Walker in evidence which he gave to the Inquiry on 6 November 2024 (**Transcript – Dr James Walker – 6 November 2024**).

4. **Comparison between the susceptibility of adult haemato-oncology patients and paediatric haemato-oncology patients to bacteraemia attributed to environmentally relevant microorganisms**

From your own professional expertise are you able to assist the Inquiry as to the extent to which it is appropriate to consider that adult haemato-oncology patients as a class and paediatric haemato-oncology patients as a class have a similar susceptibility to bacteraemia attributed to environmentally relevant microorganisms?

Q4 response

I am not a haemato-oncologist nor do I have any knowledge of, or experience, in this specialism. My response to this question is provided within the context of my own knowledge and experience of IPC.

Each clinical case, whether concerning an adult or child, will have an individual disease management response, which will impact a patient's degree of suppression and, therefore, vulnerability. Whilst age may be a factor, and younger children may be developing their immune system, an older adult may experience a gradual decline in their immunity.

With regards to my experience of adults and children in haemato-oncology at the QEUH/ RHC, I do believe that the prophylaxis regime differed at the time for adults and children. Anti-fungal prophylaxis was given more regularly/ routinely to adults than children. Adults were also more commonly given ciprofloxacin prophylactically. In addition, severely immunocompromised adult haemato-oncology patients were treated at the Beatson West of Scotland Cancer Centre (a more compliant environment) prior to the refurbishment of Ward 4b, whereas the children were cared for within Wards 2a/b at the RHC and subsequently Ward 6a at the QEUH. Therefore, with these differences in mind, it is difficult to consider any similarity between adult and paediatric patients within the QEUH/ RHC during the period of 2015-2022.

5. IPC practice in the Schiehallion Unit at Yorkhill from 2005 to 2015

Accepting that much time has passed can you assist the Inquiry by giving an assessment of the extent to which at the Schiehallion Unit at Yorkhill from 2005 to 2015 the investigation of bacteraemia cases from potentially environmentally relevant microorganisms such as those listed in Tables 11A to 11F of the HAD Report (Bundle 44, Volume 1, Pages 97 to 106) (a) formed a part of IPC practice, (b) were the subject of investigation by the IPC team and/or (c) were reported to HPS?

Q5 response

As I have never been operationally involved in the Schiehallion Unit at Yorkhill I am unable to comment on whether these organisms listed formed part of the IPC practice as requested in Part a) above. This would have been the remit of the Lead IPCN and the ICD at Yorkhill at that time. I do not know whether they were subject to investigation by the IPCT at that time. It would however have been normal practice for any gram negative blood stream infection, deemed to be hospital acquired within this unit, to be investigated by the IPCNs if referred to them by the laboratory or clinical team. Reporting to HPS has changed over the years. Prior to 2017 these infections would have required to be reported to HPS if assessed (Watt matrix/ HIIAT assessed) as amber or red. Having reviewed the incidents reported to HPS, no HAI gram negative bacteraemia within the Schiehallion Unit was reported to HPS within the timeframe of 2005-2015.

6. Your last day working for NHS GGC in 2009

The issue of precisely when you worked your last day for NHS GGC in 2009 before transferring to HPS has now become of some importance. What was your last day working for NHS GGC in 2009 and how can you be sure?

Q6 response

I can confirm that my last day of employment at NHSGGC was 30 November 2009. I commenced my employment with HPS on 1 December 2009.

I am less specific on my last working day with NHSGGC as I recall taking leave prior to starting my new post on 1 December, however this would be unlikely to have been more than 2 weeks.

7. Stage 1 HAI Scribe

Did you complete a Stage 1 HAI-Scribe for the new South Glasgow Hospital ("new SGH") as recorded on the face of the Stage 2 HAI-Scribe (Bundle 43, Vol 3, Documents 18-19, Page 1114) and if so what steps do your recollect taking to collect the information you needed to complete it?

Q7 response

I did not, nor was I asked to complete a Stage 1 HAI-Scribe for the QEUH. I have never completed nor participated in a Stage 1 HAI-Scribe for any project or as part of any role I held in NHSGGC.

A Stage 1 HAI-Scribe (2007 version) should be undertaken at the initial planning stage, when the appropriateness of the proposed site for the new build is being considered. In terms of the QEUH/RHC project, a Stage 1 HAI-Scribe would have required to be undertaken prior to the competitive tendering stage. e.g. Point 2.3 in a Stage 1 HAI-Scribe addresses any considerations relating to the proximity of the local sewage plant.

As recorded on the face of the Stage 2 HAI-Scribe (Bundle 43, Vol 3, Documents 18-19, Page 1114) and as Ms Barmanroy stated in evidence (**Transcript – Jackie Barmanroy – 15 May 2025**), she was unsure who had signed to confirm the completion of the Stage 1 HAI-Scribe, and she said that she did not see the signatures other than my signature. Based on this, Ms Barmanroy then completed a document putting my name in a signatory box for having completed the Stage 1 HAI-Scribe. This is a misrepresentation as I had not, nor was I ever asked to participate in or complete the Stage 1 HAI-Scribe. Furthermore, I was never contacted or approached by Ms Barmanroy, or the project team, to clarify if I had undertaken a Stage 1 HAI-Scribe.

8. Scope of the HPS Situational Assessment RHC Wards 2a 2b

Please refer to paragraph 122 of your statement which addresses a proposed piece of work by you that became Appendix 4 to the HPS Situational Assessment RHC Wards 2a 2b Draft - 5 June 2019 (Bundle 7, Document 5, Page 205). Was there any discussion at this meeting or any other point in 2018 of the need to extend

any analysis of historical infection rates back to 2005 in order to capture the incidence and cases of bacteraemia attributed to environmentally relevant microorganisms at Yorkhill back to that date? If there was please describe who was involved and produce any records you have of such discussions or meetings?

Q8 response

I vaguely recall having a conversation with Dr Inkster and Professor Gibson to discuss infections and infection rates at Yorkhill, primarily that the volume and type of organisms being seen in the QEUH (in 2018) had not been seen before. I did not have any formal conversations or discussions on including historic Yorkhill data. Furthermore we were dealing with a current incident that met national outbreak definitions and the focus was on control and prevention of further cases. There was no suggestion at that time from the IMT or others that we consider historic data.

9. Additional information to assist the Inquiry

The Inquiry is attempting to understand the extent to which it can be said that the adequacy of ventilation, water contamination and other issues have or have not adversely impacted patient safety and care at the QEUH/RHC. Do you have any further information that you have not yet given the Inquiry that you consider would assist the Inquiry in understanding that issue?

Q9 response

I believe that I have provided the Inquiry with all relevant information that I have. It is perhaps worth noting that since the refurbishment of Wards 2a/b and the repatriation of patients to the wards, there has been a significant reduction in the number of gram negative organism associated incidents reported to ARHAI Scotland. Presuming that NHSGGC reporting is in line with Chapter 3 of the NIPCM, this is supportive of the positive impact that the refurbished environment has had on patient safety.

Declaration

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted] Print name: Annette Rankin

APPENDIX A

The witness referred to the following documents when giving her statement

A44119340 -Transcript of Dr Dermot Murphy- Hearing Commencing 12 June 2023- Day 4

A4496847- Transcript of Professor Brenda Gibson- Hearing Commencing 12 June 2024- Day 1

A50934819-Transcript of Dr James Walker-Hearing Commencing 19 August 2024- Day 42

A52931190- Transcript of Jackie Barmanroy-Hearing Commencing 13 May 2025- Day 3

SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2025 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

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