SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Witness Statements – Week Commencing 07 October 2024 – Volume 8

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Scottish Hospitals Inquiry
Witness Statement of Questions and Responses
Dr Linda de Caestecker

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 introduction, questions and answers are produced within the statement.

Personal Details

1. Full name
A. Linda de Caestecker

2. Occupation
A. Doctor (retired)

3. Qualification(s)
A. MBChB, MRCOG, FFPH, D.Univ

Professional Background

4. Professional role(s) and experience
A. I was the Director of Public Health at NHS Greater Glasgow and Clyde from 2006 until March 2022

5. Professional role(s) and experience within NHS
A. I qualified in medicine in 1979 from the University of Glasgow and I was a junior doctor in Obstetrics and Gynaecology in Glasgow, Edinburgh and Leicester and a specialist in Obstetrics and Gynaecology in Ghana until 1987. I then trained in public health in London and Glasgow and was appointed as a consultant in public health at Greater Glasgow Health Board (GGHB) in 1993. I was seconded to the Scottish Executive in 2003 as Head of the Women and

Children's Unit. I returned to GGHB as interim Director of Public Health (DPH) in 2005 and was appointed to the substantive post in NHS Greater Glasgow and Clyde (NHSGGC) in 2006. I remained in that post until I retired in 2022 apart from a year's leave of absence in 2015-2016 to work as Director of Projects at the International Federation of Gynecology and Obstetrics.

6. Professional role(s) and experience within GGC

A. Consultant in Public Health 1993-2003; interim DPH 2005-06, DPH 2006-2022

7. Professional role(s) and experience within QEUH/RHC

A. None directly but I provided public health leadership and support to all services in GGC. This mainly related to prevention, equality and improvement in health.

8. Area(s) of the hospital/GGC in which you worked

A. Apart from as a junior doctor in 1979 – 1981, I have always worked in the corporate HQ team and not in individual hospitals.

9. Role and responsibilities within the above area(s)

A. I led the public activities of the Board. I managed the Public Health team which included sections in health services, health protection and health improvement. I undertook strategic planning for public health and led the Board's emergency planning response. I did not have responsibility for infection control which was led by the Medical Director and then the Director of Nursing.

10. If you had more than one role, how was it split?

A. I only had the one role of Director of Public Health (DPH).

11. How many hours per week did you spend in your role at GGC?

A. Full-time of 10 sessions per week

12. Who did you report to?

A. The Chief Executive (CEO) of NHS GGC

13. Who reported to you?

A. Heads of services for the 3 domains of public health, i.e. Health Services, Health Protection and Health Improvement.

14. Describe an average working day in your role.

A. I provided leadership to improving health and addressing health inequalities for the Board. I led a team of over 80 staff through the section heads providing health improvement services, health services planning and evaluation and health protection including the pandemic response and vaccination coordination, management of outbreaks in the community, development of strategy on blood-borne viruses and emergency planning. I led the planning and implementation for specific public health topics including the physical activity strategy, implementation of healthy weight interventions, tobacco control, anticipatory care, parenting initiatives and staff health. I advised on performance management of health improvement and organisational development to support the organisation's corporate effort in addressing health inequalities. I also contributed to national public health policy through the national group of Scottish Directors of Public Health and membership of national groups on child health and child poverty. In public health it is difficult to describe an average day as they are so varied. Regular commitments included team meetings, the corporate management team meetings (CMT), national meetings with DPH colleagues and preparing public health reports for the CMT and for the Board. I produced a biennial report on the health of the GGC population (except during the pandemic years) and I would edit others' contributions as well as produce my own chapters. I was frequently asked to present to conferences or groups on public health topics.

15. Which of your colleagues did you work with most closely on a daily basis?

A. My direct reports, the heads of service described above, the Chief Officers of Health and Social Care Partnerships (HSCPs), the Corporate Directors of NHSGGC, the Head of Emergency Planning.

Issues of Concern – QEUH/RHC

16. When did you first become aware of concerns in respect of the built environment of the QEUH/RHC?

A. I was made aware of the concerns in 2018 through my role in whistleblowing. I was one of the non-clinical Board Directors who would hear and investigate Stage 2 whistleblowing concerns. Prior to this I was aware of some concerns as a Board Director via our informal Directors' weekly meeting but did not know the details or the specificity of any concerns until I was involved in the whistleblowing Stage 2 investigation.

a) What were these concerns?

A. The concerns raised at Stage 2 whistleblowing were a) the standard rooms at the QEUH and RHC should have 6 air changes per hour (ACH/hr) and the rooms did not meet this standard with 3 ACH/hr.; b) Positively Pressurised Ventilated Lobby (PPVL) rooms were not suitable for the isolation of patients with air borne infections (c) there were not sufficient rooms for the isolation of immunocompromised / Bone Marrow Transplant (BMT) patients at RHC. d) there were concerns about the current management of immunocompromised adult patients e) there was a query on whether issues around ventilation are on the NHSGGC Risk Register.

b) Are you aware of when concerns in respect of the built environment were first raised by colleagues within QEUH/RHC? What were their concerns?

A. I became aware of concerns by reviewing documentation as part of the whistleblowing investigation at a later date but I did not have any direct involvement at the time. Dr Redding had raised some concerns during the commissioning process in 2009. These concerns were about negative pressure rooms which she thought should be available on every floor of the new hospital. In 2015 Dr Peters raised concerns about air quality in the BMT unit resulting in a move of patients from the unit. This process has been described in information previously sent to the inquiry.

c) Were GGC aware of these concerns? If not, when did they become aware of these concerns? What actions were taken?

A. It is not clear what is meant by “GGC”. If it means the Board of GGC, I am not sure when the Board was made aware of these concerns. The Lead Infection Control Doctor (ICD) and the team leading the new build were aware of the initial concerns in 2009 when Dr Redding raised them in her advice on the new build. In relation to the concerns raised at the whistleblowing in 2018, the Infection Control Manager, the lead ICD, the Director of Estates and Facilities and the Medical Director who led on Infection Control were aware of the concerns.

d) Do you consider these issues to be fully resolved? If so, please provide details including actions and dates.

A. Within the Stage 2 Whistleblowing investigation, I was reassured that the concerns that Dr Redding and Dr Peters raised in their whistleblowing complaints had been taken very seriously by the appropriate directors and remedial actions were put in place to resolve the concerns. From reviewing documentation, I am aware that the Action Plan to address the issues was signed off as being complete by the Clinical and Care Governance Committee in June 2021 except for one action which was considered technically impossible and was not part of whistleblowing concerns. As my role was to investigate whistleblowing complaints and not to lead on infection prevention and control, I am unable to give precise updates of the actions with dates.

17. When did you first become aware of concerns in respect of infection control in the QEUH/RHC?

During the stage 2 whistleblowing investigation in 2018.

a) What were these concerns?

A. The concerns raised at Stage 2 whistleblowing were a) the standard rooms at the QEUH and RHC should have 6 air changes per hour ACH/hr and the rooms did not meet this standard with 3 ACH/hr. b) Positively Pressurised Ventilated Lobby (PPVL) rooms were not suitable for the isolation of patients with air borne infections: c) there were not sufficient rooms for the isolation of immunocompromised / Bone Marrow Transplant (BMT) patients at RHC. d)

there were concerns about the current management of immunocompromised adult patients; e) there was a query on whether issues around ventilation are on the NHSGGC Risk Register.

b) Are you aware of when concerns in respect of infection control were first raised by colleagues within QEUH/RHC? What were their concerns?

A. In 2009 Dr Penelope Redding made recommendations about having negative pressure rooms in every floor in the new hospital to the project team. Her recommendations were discussed and later rejected by the new build team following minuted meetings with clinicians.

c) Were GGC aware of these concerns? If not, when did they become aware of these concerns? What actions were taken?

A. I am unsure who is meant by GGC. In relation to the concerns raised at the whistleblowing in 2018, the Infection Control Manager, the lead ICD, the Director of Estates and Facilities and the Medical Director who led on Infection Control were aware of the concerns.

d) Do you consider these issues to be fully resolved? If so, please provide details including actions and dates.

A. The issues that Dr Redding and Dr Peters raised in the Stage 2 whistleblowing were investigated and I identified that the issues had already been raised with appropriate Directors and that actions had already been identified to address them. Progress on the 27 Point Action Plan that was developed to address each of the issues was presented to the Board Infection Control Committee; the Clinical and Care Governance Committee; Acute Infection Control Committee; Board Clinical Governance Forum; and Partnership Infection Control Support Group. I am aware that the Action Plan was signed off as being complete by the Clinical and Care Governance Committee in June 2021 except for one action which was considered technically impossible and was not part of whistleblowing concerns.

Role of Infection Control Doctor (ICD)

18. What is an ICD?

A. An Infection Control Doctor is involved in preventing and managing healthcare-associated infections (HAIs) within healthcare settings. The job includes developing and implementing infection control policies, developing and implementing surveillance systems, involvement in management of infections and outbreaks and advice to clinicians.

19. What is your understanding of the role of an ICD?

A. I did not manage or work closely with the ICDs but I understood their role as part of my investigation of the whistleblowing concerns and involvement of my health protection team in Incident Management Teams. The role of an ICD is to provide advice and support to clinicians and to the local IPC nurses, to be involved in the planning, upgrading and commissioning of facilities, to contribute to the 24 hour infection control medical on-call service, monitor infection rates, support compliance with national targets and national standards and guidance, assist the lead ICD in reviewing and updating IPC policies, attending various groups and committees overseeing IPC, escalate concerns to the lead ICD and contribute teaching, training and audit. The role of the lead ICD is to act as the lead medical clinician for Infection Control within NHSGGC, provide leadership to medical staff within Infection Control on clinical issues, act as a key member of the Senior Infection Control Team, support the Infection Control Manager (ICM), work closely with the ICM and the other members of the Senior Infection Control Team to develop the service and implement change, co-ordinate the available Infection Control Doctor sessions across NHSGGC.

20. Is an ICD a full-time role?

A. No. An ICD has dedicated sessions in their job plan for the role. The lead ICD has additional clinical sessions in their job plan for the leadership role but it is not a full-time role.

21. What is an Infection Prevention and Control Team (IPCT)?

A. I did not manage the IPCT and was not directly involved with the team other than asking for advice on public health issues. The IPCT is a multi-disciplinary team that operates across all the sites in the Board area. The team develops and implements infection control policies and plans, reviews positive microbiology results and advises ward staff on the implications of those results. The team also supports the management of outbreaks of infection. The team develops and delivers training and supports staff to prevent and control infection. They will also advise estates and clinical staff on cleaning, decontamination and design of the environment. In summary their role is patient management, surveillance, outbreak management, advice on the built environment, audit, development and implementation of local and national policy and standard operating procedures, education and training, advice on decontamination, and governance and reporting.

22. Where does an ICD fit within the IPCT structure?

A. I did not manage the IPCT or the ICDs and I was not directly involved with them other than for public health issues. I understood that an ICD is part of the IPCT which in NHS GGC is led by the Infection Control Manager (now the Director of Infection Prevention and Control) who is a senior experienced nurse with a full time role. The lead ICD reports to the IPC Manager (now Director of IPC) and manages the ICDs. There is joint reporting of the ICDs to the head of service for microbiology as they still have roles in that service.

23. What was the IPCT structure at the QEUH/RHC from 2015 onwards?

A. I was not directly involved in the management and operation of the IPCT. The Infection Prevention and Control Manager reported to the Medical Director who was the Board lead for IPC. The manager managed the other roles in the team including the Lead ICD and the Associate Director of Nursing for Infection Control who in turn managed the lead IPC nurses for each hospital site in the Board. There are IPCTs based on all main sites in NHSGGC and each team has the responsibility for a geographical area. A separate IPCT provides a service to mental health Inpatient areas and Health and Social Care Partnerships. Each team comprises an Infection Control Doctor and Infection Prevention and Control Nurses. A separate surveillance

team (nurses and data managers) lead on the monitoring and prevention of surgical site infections and the monitoring of all Healthcare Associated Infections referred to or identified by the IPCT. The teams were coordinated by the Infection Control Manger and direct reports, which include the Lead Infection Control Doctor and the Associate Nurse Director for IPC.

24. Was there a clear remit for the role of ICD?

A. There was a clear job description for the lead ICD. The role was to act as the Lead Doctor For Infection Control within NHSGGC, provide leadership to medical staff within Infection Control on clinical issues, act as a key member of the Senior Infection Control Team, support the Infection Control Manager, work closely with the Infection Control Manager and the other members of the Senior Infection Control Team to develop the service and implement change and to co-ordinate the available Infection Control Doctor sessions across NHSGGC. For the ICDs, the role was within their duties as microbiologists and included in their job plans. Their role was to advise on and support activities of infection prevention and control in the hospital sites for which they had responsibility.

25. Both Dr Inkster and Dr Peters has told the Inquiry they sought clarification on their remit as ICD on several occasions but were unsuccessful in obtaining this. What is your view on this?

A. I was not directly involved in managing these staff but my view from reading emails and interviewing staff as part of the whistleblowing processes is that their query about their roles related to management and leadership. However they did not discuss this issue directly with me. My impression from emails and interviews was that they did not agree that the IPCT should be nurse led and they felt that the medical staff should be the leads, whereas the strength of the IPCT is the multi-disciplinary team working. A range of actions was put in place over years to assist the team-working and clarification of roles within the IPCT. In 2015, the ICM Tom Walsh met with Dr Peters at her request to discuss her role. There are no notes of this discussion that included the lead ICD Craig Williams. Tom Walsh recalls that Dr Peters asked for clarity on her remit in relation to the new hospital and Dr Williams confirmed that, at that

time, others were leading on this and she should focus on her ICD support to the existing Southern General Hospital site. In 2015 following David Stewart's report, Anne Cruikshank was appointed as an overarching CD for IPC and microbiology as part of the process to improve joint working. In 2016 the IC manager Tom Walsh worked with the Director of Facilities, David Loudon, to produce a document on the role of the IPCT on new builds and refurbishments. In 2017 there was a review of the ICD role by Tom Walsh, the ICM, informed by a review of ICD roles in Scotland by Dr Keith Morris of NHS Fife, in 2017. This review aimed to clarify the reporting and management arrangements in IPC and in microbiology. The Chief of Medicine in Diagnostics, Dr Rachel Green was asked to clarify the job descriptions and the roles of the IPCT and she organised a meeting in December 2017 which Dr Peters reported had been a helpful meeting. The meeting identified that other ICDs were content with the structure of the IPCT and ways of working and it was found that the uncertainty of roles was only felt in the south sector (QEUH/RHC). Rachel Green proposed a deputy lead ICD and also asked that Dr Christine Peters and Dr Brian Jones meet with Dr Inkster on her return from sick leave to discuss this. In February 2018, Dr Green organised a programme of Organisational Development to help the microbiology and IPC teams work more constructively together. When Dr Inkster returned from sick leave in January 2018 she resigned from her role as lead ICD, citing a number of issues including that she would now report to the Head of Microbiology. This arrangement had been proposed to clarify that the lead ICD still had sessions in microbiology. Dr Inkster was also not happy to be managed by Sandra Devine, the Infection Control Manager. However Dr Armstrong persuaded Dr Inkster to continue in her lead ICD role. Both Marion Bain and Angela Wallace, when they were interim Director of Infection Control from 2019 onwards, put in place regular meetings with Dr Peters and Dr Inkster in part to improve the working with the IPCT.

26. The Inquiry understands there were several resignations from the role of ICD from 2015 onwards. What, in your opinion, caused these resignations?

A. I cannot be sure what caused these resignations but in investigating the whistleblowing complaints, I became aware of tensions between some ICDs

and the rest of the IPCT as well as with the (then) lead ICD Craig Williams. When both Christine Peters and Teresa Inkster resigned in 2015, they complained about the lead ICD, Craig Williams, in particular about his management style and the culture that he had created. They also complained about the lack of clarity about their ICD role. In September 2017, the ICDs in the south sector resigned complaining that Brian Jones the Head of Microbiology had dealt with an upgrade to the Bone Marrow Transplant unit without reference to Dr Peters. In my investigations into the whistleblowing complaints, it was reported by members of the IPCT that they felt that this step of multiple resignations was taken to destabilise/undermine the IPC service. At this challenging and difficult time for the IPCT, four of the senior nurses in the IPCT approached the Royal College of Nursing to complain that they were being emailed frequently with queries and complaints by Dr Peters and they felt that this was an active campaign to undermine the entire team. The RCN was reassured by Dr Armstrong that this would be dealt with so they did not raise a formal grievance. Members of the IPCT and also Dr Jones, the lead for microbiology, reported that they received frequent emails from Dr Peters about matters relating to IPC even when she was no longer an ICD. Dr Armstrong asked Dr Green to work with Dr Peters and address this issue. In January 2018 Dr Inkster resigned as lead ICD in 2018 as she disagreed with her management arrangements. She then took up the role again.

David Stewart undertook a review into the resignation of ICDs

27. Refer to Summary of Infection Control Issues details (**A47739010– Bundle 14 Volume 1, Document 41, page 464**):

a) Have you seen this report before?

A. Yes

b) Who instructed this review?

A. The Medical Director, Jennifer Armstrong

c) What was the purpose of the review?

A. To try to understand the reasons behind the resignations of the ICDs and to

develop solutions to address any problems

d) Do you know what actions, if any, were informed by the findings of this review?

A. I was not involved in this review but the report which I have read contains remedial actions for each theme identified. These included Dignity at Work Awareness Workshop, mentorship, clarifying roles and responsibilities, development of job descriptions, review of reporting arrangements for lead ICD and ICD, having an escalation route and process for reconciling conflicting advice and opinions, review of operational structures, review of standard operating procedures, OD interventions, team development review of recruitment arrangements and review of out of hours arrangements. The ICM was supported by the Medical Director in implementing the actions from the review. It was agreed that there should be an overarching clinical director appointed for both Infection Control and Microbiology and she was appointed in November 2015. There was also mentorship support for the lead ICD put in place.

28. What is your view on each of the following issues within his report and proposed remedial actions:

A. My views are informed by reading the report in retrospect. I was not involved with the team at the time.

a) Cultures and behaviours

A. The review found little evidence to support concerns of ongoing bullying and harassing behaviours. The report stated that events described centred around particular issues of high focus.

b) Leadership style/management skills

A. The report described ongoing tension in the relationship between the Infection Control and Microbiology Leads. Leadership style/management skills were reported as an ongoing theme. ICDs reported concerns around lack of communication and governance arrangements. The report stated that the ICM had put in place actions to address this in the previous 4-6 months.

c) Team functioning/structure

A. The medical management was not clear due to joint roles in the IPCT and in microbiology. The line management arrangements for the lead ICD are complicated by the fact that the role is managerially accountable to the ICM but the job plan is agreed with the CD for microbiology. The report stated that there needed to be more formal joint working between the General Manager for Microbiology and the ICM to address this. The report also stated that there was a need for greater clarity on levels of accountability in the decision-making where there were conflicting views or opinions.

d) Service/patient concerns

A. The report stated that Infection Control did not have the same degree of senior managerial oversight as applies to other acute service directorates. It was stated that current appointment arrangements mean that the ICM has little influence on the appointment and organisation of ICDs.

29. Did David Stewart discuss this report with you? If so, what was discussed?

A. No

30. Do you know who this report was shared with?

A. No

31. Do you know if the issues set out in this report were resolved? If not, why not?

It did not appear that the issues were fully resolved from what was reported to me as part of whistleblowing investigations.

A. I am unable to comment on why they were not resolved.

32. This report focuses on behaviours and cultures within the ICD team rather than focussing on the concerns raised in respect of the building: what is your view on this? Were the issues raised in respect of the building being treated with the appropriate seriousness?

A. The aim of the report was not to investigate issues with the building but to respond to concerns about roles and responsibilities as well as the working of

the IPCT. Given this, it does not comment on the issues raised in respect of the building.

Refer to Bundle 4 – SBAR – Document 33, page 136

33. This SBAR from 6th December 2018 recommends additional ICD sessions to support the current and ongoing requirement for expert input and advice into the built environment at QEUH/RHC.

a) Do you know what happened as a result of this?

A. I was not directly involved but it was reported to me by the Medical Director that additional sessions were allocated.

b) Do you know if additional ICD sessions were put in place?

A. I understand that the sessions were put in place.

c) Was there an issue with resources within ICD?

A. I am unable to answer this as I did not have management or operational involvement.

34. What do you understand the current and ongoing requirement for expert input and advice into the built the built environment to have been? Please provided details.

A. It is an important role for IPC specialists to advise on the built environment. The importance of a multidisciplinary team in managing and mitigating infection risks in the built environment is described in the CEL 18 (2007). I am unaware of the time commitment or number of sessions this requires.

Whistleblowing and Communication

35. Can you explain the key aspects of the duty to communicate effectively with patients generally.

A. Good communication is part of every health professional's responsibilities. Patients require clear information about their health and treatments and they also require empathetic, compassionate communication about their concerns and ongoing management and care. The General Medical Council describes doctors' duties on good communication including how to communicate when things go wrong.

36. Can you explain how the duty to communicate should be approached when it comes to telling patients about an infection; about the possible causes of the infection; and about the impact upon health; and upon future treatment.

A. The same principles of openness, honesty and compassion would apply in relation to infection as well as other health issues. There are many reasons why infection occurs in a healthcare setting including that it is due to the patient's disease or a risk of the treatment. In other instances such as an outbreak or a breach of an infection control policy, there may be a need to invoke Duty of Candour.

37. Can you explain how the duty to communicate should be approached where something has gone wrong during care or treatment.

A. The GMC describes this in their guidance for doctors. Every health and care professional must be open and honest with patients and people in their care when something goes wrong with their treatment or care that causes, or has the potential to cause, harm or distress. This means that health and care professionals must tell the person (or, where appropriate, their advocate, carer or family) when something has gone wrong, apologise to the person (or, where appropriate, their advocate, carer or family), offer an appropriate remedy or support to put matters right (if possible), explain fully to the person (or, where appropriate, their advocate, carer or family) the short and long term effects of what has happened. Doctors should report the incident in line with their organisation's policy so it can be reviewed or investigated as appropriate and lessons can be learnt and patients protected from harm in the future. Doctors must respond promptly, fully and honestly to complaints. They must not allow a patient's complaint to adversely affect the care or treatment they provide or arrange.

38. Are you aware of the duty of candour and how would you explain that?

A. Yes. The GMC has produced joint guidance with the NMC on the professional duty of candour with practical advice for individual professionals on when and how to apologise and also about reporting mistakes. I am also aware of the organisational duty of candour as set out in the NHS GGC policy on this. The organisational Duty of Candour procedure is a legal duty to support the implementation of consistent responses across health and social care providers where there has been an unexpected event or incident that has resulted in death or harm, or could result in death or harm, where the outcome relates directly to the incident rather than the natural course of the person's illness or underlying condition. The Board's policy describes the responsibility of all staff to identify and respond when this occurs and also sets out the organisational duties.

39. If staff had concerns about wrongdoing, failure, or inadequacy within the hospital:

a) Were there procedures to facilitate disclosure of this either to other GGC staff or to individuals external to GGC? What were these?

A. The Board's whistleblowing policy describes these procedures. A concern would usually be raised with the manager in the first instance, or a more senior manager where this would be more appropriate. If the concern is not resolved at that level then staff can contact one of the designated whistleblowing contacts, who have been given special responsibility and training in dealing with whistleblowing concerns. If the individual is still concerned that the matter is not being dealt with they can contact a designated non-executive director or the Board at Stage 3. This was the policy at the time but the standard policy for Scotland is now that the Independent National Whistleblowing Officer (INWO) is the final stage for whistleblowing concerns about the NHS in Scotland. If an individual remains dissatisfied with an NHS organisation after its process has concluded, they can ask the INWO to look into their concern. For individuals external to GGC there is information on national websites such as NHS Scotland, Public Health Scotland and Citizens Advice Scotland about how to whistleblow and access

advice. The Board's Duty of Candour policy describes the process of identifying and investigating an incident. It states that every healthcare professional must be open and honest with patients when something that goes wrong with their treatment or care causes, or has the potential to cause, harm or distress. The policy states that effective communication between staff who recognise an unexpected or unintended incident and their management team is vital in order to ensure that the organisational Duty of Candour process is implemented from the outset.

b) Were these procedures and details of how to use them easily available to staff?

A. They could be accessed via Staffnet or from line managers. The Board's Core Brief which goes to all staff will inform staff of new policies or updates and how to access them. Clinical leads and managers are expected to assess training requirements in Duty of Candour for particular roles. The NES online module on Duty of Candour is added to mandatory training every 3 years for role specific staff. This information is promoted on HR Connect and through the Learning and Education calendars that managers and staff can access. In addition the requirements of the Duty of Candour regulations are embedded in existing relevant policy based programmes for example Root Cause Analysis and People Management programmes.

c) Is disclosure in this manner something that has always been encouraged within GGC?

A. The Whistleblowing policy of the time encouraged employees to be open and guaranteed to consider their concerns. The policy was clear that the Board would not tolerate any harassment or victimisation of staff using the policy. The Board recognised its duty to support whistleblowers. When conducting whistleblowing investigations, I made sure that whistleblowers knew that they were supported and should report to me any instances when they felt that this was not the case or if they felt discriminated against or victimised in any way because they were whistleblowers. We would hope that most issues could be resolved by the management team of the service and I always felt disappointed if someone had to whistleblow but I recognised that it is vital that

staff can do this and can be reassured that any concerns will be investigated without any detriment to the whistleblower.

40. Are you familiar with the whistleblowing policy for GGC in 2018?

A. Yes

41. Was this policy easily accessible to staff? Are you aware that this policy was out of date and had not been updated appropriately

A. It was available on Staffnet and through line managers. There had been staff information about whistleblowing in Core Briefs to all staff. The names and details of directors who led investigations at certain points were out of date but the contact details of the lead for whistleblowing were provided and they could inform staff of how to raise a concern and with whom.

42. How often was the whistleblow policy reviewed? Who was responsible for this?

A. The policy was regularly reviewed with revisions in 2015, 2016, 2017 and 2018. There was a gap from 2019 to 2021 as the new national standards were to be launched which were delayed. The impact of COVID then further delayed the launch which was ultimately on the 1st April 2021. The policy would be reviewed by the corporate services team under the Head of Administration for the Board, working with the Board's Whistleblowing Champion. A member of the Corporate Services team was given a lead role in whistleblowing to support management of the process. The Policy was reviewed and presented to the Audit Committee and the operation of the Policy is monitored by the Area Partnership Forum.

43. In your view was the whistleblowing policy in place in 2018 effective?

A. In general it was effective but the Stage 1 process could have been more effective. It was not always clear when Stage 1 was being or should be invoked. The review in 2021 found that there was a need to increase the use of Stage 1. The current National Whistleblowing Standards promote that cases should be investigated and responded to at Step 1 in the process whenever possible unless there is a specific reason to immediately move to

the Step 2. At the time in NHS GGC, Whistleblowers often sought an immediate Step 2 process. At Stage 2, concerns were taken seriously and fully investigated although the review of 2021 also identified the need for more rigorous performance management of recommendations and more staff training. In my view there was at times confusion on the part of staff about when to use the whistleblowing policy and when to use the Dignity at Work policy.

44. Has the whistleblowing policy since been updated?

A. Yes

45. What updates have been made?

A. The policy is now a national policy based on the national whistleblowing standards and staff can contact the INWO if they feel the Board has not addressed their complaint adequately. It also clarifies when to use the Whistleblowing policy and when to use a Grievance or Dignity at work policy.

46. Do you think the current policy is adequate?

A. It clarifies the process. I am not aware of whether there has been a review of the national policy and whether it is considered to be operating adequately.

Whistleblowing – QEUH/RHC

47. What was your involvement in the whistleblowing process? Please provide details.

A. I was one of the directors who would investigate stage 2 whistleblowing concerns.

48. What is your understanding of the concerns that led to the stage 1 whistleblow in 2017? Did you agree with these concerns?

A. I was not aware that there had been a formal stage 1 in 2017. When I met with Penelope Redding and Christine Peters in 2018, they did not talk about a stage 1.

Refer to emails between 5th September 2017 and 3rd October 2017
(A38759263 - Bundle 14 Volume 1 – Document 73, page 722)

49. Email chain between Penelope Redding, Tom Walsh and Jennifer Armstrong dated between 5 September 2017 and 3 October 2017:

a) Have you seen these emails before?

A. I saw them when I was asked to write a narrative report on the whistleblowing investigations.

b) Dr Redding raises issues concerning patient safety and infection control: were you or NHS/GGC are of these concerns in advance of Dr Redding's emails? If so, please provide details.

A. I was not aware of these concerns as DPH as I did not lead on Infection Control. I am unable to comment on who was aware of these concerns.

c) What was/is your view on Dr Redding's concerns?

A. In the emails, she is not very specific about her concerns. She states that there are concerns about ventilation and she also talks about lack of experience amongst the ICDs and that the IPCT should not be a nurse-led service. She says she would like to avoid going to Stage 2 whistleblowing and in retrospect this could be read as a Stage 1. However the outcome would have been similar; that there needed to be clear written description of concerns, a meeting to discuss them and actions put in place to resolve them.

d) It would appear Dr Redding sent emails on 5th, 15th, 21st and 27th September 2017 before receiving a response; are you aware of the circumstances which led to this delay in responding? Do you have any concerns regarding this delay?

A. Tom Walsh was on leave but I understand that Dr Armstrong acknowledged receipt of the emails. I cannot comment on why there was a delay in the fuller response but it is likely she would be waiting for Tom Walsh to return from leave to discuss this issue and also she may have asked for a meeting to be organised with Dr Redding.

e) The Inquiry understands that GGC did not treat Dr Redding's emails/concerns as a stage 1 whistleblow, that is despite Dr Redding stating in her email of 27th September 2017, "I would like to avoid going to Stage 2 of the GG+C Whistle Blowing Policy": Can you explain the rationale behind this decision?

A. Her email does not state that this was a Stage 1 whistleblowing complaint. The policy at the time stated that Stage 1 would be to discuss the concerns with the line manager. At that time, there was not a robust process for documenting Stage 1 complaints at Board level. This has now been resolved in the updated policy. In my view the actions taken i.e. meeting to discuss the concerns and to put in place actions to address them, would have been the same even it had been formally set up as a Stage 1 Whistleblowing. However in retrospect it would have been helpful to ask Dr Redding to clarify if this was a Stage 1 complaint.

Refer to SBAR of 3rd October 2017

50. Re Infection Control and Patient Safety at QEUH – Bundle 4, Document 20, page 104:

a) Have you seen this SBAR of 3rd October 2017?

A. I was not aware of it at the time but I reviewed it as part of the whistleblowing investigation.

b) Going through it, please provide your views on each of the following areas of concern:

i) Patient Placement

A. I am unable to answer this question as it is not my area of expertise but I was aware that others including the lead ICD of the time Dr Inkster was involved in reviewing this.

ii) Cleaning

A. I am unable to comment on how accurate these assertions are but they merited investigation.

iii) Estates

A. The issues raised about plumbing in the neurosurgical building were already known, some actions had been taken and others were planned.

iv) Infection Control Structure

A. The issues of communication with ICDs needed investigated and resolved. The IPCT reported in the whistleblowing investigations that Dr Peters made frequent email requests for further information that were outwith her role and remit. Responses took time away from their other work and they reported that they felt harassed and undermined. Brian Jones, the lead for microbiology, reported similar multiple communications and reported that he felt harassed by their frequency. The issues therefore were not straightforward and had to be investigated by obtaining views from the team as well as others involved.

v) Recommendations

A. The recommendations are reasonable and fair

51. The SBAR states that some of the issues raised, for example patient placement and cleaning, were first raised in June 2015. Were you/GGC aware of these issues in 2015? Why were these issues not being addressed in a timeous manner?

A. I was not aware of these issues in 2015. My understanding is that the (then) Lead ICD was aware of the issues. I am unable to comment on why they were not addressed but it may have been that the lead ICD at the time did not agree with these issues.

52. In your view did the SBAR of 3rd October 2017 raise valid concerns?

A. The concerns were valid ones requiring further investigation.

53. If yes, are you aware of what the response was to these concerns?

A. The Medical Director organised a meeting to discuss the SBAR with relevant Directors and their teams. A 27 point action plan was developed after the meeting in October 2017 to address all of the points raised.

Refer to Minute of Meeting dated 4 October 2017

54. Estates Bundle 12, Document 116

a) Have you seen these minutes before? What is your understanding of the purpose of this meeting? What was discussed?

A. I was not aware of the meeting at the time but I became aware of it and reviewed the minutes as part of the investigation of Whistleblowing concerns. The meeting was to discuss the concerns of Dr Redding and Dr Peters as set out in the SBAR they developed. Each of the issues in the SBAR was discussed and either responded to on accuracy, or actions agreed to investigate them further and actions put in place.

b) There is some discussion surrounding PPVL rooms not being built to SHTM standards and that they did not provide appropriate protection for patients. Do you know if PPVL rooms were built to SHTM standards?

A. I do not have the expertise to answer this question but the minute of the meeting states that the Director of Estates reported that the rooms met SHTM standards.

c) There is a discussion surrounding the Infectious Disease Unit, its relocation to QEUH and HPS agreeing to provide details of the room standards required to accommodate patients. A meeting took place with HPS on 2nd October 2017. Are you aware of the circumstances surrounding the Infectious Disease Unit, as well as the reasons for the delay in HPS providing the details required?

A. I was aware that the inclusion of the Infectious Diseases Unit was a late addition to the QEUH as the clinicians were of the view that it was essential they were co-located with ITU. I am not aware of the reasons for the delay in HPS providing the details required.

d) There is discussion surrounding HEPA filters not being fitted in PICU and in prep rooms in Ward 2A. What is your understanding of the distribution of HEPA filters in both QEUH/RHC? Who was responsible for managing the installation of HEPA filters?

A. I do not have the expertise to answer this question and I was not responsible for HEPA filters. In investigating whistleblowing, I would consult with others with more expertise in particular areas but my role was to ensure that the

issues were known about, were treated seriously and the actions were in place to resolve them.

e) Do you agree there was an issue with cleaning practices within the QEUH/RHC? Who was responsible for the management of cleaning practices?

A. Cleaning practices were not my responsibility and I am unable to answer this as I was not involved in cleaning or monitoring its quality. Responsibility for cleaning lies with the Estates Department but also with individual staff to ensure cleanliness. The IPCT has a role in monitoring the quality of cleaning and training of staff.

f) Water quality and testing concerns were discussed: what is your view on these? Do you know who was responsible for the cleaning and maintenance policy of taps?

A. I do not have the expertise to comment on this and I was not responsible for these issues. Facilities staff would be responsible for this, working with the IPCT if infection control advice was required.

g) Do you know if there was a delay in providing test results to ICD?

A. I note that [redacted] reported this at the meeting but I would not have been aware of this at the time. Ian Powrie from Estates responded this may have been due to staff changes so it would be my understanding that he would address this to ensure any delays did not continue but I am unable to confirm this.

h) Dr Peters raised concerns regarding ICD requesting and receiving the water sampling results in a timely manner where a water source or infection needed to be investigated: do you know if there was an issue with ICDs receiving test results?

A. It was reported at the meeting that there were issues. I cannot comment on whether this was accurate.

i) Do you know what was the extent of the issues of sewage in the neuro surgical theatres? Who was responsible for dealing with this?

A. This was reported as part of the whistleblowing complaints. In my investigation it was reported that this had occurred, remedial action put in place and that new theatres were planned. The Director of Regional Services (Gary Jenkins at the time) and Director of Estates (David Loudon at the time) were responsible for dealing with this.

j) Looking at the 'Agreement of Further Actions/ Next Steps', where possible, please provide details as to what your understanding is regarding actions taken and outcomes of these.

A. The minute could have been clearer about the development of the action plan to address the issues in the SBAR. The action plan makes it clear what actions are required and who was the lead to implement them. Progress on implementation was overseen by the Clinical and Care Governance Committee.

27 Point Action Plan – refer to Action Plan arising in response to SBAR dated 3 October 2017 **(**A38759270 - Bundle 20 – Document 48 page 792**)**:

55. Please discuss this plan including:

a) Who was responsible for the management of the plan and updating it?

A. Actions had different teams and directors responsible for the actions but the plan would have been overseen by the Medical Director who at the time led on infection control. Progress was also reported to the Clinical and Care Governance Committee.

b) What actions were taken in terms of each issue?

A. The actions were described under each issue. I was not directly involved in implementing the action plan. My role from the Whistleblowing investigation was to ensure that there was a plan to resolve the issues and that it would be monitored through the appropriate governance processes.

c) Which actions have been fully resolved?

A. All the actions have been completed except for one which was accepted as technically not possible.

d) Which actions are outstanding?

A. The action outstanding was in relation to negative pressure facilities in the Emergency Department but I am unaware of the detail of this.

Refer to Bundle 4 – SBAR – Document 51, page 220

56. In this paper from June 2021, the Clinical and Care Governance Committee comment that many actions from the plan were still marked “in progress” in 2019 and therefore request a further update, a review and closure of the plan. Can you please comment on the final positions relating to each issue and whether, in your view, they have been satisfactorily resolved.

A. As I am now retired, I am unable to give an accurate update on this. However I am aware from documentation prior to my retirement that the Clinical and Care Governance Committee reviewed the progress at its meeting in June 2021 and that the actions were signed off as complete in September 2021.

Whistleblowing Stage 2

57. What was your involvement with the stage 2 whistleblow?

A. I was the director who heard the stage 2 and investigated it and wrote the report

58. What whistleblow policy was in place in GGC in 2018?

A. The whistleblowing policy of 2018 described the process.

59. What was the stage 2 whistleblow process within GGC in 2018?

A. Whistleblowers could contact a nominated director and the concerns would be investigated if a member of staff felt unable to raise the matter with their Line

Manager or did not think that this would effectively address the concern, or where discussion with the Line Manager had been tried but had not led to action within a reasonable period of time for whatever reason. Once a concern had been raised at Stage 2, the designated director confirmed with the individual concerned whether or not the matter was being raised in confidence and they could undertake one of the following investigations: an informal review, an internal inquiry or a formal investigation. The director would then meet with the whistleblower, clarify the concerns and find out more information. The further inquiry could include interviews with others, reviewing documentation and/or follow-up meetings with the whistleblower.

60. What was your experience in dealing with whistleblowing prior to 2018? Had you undertaken any training? If so, please provide details.

A. I had undertaken internal training and refresher training about investigating whistleblowing complaints. I had also investigated a number of stage 2 cases.

61. What did you understand to be the issues raised through the stage 2 whistleblow to have been? Were you aware of any of these issues in advance of receiving the whistleblow?

A. The concerns raised at Stage 2 whistleblowing were a) the standard rooms at the QEUH and RHC should have 6 air changes per hour ACH/hr and the rooms did not meet this standard with 3 ACH/hr. b) Positively Pressurised Ventilated Lobby (PPVL) rooms were not suitable for the isolation of patients with air borne infections: c) there were not sufficient rooms for the isolation of immunocompromised / Bone Marrow Transplant (BMT) patients at RHC. d) there were concerns about the current management of immunocompromised adult patients; e) there was a query on whether issues around ventilation are on the NHSGGC Risk Register. I was not aware of the detail of these issues in advance of the whistleblowing.

Refer to email 8th February 2018 - (A40450652 - FW STEP 2 -Whistleblowing Policy Ventilation at QE and RHC – Bundle 14 Volume 2 – Document 87, page 71**)**

62. From Dr Penelope Redding to Dr Linda de Caestecker - FW STEP 2 - Whistleblowing Policy Ventilation at QE and RHC:

a) What steps did you take when you received this email?

A. I organised a meeting with Dr Penelope Redding to discuss her concerns.

b) What information did you request/receive in respect of the issues raised?

A. In investigating whistleblowing, it is my normal practice to meet first with the whistleblower to understand clearly the complaint and to request other information after the initial meeting.

c) Who did you speak to regarding the issues raised?

A. I interviewed Dr Iain Kennedy, Dr Brian Jones, Mr Tom Walsh, Ms Sandra Devine, Dr Rachel Green, Dr Teresa Inkster and Ms Mary Anne Kane.

d) What actions did you take?

A. I reviewed the Health Building Note 04-01, the minutes of meeting on infection control estates issues at QEUH and RHC on 4/10/17 and the action plan that resulted from this, the Clinical and Care governance committee paper about these concerns, emails and letters on the organisation of infection control, and risk registers.

e) Please describe the investigation process which you undertook and any conclusions which you reached.

A. The investigation process involved interviews with key people and review of documentation and guidance. I concluded that the whistleblowing concerns about ventilation and patient safety were valid but that they were already known and there was an action plan in place. There is now agreed policy that any changes from building regulations or original specifications must be signed off by infection control. The investigation had highlighted that the IPCT found Dr Peter's frequent communication difficult to manage given she was not an infection control doctor at the time and had no role in the day-to-day management of IPC.

63. The Inquiry understands you held a meeting with both Dr Redding and Dr Peters to discuss their concerns. Please provide details of this meeting.

A. We met on 16/3/18 in my office and I asked them to describe their concerns. Although the email stated that their concerns related mainly to ventilation issues, they said they had wider concerns about infection control. They stated that they felt isolated by raising the issues. They then described the history of the issues from the design and building of the QEUH. They talked about the PPVL rooms and Dr Peters said that there is debate amongst experts about PPVL rooms but regardless of this they were of the view that the rooms had not been built to standard. They were aware that negative and positive pressure rooms were now being built but they did not know the timescale for when this work would be completed. They also raised problems of plumbing at the Institute of Neurological Sciences. Dr Peters was aware that HIS had been involved and recommended actions. Both Dr Peters and Dr Redding said that they felt the roles in infection control were not clear and that infection control should be a doctor led service. They said that there was poor teamwork and communication. The meeting mainly involved them speaking and me asking questions for clarification. I let them know I would investigate their concerns by speaking to others in the first instance and I would send them my findings as soon as I could.

Please refer to your letter of 4th May 2018

Email from C Peters to R Bajwe re Letter from Dr Linda de Caestecker - 15 May 2018 and the Stage 2 Whistleblowing Report NHS GGC - Step 2 Whistleblowing Report - dated May 2018 **(A46157941 Bundle 14 Volume 2, document 97, page 222** and **A34427379 - Bundle 27 Volume 3 – Document 24, page 472)**

64.

a) What was your conclusion in terms of points 1, 2 and 3 set out in your letter dated 4th May 2018/your report in terms of the suitability of accommodation within the QEUH:

A. My conclusions did not cover all of these points in detail. I had concluded that the issues had been raised with the appropriate directors responsible for addressing them and that the action plan put in place was appropriate to do

this. I took the view from the reports given to me by the people that I interviewed that the whistleblowers, especially Dr Peters, required additional support in their relationships with the IPCT but I was aware that this was already being put in place.

i) Did standard rooms only have 3ACH/hr?

A. Yes as far as I understand.

ii) Were PPVL rooms suitable for the isolation of patients with airborne infections?

A. I do not have the expertise to comment on this but I was aware that this issue was identified and was part of the action plan.

iii) Were there sufficient rooms for isolation of immunocompromised/BMT patients in RHC?

A. I do not have the expertise to comment on this but I was aware that this issue was discussed and was part of the action plan.

b) With whom did you speak to/what documentation did you see which allowed you to conclude that the issues raised in the SBAR of 3rd October were being satisfactorily addressed? Do you still hold this view? Please provide an explanation for your answer.

A. I spoke to those I interviewed for the whistleblowing investigation (see above) and also to Dr Jennifer Armstrong the Medical Director. I reviewed the minutes of the meeting of 4/10/17 and the report to the clinical and care governance committee that included the action plan to address the issues. I still hold the view that the concerns raised at the Whistleblowing investigation were taken seriously and addressed.

c) Following this letter/report what were the responses from

i) Dr Peters

A. Dr Peters responded that she was encouraged that there was now a clear policy and plan being followed and was reassured that the issues in the SBAR were being taken seriously. She was satisfied with the outcome.

ii) Dr Redding

A. I have been unable to locate Dr Redding's response.

iii) Dr Redding requested updates on the progress being made on the actions agreed. Was she provided with these? If not, why not?

A. Dr Redding asked for an update in July 2018 and I responded to her request in September 2018 with an update. I realise this was a delay in responding but it took time to get responses from the relevant staff for the appropriate information.

65. Who was your final report shared with?

A. The Board's administrative lead for Whistleblowing and the Non-Executive Director who was the Whistleblowing Champion. I shared the recommendations with those responsible for implementation. A summary was also provided in the Whistleblowing Annual report that went to the Audit committee. I wrote to the whistleblowers with a summary of my findings and conclusions.

66. Following your involvement with the stage 2 whistleblow in 2018, did you seek any updates regarding the plan in place and progress of actions? If not, why not? Please provide details.

A. I was provided with updates by the Board lead for whistleblowing who follows up actions from whistleblowing reports. Progress on actions were reported to the Non-Executive Director with responsibility for Whistleblowing (now the Board Whistleblowing Champion). The concerns were being dealt with at a senior level and the Action Plan had been produced and reported to the Clinical and Care Governance Committee. Dr Inkster the lead ICD reported that she was reassured that all actions were in train. I was therefore of the view that appropriate updates would be provided through the infection control and clinical governance structures.

67. Do you have a view on whether the issues raised in the stage 2 whistleblow were resolved satisfactorily? Were the recommendations put into place? Please provide rationale for your answer.

A. I was reassured that the action plan included all of the issues within the Whistleblowing complaint and that actions were being taken forward. Whistleblowing investigations are required if the concerns are not being adequately recognised through existing management structures and processes. On this occasion, I was of the opinion that the issues had been reported to the Director leading on Infection Control and the Estates team and actions were in place to try to resolve them. These are described in the 27 point action plan already shared with the Inquiry.

Whistleblowing Stage 3

68. What was your involvement, if any, with the stage 3 whistleblow in November 2019?

A. I did not have direct involvement although I was asked about the stage 2 investigation.

69. What was the stage 3 whistleblow process within GGC in 2019? What policy was in place?

A. The policy (2018) stated that a whistleblower could contact a designated non-executive board member to investigate concerns at Stage 3. The policy states that if Steps One and Two have been followed and the member of staff still has concerns, or if they feel that the matter is so serious that they cannot discuss it with any of the above, they should contact the nominated Non Executive Member (or deputy) of the NHS Board. The nominated Non Executive Member of the NHS Board will receive appropriate professional support where relevant from the Medical Director, Nurse Director or any relevant Corporate Director.

70. What do you understand to be the issues raised through the stage 3 whistleblow?

A. The issues were: factual inaccuracies in media statements regarding water testing; issues with the new QEUH/RHC similar to the Stage 2 investigation

but also including issues about chilled beams; testing of the plant room for Cryptococcus; data on infection rates; culture and bullying.

71. With whom were these issues raised and how were they addressed?

A. Ian Ritchie a non-Executive Director and previous president of the Royal College of Surgeons of Edinburgh, supported by William Edwards (eHealth director who hears whistleblowing cases at Stage 2). They undertook a Stage 3 investigation which I understood involved a meeting with Dr Redding, getting information from other relevant staff and review of previous documentation and emails.

72. Were you consulted as part of the process?

A. Yes, Ian Ritchie asked me about the stage 2 investigation.

73. Do you have a view on whether these issues were resolved satisfactorily?

A. I was not directly involved but my view was that the conclusions seemed clear and reasonable. The investigation noted that it was regrettable that the media lines implied that NHSGGC did not test the water for Stenotrophomonas at the time in question. The timeline for water testing was shared with Dr Redding. There was a full response to Dr Redding on the actions and conclusions about the building, the chilled beams and the plant room as well as the validity of the data. It was decided not to investigate the issues of culture and bullying as part of whistleblowing but to work with the department through Dr Marion Bain who was then in post and had been appointed by Scottish Government as part of the escalation process to oversee Infection Control. Dr Redding also raised concerns at this time about her Stage 1 whistleblowing complaint which she said had been raised in 2017. She was asked for the records that these concerns had been formally raised as a Stage 1 but she was unable to access all her emails as she was now retired. She was reassured that the process and end result would have been the same whether or not the concerns were raised with Dr Armstrong as formal whistleblowing or as concerns in her professional role. A thorough review of communication and emails was undertaken and is included in the report of the whistleblowing. It was acknowledged that the new Whistleblowing standards

would make the Stage 1 process clearer and that there is learning for NHSGGC on use of Stage 1 of the policy. The overall conclusions of the Stage 3 investigation were that the issues raised were vitally important and detail was provided on actions which had already been put in place to address many areas of concern. It was concluded that there were also lessons to be learnt in relation to communication and that the concerning issues of bullying and poor culture needed dealt with in another process including the work by Marion Bain with the teams concerned. It was noted that much of the clarification and information that Dr Redding was seeking had been covered in the 27 point action plan referred to above and that feedback from the external review on the action plan in responding to the concerns raised in 2017 would provide an independent review. Ian Ritchie also asked that any individual accusations of bullying be taken forward through the appropriate HR processes but none came forward.

74. What was your involvement, if any, with the stage 3 whistleblow in April 2020?

A. I did not have direct involvement but I have read the communication.

75. What do you understand the issues raised through this whistleblow to have been?

A. In April 2020, Dr Redding requested a subsequent Stage 3 whistleblowing investigation. At the time the previous Stage 2 was still underway and nearing completion. This complaint was that there had been a “cover-up” regarding the initial Stage 1 complaint. This complaint arose because of questions by the Independent Review and the other Stage 3 interview above, leading Dr Redding to believe that the process had not been followed correctly and that there had not been a formal acknowledgement by NHSGGC that the Stage 1 process had been started. There was no doubt that Dr Redding and colleagues had raised concerns in 2017 but there was no explicit written evidence which would show that these were raised as a Stage 1 whistleblowing concern. Dr Redding asked for access to her work emails but due to the passage of time since her retirement, her account had been disabled. Mr Allan Macleod non-Executive Director was appointed to investigate this case. Dr Redding acknowledged that the actions taken to deal

with the concerns were not in question but that her concerns should have been recorded as Stage 1 of whistleblowing. The investigation concluded that in retrospect when Dr Redding said she was escalating her concerns to Stage 2, there should have been an explicit examination of whether Stage 1 had been followed. However at that time, many Stage 2 concerns were raised without an explicit Stage 1 having taken place even when the line manager had tried to resolve the issues. It was not possible to give a definitive conclusion as to whether the initial concerns were submitted as a Stage 1 case due to lack of written evidence one way or the other. There was however no evidence that there was any deliberate attempt to cover up Stage 1. The conclusions acknowledged that NHSGGC's preparations for the new whistleblowing standards should take account of the learning from this case. In July 2020, Dr Redding wrote to John Brown, chairman of NHSGGC with concerns about the accuracy of the report of the investigation into the whistleblowing concerns she had raised at Stage 3. The chair's response was that these matters of accuracy did not materially affect the conclusions and recommendations of the report. Dr Redding had also received further communication from Elaine Vanhegan in August 2020 responding to each of her points about accuracy. Dr. Redding raised concerns that her Stage 1 Whistleblowing complaint had not been formally documented as such. She remained concerned that her concerns should have been recorded as Stage 1 of whistleblowing.

76. Were you consulted as part of this process?

A. No

77. Dr Redding was of the view that GGC had attempted to 'cover up' the stage 1 whistleblow of September 2017 by not recording it as a whistleblow. What is your view on this? Please explain the rationale behind your conclusion.

A. I do not agree that there had been a "cover up" in any way although I acknowledge that the Stage 1 process required to be clarified, which it now has been. The Stage 3 investigation concluded that when she said she was escalating her concerns to Stage 2 there should have been an explicit

examination of whether stage 1 had been followed. However there was no evidence that there was any deliberate attempt to cover up Stage 1.

78. With whom were the issues in this whistleblow raised and how were they addressed?

A. Allan McLeod a non-Executive Director was appointed to investigate the case. Dr Redding also contacted the Chair of the Board, John Brown, who responded that Dr Redding's concerns about the accuracy of the stage 3 report did not materially affect the conclusions. Elaine Vanhegan the Head of Administration also responded to all of Dr Redding's concerns in a letter to her.

79. Do you have a view on whether these issues were resolved satisfactorily?

A. They were investigated and all the concerns were responded to. The need to increase the use of Stage 1 whistleblowing was addressed in the review of the whistleblowing policy in 2021 and in the revised policy based on the national standards.

Communication with Scottish Government

80. Dr Inkster and Dr Peters raised their concerns with the Scottish Government which resulted in several meetings throughout 2019 and 2020. Are you aware of these meetings?

A. I was made aware of them when I reviewed some correspondence in a narrative about whistleblowing, previously submitted to the Inquiry, that showed there had been emails and meetings between Dr Inkster, Dr Peters and the Scottish Government. I was not aware of them at the time they occurred. The emails did not describe any detail about the content of the meeting.

81. What is your understanding of why these meetings took place and the concerns raised?

A. As I don't know the content of the meetings, I am unable to answer this question.

82. Were you contacted by the Scottish Government regarding these meeting? Were the concerns raised conveyed to you?

A. No

83. What actions were taken?

A. I am not aware of what actions were taken.

84. What was your communication with the Scottish Government in respect of the QEUH/RHC and the respective whistleblows?

A. I did not communicate with Scottish Government about these matters.

85. Did you provide them updates? If so, who did you provide the updates to? Please provide details.

A. No

Whistleblow to HPS

86. Are you aware of the whistleblow to HPS in August 2019?

A. Yes. I investigated this.

87. What do you understand the issues raised through this whistleblow to have been?

A. The whistleblower contacted HPS to raise concerns about the Incident Management Team (IMT) in NHS GGC for ward 6A and infection control. The whistleblower complained that the Chair was unable to do her job in protecting patients from infections due to the culture and organisational failings, citing lack of support from management and that critical information has been denied to the Chair, or false accounts given by high level managers. The complaint was also that Microbiology/Clinical judgement regarding the fact that there was a real issue with unusual environmental pathogens in

Haematology paediatric patients was being continuously questioned and that there was lack of transparency re communication. Shortly after this, on 2 September 2019, Dr Inkster wrote to Dr Armstrong copied to me and to Dr Peters resigning from her role as lead ICD and sector ICD. She asked that the contents be confidential. In Dr Armstrong's response to Dr Inkster, she asked that some of the issues could be shared as they needed to be fully considered and properly investigated where appropriate in line with the Board's governance processes and policies. She summarised the key issues as: workload and immediate work environment, involvement and discussions within wider IC team, lack of involvement in the forthcoming visit to Great Ormond Street, issues relating to leadership role and Chair of the IMT and HR/Payroll related issues. Dr Inkster followed up with additional issues she would like to raise that were: the Significant Clinical Incident process, Duty of Candour regarding infection control incidents and Governance of IMT sub-groups. The latter issues were not included in the whistleblowing investigation but investigated separately.

88. Who from HPS did you discuss this whistleblow with?

A. The Medical Director of NSS Lorna Ramsay contacted the NHS GGC Medical Director Jennifer Armstrong and asked NHSGGC to investigate this.

89. Who from NHSGGC/QEUH/RHC did you discuss this with?

A. I initially discussed this with Jennifer Armstrong and Anne McPherson, Director of HR, about the investigation. The investigation was conducted with Barbara Anne Nelson, director of Workforce in NHS Fife. We interviewed Iain Kennedy, Tom Steele, Chris Deighan, Sandra Devine, Dermot Murphy, Scott Davidson, Teresa Inkster, Christine Peters, Brian Jones, Jamie Redfern and Jen Rodgers.

90. This whistleblow has been escalated to the Scottish Government: please provide details of who this was escalated to, what their response was and what actions/follow up were taken?

A. I am unable to answer this other than Lorna Ramsay reported that she had let Scottish Government know about the complaint and that she had passed it to NHS GGC.

91. Why did you contact Dr Inkster? What was her response?

A. Dr Inkster had been the chair of the IMT and given the complaints we wished to find out her views. Her resignation letter to Dr Armstrong referred to above had described similar concerns and we included these in our investigation. She agreed to have a discussion with us. In our interview with her she described the stress of such a prolonged IMT and she talked about a "division" between managers and clinicians. She complained that the minutes were not sufficiently detailed and that too much of the meeting was spent having to amend the minutes. She had not raised this previously with the IPCT to find a solution. She also complained that she had no control over who attended the meeting. She found it difficult to manage the meeting if the IPC manager had different opinions from her own. Although she had weekly meetings with the IPC manager she did not raise these issues with her. It appeared that she did not acknowledge the 20 years' experience of the IPC manager who could form different views. She interpreted this as not acknowledging there was a problem.

92. What steps were taken as part of this investigation?

A. I worked with a senior HR manager from another board, Barbara Anne Nelson, on this investigation to ensure I received HR support but also to have external advice.

93. Who did you speak to?

A. We interviewed Dr Iain Kennedy, Mr Tom Steele, Dr Chris Keighan, Ms Sandra Devine, Dr Dermot Murphy, Dr Scott Davidson, Dr Christine Peter, Dr Brian Jones, Mr Jamie Redfern, Ms Jen Rogers and Dr Teresa Inkster.

94. What actions were taken?

A. We interviewed the above people confidentially and produced a report on the findings from the interviews.

95. What was your conclusion?

A. The situation was complex, emotive and at times tense but there were also examples of good collaborative working. We concluded that there were additional supports that could be put in place when an IMT is as complex and long-running as this one. Some concerning behaviours were reported within the IMT and outwith the IMT.

96. What recommendations, if any, did you make?

A. We made recommendations about the practical arrangements for IMTs. It was understood that the Standard Operating Procedures for IMTs were being reviewed. From the learning from this whistleblowing investigation, this would be a welcome and essential undertaking, and we recommended that the following areas should be covered within it: (i.) An IMT should have a defined attendees list, and only those on it should attend meetings. The only exception to that should be if a nominated colleague attends on behalf of an IMT member during a period of absence. (ii.) There should be ground rules for the IMT – for example, attendance, minutes, circulation of papers and so on. (iii.) An appropriate meeting room should be taken out of circulation during the lifespan of an IMT to be at their full disposal. (iv) If there are to be pre-meetings before an IMT, it must be made very clear to the wider group what the purpose of them is. The purpose would be to help/facilitate a well organised IMT, not for decision-making purposes. (v) An experienced minute taker should support the IMT. Recommendations were also made about supporting the IMTs and the Chair of the IMT. The report discussed the high pressure, emotive nature of the subject matter, and that this has taken its toll on staff. Support to both the Chair of the IMT and IMT members is therefore essential. It was recommended that IMT situations should be categorised on severity /risk. For those ranked at the higher end of the scale, it should be considered whether some key colleagues should come out of their substantive posts temporarily, in order to give full attention to the IMT. It was recommended that the chair of such IMTs should not be expected to be a full expert participant and that the Chair should be a separate role. If an expert of the same role / specialty as the Chair is needed, this should be in addition to

the Chair. It was recommended that Chairs should receive specialist training on how to fulfil this role and discussions should be held with HPS about training courses. High profile IMTs should have a Vice Chair for added support, and this support should include constructive feedback, reflection and a chance to de-brief. The organisation should ensure that all participants of a high profile and/or long-running IMT have access to support via a Vice Chair. We also made recommendations about behaviours given what we heard in the interview i.e. (i.) As well as the ground rules noted above, there should be rules of engagement for the IMT which aim to create an atmosphere that supports respectful and respected debate done in a kind and helpful way. (ii.) The Director of the Diagnostic Directorate should take senior OD advice on the most appropriate bespoke Organisational Development programme which would assist the microbiology team at QEUH. (iii.) Staff who raise concerns about individuals should be signposted to the relevant HR policies and advised to utilise these when appropriate. (iv.) Discussions should take place with the Chief of Medicine for the Diagnostic Directorate and HR to consider how best to support Dr Peters to enable a more productive way of working with colleagues at times of stress and when opposing views are held.

97. Do you consider the issues raised to be fully resolved?

A. There was a great deal of effort to resolving the issues made by Marion Bain and byAngela Wallace. Many of the issues remained unresolved, in particular how Christine Peters and Teresa Inkster related to the IPCT. There have been changes in personnel and my understanding is that relationships and communication are now much improved. However, I have not been directly involved since my retirement.

98. What actions were taken?

A. We interviewed relevant stakeholders and members of the IMT. A set of recommendations was made, as described above and the lead for each recommendation was documented. Progress on implementation was then overseen by the Lead for Whistleblowing liaising with the leads for each recommendation.

99. Do you consider this to be fully resolved?

A. I cannot fully comment as I am now retired. I am aware that relationships between Dr Peters and the IPCT were not fully resolved at the time of my retirement.

Meeting re. IMTs

100. 20th August 2019 - Refer to Bundle 6, Document 22:

a) Do you recall attending this meeting?

A. Yes. I was asked to chair this meeting by the Medical Director.

b) Why was this meeting called?

A. At the most recent IMT, a number of members had raised concerns about the behaviours at the meeting. They had reported to their managers that they felt personally criticised and intimidated if they disagreed with the Chair or with Christine Peters who had attended that meeting. They also complained about documents being tabled at the meeting rather than being pre-circulated. Members also felt that although it was meant to be a confidential discussion that some members leaked issues to the media. Jennifer Armstrong, the Medical Director, asked that I chair a meeting to discuss these complaints.

c) How did you become involved?

A. I was asked to chair a meeting to discuss these concerns and agree ways to improve the working of the IMT.

101. What was your understanding of the issues surrounding the haemato-oncology unit at the QEUH/RHC? What was discussed at this meeting?

A. The meeting was to discuss the concerns of members of the IMT about its functioning and behaviours at the recent meeting. The meeting was not held to discuss the infections that were being investigated by the IMT.

102. What was your understanding of the issues raised surrounding IMTs? In particular, what do you understand the issues raised with the role of the chair and behavioural issues related to?

A. Some of the issues raised were practical ones about changing membership, the number of people attending, the appropriateness of venues. The group highlighted the need for an IMT to work within a safe and confidential environment in order to manage the situation and protect patient confidentiality. However it was reported by staff that recent press leaks had led to a climate of fear and intimidation as staff are concerned that if they disagreed with others at the meeting, they might be criticised in the press. This had resulted in a lack of openness at the meeting which could affect decision making. It was also felt unhelpful when information is tabled at the meeting, thus not enabling everyone to review it properly to inform decision making. Other issues that were raised were about behavioural issues Concerns were raised about the nature of communication within the IMT ('confrontational', 'uncomfortable dialogue', 'off-the-scale bad', 'totally disrespectful', 'inappropriate language'), and feelings of defensiveness and vulnerability experienced during the meeting, noting particularly a 'toxicity' and lack of identification as a team, as well as feelings of blame being attributed. It had been reported that some people felt unable to speak up at the IMT because of this culture, concerns about confidentiality and the tone of discussions because members felt there was a lack of respect for them if they held differing views.

a) Please provide details as to the discussions for re-setting the IMT process and having an independent Chair.

A. It was recognised that chairing such a long-running, important, high profile IMT is very difficult. It can be particularly difficult if the Chair is also the subject expert. This can make chairing more difficult if the Chair has to manage behaviours, let all views be heard and valued and also provide the expert input to the team. It was therefore felt that it would be preferable to have a Chair who understood the issue but was not the expert, freeing up Teresa Inkster as the lead ICD to provide the expert input.

b) Please explain the actions taken and how they were taken forward.

A. My actions were to chair the meeting and then to ask Dr Emilia Crighton in my public health team to take over the chair of the IMT. It was Jennifer Armstrong's or Sandra Devine's responsibility to speak to Teresa Inkster and explain why it was felt that she should be on the IMT as the expert in IPCT but that it would be easier for her to provide that expertise if not also chairing the group.

c) Dr Inkster was removed as Chair of the IMT following this meeting without her having an opportunity to discuss this. Do you think this was a fair approach to take?

A. Dr Inkster was invited to the meeting and I, as chair, only found out at the last minute that she was unable to attend. It would have been preferable if she had been able to attend so that she could have been part of the discussion and recommendations. We changed the time of the meeting to make sure Dr Inkster was able to attend and then before the meeting, we were informed that Dr Inkster unfortunately had had to go off sick.

d) Dr Inkster is of the view she was forced to demit as chair of the IMT with various different reasons cited to her for this decision, all of which were untrue; what is your understanding of this? What reasons were given to Dr Inkster?

A. I did not speak to Dr Inkster after the meeting as it was agreed that the Infection Control Manager, her line manager, would do this. The ICM tried to contact Dr Inkster to meet with her and discuss the chair role. She thought that Dr Inkster was still off sick and had to ask someone else to chair the IMT. She approached the ICDs but they were unable to chair and she then asked Dr Emilia Crighton, consultant in public health to chair the IMT. Dr Inkster returned from sick leave and attended the IMT before there had been the opportunity to speak to her about the chair role. It would have been preferable if there had been time to explain to Dr Inkster that she was not being forced to demit as chair but that the decision to have a new chair was to support her and enable her to have the role of expert so that the IMT could function more effectively. It is unfortunate that this is the way things happened

and that the ICM did not have the opportunity to explain properly the rationale behind changing the chair before Dr Inkster attended the IMT.

Resignation of Dr Inkster

103. What is your understanding of why Dr Inkster resigned from her role as ICD in September 2019?

A. She stated her reasons in her resignation letter. Her reasons related to workload, feeling she was undermined, being asked to demit the chair ofthe IMT and being unclear of the reasons, concerns relating to duty of candour and her contributions to a recent SCI report. She also cited HR and payroll issues.

104. In her resignation letter, Dr Inkster states a colleague referred to her, “doing the work of 4 people”, what is your view on this? Were there resource issues with ICDs? Please provide details.

A. I am unable to accurately comment on this as she did not raise this particular issue when we interviewed her. I would agree that at the time there would have been many demands on her time as Lead ICD but I am also aware that both Dr Armstrong and Dr Green put in place measures to reduce her workload. I am not aware that there were resource issues with ICDs but I was not involved in the operational management of them.

105. In her resignation letter, Dr Inkster refers to being undermined, being shown a lack of respect, being unsupported and undervalued during IMTs and despite discussing this with senior management these issues persisted. Were you aware of these issues mentioned by Dr Inkster before she raised them in her resignation letter? If so, were these being addressed? What are your views on her concerns?

A. I was not aware of these before they were raised in the resignation letter and in the whistleblowing complaint to HPS. There is no doubt that the IMT was a difficult one to lead as it continued for such a long time and it was very high profile with different views about the situation. That must have been difficult

for her. I am sorry that she did not view the appointment of a new Chair as helpful to her as it was intended to be. I am aware that I personally tried to make sure she knew how valued she was as an expert and the lead ICD. The recommendations in the whistleblowing report of 2019 described below were intended to address the issues.

106. In Dr Armstrong's response to Dr Inkster's resignation letter, she states that she is keen for the issues which she raised to be fully considered and properly investigated and that a full investigation under the Boards' Whistleblowing Policy will be carried out. The issues which Dr Inkster raises are not new issues, why are they only being fully/appropriately addressed now?

A. The issues in her resignation letter were similar to the issues raised in the Whistleblowing complaint to HPS so it was thought appropriate that they be investigated together. The Medical Director did not agree with Dr Inkster that she had been unsupported as she and the IPC Manager had regular meetings with her to ensure she was supported. In March 2019, the Medical Director and I had a joint meeting with Dr Inkster and the Director of Estates Tom Steele to try to ensure that they supported each other including in IMTs. We asked that they continue to meet every week to make sure any problems were quickly resolved.

Refer to email 24th Sept re whistleblowing concerns :
(A41745739 - Bundle 14 Volume 2 – Document 156 page 603)

107. In your email of 24 September 2019 to Dr Inkster, you suggest that the concerns raised, 'may be better dealt with through normal processes … rather than a whistleblowing concern': please provide your reasons for this decision.

A. The whistleblowing concerns reported to HPS were from an anonymous whistleblower and Dr Inkster was not asking to be anonymous so I could raise the issues with her line manager or as she suggests in her email with the Medical Director directly. Stage 2 Whistleblowing is meant to be for complaints that cannot be resolved directly with line managers or senior managers. There are also occasions when people use the Whistleblowing

policy when they should use Dignity at Work or other policies. I was planning that Dr Inkster and I explore the best way to report and resolve her issues when we met. I was not pre-judging the outcome of these discussions. I am aware that the issues such as the SCI report, governance of sub-groups and duty of candour were fully investigated by Dr Chris Deighan at the request of Dr Jennifer Armstrong.

108. What steps were taken as part of this investigation?

A. These are described under the section on the HPS Whistleblowing. I worked with a senior HR manager from another board on this investigation to ensure I received HR support but also to have external advice. We interviewed key staff and produced a report based on our findings.

109. Who did you speak to?

A. We interviewed Dr Iain Kennedy, Mr Tom Steele, Dr Chris Deighan, Ms Sandra Devine, Dr Dermot Murphy, Dr Scott Davidson, Dr Christine Peters, Dr Brian Jones, Mr Jamie Redfern, Ms Jen Rodgers and Dr Teresa Inkster.

110. What actions were taken?

A. We interviewed the above people confidentially and produced a report on the findings from the interviews. A set of recommendations were made that included responsibility for implementation.

111. What was your conclusion?

A. The conclusion of the Whistleblowing investigation was that the situation was complex, emotive and at times tense. Some concerning behaviours were reported within the IMT and outwith the IMT that had made the work of the IMT more difficult. It was recognised that the need for difficult and complex judgements and decisions that impact on patients can cause tension and that discussions can be heated but it is expected that all staff behave with respect and care for colleagues. The recommendations made were intended to support good collaborative working.

112. What recommendations, if any, did you make?

A. The recommendations were about firstly the practical arrangements for IMTs and that in the review of the Standard Operating Procedures for IMTs, the following areas should be covered within it: (i.) An IMT should have a defined attendees list, and only those on it should attend meetings. The only exception to that should be if a nominated colleague attends on behalf of an IMT member during a period of absence. (ii.) There should be ground rules for the IMT – for example, attendance, minutes, circulation of papers and so on. (iii.) An appropriate meeting room should be taken out of circulation during the lifespan of an IMT to be at their full disposal. (iv) If there are to be pre-meetings before an IMT, it must be made very clear to the wider group what the purpose of these are, and this should be to help/facilitate a well organised IMT, not for decision-making purposes. (v) An experienced minute taker should support the IMT. Recommendations were also made about supporting the IMTs and the Chair. The report discussed the high-pressure, emotive nature of the subject matter, and that this has taken its toll on staff. Support to both the Chair and IMT members is therefore essential. (i.) IMT situations should be categorised on severity /risk. For those ranked at the higher end of the scale, it should be considered whether some key colleagues should come out of their substantive posts temporarily, in order to give full attention to the IMT. (ii.) The Chair should not carry out this role and also be expected to be a full expert participant. If an expert of the same role / specialty as the Chair is needed, this should be in addition to the Chair. (iii.) Chairs should receive specialist training on how to fulfil this role. Discussions should be held with HPS about training courses. (iv.) High profile IMTs should have a Vice-Chair for added support, and this support should include constructive feedback, reflection and a chance to de-brief. (v.) The organisation should ensure that all participants of a high profile IMT have access to support via the Vice-Chair. We also made recommendations about behaviours given what we heard in the interviews. (i.) As well as the ground rules noted above, there should be rules of engagement for the IMT which aim to create an atmosphere that supports respectful and respected debate, done in a kind and helpful way. (ii.) The Director of the Diagnostic Directorate should take senior OD advice on the most appropriate bespoke Organisational Development programme which would assist the microbiology

team at QEUH. (iii.) Staff who raise concerns about individuals should be signposted to the relevant HR policies and advised to utilise these when appropriate. (iv.) Discussions should take place with the Chief of Medicine for the Diagnostic Directorate and HR to consider how best to support Dr Peters to enable a more productive way of working with colleagues at times of stress and when opposing views are held.

113. Do you consider the issues raised to be fully resolved?

A. There was a great deal of effort to resolving the issues by Marion Bain and by Angela Wallace. Many of the issues remained for some time, in particular how Christine Peters and Teresa Inkster related to the IPCT. There have been changes in personnel and my understanding is that relationships and communication are now much improved. However I have not been directly involved since my retirement.

Cryptococcus

114. What is your understanding of the cryptococcus outbreak at the QEUH?

A. I was not directly involved in the outbreak and did not have a role in investigating it or managing it. I do not therefore have the expertise to answer this section.

115. What was your impression/reaction upon learning of the presence of cryptococcus in 2018 in the QEUH?

A. N/A

116. What is Cryptococcus?

A. N/A

117. Had you seen/ heard of Cryptococcus in a healthcare setting prior to QEUH?

A. N/A

118. What were the issues with Cryptococcus at QEUH? When did you first become aware of these issues? What happened in response to these issues?

A. N/A

119. What steps were taken in response/ precautions put in place?

A. N/A

120. What were the hypotheses put forward for the cases of cryptococcus? Who put these forward? What were the conclusions on each hypothesis?

A. N/A

121. What was your view on the pigeon infestation on the QEUH/RHC site?

A. N/A

122. Did you read John Hood's report? bundle 6, document 39

A. N/A

123. When did you read John Hood's report?

A. N/A

124. What observations, if any, did you make after reading John Hood's report? What actions were taken following the John Hood report?

A. N/A

125. What else could have been done? How could matters have been handled differently? What concerns, if any, did you have about how matters were dealt with?

A. N/A

126. What is your view on the pigeon contamination in the plant rooms?

A. N/A

127. Who was responsible for clean up regarding this?

A. N/A

128. What actions were taken?

A. N/A

129. Was air sampling of plant rooms undertaken?

A. N/A

Please refer to IMT Bundle 1, Document 58

130. A discussion of plant rooms and sampling for fungi and cryptococcus takes place.

a) What do you understand to have been discussed?

A. N/A

b) Do you know what control measures were implemented?

A. N/A

Please refer to IMT Bundle 1, Document 59

131. Cryptococcus and other organisms were found that are carried by pigeons giving evidence of an infestation of the plant room.

a) Discuss this meeting, including incident updates, hypothesis, risk management and control measures, further investigations, recommendations, and actions.

A. N/A

b) When did you first become aware of an infestation of the plant rooms?

A. N/A

c) What was your understanding of the extent of the infestation and how the pigeons were accessing the plant room?

A. N/A

d) What was your understanding of how the infected air was reaching the wards?

A. N/A

e) What steps were taken and by whom?

A. N/A

f) Was this issue fully resolved?

A. N/A

Please refer to IMT Bundle 1, Document 55

132. Three incidents are discussed including a paediatric patient who has died following testing positive for cryptococcus.

a) What was your understanding of this situation?

A. N/A

b) When did you become aware of this situation? Who kept you informed of the situation?

A. N/A

c) What actions were taken?

A. N/A

133. How many cases of cryptococcus have there been in the QEUH/RHC between 2015 to date? Please provide details of each case.

A. N/A

National Performance Framework

134. When did the escalation of the QEUH to Stage 4 of the National Performance Framework take place?

A. I was not directly involved in this process although it was reported to the Board. As I am now retired I do not have access to all the files I would need to check the dates and process for this.

135. What is your understanding of why NHS GGC was escalated to Stage 4?

A. My understanding was it related to the infections at the QEUH which were widely reported in the media causing concern from the public about the safety of the hospital. The Scottish Government felt that the Board required support to restore confidence in our infection control procedures and also in the hospital itself.

136. What were the events preceding this?

A. The Oversight Board was established to focus on three broad areas of infection, prevention and control; governance; and communication and engagement. The events preceding this had been infection issues affecting children and young people in the paediatric haemato-oncology service at the QEUH and the RHC over a number of years, combined with rising concerns about the source(s) of those infections and how they were being handled.

137. Describe the process of escalation and the consequences of this?

A. The Oversight Board conducted its work through a review of key documents and direct inquiry with NHS GGC involving experts who took part in the Oversight Board and its Subgroups. The Oversight Board reviewed minutes of the Board and sub-committees, IMTs, SBARs and papers from external experts and statements on specific issues, as well as information from clinicians in the Board. The Oversight Board also reviewed national and local guidelines and data. The Oversight Board held discussions with representatives of the affected children, young people and families, some NHS GGC clinicians and microbiologists that had raised concerns about the Health Board, and NHS GGC representatives.

138. What actions were taken?

A. The Oversight Board made a number of recommendations for improvement some for NHS GGC and others for national bodies.

139. Were you in communication with the Scottish Government throughout this period? If so, please explain the extent of your communication and what it related to.

A. I was not directly in communication with the Scottish Government about this.

Case Note Review and Oversight Board

140. Please describe the process involved for the Case Note Review. Please include how this was established, who was involved, what work was done and any relevant outcomes.

A. I was not involved in the Case Note Review process. The only involvement I had was reviewing the draft report and contributed to comments and responses from NHS GGC.

141. Please describe the process involved for the Oversight Board. Please include how this was established, who was involved, what work was done and any relevant outcomes.

A. I am unable to answer this as I was not involved in its establishment of the Oversight Board or its work.

142. Have you read the Overall Report of the Case Notes Review and noted its recommendations?

A. Yes

143. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Governance and Risk Management?

A. Yes

144. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Communications and Engagement?

A. Yes

145. What steps have been taken by GGC to implement each of the separate recommendations of the Case Notes Review, when they were taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

A. The implementation of the recommendations were led by other Directors in NHS GGC and not by me so I am unable to answer this in any detail.

146. What steps have been taken by GGC to implement each of separate recommendations of the 'Local Recommendations' of the Oversight Board, when were they taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

A. I was not directly involved in this but was aware that the CEO led a process to implement and review progress on each of the recommendations.

Communication – Staff/Information Sharing

147. What is your view on the adequacy of communication between staff and information sharing between staff within the QEUH/RHC? Please provide details.

A. I am not directly involved in this so I cannot comment on the communication between staff within the QEUH/RHC. The communication within my own Public Health team working in the QEUH was good.

148. What is your understanding of the following:
All communication from management to clinical staff regarding infection risk where there had been or was a concern about links to the hospital environment; and as regards such concerns:

A. I was not involved in this process so I am unable to comment. The same applies to the questions below.

a) All instruction from management to clinical staff regarding what and how to communicate with patients

A. I was not involved in this so I am unable to comment

b) All communication from management to patients

A. I was not involved in this so I am unable to comment

c) All communication from management to the media

A. I was not involved in this directly so I am unable to comment

d) The pre-broadcast advice to staff regarding the BBC programme

A. I was not involved in this directly so I am unable to comment.

e) All communication between management and external bodies such as SG, HPS and HFS

A. In relation to the events in question, I was not involved so I am unable to comment.

Communication With Parents

149. What is your view on the adequacy of communication and information sharing between staff and patients and families?

A. I did not have direct involvement in this but I am aware that clinicians and managers tried very hard to ensure the communication was good. However I can also understand that parents, worried about their child's illness, may at times feel it should be improved.

150. Do you believe that there were circumstances where this could have been improved? If yes, please provide details/examples.

A. There was one particular episode in which communication could have been improved and it displayed how important it is to communicate clearly with both colleagues and patients and that busy staff can sometimes use shorthand with colleagues that can be mis-interpreted, causing distress to parents/patients. I

reviewed the documentation about some communication with [redacted], one of the [redacted] being treated in haematology/oncology. In August 2019, there was a meeting with Dr Inkster, Mr Jamie Redfern and [redacted]. There had been a previous meeting with [redacted] some months earlier about [redacted] rare infection and [redacted] concern that this should have been counted in the IMT cases. It was explained that with only one case, it would not be defined as an outbreak although Dr Inkster agreed to look into the case. Months later there was a second case reported to the IMT and Mr Redfern and Dr Inkster planned to meet with [redacted] to explain this but first had to speak to the second case's family. In the intervening time, Kevin Hill, the then Director of the Women and Children's Directorate told Mr Redfern and Dr Inkster that they should not speak to [redacted] because [redacted] was in communication with the Board's Chair about a range of issues in relation to the hospital and [redacted] and they should let that process continue. Both Dr Inkster and Mr Redfern then went on leave. On return from leave, Mr Redfern received an email from [redacted] which he described to me as containing inflammatory language, complaining that communication was very poor. Mr Redfern and Dr Inkster agreed to meet with [redacted]. The meeting was arranged at a time when an IMT was over-running so Mr Redfern met with [redacted] and Dr Inkster joined later. Mr Redfern tried to explain why they had not met [redacted] earlier but was interrupted by Dr Inkster who had then joined the meeting. Dr Inkster stated that they had been told by senior management not to meet with [redacted], at which point [redacted] left the meeting. [redacted] subsequently complained about this statement in a letter of complaint and was responded to by Jane Grant CEO. In [redacted] complaint letter, it is presented as if Teresa Inkster was explicitly told to withhold relevant information as part of a "cover-up". Whilst it was not meant in this way, the way it was expressed by Dr Inkster was unfortunate as it could be implied that she was asked to with-hold information whereas the request from Mr Hill had been made to prevent confusion when communication was on-going with the Chair of the Boards.

151. What steps have been taken to improve communication failures.

A. I was not directly involved in this but I am aware that the Board was supported by Prof Craig Whyte who had been asked by Scottish Government to support communication. Prof Mags Maguire the (then) Director of Nursing led the endeavour to ensure that communication was as clear, understanding and sympathetic as possible, working closely with management from the hospital. An important element of this was regular meetings with staff and parents to provide information and reassurance as well as written communications.

Staff/Culture Within QEUH/RHC

152. What was the working environment like within the QEUH/GGC – work life balance/ workplace culture? What issues, if any, are you aware of? What was your experience of this?

A. I can comment on my experience of being part of the team at Board HQ. There was a positive, supportive culture although this included robust challenge at times. My experience was that I was well supported by fellow Directors and my own team. The Heads of Service in the Public Health Directorate had regular team and one-to-one meetings with their teams to make sure there was good communication and team-working. All the directors and their teams worked very hard and there were times especially during the pandemic when most were working very long hours. During that time, the Directors, led by the CEO, tried to make sure that their teams and fellow directors were getting sufficient rest and support.

153. In your view, were the concerns raised by infection control colleagues regarding the general build of QEUH/RHC taken seriously? What action was taken in response to these concerns, if not already mentioned in your answers?

A. I cannot comment if they were taken seriously at the commissioning and build stage as I was not involved. When I was involved from 2018, the issues were taken very seriously. There was not always agreement with the Whistleblowers about all the issues but they were taken seriously, investigated and remedial actions implemented.

154. Is there anything further that you want to add that you feel could be of assistance to the Inquiry?

A. There were on-going attempts to work constructively with both Dr Peters and Dr Inkster and ensure constructive working within the IPCT from 2020. In February 2020, Angela Wallace replaced Marion Bain as Interim Infection Control Director and she started meeting with Dr Inkster and Dr Peters accompanied by external Organisational Development (OD) support. OD expertise was secured with Terri Hunter in the GGC OD team and Jenny Copland from Scottish Government OD team. An OD plan was developed. Despite the pandemic the OD plan continued to be implemented. Jenny Copland offered 1-2-1 coaching support to all the Senior Team. Angela Wallace had a weekly meeting with the Infection Control Community including microbiology, IPCT, Laboratories and Virology doctors to rebuild the IPC Team. Angela Wallace met every 2 weeks with Drs Peters and Inkster and OD staff for 10 months and made herself available to support colleagues in the IPC team and wider community to build new ways of working. Angela Wallace reported that she was made aware by IPCT members and microbiologists that Dr Peters continued to send challenging and frequent emails often late at night to the Infection Control Manager, the Infection Control nurses and the lead IC doctor which caused them to feel under pressure, fearful and anxious. As Angela Wallace tried to resolve the tensions and disputes created by the constant challenging of the IPCT, the OD experts concluded although mediation or similar interventions might have been available, their advice was that in this set of circumstances they would not improve the situation. Angela Wallace continued try to build day to day relationships and ways of working for two years. There were still very frequent emails to the IPC nursing team giving random sample results and CHI numbers causing duplication of referrals despite Dr Peters being informed that all isolates come across automatically to the team. In one week the team received 10 emails from Dr Peters and when reviewed they were already aware of all the information they contained via their own systems and processes but they still required work to cross-check this. The Infection Control Manager has suggested that the psychological health of

several members of nursing and medical staff has been impacted by this behaviour which has been in place for a number of years.

Declaration

155. 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.

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

Appendix A

A43255563 – Bundle 1 – IMT

A43299519 – Bundle 4 – SBAR

A43293438 – Bundle – Miscellaneous

A47069198 – Bundle 12 – Estates

A47739010 - Summary of Infection Control Issues details – Volume 14 Volume 1

A38759263 - Email chain between Penelope Redding, Tom Walsh and Jennifer Armstrong dated between 5 September 2017 and 3 October 2017 – Bundle 14 Volume 1

A38759270 - Action Plan arising in response to SBAR dated 3 October 2017 – Volume 20

A40450652 - FW STEP 2 -Whistleblowing Policy Ventilation at QE and RHC – Volume 14 Volume 2

A46157941 - Email from C Peters to R Bajwe re Letter from Dr Linda de Caestecker - 15 May 2018 – Volume 14 Volume 2

A34427379 - NHS GGC - Step 2 Whistleblowing Report - dated May 2018 – Volume 27 Volume 3

A41745739 - Email 24th sept re whistleblowing concerns details – Volume 14 Volume 2

Scottish Hospitals Inquiry

Witness Statement of Questions and Responses

Tim Wafer

Personal details

1. What is your professional background and qualifications and what is Water Solutions Group? What are its activities? Do its specialisms reflect your own?

A I have spent over 50 years involved with water in various disciplines. Have worked for a number of large organisations and prior to forming H2O Solutions LPP in 2008 was head of the Chlorine dioxide division for Clearwater Technology who were latterly bought by the Marlow group (WCS).

I was brought into Clearwater to form a Chlorine dioxide division due to prior expertise in working with Chlorine dioxide systems alongside an American Company, (Dripping Wet Water Inc) advancing their catalytic technology into the healthcare market. This included the design, project management and technical support for one of the largest Chlorine dioxide generators in the UK at the then BP refinery Grangemouth.

I set up H2O Solutions LLP to be a specialist water consultancy company with a focus on healthcare and to audit the performance for Chlorine dioxide systems. Over the past 15 years the business has evolved through business partnerships to offer laboratory services (microbiology, chemistry, metallurgy, forensic water investigation, electron microscopy) which has dovetailed with our consultancy service to fulfil a niche sector of this market. Further details can be found by visiting our website: www.watersolutionsgroup.org.uk which explains the services offered.

As founder of H2O Solutions LLP, the business does reflect many of my own specialisms and draws on additional expertise as and when required through a network of working relationships.

Your Initial Involvement with QEUH

2. The Inquiry understand that you first became involved in the QEUH/RHC after being contacted by telephone by Ian Powrie then Deputy General Manager for Estates at the hospital in June of 2018. What did Mr. Powrie ask you to do for NHS GGC?

A. Ian Powrie made contact June 2018 and organised an initial meeting at QEUH 08:00 15th June. The initial action was to develop a programme for the implementation of a chlorine dioxide biocide regime to assist with microbiological issues being experienced on-site. Water Solutions Group (WSG) has extensive experience on the implementation of such regimes from a technical aspect. The engineering aspects would be assisted by others.
Ian Powrie also requested microbiological analysis of the water systems/outlets using our laboratory services which are facilitated by the Intertek Group, to investigate issues related to taps and other components.

3. How was the then state of the water system at the QEUH/RHC described to you by Mr. Powrie at that time, and what reason was given to you for getting you and your company involved. Was that sufficient to enable you form an understanding of what might be involved?

A. The system was described as having microbiological issues that had materialised since building hand-over. WSG was brought in for technical input regarding biocide systems, focusing on chlorine dioxide. The initial discussions were in sufficient detail to obtain an understanding of the requirements but would require continual input from Ian Powrie due to his knowledge of the site and additional information regarding water systems/BMS/engineering, etc. required.

WSG has had key involvement in the technical aspects of a number of key controlling biocide systems predominantly in healthcare and it was that level of expertise that was required for this project. Due to the complexity of the water system IP required WSG to work with the facilitators of the biocide systems to ensure the necessary control measures and dosing strategy was implemented.
As with any complex water systems involving a dosing strategy it is important to ensure that dosing is within agreed parameters and meets the necessary

guidance and in this case not to exceed Drinking Water Inspectorate guidelines of 0.5 mg/litre for drinking water. There was a requirement to ensure biocide dosing levels were robust and effectively managed.

4. Between that initial contact and your visiting the hospital, did you have further contact regarding your task? With whom? Were you given further information? To what extent was that information sufficient to allow you to understand your task?

A. Met with a number of people including Colin Purdon, Melville MacMillan; Mary Anne Kane; Alan Gallagher, all of whom provided information requested as part of facilitating this project. At this time the chlorine dioxide supplier had been selected and was being worked with at that time as well. The first project team meeting took place 5th September 2018 at which time the Chlorine dioxide project group was established under the steerage of Ian Powrie. The project group brought in engineering resources who would have to be working on the pipework systems as part of the interface for the chlorine dioxide.

On this occasion the challenge was the number of systems and the integration of these into the water infrastructure. This was achieved by working alongside the Water Technical Group and the Chlorine dioxide project group.

5. When you visited the hospital did you form any views or opinions about the design, size, or complexity of the water system, or with how it was then being operated? Did your impressions fit with the scenario that had been described to you? Did your understanding of the task change as a result?

A. Initial impression was the potential vulnerability of such a large facility being sourced from one centralised water tank system, the potential risk being water tanks out of balance and creating a “lead/lag situation”. There was concern about the amount of water and “damp” within the plant room and the overwhelming smell of mould. (The odour issue was also commented on much later by Dr Tom Makin when inspected the plant room area). There was a concern that the services corridor air intake which ultimately impacted on the water plant room came from the end of the sewage treatment beds which were located adjacent to the laboratory building.

The impressions fitted the described scenario but that the task was more urgent and going to be more complex from an engineering perspective due to the need to install some 29 chlorine dioxide systems. It was not that the task required change, but the amount of biocide systems that were going to be employed increased which had an effect on timeline.

6. When were you first shown the report by DMA Canyon Ltd L8 Risk Assessment of the QUEH/RHC in respect of a site survey completed on 29 April 2015? Who showed it to you and what were your immediate thoughts? **Please refer to Bundle 6, Document No. 29, Page 122.**

A. We were not provided with sight of this document and any interpretation from findings and recommendations would have been provided by Ian Powrie. As our involvement commenced June2018 the 2017 document (question 7 below) would have been more appropriate.

7. Are you aware of the further Reports compiled by DMA Canyon in 2017 and 2018? Who showed them to you? What were your thoughts? Were you shown them in good time to inform your work? **Please refer to Bundle 6, Miscellaneous Documents, Document 30, Page 416**

A. Whilst we have on file the report of 2017, which would have been provided by Ian Powrie, it did not relate specifically to the Chlorine dioxide project which focussed specifically on Ward 2A and 2B together with the full site facility (QEUH/RHC).

However, it does highlight vulnerability of the filtration units located in the water tank room together with piping issues. As part of the Chlorine dioxide project the piping issues were to be incorporated into the Chlorine dioxide project together with the installation of a 3rd filtration unit.

It was highlighted during the Chlorine dioxide project and incorporated within the design work that Chlorine dioxide dosing units would be installed on each of the 3 filtration units to aid “backwash” and prevent the build up of biofilms and contamination on the reverse side of the filtration membranes.

There was also reference and discussions around “dead-legs” within the water systems and how the chlorine dioxide would react to these. The action was to either remove, re-engineer or place on a robust flushing regime.

In the initial period Ian Powrie was very specific about what he required as part of the remediation programme.

The Water System

8. The Inquiry understands that as part of your work a Chlorine Dioxide Group was set up and you were asked to design the chlorine dioxide strategy. Please explain your contributions to this group. **Please refer to Chlorine Dioxide Meeting Minutes in the Objective Connect file**.

A. Initially worked with Ian Powrie to define the requirements for Ward 2A and 2B as a priority and then to complete a programme to encompass the remaining water infrastructure for QEUH/RHC. This included generation technology, service providers and provision; engineering works required to implement the chlorine dioxide programme and to work through specific high-risk areas which could be impacted on the chlorine dioxide - e.g. renal; filtration units in water tank room.

During meetings specific chlorine dioxide aspects with the then chosen service provider would be rationalised and confirmed alongside the installation teams (M&S) and any specific technical issues that arose as part of the installation programme would be clarified.

9. What was the chlorine dioxide strategy that you produced and when was it finalised?

A. Commenced the design work in June 2018 and the implementation programme commenced in September 2018. Water tank plant room units became operational December 2018 and the other systems operational during first half of 2019.

The strategy employed a robust, tried and tested high purity generation technology so as to avoid unwanted by-products (Chlorite). The cold water would be treated centrally within the water tank plant room, whereas the hot water systems would be generated and dosed locally within hot water plant rooms.

The dosing strategy was proportional dosing based on water volume via impulse water meters with its monitoring and protection system utilising the latest ion specific membrane electrode technology to provide accurate residual values for chlorine dioxide and chlorite where required.

The strategy followed the requirements of HSG274 Part 2 - Para 2.91 to 2.10; Drinking water inspectorate guidelines; World Health Organisation Drinking Water Guidance; plus, any other related guidance which would support the project.

The target Chlorine dioxide treatment levels were >0.1 mg/litre and <0.5 mg/litre. On the monitors the required low and high alarm levels and cut-off's were implemented together with the necessary hysteresis to allow the system to stabilise. All data was to be linked back to site BMS system and service provider online monitoring portal.

10. Was there any work that required to be carried out within the hospital to enable the strategy to be implemented and what was that work?

A. There were engineering works to support the chlorine dioxide regime. These encompassed both mechanical, electrical and IT.

The work was mainly contained to the plant rooms, with modifications to pipework, improvements to air handling within the plant room; rectification of the damp/wet conditions within the water tank rooms and relocation of new/spare plumbing components to a drier environment.

There was additional work to investigate the condition of calorifiers, expansion vessels, pipework joints and the quality of pipework used within the infrastructure.

The Water Solutions Group was not directly involved with these works but was aware of the need for these to be carried out.

11. Were you and your company involved in carrying out water testing in 2017, 2018 and 2019? What conclusions about the state of the of the water system and how it was then being operated did you draw from the results of these tests?

A. Between 1/1/17 to 31/12/19 the laboratory processed some 3715 samples based on schedules provided by Ian Powrie and samples taken on site by DMA Canyon. Samples were analysed for Mould; TVC@22; TVC@37; Yeast; Legionella; E coli; Coliforms; Pseudomonas aeruginosa.

Analysis determined 134 positive results (as per the attached spreadsheet)

The conclusion drawn by Ian Powrie and the Water Technical Group was that given the size of the water infrastructure and number of outlets the failure rate was low and not typical of that found in other healthcare establishments which is often considerably higher. The results were shared by the Water Technical Group and the main Water Safety Group.

12. Now that the chlorine dioxide programme is in place is your company still involved in carrying out water tests at the hospital and what conclusions did you draw from the results of these tests?

A. WSG remains involved with QEUH in two capacities: -

On-going 6 monthly audits of the Chlorine dioxide units and service provider provision to the site.

Monthly microbiological sampling analysis based on the benchmark sampling provided by Ian Powrie and agreed by Water Technical Group

Testing includes Mould; TVC22; TVC37; Yeast; Legionella; E coli; Coliforms; Pseudomonas aeruginosa. Further analysis was undertaken for NTM's (non-tuberculosis mycobacterium) on a quarterly basis.

The conclusion is that the Chlorine dioxide regime is assisting in controlling the microbiological integrity of the water system within QEUH/RHC.

Conclusion

13. You are an author of a paper published in the Journal of Hospital Infections 11 (2021) 53-64 entitled "Investigation and control of an outbreak due to contaminated hospital water system, identified following a rare case of Cupriavadis pauculus bacteraemia". (**Bundle 6, Page 1236)** Does this paper set out your opinion and does it remain your opinion?

A. The paper provides an insight into "lessons learned' and illustrates the changes in knowledge that have not been reflected in updates to guidance.

My opinion supports the paragraphs within this paper with specific focus on the discussion and conclusion points raised.

14. What, in your opinion, is the cause or origin of the issues or problems with the water system at the QEUH/RHC that appear to have caused Mr. Powrie (on behalf of NHS GGC) to seek your help and assistance in June 2018.

A. The key to maintaining a water system is based on a simple rule: - Keep Hot water Hot - (>60C Flow; >55C return)
Keep Cold Water Cold - (<20C)
Keep it moving - prevent stagnation and under use.

This is always going to be a challenge with systems of this size with so many outlets (some of which will be under-utilised), particularly keeping the cold water <20C in a warm plant room environment. This is further compounded by cold water coming from centralised water tanks located in the basement service corridors.

There is always a potential challenge from drains and the splashing that occurs when taps are used. Microorganisms thrive in drains as there are high nutrient levels which creates high risk during cleaning of outlets due to cross contamination. The focus on drains, however, has only been recognised over the past few years brought about by non-tuberculosis mycobacterium (NTM's) and carbapenemase producing Enterobacteriaceae (CPE) patient issues at other hospital sites.

Experience indicates that microbiological problems often originate during the construction phase; water systems "wetted" far too early and combined with lack of flushing allows biofilms to form and microbiological colonies to develop and provide nutrient sources for other organisms which may enter through the incoming water systems.

The above are regularly seen on much smaller scale construction projects but will become magnified when taking into account the size of QEUH/RHC and a centralised approach to water management.

There was no continuous secondary control measure employed during the construction phase which would have been very supportive in terms of microbiological management. (There are other hospitals where this has been done and their microbiology was significantly improved)

The disinfection protocols whilst very effective on small scale water systems, did not take into account the demands of a site this size and needed to be reviewed to provide a more robust protocol for this specific hospital.

Reportedly the handover was rushed, and this will undoubtably have contributed to issues seen on site. Effective system “balancing” can create challenges when bringing a building into occupancy and demands thorough testing and validating.

One key issue seen time and time again is a lack of water knowledge by construction teams and their impact will create a legacy which will take many years to correct. There is often a failure to pick up on lessons learned and involve those with the knowledge far too late in the project (if at all).

Therefore, given the above comments, and from the knowledge we acquired during the remediation period, my opinion is that it is unsurprising that the water infrastructure was compromised and that a significant intervention was necessay in order to provide a robust solution to the challenges faced.

Appendix A

A42950741 - Bundle 6 – Miscellaneous Documents
A48891993 - Bundle 27 – Miscellaneous

Scottish Hospitals Inquiry
Witness Statement of
Professor Alistair Leanord

1. My name is Alistair Leanord. I am currently Chief of Medicine, Diagnostics at NHS Greater Glasgow and Clyde (GGC). I have been in this role since April 2021. I am based at the Glasgow Royal Infirmary and have been since January 2018

QUALIFICATIONS

2. Between 1980 and 1987 I studied at Glasgow University where I graduated with a BSc in Immunology and achieved my MBChB. In 1992 I was awarded Doctor of Medicine.

3. Between 1993 and 2004 I achieved a DTM&H (Diploma in Tropical Medicine and Hygiene), MRCPath (Membership of the Royal College of Pathologists) and FRCPath (Fellow of the Royal College of Pathologists).

4. In 2015 I was awarded a FRCP Edin (Fellow of the Royal College of Physicians of Edinburgh).

PREVIOUS EMPLOYMENT HISTORY

5. Between 1987 and 1988 I held Junior House Officer posts, both Medical and Surgical in Glasgow Southern General and Vale of Leven Hospitals respectively.

6. Between 1988 and 1990 I was a Medical Officer for the British Antarctic Survey, and between 1990 and 1991 I was a Research Fellow (Microbiology) in the Department of Medical Microbiology at Aberdeen University.

7. Between 1991 and 1993 I held Senior House Officer posts at Ruchill and the Southern General Hospitals in Glasgow, and between 1993 and 1996 I held Career Registrar and Senior Registrar posts at the Western Infirmary, Glasgow.

8. Between 1996 and 1998 I held the post of Consultant Microbiologist/Infection Control Doctor at Law Hospital, Carluke, where I was responsible for a Microbiology department of fifteen people processing 75,000 specimens per annum.

9. Between 1998 and 2008 I was a Consultant Microbiologist at Monklands Hospital, Airdrie. During this time, I was responsible for a Microbiology Department of twenty-eight people processing 290,000 specimens per annum. As Head of Department, I was responsible for policy, staff training, quality assurance, and Health & Safety within the Department and for communicating and liaising with other Microbiologists within the County.

10. In addition to this role, between 1998 and 2001 I was the Infection Control Doctor at Monklands Hospital, Airdrie, where I was responsible for giving microbiological and Infection Control advice to colleagues in Monklands District Hospital, which had 550 beds.

11. Between 2001 and 2006 I was the Lead Infection Control Doctor within Lanarkshire Acute Division, working with a team of 21 people. The Lead role involved chairing the Divisional Infection Control Committee, reporting to the Health Board Area Communicable Disease Committee, and leading the Division in attaining Quality Improvement Scotland compliance.

12. Between 2005 and 2008 I was the Lead Clinician in the NHS Lanarkshire Microbiology Service. In this role I led the Microbiology Specialist Subgroup reporting to the Core Directorate Team. The main role was developing the strategic direction of the Microbiology Service in consultation with key stakeholders, providing clinical leadership in the operational delivery of the implementation plans and ensuring the service delivery was consistent with the Clinical Governance framework.

13. In May 2008 I was employed as a Consultant Microbiologist in NHSGGC based at the Southern General Microbiology Department.

14. Between 2009 and 2013 I took a seconded post as a Consultant Microbiologist at Health Protection Scotland (HPS) for 2 sessions per week where, amongst many other functions, I was Clinical Lead for the Antimicrobial Resistance (AMR) and Hospital Acquired Infection (HAI) Teams and was Microbiology and Infection Control Doctor support to other teams within HPS: the HAI ICPT team, Environment and Health, Immunisation and Vaccine Preventable diseases, Respiratory Infections and Travel Health.

15. Between 2013 and October 2017 I was the Medical Adviser to the AMR and HAI Policy Unit at the Scottish Government, advising the Cabinet Secretary for Health on policy delivery and delivery on HAI and antimicrobial resistance within Scotland, liaising with other parts of the UK. Communication, expert advice, professional and clinical leadership were the key elements of this role.

ACTING LEAD INFECTION CONTROL DOCTOR FOR NHSGGC NOVEMBER 2019 - JUNE 2021

16. From November 2019 to June 2021, I was the Acting Lead Infection Control Doctor in NHSGGC. I took on this role when Professor Jones, retired. This role was a pan GGC role which included the QEUH and RHC. There is a very clear separation between the Microbiology role and the Infection Control role. The Lead Infection Control doctor role is a lead role amongst the Infection

Control Doctor (ICD) team. The ICD team had four to six Infection Control Doctors, depending on the personnel attached to the IPCT at the time.

17. I have been asked by the Inquiry what other hospitals this role covered. The Acting Lead ICD role covered all Acute Hospital sites in GGC. This includes Glasgow Royal Infirmary, Queen Elizabeth University Hospital, Royal Hospital for Children, Gartnavel General Hospital, Royal Alexandra Hospital, Inverclyde Royal Hospital and Vale of Leven Hospitals.

18. I have been asked by the Inquiry what I mean by 'clear separation' between the microbiology role and infection control role. Microbiology and Infection Control worked as two separate Teams with different reporting structures. Microbiology reported via the Laboratory Management ultimately to the Director of Diagnostics, whilst Infection Control reported into the Infection Control and Prevention Team (IPCT) and ultimately to the HIA Executive Director.

19. As Lead ICD I was the point of contact for the Board and Senior Management for IC Doctor related issues and I worked as part of the Infection Protection and Control Team (IPCT) working closely with the Executive Director for HAI and the Acting Infection Control Manager. In this role, I reported professionally to Mairi McLeod after Professor Jones retired as Head of Service for Microbiology and as Acting Lead ICD I reported to Sandra Devine, Acting Infection Control Manager.

20. The Infection Control Doctors, who were part of the Infection Prevention and Control Team (IPCT), reported to me in this role.

21. This role does not involve face to face contact with patients. It involves answering infection control (IC) queries from Clinicians and the IPCT Nurses. It involves close working with the Executive Director for IC and the HAI Executive Lead at Board level. It also involves initiating and participating in Incident Management Teams (IMT), reviewing surveillance data, reporting

correctly to HPS, which is now reconfigured as Antimicrobial Resistance and Healthcare Associated Infection (ARHAI), and answering queries from the Board, HPS and the Scottish Government.

22. As the Lead Infection Control Doctor, I was responsible as the named person to present appropriate laboratory data to the Oversight Board. The data I produced for the Oversight Board related to water testing results from QEUH/RHC which were tested in the Environmental Microbiology Department at GRI.

23. The Laboratory IT Manger extracted water testing data from the LIMS (Laboratory Information Management System), collated it and I presented that data to the Oversight Board Infection Control subgroup.

24. Data was presented through Powerpoint and documents with verbal presentation. The data was collected from the LIMS.

25. I have been asked by the Inquiry what I was told about the infection control team before I became responsible for it. Before I became responsible for the infection control team in 2019, I had not been told anything about it. I was given no instructions in relation to the infection control team before I became responsible for it in 2019.

26. I have been asked by the Inquiry what immediate or ongoing infection concerns there were when I became responsible for the infection control team. When I became responsible for the infection control team, the pressing piece of work was to develop a Standard Operating Procedure (SOP) that described patient placement, as per Infection Control requirements and the specialised ventilated pressure rooms within QEUH and RHC. This work was completed in the autumn of 2019. All ongoing IMTs had been stood down by the time I took over as Acting LICD.

CLINICAL DIRECTOR OF LABORATORIES NHSGGC 2018 - 2021

27. From 2018 to 2021 I was Clinical Director of Laboratories at GGC.

28. I had responsibility for the six laboratory disciplines that were part of the Diagnostics Directorate, working with the General Manager for Laboratories.

29. I have been asked by the Inquiry how I divided my time between being Clinical Director of laboratories and Acting Lead Infection Control Doctor. Clinical Director (CD) for Laboratories had a time commitment of a day a week which equated to two sessions from my ten session 40hr/per week contract. A session is a contracted block of time equating to 4 hours. The 2 sessions (ie one day a week) of CD work were worked flexibly. The 8 sessions for my other roles as Director of the Reference Laboratory were worked flexibly except for fixed Microbiology sessions.

DIRECTOR OF SCOTTISH MICROBIOLOGY REFERENCE LABORATORIES 2017- PRESENT

30. From 2017 to the present, I have been the Director of Scottish Microbiology Reference Labs, which is my Clinical role to which my Direct Clinical Care sessions are attached.

31. During this time, I also had Medical Management roles as Clinical Director and Chief of Medicine. The time attributed to the role of CD was as described in paragraph 21. The time attributed to my role as Chief of Medicine is described in paragraph 28.

ANTIMICROBIAL RESISTANCE AND HEALTHCARE ASSOCIATED INFECTION MEDICAL ADVISOR 2013 - Oct 2017

32. Between 2013 and October 2017, I was seconded to the Scottish Government as an Antimicrobial Resistance and Healthcare Associated Infection Medical Advisor. I worked within the CNO Directorate reporting to a Senior Civil Servant.

33. I have been asked by the Inquiry what other roles I had during the time I was a HAI medical advisor. While I was a HAI medical advisor, I was also a Consultant Medical Microbiologist at QEUH and Clinical Lead for the Microbiology Department at QEUH.

34. I have been asked by the Inquiry why I was seconded to the Scottish Government and how this came about. I was seconded to the Scottish Government after being successful at interview as part of an open recruitment process. The time split between my roles was decided as part of the secondment. I was seconded for 3 days a week to the Scottish Government.

35. I was working two days a week as a Medical Microbiologist while seconded to the Scottish Government. I would travel to Edinburgh for 3 days a week and travel to the QEUH for 2 days a week. The role with the Scottish Government ended in October 2017.

36. Due a potential conflict of interest where I could be advising the Scottish Government about my own Health Board, it was decided by my Senior Civil Servant not to include me in email traffic or to attend meetings concerning issues at the QEUH and RHC. I was in an unusual situation where everyone assumed I knew what was going on, either from the Glasgow side or from the Government side, but the reality was I was not party to any details at this time. I was not part of the GGC Infection Control Team until November 2019.

37. I have been asked by the Inquiry what the ‘conflict of interest’ was. The ‘conflict of interest’ was never explained, but I assumed that it was thought that I could either be biased in my advice to the Scottish Government or/and be put in a position as a result of advice given to the Scottish Government being at odds with a view taken by my main employer, namely NHS GGC. I was cut out of emails and meetings.

38. Prior to this within GGC, I was a Consultant Medical Microbiologist. I was the Sector Clinical Lead for Microbiology from approximately 2015, although I have trouble remembering the exact date.

39. I have been asked by the Inquiry what I did while I was working for HPS. As per paragraph 14: “I was Clinical Lead for the Antimicrobial Resistance (AMR) and Hospital Acquired Infection (HAI) Teams and was Microbiology and Infection Control Doctor support to other teams within HPS: the HAI ICPT team, Environment and Health, Immunisation and Vaccine Preventable diseases, Respiratory Infections and Travel Health.”

40. I have been asked by the Inquiry how I knew people assumed I knew what was going on at the QEUH and RHC. I knew people assumed I knew what was going on at the QEUH and RHC from questions posed to me by others as part of informal conversation.

41. I have been asked by the Inquiry why I became part of the infection control team in September 2019 when I was not in the team officially until November 2019.I was not part of the infection control team in September 2019. I became Acting Lead IPCT when Professor Jones, who had been Acting Lead ICD, retired at the end of October.

CURRENT ROLE

42. My current role is Chief of Medicine for Diagnostics, Glasgow. This is a medical management role. Diagnostics covers all diagnostics, including all Imaging, Nuclear Medicine, Medical Illustration, Clinical Physics, and all of the six laboratory disciplines, which are Biochemistry, Immunology, Virology, Microbiology, Pathology, Clinical Genetics, and Laboratory Genetics.

43. As Chief of Medicine, I work closely with and report to the Director for Diagnostics. There are two Clinical Directors that report to me. One in Imaging and one in Laboratories. I am one of six Chiefs of Medicine in GGC, and I am one of the senior Doctors in the organisation in terms of management. I report professionally to the Deputy Medical Director Acute Services. I have been in my role as Chief of Medicine for Diagnostics from April 2021 to present. The Acute Medical Director is Dr Scott Davidson.

44. The Diagnostics Directorate includes all clinical specialisms that are used to make a diagnosis. This includes all Imaging, Medical Physics, Radiotherapy, Nuclear Medicine, Bioengineering, Medical Illustration, Haematology, Biochemistry, Immunology, Pathology, Microbiology, Virology, Laboratory Genetics, and Clinical Genetics.

45. My clinical role is Director of Scottish Reference Laboratories, Glasgow. I do sessions of Infection Control when required. I also participated in Microbiology duty room sessions and participated in the out-of-hours Microbiology service. I stopped these latter roles in March 2023 and June 2023 respectively.

46. The Scottish Reference Laboratories is a Scottish National Network of reference laboratories based in Glasgow, Edinburgh and Inverness. Each lab has specialist expertise in a range of organisms. In Glasgow we have expertise in *Salmonella*, *Shigella*, *C. difficile*, Parasitology, *S. aureus, S. pyogenes*, *Legionella*, *H. influenza, S. pneumoniae* and *N. meningitidis*.

47. The role of Director of Scottish reference labs is an NHS role. In my role as director, I report to The Head of Service for Microbiology and the Reference Laboratory Clinical Scientists report to me. I have been in this Director role since January 2018.

48. This role is in addition to being Chief of Medicine for Diagnostics. I have been asked by the Inquiry how I split my time between roles. Chief of Medicine is a 5 session role. Director of the Reference Laboratories is a 5 session role. Both worked flexibly from my base in the Glasgow Reference laboratories.

49. We use a range of specialised diagnostic tools and tests, requiring a high level of scientific expertise. Some tests use sophisticated costly methods. It would not be reasonable or affordable for every diagnostic laboratory in Scotland to perform these tests on-site. As a result the tests are sent to the Reference Laboratories for confirmation of their initial diagnostic result or for further work. We send a small percentage of work to UKHSA Reference Laboratories Colindale, London in England, which is the UK Reference Laboratory.

50. For this role, as Director of Scottish Reference Laboratories, Glasgow, I am based in the Glasgow Royal Infirmary. The reference laboratory is based on the fifth floor of the New Lister Building. This role covers all Scotland for the pathogens for which we perform reference testing.

51. My Microbiology department role is hospital specific to the Glasgow Royal Infirmary. This role covers the North of Glasgow for microbiology which includes the Golden Jubilee, Glasgow Royal Infirmary and Royal Alexandria Hospital. I demitted from a role in Clinical Microbiology at GRI in May 2023. I have not had Clinical Microbiology input into the QEUH or the Royal Hospital for Children (RHC) since January 2018.

52. My microbiology role in the Glasgow Royal Infirmary is in addition to my other roles as Chief of Medicine for Diagnostics and Director of reference labs. I

worked 1 session a week as Duty room Consultant in the Medical Microbiology Department. This time would come out of my Reference Laboratory Director role as it was a clinical session. I also did out of hours work on a 1 in 8 basis at weekends as part of an 11.5 session (46 hour/week) contract. I have since demitted from both these clinical activities.

53. My microbiology input for the QEUH and RHC ended in January 2018 because I moved to GRI to take up the role of Director of the Reference Laboratory.

THE NEW HOSPITAL

54. I had no involvement in the planning and design of the QEUH. The only planning I was involved with occurred in 2009/10 to look at the floor plans for the Microbiology department in the new laboratory block which was built a couple of years before the main Hospital. This block was a separate building to the QEUH and was built independently from the QEUH.

55. I have been asked by the Inquiry who invited me to provide input into the planning for the microbiology department in the new laboratory block. The Laboratory Management team invited me to provide input into the planning for the microbiology department in the new laboratory block.

56. The meeting took place in The Old Microbiology Department in the Southern General Hospital. Architects, Consultants, and technical staff were present at the meeting. The meeting was in 2012. The architects were seeking advice. I cannot remember specifics of any advice I gave at the meeting.

57. I do not know which clinicians were involved in the planning and design of the QEUH and RHC. I was not involved with planning the QEUH and RHC.

58. My input was related to the ergonomics within the Microbiology Department which consisted of asking for benches, shelves, and light switches to be placed as appropriate. I had no input into any clinical area.

59. I do not know what a Clinical Output Specification is. I did not have any involvement with Clinical Output Specifications.

60. The most important part of planning the Microbiology Department was to ensure the space was appropriate to the current and future needs of the service. The footprint of the building had already been set. We ensured the Microbiology Department had the right internal configuration. I was happy with our input and how the Department worked on completion.

61. The future needs of the service relates to the Category 3 room where infectious samples can be safely handled. The specification for these rooms are strict, making expansion of them problematic if, as a result of increased workload, there is a future requirement to expand them.

62. The aspect of room sizing that was crucial was that the size of the area within the Microbiology Department was sufficient to enable the amount of work, ie the number of Category 3 cabinets and isolation facilities that would be required to deal with current and projected work within the Category 3 facility.

ROLE WHEN QEUH/RHC WAS OPENED

63. When the QEUH and RHC opened in 2015 I was the Clinical Lead in the Microbiology department. I was the Medical Lead and the Departmental Lead for the microbiology testing and reporting.

64. All Microbiologists would visit the wards and clinical areas in the QEUH/RHC dependent on rota and clinical specialisation. For instance, when on the rota, I would have daily meetings with the Intensive Care Consultants, both General

Intensive Care, Neuro Intensive Care in the Institute of Neurological Science and the Spinal Unit (which is not located in the new hospital block).

65. Where there were concerns about patients with infections, we would go to the ward and discuss the care if required. However, a large proportion of that work was done over the telephone. It is more efficient to phone a clinician than walk around the hospital trying to catch them.

66. The new hospital was a perfectly fine building as far as I was concerned. I thought the atrium was quite spectacular; it was almost like walking into a cathedral. My overall general impression of the wards was they were all single rooms and were well made.

67. I thought the single rooms were an improvement on the original nightingale wards in the SGH. The rooms looked well made, new and fresh.

68. The biggest concern I heard from colleagues was that they had lost their offices, so administration and office space was tight. People just learned to work a different way and it all settled down. I did not hear any complaints about patient care or patient safety. I thought the hospital was very nice compared to other hospitals I have worked in.

69. I have been asked by the Inquiry what concerns I heard from other colleagues. I heard concerns from other colleagues that office space was limited. I was informed of these concerns during general discussions with individuals.

70. I have been asked by the Inquiry why I thought everyone liked it. I assume everyone liked it, like me, because it was new.

71. I have been asked by the Inquiry what my initial observations were in relation to ventilation when I began accessing the QEUH in 2015. I had no opinion on the ventilation or on HEPA filters. I am not expert in ventilation.

72. I have been asked by the Inquiry what I know of the Scottish guidance SHTM 03-01. I know it exists but I am not familiar with it.

73. I have been asked by the Inquiry what way people worked differently. They worked differently in their way of accessing office space and doing administrative functions.

74. I cannot remember the first date I became aware of water issues. My first IMT was on 13 September 2019 **(A36591627 – Incident Management Meeting Minutes (IMT Minutes) – Bundle 1 - Document 80)**.

75. I have been asked by the Inquiry when I became aware of ventilation issues. I became aware of ventilation issues when I became Acting Lead ICD in November and worked on developing the patient placement SOP.

HOSPITAL ACQUIRED INFECTION VERSUS HEALTHCARE ASSOCIATED INFECTION

76. Hospital acquired infection is a term that is no longer routinely used. The most accurate and now most commonly used term is Healthcare Associated Infection (HCAI). The National Point Prevalence Study still uses this term but it is considered to be for surveillance purposes. This study has not taken place since 2016.

77. I have been asked by the Inquiry if HPS still provide guidance. HPS now renamed ARHAI still give guidance through the NICPM (National Infection and Control Manual).

78. If you are in a hospital longer than 48 hours and an organism is identified it is classed as a hospital acquired infection (HAI) for surveillance purposes; in reality most of the organisms now referred to the IPCT have extended, or unknown incubation periods and this definition is outdated. This definition

would be set within the ICNET systems and makes a referral to local IPCTs. In addition, the ICNET system triggers if there were two alert organisms or in some cases one of these alert organisms over a defined period of time. Investigations are undertaken for every referral. Healthcare Associated Infection is when after review the person has been in contact with some part of the healthcare system in the past 30 days; that could be anything from visiting the dentist to being a resident in a care or residential home.

79. I have been asked by the Inquiry why it is longer than 48 hours in hospital that an infection is usually HAI. It is because that is the definition as described in the NIPCM.

80. I have been asked by the Inquiry what the trigger systems are. These are organism thresholds set within ICNET. ICNET data managers may be better able to answer the specifics. I have no working knowledge of ICNET.

INFECTION CONTROL RESPONSIBILITIES

81. Prior to November 2019, I had no Infection Control responsibilities for the QEUH and RHC. At the tail end of summer 2019 I became aware of discussions around issues with infection. This was partly from talking to Professor Jones who was my Head of Service (Microbiology) at the time. He would ask my opinion concerning a topic. I cannot recall specifics, but I knew there were several IMTs that had been undertaken. At that time, I was working purely as a Consultant Microbiologist dealing with a clinical microbiology workload and I was not aware of the details as they related to Infection Control.

82. I have been asked by the Inquiry what issues with infection I was discussing with Professor Jones at the end of summer 2019. I was discussing his involvement with the ongoing IMT's at that time and data he was looking at around infections. Professor Jones was speaking to me about issues with

infection as this would have been as part of general discussions we would frequently have. I did not offer Professor Jones any specific advice as a result of these discussions.

83. I have been asked by the Inquiry what my knowledge of what was going on was. I was becoming more aware about some the issues being dealt with by the IMT's. There were no other discussions with me directly about those topics.

84. Prior to my involvement with the IMT as of 13 September 2019, apart from knowing Dr Inkster was the Chair of previous IMTs, I had no detailed knowledge of who was on the IMT group.

85. It was more general conversations than specifics. I was not directly involved until I went to my first IMT on the 13 September 2019. As Clinical Director for Laboratories I was responsible, with the General Manager, for ensuring all the Laboratory disciplines were working well. Infection Control did not report to me, although the Microbiologists, who worked as Infection Control Doctors were within my remit as concerned the clinical Microbiology aspects of their role. No specific patient information was discussed at these discussions.

86. At that time, the Infection Control Team would follow the National Infection Prevention & Control Manual. I do not know what these procedures were at the time as I am only aware of current ones. Like all Microbiologists I did advise on Infection Control issues whilst on call. This would be advice given to the Clinician or Ward staff about the Infection Control procedures to follow after isolating an alert organism and would relate to the immediate Infection Control precautions required to ensure any risk of transmission was reduced.

87. I have been asked by the Inquiry what the current national infection control manual procedures are that I refer to. The procedures that are in the NIPCM issued by Health Protection Scotland (now ARHAI). There is a wealth of guidance and information in the online resource that is constantly being

updated through evidence based updates. This guidance has now been adopted by all four Nations in the UK.

88. I have been asked by the Inquiry what new information I had to learn for this role. I had to refresh my knowledge of the information in the current NIPCM to ensure I was up to date on Infection Control.

89. My seven years as an infection control doctor in Lanarkshire assisted me with this role as it gave me a background in Infection Control that I could draw upon although I was not familiar with the new NIPCM at that time.

90. I have been asked by the Inquiry what support was provided to me to help me get up to speed in my new infection control role. Support from within the IPCT, from colleagues who had more experience and knowledge of issues in QEUH/RHC at that point than I did.

COMMUNICATION BETWEEN INFECTION CONTROL TEAM AND MICROBIOLOGY DEPARTMENT

91. Infection Control Doctors are Microbiologists who have taken on that specialist role. As ICDs they have full access to the Microbiology Departments and the laboratory system. There is appropriate communication between the Infection Control and Prevention Team and other microbiologists who were not ICDs. This takes the form of directly highlighting alert organisms via email, ICNET alerts, as a standing item on Microbiology Management Teams meetings, informal Consultant meetings and weekly updates from the IPCT on IC issues within GGC. Microbiologists and ICDs would communicate daily.

92. I have been asked by the Inquiry to explain what ICNET is. It is a software program used by the IPCT for data capture and analysis. The Data Team in the IPCT could give you more information. I have no working knowledge of ICNET.

93. As the duty Microbiologist if I saw two cases of an organism of interest I would tell the ICD. If this was an alert organism this would be picked up via ICNET and a report generated.

94. I have been asked by the Inquiry what I mean by an “organism of interest”. If the organism was an alert organism, that is already flagged in the ICNET system as an organism of interest such as MRSA, C difficile etc, or if we as Microbiologists were aware that an antibiotic resistant strain of an organism was prevalent in a particular unit and if we saw another pathogen with the same resistance pattern we would highlight it to Infection Control colleagues.

95. I have been asked by the Inquiry who I would tell if I saw two cases of something. I would tell colleagues who may be covering the particular unit that those organisms were seen as well so that the right treatment could be started as part of the daily liaison that occurs between the Microbiology Department and the clinical areas.

96. Microbiologists co-located with Infection Control Doctors because they worked in the same Department. They were a discrete service, although they were not distinct from the Microbiologists themselves. There would be Microbiology Management Team (MMT) meetings where IC was a standing agenda item and the Lead ICD would report on any IC issues to the MMT. Other formal meetings were the Acute Infection Control Committee and the Board Infection Control Committee. Within each sector there is a Lead Infection Control Nurse and an ICD who would work closely together.

97. I have been asked by the Inquiry to what extent infection control matters were discussed at Microbiology SMTs or other Microbiology team meetings. It was a standing agenda item and the ICDs would discuss issues.

98. I have been asked by the Inquiry to explain how an infection control service can be discrete yet not distinct. ICDs are all trained Medical Microbiologists who have chosen to specialise in Infection control and are therefore part of

the IPCT. All ICDs therefore have a Microbiological background and so they are not distinct from Microbiologists but they perform a different role as ICDs. The service that provides Infection Control within GGC is a discrete service that has different reporting structures (as described above para 16) and therefore Line management than the role of a Medical Microbiologist.

99. I have been asked by the Inquiry how many infection control doctors there were. I am only aware of the team make up after I became Lead ICD. This might be better directed to the Sandra Devine who was Acting Infection Control Manger or Dr Inkster as a previous Lead ICD at the time. During my time as Lead ICD there were between 4 and 6 ICDs working together across GGC. I worked with Dr Bagrade, Dr Mareks, Dr Valyraki, and Dr Balfour. One colleague from the Microbiology Department would also rotate as an ICD over a 6 month period. Therefore there 6 ICDs whilst I was in post as Lead ICD. The microbiology management would meet monthly. There were minutes of these meetings.

100. As Clinical Director I Chaired a Laboratory Clinical Governance committee that reported to the Diagnostic Directorate Clinical Governance and Safety Committee (CG&SC).

101. I have been asked by the Inquiry to explain what the governance programme is. The Diagnostics Directorate Clinical Governance Work Plan was developed by the Directorate CG&SC. This would be reviewed annually.

102. BICC does not input into the Governance of the Microbiology team. The governance of the Microbiology team is set within the Laboratories team led by the General Manager for Laboratories, supported by Clinical Service managers, who report to the Diagnostics Director who has overall responsibility for the Diagnostics Directorate as described in para 28. The Directorate Clinical Governance and Safety Committee is chaired by the Chief of Medicine for Diagnostics (currently myself) and this reports to the Acute

Clinical Governance Forum chaired by Dr Scott Davidson. Directorate Governance meetings occur monthly.

103. The microbiology management team reported to the General Manager for Laboratories.

104. I have been asked by the Inquiry how issues would be escalated in the microbiology team. Issues would be escalated from one of the laboratory sites (initially microbiology laboratories were sited at GRI, QEUH and Clyde at RAH) and latterly (GRI and QEUH after the microbiology work from RAH was integrated into either GRI or QEUH microbiology departments) to either the Head of Service for Microbiology or the Clinical Service Manager who looked after that laboratory site and ultimately to the General Manager for Laboratories. The route taken would depend on the issue being escalated. Clinical issues would more likely go through to the Head of Service for Microbiology and operational issues would go via the Clinical Services Manager to General Manager for Laboratories. Issues would be discussed at the Microbiology Management Team monthly meetings where the Head of Service and the General Manager would be present.

105. I have been asked by the Inquiry what the structure of the microbiology team was. Laboratory staff made up of administrative staff, health care support workers, biomedical scientists, clinical scientists, Associate Specialists, Trainee Medical and Consultant staff.

106. I have been asked by the Inquiry to what extent the microbiology team would be involved if an outbreak occurred. The microbiology team would receive samples, process and report any growth from those samples, inform the clinical staff, suggest treatment and any immediate infection control mitigations i.e. to isolate the patient or not, and inform IC colleagues of any relevant results either directly or via the ICNET system electronically which was set up and produced automated reports of organisms of interest.

107. My lead infection control nurse when I was in infection control was Pamela Joannidis.

108. The Microbiologists who were not involved in Infection Control would be passing on information, either through emails, or through conversations, about any potential issues. By potential issues I mean the isolation of Alert organisms, and multi-drug resistant organisms of interest. I believe this communication mechanism was effective. There is no professional reason why one colleague would not communicate with another colleague.

109. I have been asked by the Inquiry what “information” microbiologists would be passing on. This would include the organism(s) of interest, the patient names and CHI numbers.

110. I have been asked by the Inquiry why I thought this communication method was effective. In my experience it was simple, had very short lines of communication and worked on a day to day basis.

111. ICNET is the surveillance software used by the IPCT that was programmed with alert organisms. The IPCT set triggers for alert organisms (or any organism of interest). If a trigger is reached then a report is generated which goes to the infection control team.

112. I assume using surveillance software would simplify, standardise, and automate the process of laboratory surveillance for the IC team. It also allows for electronic data storage and transfer to other systems. This would be better answered by one of the IPCT Surveillance team who work with the software if more detail is required.

113. The microbiology team provide organism and patient data that can then be used by the IPCT.

114. I have been asked by the Inquiry what difficulties, if any, me or my colleagues encountered with the ICNET system. None. I however did not have access to

ICNET nor have I got a working knowledge of the ICNET system. I used its outputs. This would be better answered by one of the IPCT surveillance team who work with the software if more information is required.

115. I never had concerns about the communication process. Since I joined the IPCT in November 2019, I thought it was a very professional, structured team. The IPCT was under pressure during the period of level four escalation and Oversight Board, and also with the COVID pandemic. A dysfunctional team would not have coped so well. If anything, the IPCT have pulled together and become stronger as a team. I could not speak more highly of the Infection Prevention and Control Team members.

116. I have been asked by the Inquiry how a pressure to deliver ensures good communication. A team cannot deliver effective and safe patient care if it does not communicate. If that process survives during high stress periods, my view is it a robust and effective system.

117. When I was a part of an IMT I thought that senior management were proactive, informed and engaged. I got no sense that they were distant or not engaged. Since I took over the role as Lead ICD I was having frequent direct conversations at a senior level, such as Medical Director, Deputy Medical Director Acute Services, Executive Director for HAI, and Acting Infection Control Manager. I felt the senior management were very supportive of the Infection Prevention and Control team. As Lead Infection Control Doctor it felt like this level of support had been a long-term way of working and there was a level of support that had gone back years. There was nothing that caused me any concerns. Senior Management had an open door policy and I could access then to update, question or ask advice at any time.

118. I have been asked by the Inquiry how senior management kept themselves very informed. They did this by having regular meetings either throughout the week or weekly dependent on the issues. During Covid, meetings would take many times over a week.

119. Both Dr Armstrong and Dr Davidson had open door access to myself as Lead ICD. Angela Wallace as HAI Executive Lead and Chief Nurse for GGC also had an open door policy and was very supportive and helpful.

120. I viewed the board as being very supportive of the infection control team due to the way they interacted with IPCT and myself. They were approachable, listened and questioned, and gave support when required.

121. I have been asked by the Inquiry why I felt that the level of infection control support had gone back years before I took on the role. The impression I came to was that Senior Management's knowledge of IPCT had developed over a number of years as a result of previous interactions with the IPCT.

USE OF PROPHYLACTIC MEDICATION

122. If a patient is going to become immunosuppressed as part of their treatment or if they are immunosuppressed because of the illness that they have, antimicrobial prophylaxis protects them from infection.

123. Prophylaxis protects a person from infection. Prophylaxis is given for two reasons. Firstly, you want to protect the patient from their own body flora if they are immunosuppressed. We have got more bacteria in our bodies than cells in our body. We have approximately 37 trillion human cells and there are approximately 40 trillion bacteria within the average human. Secondly, you want to protect the patient from exogenous environmental organisms which can infect immunosuppressed patients. An exogenous environmental organism is an organism from out with the body.

124. I have been asked by the Inquiry if aspergillus would be an example of an exogenous environmental organism. Yes it would.

125. I have been asked by the Inquiry if aspergillus would be the only bug I would expect to find if there was a ventilation problem. This would be the main

pathogen that could infect immunocompromised patients, but other moulds or fungi which form spores such as Mucor, or Cryptococcus can commonly be found in outside air and could have the potential to be transported into the inside air.

126. The Microbiologist's input is to offer advice to the Clinicians about the most appropriate agent to use taking into consideration the potential organisms, their local antibiotic sensitivities, the possible side effects of the antibiotics and what national guidance there is. A Microbiologist would work together with the Clinicians to make the best choice for that group of patients.

127. There is national and international guidance about prophylaxis for certain conditions. Guidance can be developed by SIGN, NICE, and Professional societies about what antimicrobials to use. This does not imply reference to any specific guidance, only that if guidance was being sought the above are sources of evidence based, or expert opinion guidance that is produced by these bodies and that would be weighed by strength of recommendation. A SIGN guidance is a Guideline producing body in Scotland. Scottish Intercollegiate Guidelines Network. A NICE guidance is a Guideline producing body in England. The National Institute for Health and Care Excellence. Professional society guidance is guidelines produced by Professional bodies such as the British Society for Antimicrobial Chemotherapy, British Infection Association and the Infection Prevention Society.

128. Examples of guidance produced by, for instance the IDSA (Infectious Disease Society of America, or ECDC (European Centre for Disease Prevention and Control) who produce Guidance documents on a range of topics, for example measles guidance, can be found at the website addresses referred to in the Appendix to this statement.

129. Microbiologists have advisory input into patient care. We have no direct patient care. The Clinician makes the decision about the treatment plan for the

patient. Microbiology advice would be recorded in the Laboratory system (Telepath) Patient Notes.

130. You would not have a conversation about every patient that came in about what antibiotic we should give as a prophylactic agent. Antimicrobial agents are part of the treatment protocol. Treatment protocol is the treatment plan that is tailored to the individual patient.

131. I have been asked by the Inquiry to what extent, if any, the treatment plan would change if there were concerns about the built environment increasing the risk of infection. It could change quite dramatically ranging from not being able to treat a patient on the site to changing antibiotic prophylaxis and best guess treatment antimicrobials.

132. In GGC we have got the Antimicrobial Utilisation Committee. This writes the guidance and the guidelines for the use of antimicrobials, and they would be involved in developing guidance for the use of antimicrobial prophylaxis. This Committee would be involved in setting the prophylactic policies for GGC.

133. I have been asked by the Inquiry to what extent, if any, the AUC was involved in the 2019 IMT. I am not aware of any involvement with the IMT. Andrew Seaton Consultant Infectious Disease Physician as Chair of the AUC may be best placed to answer this.

134. The clinician would be responsible for communicating with patients and families regarding prophylactics. This is not something a Microbiologist would do.

135. I did not have any concerns about the use of prophylactics in the RHC. There were discussions around the prophylaxis regime in the paediatric transplant unit. I was not involved in that discussion. I don’t know the details of who was having those discussions. I heard about the discussions as part of the discussion at the IMTs attended in the autumn of 2019.

NOVEMBER 2017 – HAI SCRIBES

136. I have been asked by the Inquiry to explain what HAI SCRIBES are. These are building control documents that highlight the control processes required to maintain infection control integrity used prior to any building work being carried out within NHS facilities. The document is filled out by Estates and signed off by IPCT, usually an ICD. I did not sign any HAI SCRIBES in November 2017, as I was not part of the IPCT in 2017.

MARCH 2018

137. I resigned from my role as sectoral clinical lead in the summer of 2017.

138. I have been asked by the Inquiry why I resigned from the role. I had been Clinical Lead for a number of years, I had just finished my role at the Scottish Government and as Deputy Director of the Reference Laboratory. I was going to replace Professor Coia as Director of the Reference laboratory when he left the post for a new role. All that added up to an opportune time to let someone else in the Team take over the role of Clinical Lead.

SEPTEMBER 2018

139. I have been asked by the Inquiry what concerns, if any, were raised with me by Dr Kathleen Harvey-Wood about wards 2A and 2B in the RHC. I am not aware of any concerns being raised. I was in GRI in September 2018 having left QEUH. I was not a member of the IPCT in 2018.

INCIDENT MANAGEMENT MEETINGS (IMTs); SEPTEMBER – NOVEMBER 2019- GENERAL OBSERVATIONS

140. IMTs are a standard method to address IPCT issues. An IMT follows a structured agenda that describes the incident, the clinical condition of the patients, the hypothesis generated, the results of any investigations, the control measures to put into place, the communications required, the HIIAT report and score that is reported to HPS Scotland, and ultimately any learning from the incident once it is over.

141. An IMT is called after an incident is identified and been through a PAG (Problem Assessment Group) and this group has decided that an IMT is required, or the incident is such that it requires an IMT with full membership from ward staff, clinicians, ICNs, and ICD (usually the Chair) and other relevant people as befits the nature of the incident e.g. Estates staff or Theatre staff for instance. The criteria to initiate an IMT is defined in the National Infection Prevention & Control Manual. Any HIIAT with a 'red' score requires an IMT to be held. The witness has provided the following document to the Scottish Hospital Inquiry for reference when they completed their questionnaire statement.

142. I was not involved in any IMTs in QEUH prior to 2019. I had no issues with any IMTs I attended in GGC during 2019. I was attending as a medical Microbiologist giving advice relating to infections.

143. I was not involved in any IMTs prior to 2019 out with QEUH/RHC. The IMTs in QEUH/RHC I attended were on 13 September 2019 **(A36591627 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 80)**, 08 October 2019 **(A36591643 - – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)**, 25 October 2019 **(A37992819 -– IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 85)**, 5 November 2019 **(A36591709 - – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 86),** 11 November 2019 **(A37993248 -– IMT Gram Negative Blood Ward 6A – Bundle 1 -**

Document 87) and 14 November 2019 **(A37993497** - **– IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 88).**

144. At the IMTs I was asked about water sampling results and I was asked to make a comment on them I gave my opinion on the water sampling results during the IMTs. I have been asked by the Inquiry if the discussion at the IMTs was around the opening of Ward 2A. This was discussed at the IMT on the 14 November 2019. The discussion was recorded in Section 7 of the IMT minutes. **(A37993497 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 88).**

145. The IMTs in 2019 operated well. Everyone was able to input. Dr Emilia Crighton was an excellent Chair. Dr Crighton is a Public Health Doctor. She was selected to replace Dr Inkster who was the previous Chair. The IMTs were looking into Gram-negative infections in patients from ward 6A and was using as the outbreak definition all Gram-negative infections from patients in ward 6A.

146. I have been asked by the Inquiry to what extent did opinions differ in the IMTs on the topic of gram negative infections within ward 6A. A difference of opinion centred around the inclusion of the enteric bacteria *Enterobacter* and *Klebsiella*. WGS showed there was no genetic linkage between *Enterobacter* isolates, and in my opinion they were more likely to be from an endogenous source. Most probably from the patients bowel flora. I also did not think that other predominantly enteric bacteria such as *Klebsiella* should be included as an environmental organism. Both *Enterobacter* and *Klebsiella* are members of the normal colonic flora in humans.

147. Attendees from HPS (now ARHAI) felt these enteric bacteria should be included as they fulfilled the inclusion criteria for entry into the outbreak. The definition of a case was infection from a Gram negative organism (excluding *E.coli*).

148. I did not know at the time, but I now know, that from water testing between 2015-2020 *Enterobacter* species were isolated from 6 water samples out of 10, 311 samples tested. *Klebsiella* species were isolated from 4 water samples from 10,311 samples tested. Therefore in my opinion on balance of probability these two genera were not environmental organisms.

149. The witness referred to the following document when they completed their statement. For details, please see (**A42895836 - Chaput DL 'Microbiological Testing (2015-2020) of Water and Environmental Samples from the QEUH (Adults) and RHC, Overview of Sample Numbers and Test Results' [2023] – March 2024 – Bundle 18 - Volume 1 of 2 – Document 2).**

150. The IMTs had a secretariat. The minutes were accurate or if they were not then people could make amendments. This was usually done during the first part of the next meeting and would usually be to amend the accuracy of the minutes rather than update actions. The minutes were produced and were amended as wished. There was no disagreement about that. We would then move on to the main section of the meeting.

151. I have been asked by the Inquiry what the process was for making amendments to the minutes. Amendments were proposed by members of the IMT, discussed and accepted and the draft IMT minutes were changed to reflect those changes and a final IMT minute was produced. The amendment process was used at every meeting by meeting participants. The amendment process could take several minutes.

152. The IMT process sits within the Infection Control Governance framework. The Chair of the IMT is the ultimate arbiter of the decisions of that committee. By ultimate arbiter I mean the Chair has to balance the views of the IMT group and consider their input, using that to make recommendations for the group about what next steps to take in controlling an outbreak. The Chair would work through the agenda, explore differences in view, allow open discussion, input into the decisions of the Committee, and agree HIIAT scoring and any communications. I am not aware if these processes are set out in the NIPCM.

Different views would be reflected in the IMT minutes if discussed at the meeting.

153. At all the IMTs I attended in the time period being examined by the Inquiry, only Dr Emilia Crighton was Chair. The Chair of an IMT is usually an Infection Control Doctor or a Public Health Consultant. It depends on several factors, for example where the outbreak has occurred and the scale of the incident. Public Health physicians have expertise in chairing these meetings. I do not have any concerns about how these meetings operated. In the meetings I attended no one was shut down or ignored.

154. The chair of an IMT would be an infection control doctor or lead infection control doctor because they have the expertise and knowledge to run a group investigating issues of infection. This was the case with Dr Emilia Crighton.

155. We also had representation from external bodies such as HPS (now ARHAI), who have expertise in this area and supported the IMT. I felt the IMTs did what they were meant to do. They allowed a discourse, and they did all the things that a structured agenda should do. I did not feel that anyone was sitting in the meeting feeling like they could not speak. Some of the meetings were very long as a result of the issues and trying to understand whether we could open up the ward to new patients. The ward was still operative but it was closed to new patients.

156. At that time, the Transplant patients were being redirected in Scotland with the effect that this was delaying treatment. The clinicians were saying they were starting to see harm because of this. There was discussion around that, and the meetings were long, but appropriately so. The longevity of the IMTs was to allow discussion to take place and for Dr Crighton as Chair to develop a recommendation.

157. In my opinion we had the right people around the table. Attending were Senior Medical staff, Public Health doctors, Estates personnel, Microbiologists, we

had Infection Control Doctors and Nurses, the Clinical Doctors and Nurses, HPS, and Communication Team. The right people were turning up every single week and got involved in the discussion because they recognised the importance of supporting the IMT.

SBAR - 26 AUGUST 2019

158. An SBAR is a Situation, Background Assessment, Recommendation report. A structured reporting tool often used to describe clinical situations.

159. I have been asked by the Inquiry what my view of the SBAR authored by Dr Inkster and Dr Peters is. I have not seen an SBAR authored by Dr Peters and Inkster in August 2019.

160. I have seen, as it was tabled at the IMT on 08.10.19, an SBAR 6A incident, data and epidemiology, 07/10/19, Dr Teresa Inkster, Consultant Microbiologist, QEUH, Dr Christine Peters, Consultant Microbiologist, QEUH. **(A38694850 – SBAR dated 7 October 2019 – Ward 6A – incident data and epidemiology – Bundle 4 – Document 44)**

161. I have been asked by the Inquiry what discussions, if any, did I have with Dr Inkster about concerns that the environment in Ward 6A was an infection risk. Dr Inkster had no discussions with me on that topic in August 2019.

162. I had one discussion about the environment in 2A prior to closure at which Annette Rankin was also present. I was the Acting Lead ICD. Dr Inkster shared a report about high organism levels and biofilm within taps, their components and flow straighteners. Also that work showed there was a splash zone around sinks and that there were some sinks that had imperfect drainage as a result of sealant being proud of the ceramic forming a mini dam. This meeting took place in October or November 2019.

163. I have been asked by the Inquiry what discussions, if any, did I have with Dr Inkster about concerns relation to the management culture within infection control. Robert Gardiner, General Manager for Laboratories and I (as Clinical Director) met with the Microbiology Consultants from the QEUH on 25 September 2019 **(A41745856 – Notes from IC meeting 25 Sept – Bundle 27 – Document 32)**, 02 October 2019 **(A41745864 – Notes from IC meeting 2nd Oct – Bundle 14 – Document 159)**, 09 October 2019 **(A41745839 – Notes from IC Meeting – 9 October 2019 – Bundle 27 – Volume 7 - Document 17)** and 23 October 2019 to look at Infection Control Doctor provision in the QEUH/RHC as a result of Dr Inkster's resignation as Lead ICD. At the initial meeting on 25 September 2019 a series of concerns were mentioned. I took my own notes at the meetings.

a) Burden and scope of the ICD role due to issues with the ventilation and water.
b) The complexity of the IC issues arising. That ICD colleagues on the North couldn't cross cover as the role in QEUH/RHC was too complex.
c) The lack of expertise within the ICDs around their competency in dealing with ventilation and water issues. The requirement for ICDs to sign off the ventilation.
d) Undermining of the ICD role in respect to HAI Scribes and their implementation of protective mitigations described in the Scribes by Estates.
e) A reduction in ICD resource in QEUH/RHC.
f) The IC environment was not supportive.
g) The information given to the ICDs was inaccurate, changing, with poor documentation and this made decision making difficult for the ICDs.
h) Overall there was a loss of trust by the ICDs and the Consultants in the Infection Control service.

164. In the meeting on 02 October 2019 further issues arose on:
a) Patient placement
b) Cryptococcus
c) Advice from the BMA

d) Ventilation in 2A/B not compliant

e) Breakdown between ICDs and ICNs at high level

165. During these early meetings Robert Gardiner and I were asking if the Consultants would provide IC cover for QEUH/RHC which they refused.

166. In the meeting of 09 October 2019 the discussion centred around IMT handovers by email, tightening up documentation and sharing that documentation with Team members, looking at a patient placement SOP, a new rotating ICD position to help with the burden of work, starting an IC Forum to allow for discussion amongst GGC ICDs. At this meeting Dr Peters agreed to give Infection Control advice for the QEUH/RHC.

167. On the meeting on the 23 October 2019 we reported that there had been agreement that ICD sessions should increase from 18 sessions (1.8 whole time equivalents to 26-30 sessions (2.6- 3 wte) depending on finance. This would allow for better continuity of care. There would be exploration of Team Service Planning (a Job Planning system where everyone in a Team, however defined, agrees to do the same roles over the same time period) to even out workload, the recruitment of Clinical Scientists into the IPCT to support the ICDs, dissemination of meetings and courses on topics relevant to ICD practice, support for registration fees and travel to take up any Infection Control or Building standards courses they felt relevant.

168. The synopsis of these meetings were reported to Dr Green (Chief of Medicine, Diagnostics).

IMT Minute 13 September 2019

(A36591627 – IMT Gram Negative Blood Ward 6A - Bundle 1 – Document 80)

169. I have been asked whether I can recall the particular circumstances which led to this IMT being called. It was part of an ongoing process, and the Committee would have agreed to meet at whatever frequency was appropriate. IMTs would be run when there is an outbreak, but during an outbreak they would run regularly.

170. I have been asked by the Inquiry what view Professor Jones and I reached on the safety of ward 6A from a microbiological perspective. After reviewing the water testing results, which were negative, and with point of use (POU) filters on the taps and the effective level of chlorine dioxide in the water system, my view was that the water was microbiologically safe. Professor Jones will be best able to answer what his view was.

171. I reached this view through review of the latest water testing results which were negative, the use of POU filters on the taps and the effective chlorine dioxide water levels.

172. I have been asked by the Inquiry what the outcome of the detailed review of 12 cases (12 confirmed, 1 under investigation) was and what was the root cause. I have no knowledge of this. The author of the RCA Pamela Joannidis may be better able to answer this.

173. The mitigation actions that were taken at this IMT were as per the minutes of the meeting, as below:

Further Investigations Required

"A detailed review of the 13 cases (12 confirmed, 1 under investigation) is to be undertaken, including a full microbiological analysis and development of root cause analysis tools for each new case of positive blood cultures going forward.

A summary of all mitigating actions taken to date and a summary of all the epidemiology is to be collated and presented at the next IMT.

Discussion regarding if a Hydrogen Peroxide Vapour Clean (HPV) to be included for every discharge clean/terminal clean for all Ward 6A rooms. There is no requirement for a HPV clean to be undertaken as no evidence showing it would be effective for this incident.

Estate colleagues are going down to Great Ormond Street (GOSH) to have a walk round of their haematology/oncology unit. They will see what cleaning and testing regime they undertake within the unit and compare it with what we have currently in place.

Development of Standard Operating Procedures for obtaining regular samples of Water, Environmental and chilled beams are to be drawn up with the help of HPS.

Dr Lisa Ritchie has received GOSH ventilation policy which she will share with estates so that a comparison can be undertaken. "

AD HOC PROPHYLAXIS GROUP

174. Within the IMT minute dated Friday 13 September 2019 **(A36591627 – IMT Gram Negative Blood Work Ward 6A – Bundle 1 - Document 80)** reference is made to a microbiology report which states an ad hoc group was set up to look at antifungal prophylaxis. I was not involved in any of the prophylaxis work.

EPIDEMIOLOGY

175. There is mention in the minute of 13 September 2019 of my commentary that was given on epidemiology data introduced by Dr Kennedy. From what I can recall, Professor Jones presented to the IMT, and as I can recall the conclusion was that there was no real change in the types of infection being

seen. I would not want to comment on this any further before refreshing my mind on the data.

176. I have been asked by the Inquiry to explain what the epidemiology data was. This was an EPI curve of Gram-negative bacteraemia from blood cultures in paediatric haematology/oncology patients from July 2013 till July 2019 with comparison of infections of those infections from Yorkhill compared with RHC. Since moving to the Ward 6A the patterns of environmental Gram-negative organisms were the same compared to the counts when the ward was at Yorkhill hospital. In Yorkhill similar organisms had been seen in blood cultures as was being seen in RHC and 6A.

177. This work was trying to establish what was the normal pattern of infectious organisms that had been seen in patients when the Transplant Unit was in Yorkhill and compare the historical infections with the infections that were being seen at that time. My recollection is that same environmental organisms were seen in infected patients in Yorkhill. In Yorkhill similar organisms had been seen in blood cultures as was being seen in RHC. I was not involved producing the comparison report with Yorkhill.

178. Mains water is not sterile and, unless air is in a specialist engineered unit, it has a significant but acceptable number of particles in each cubic metre which you expect to be either spores or dust or bacteria.

179. I think the idea that the water and air was contaminated is a misconception. Air unless specialist filters are used, is not sterile. Mains water is not sterile and has aquatic organisms within it at levels which are deemed acceptable in wholesome water.

180. I have been asked by the Inquiry what Cupriavidus is. *Cupriavidus* is genus of bacteria that is widely distributed in nature and can be isolated from water, ultrafiltration systems, and bottled mineral water that can cause, in rare

cases, serious infections both in immunocompromised and immunocompetent patients. An immunosuppressed patient would be susceptible to infection.

181. They are very common. We know through gene sequencing that there is a stable population within the water system of RHC. See Sequencing report, which I have provided to the Inquiry **(A42401483 - Report by Professor Alistair Leanord and Doctor Derek Brown titled - Application of whole genome sequencing to identify relationships among isolates of Cupriavidus spp., Enterobacter spp., and Stenotrophomonas spp. isolated from clinical samples and from water and drainage associated sources within the healthcare environment. - Bundle 6 - Document 40)** and supplementary statement **(A47848718 – Supplementary Statement).**

182. I have been asked by the Inquiry what a “potential Cupriavidus” is. This depends on the context. If this relates to organism identification, it is possible that the Clinical Microbiology laboratory will misidentify an organism. This is due to the database which makes the identifications on the equipment (the MALDI-TOF which is a spectrophotometer) that is used for clinical pathogen identification not having an extensive dataset of non-clinical environmental pathogens. This can lead to misidentification. This misidentification comes to light when other techniques for identification i.e. WGS are used and the genome of the organism is checked against International datasets.

183. *Cupriavidus* are normal resident aquatic organisms that are found within the water system of RHC and QEUH. There is no agreed level above which they would be described as a contaminant.

184. I have been asked by the Inquiry to what extent, if any, is a particular microbe exceeding safe levels in water sampling considered contamination. There are no National or International agreed levels which can be used to differentiate between normal aquatic organisms in wholesome water and contamination by those aquatic organisms.

185. You cannot decontaminate drains. Drains by their very function of removing waste will always have organisms within them. All drains have high microbial numbers within them with hundreds of bacterial taxa. Putting disinfectants down drains will not remove those bacteria in any meaningful sense and has the potential to create resistance to the disinfectant and in some cases promote the spread of antimicrobial resistance, which we know in some cases is linked to disinfectant resistance within organisms.

186. From the final sentence in that part of the IMT minute which states there was no real difference compared to the counts at Yorkhill, I would deduce that if there had been no changes in the patient population and the practices had been the same, I would be saying that what we were seeing was like for like.

187. I have been asked by the Inquiry if there was a problem in the old Yorkhill or if infection is inevitable with immunosuppressed patients. Every care is taken to prevent infections. Infections are not inevitable. However, because of the highly immunocompromised nature of these patients between 20-45% of patients will get an infection as a result of their disease and treatment. This was noted in the Case Note Review. as quoted below with reference.

188. Dr Kennedy did the analysis on the data which was an EPI curve. I am not sure if it was collected on an ongoing basis from 2013-2019. Certainly, we have got that data as part of our routine. I am not sure how comprehensive the clinical data was in 2013. However, I had no reason to believe it wasn't. Using data in historical comparisons can be fraught with data differences as a result of changes in measuring things over time. It was probably robust since it would have to be at a certain level to be able to make the comparison. If it was not at the same level as the July 2019 data, then it would be a false comparison. So, I am certain in this instance it would have been comparable, but as author of the report Dr Kennedy would be better able to answer this.

189. I was making the assumption that the recording of infections needed to be standardised over the 2 time periods. However Dr Kennedy who did the data analysis may be better able to answer.

190. I have been asked my Inquiry why I think the EPI curve peaked during the water incident in March 2018. I cite data from “Report by Iain Kennedy "Descriptive analysis of trends in bacteraemia rates for selected gram negative organisms" dated July 2019” **(A38662683 –Report by Iain Kennedy “Descriptive analysis of trends in bacteraemia rates for selected gram negative organisms” dated July 2019 – Bundle 6 - Document 28)**. It is impossible to be definitive about the reasons why the EPI curve peaked.

191. This was most likely multifactorial. In my opinion I thought the likely source of infections with the enteric bacteria, *Klebsiella* (20 infections) and *Enterobacter* (14 infections), was most likely to be due to translocation of the organisms from the bowel which these organisms inhabit. There could also be issues of how central venous catheters were cared for.

192. The *Stenotrophomonas* (13 infections) could have been due to the use of the broad spectrum antibiotic meropenem to which *Stenotrophomonas* are inherently resistant. Therefore use of meropenem will advantageously select out *Stenotrophomonas* from the bodies flora. In 2016 there was a worldwide shortage of piperacillin/tazobactam due to a manufacturing problem. Piperacillin/tazobactam was the antibiotic of choice for the treatment of neutropenic sepsis and as a result of the global shortage many units/clinicians substituted meropenem as the agent of choice for treating neutropenic sepsis. A GGC review of cases showed that two thirds of all cases of *Stenotrophomonas* had been given meropenem up to 119 days prior to the positive blood culture. It is known that an antibiotic, even a short course, can increase the risk of carriage of a resistant isolate for up to a year.

193. There was an increase in patient numbers from 2017 when measured in total activity over the time period which could have been a factor. There is the

possibility that there was a change in patient clinical acuity but I think this would be better answered by the Clinical team who see these patients as I have no knowledge if that was the case.

194. I have been asked by the Inquiry how useful the report was when the analysis could not demonstrate causality. No report thus far has shown causality. All report association. I know of only 2 cases of possible causality, one case of Cupriviadus and one case of M chelonea.

HYPOTHESIS

195. One of the two hypotheses in this case was exposure to unfiltered water outwith ward 6A where there is no point of use filters. These patients were coming into ward 6A but their clinical care necessitates they are moved for scans, interventions, and investigations. They may require intensive support in Intensive Care Unit. So there are a number of areas where they could have been exposed to unfiltered water.

196. Some of them who attended day care at ward 2B would also possibly have been seen in clinics or become unwell and presented at the Emergency Department. So, there were many possible reasons why they would leave the confines of 6A. Filters were not put on in every single outlet in the RHC, so it was possible that in, for example, a clinic room they were seen in, they could be exposed to water that was unfiltered.

197. I am just surmising, but I think that was probably it, because it makes biological sense. I know that they were trying to put filters on the water outlets where the patient pathway was most likely for these children to either enter or go for investigations and scans, but not every single outlet had a filter.

198. I have been asked by the Inquiry why all water outlets on the immunosuppressed patient's pathway were installed with filters. This was a

decision made by earlier IMTs. The Chair of the IMT, Dr Inkster, at that time would be better placed to answer the reasoning.

199. It does not strike me as unusual or a concern that every outlet did not have a filter. You would only remove the risk where you believed there was a risk. These patients were a very susceptible population. The patient pathway would be very different from someone who came in for a sore ear for instance and had to see an ENT surgeon. There would be no reason to put a filter on the ENT ward for instance.

200. Filters are not without their issues. They are costly. They lower the ergonomics of the wash hand basin, and they lower the height where you can wash. This means people have to stoop down and put their hands into the bowl. Where we saw contamination of filters, it was almost certainly retrograde contamination as a result of handwashing. People were putting their hands into the wash hand basin and touching the filters on the way down which means those organisms then can grow in the spigot and contaminate the water.

201. Retrograde contamination is contamination of the filter as a result of use of the sink i.e. by hand washing causing splashes, inadvertent touching of the filter or from pouring liquids down the sink. The spigot is the end of the point of use filter from which water flowed. The nozzle.

202. There were cleaning issues potentially with them in terms of training people how to do it. I found out later that one of our expert engineers, Dennis Kelly, said that they breach some regulation about how high the water outlet should be above the basins. He did not specify which regulation had been breached.

IMT MINUTE 8 OCTOBER 2019

203. In the IMT minute dated 8 October 2019, **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** I am noted as “acting as the

Infection Control Doctor during this meeting". I assume it was due to Professor Jones who was Acting Lead ICD being absent.

204. I have been asked by the Inquiry what Coliforms are. "Coliforms" is a collective term that describes Gram-negative organisms.

205. I have been asked by the Inquiry why I think some outlets in QEUH and RHC had higher coliform counts. I think this was due to natural biological variation if a biofilm was present or due to heavier contamination as described above (para 83) on the filters and its outlet.

206. Tom Steele enquired in the lab could carry out routine swabbing of the chilled beams to see if the Microbiology laboratory could accept this sample type.

207. I have been asked by the Inquiry why there are great difficulties in separating infection sources in biofilm. Biofilm can be made up of a number of different organisms. There is sometimes a predominant organism within a biofilm. However, shedding of these organisms into the water can occur at different times such that one biofilm can shed a number of different organisms from the same outlet.

208. I have been asked by the Inquiry to what extent could any leaking taps behind IPS panels be a potential infection risk to patients in RHC. The dampness could allow for the growth of coliform bacteria and fungi which can grow in damp conditions.

209. I have been asked by the Inquiry why I think the 3 potential new cases should be classified as "MINOR" when the route of transmission was still unknown. In my view the fact that the three organisms were different meant that there was no point source (from a single source) outbreak. Although the source was unknown the fact that the organisms were all different pointed to what the source was not. That it is was not from a single contaminated source. If that was the case and the source was from a single point I would expect to see

organisms that were of the same species, and if typed, to be genetically related. The IMT scored the risk as Moderate.

MICROBIOLOGISTS SBAR

210. The thing that I remember most from this IMT is a graph that was in the SBAR (Situation, Background, Assessment, Recommendation Report) that showed an increase in *Enterobacter*. **(A38694850 – SBAR dated 7 October 2019 – ward 6A – incident data and epidemiology – Bundle 4 - Document 44).** For typing reference organisms of Public Health interest we use whole genome sequencing (WGS) in the reference lab. It struck me at that there was the ability and the Clinical Scientists with the requisite expertise to use WGS to see if there was the possibility of transmission with this organism. We collected and sequenced these organisms.

211. I have been asked by the Inquiry to explain what whole genome sequencing ("WGS"). Genomes can be assembled using standard methods. **(A42401483 - Report by Professor Alistair Leanord and Doctor Derek Brown titled "Application of whole genome sequencing to identify relationships among isolates of Cupriavidus spp.,Enterobacter spp., and Stenotrophomonas spp. Isolated from clinical samples and from water and drainage associated sources within the healthcare environment." Dated 18 January 2023 - Bundle 6 - Document 40)**.

212. Sampling was done to strict SOPs developed by DMA Canyon to prevent contamination of the sample. Only cultured organisms were sequenced. No WGS was done on primary water samples.

213. I have been asked by the Inquiry if it is the case that many organisms co-exist and their genomes may be fragmented and mixed together so the WGS may not accurately capture the genomes. This is not correct. Only single cultures organisms were sequenced by WGS. See report at para 181.

214. The hypothesis in the SBAR was that the drainage system was contaminated. The word ‘contaminated’ was used. The reality is that drains are designed and used to take waste away. Organisms will naturally reside in drains. If you were the last person that took a shower in a ward or washed one hands in a wash hand basin then there would be organisms that were resident on one’s skin that would now be transferred into the drain.

215. Dr Inkster never attended an IMT I attended.

216. I have been asked by the Inquiry what my views are on the definitions in the CDC environmental guidelines in relation to Enterobacter found in the drains of the hospital. I am not aware of these guidelines.

217. I have been asked by the Inquiry to what extent, if any, was I surprised that the levels of Enterobacter were higher than E.Coli or Klebsiella. I was not surprised. Organisms in drains are a function of what has been put down them and what selective advantage each organism has over any other.

218. I have been asked by the Inquiry why a drain with an unsafe level of a certain organism or organisms would not be considered “contaminated”. I know of no agreed threshold level for bacterial numbers in drains that identifies it as unsafe. All drains will have organisms present within them.

219. The SBAR highlighted that the drains could be an issue and it should be investigated. This was where I thought WGS might be helpful. I think Enterobacter were numerically the second highest species affecting patients after Stenotrophomonas. In 2019, the only gram negative bacteria I was looking at was Enterobacter species.

220. The recommendations of the SBAR are as below **(A47603210 – C Peters and K Harvey-Wood, Bacteraemia rates and Resistance patterns in**

Paediatric Haematology / oncology patients 2014-2018. Draft Report 10 October 2018 – Bundle 19 - Document 19)

a) "There has clearly been an increase in the incidence of gram negative organisms in the haematology/ Oncology paediatric patients, most strikingly in unusual non- coliform environmental organisms which cannot be explained by increased number of at risk patients, laboratory practices or selection pressure of meropenem use.
b) Overall this data supports the hypothesis that environmental factors have been driving rates of bacteraemias in this cohort
c) As the organisms and resistance rates are volatile the most crucial component of managing sepsis is rapid diagnosis and identification or organisms with daily microbiology and clinician discussions regarding therapy.
d) Empirical guidelines will not cover environmental organisms well, but when these are removed meropenem offers 100 % cover as an escalation antibiotic. Further discussions regarding empirical policy are warranted and are ongoing.
e) Antibiotic use is driven by increases in infections and serious bacteraemias.
f) Further work is required to look at amikacin resistance, different combinations of antibiotics for different groups of pathogens.
g) Resources need to be identified in order to maintain a close and timely monitoring of this level of epidemiological data."

221. There was a WGS protocol (pipeline) that we used in the reference lab that I felt we could use to look at the genetic relatedness of the *Enterobacter*. Pipelines are a way of extracting and sequencing organisms' DNA simply.

222. One of the Clinical Scientists did the sequencing and initial analysis. This took maybe four weeks to six weeks to do. I presented it at the IMT on 5 November 2019. That was one of the actions I took away from this IMT.

223. The clinical scientist that undertook the WSG had twenty nine years as a Clinical Scientist.

224. I have been asked by the Inquiry why the analysis takes some time. Time is needed to find and collect the organisms from freezers, then grow the organisms, then extract the DNA, then check for purity, then sequence the DNA, then quality check the sequencing output, then to reassemble the genome, then to do the data analysis.

225. I presented the analysis to the members of the IMT on 5 November 2019. The actions I took away from this IMT were to discuss and agree a statement regards reporting and monitoring of Enterobacter cases.

RESULTS OF WHOLE GENOME SEQUENCING

226. I gave a presentation to the IMT on 5 November 2019 **(A36591709 – IMT Gram Negative Blood Ward 6A - Bundle 1 - Document 86)** bn the sequencing results of the *Enterobacter* blood stream infections from the RHC. We wanted to see if the *Enterobacter* organisms causing these infections were genetically linked and put them into context about whether there was potential transmission or not.

227. The WGS showed no genetic similarities between any of these *Enterobacter* organisms. Using diagnostic testing it was clear that although all these isolates were identified in the diagnostic Microbiology Department as the single species *Enterobacter cloacae* this encompasses five different species when looked at with WGS. WGS showed that there was no genetic similarity between isolates when looked at from a ward, hospital or date perspective. That is, they were all genetically distinct.

228. They were all genetically distinct and separate from each other. So that showed that there was no point source outbreak, or no single source for these organisms. I would say it is more likely that these organisms, which are normal inhabitants of the mammalian gut, derive from the patient's normal gut flora and rather than from the environment. *Enterobacter* species were very

rarely isolated from potable water sources. We did not have many other environmental isolates with which to compare but the issue of directionality must be kept in mind. If an *Enterobacter* species was found in a drain and a patient, it would be difficult to prove that the isolate originally in the drain was acquired by the patient or if the drain acquired the isolate from the normal flora of the patient as a result of washing.

229. What the distinct genetic heterogeneity does tell you is that it is not likely that there is a point source from which all these *Enterobacter* species came from.

230. The *Enterobacter* organisms were collected from departmental freezers. A Clinical Scientist did the sequencing and the analysis because that is their expertise. There was no peer review because this is not a part of the laboratories normal sequencing procedure and this work was not designed for publication but to inform the IMT.

231. When I presented this information at the IMT on 5 November 2019 the discussions were starting to be about how to open up the ward to new patients and how to reassure the clinicians that nothing has been going on. I stated that we now had a tool we could use for any future infections that could put any infections in context and therefore rule in or rule out possible transmission events.

232. I felt clinicians needed reassurance because they had concerns about further patient infections. I am not in a position to say who it did reassure or not.

233. Page 8 of the 8 October IMT minute **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** refers to specific patients with three different organisms. A traditional classical outbreak would have one organism, and infections are caused by that organism. For example, a classic example might be that you have somebody with tuberculosis (TB) who then coughs over everyone, usually in an enclosed environment (barracks, prisons etc) and then everyone around them gets that organism. Epidemiologists would call that a point source outbreak. This outbreak was different in that the

definition of the outbreak was any Gram-negative bacteria. This to my mind was a very broad and unusual definition to use to define the outbreak.

234. When defining what to include and exclude from consideration by the IMT i.e. how do you define the outbreak, a definition must be specific enough to ensure no infections are missed out but not so broad that there will be a large number of "false positives" that are counted as being related to the outbreak. At this point in the IMT I couldn't understand why any Gram-negative bacteria was part of the outbreak but when analysis was done *E. coli* (a common gut bacteria) was not included.

235. It then starts becoming a bit more difficult to understand what is going on because each of these organisms *Achromobacter*, *Stenotrophomonas* and *Delftia acidovorans* are found in mains water. It does not necessarily mean contamination; they are aquatic organisms residing in the water. So, we need to ask: were these organisms seen in Yorkhill? The answer from Dr Kennedy's work was, yes, they were. So, what had changed? I think that was what was puzzling people. No conclusion was reached.

236. I have been asked by the Inquiry to what extent would a large number of these organisms in the water be considered a "contamination". None. It is recognised that water is not sterile. They are organisms that can be found in non-sterile potable water that is wholesome.

CASES DEFINED AS BEING A HAI

237. The IMT minute states that one of the previous cases, patient [redacted], should be taken off the timeline, as they had not been in hospital in the 30 days prior. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** This would not therefore fit the definition of a healthcare associated infection. The hospital will always be the point at which a diagnosis is made, since it is the hospital which is doing the testing. But that does not mean that

the infection was picked up in the hospital - it could have been picked up outside.

RESULTS OF ROOT CAUSE ANALYSIS

238. At this IMT the results of the Root Cause Analysis were discussed, and a common factor was that the patient has a line in situ. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** A patient has a line inserted when the Clinician knows that the patient is going to need vascular access for some time for their treatment. The patients will live with those lines until either they can be removed because they may get infected, they block, or the treatment is complete. They will have those lines tucked in under their clothes.

MICROBIOLOGY REPORT

239. During the IMT Dr Kennedy mentions *Delftia acidovorans* which is an unusual organism. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** It is an organism that resides in the aquatic environment, so you would expect to see it in mains water. It would be common practice to have a look back to see if you have seen an infection before.

240. I have been asked by the Inquiry why Delftia acidovorans is an unusual organism. It is unusual to see this organism cause a clinical infection. It is not a common organism in clinical infections.

241. The action I recall around transmission data was in relation to the *Enterobacte*r data that was presented in the SBAR that showed there was an increase in infections over the four year period 2016-2019 and I wanted to sequence these organisms to see if we could understand why. One of the

things that we can use WGS for is to see whether the same genetically similar organism(s) are spreading in patients.

242. When I say ‘same’ I mean genetically the same. The species is called *Enterobacter cloacae* by the Clinical Microbiology laboratory in QEUH, and in fact not all of them were. There were five species in that group. All isolates identified by WGS as *Enterobacter cloacae* were as genetically different as two strangers are genetically different. I would have expected if there was contamination of the water system that where *Enterobacter cloacae* was being isolated that these organisms would be genetically similar or tightly genetically related. This was not the case. In my opinion the sequencing did not support transmission of this species of bacteria from the water system to the patient.

243. I have been asked by the Inquiry why I would expect the Enterobacter to all be the same genetically where they were coming out. In a point source outbreak the organisms would be indistinguishable by typing methods. In this case the typing method was whole genome sequencing.

244. From April 2015 to December 2020 from 10,311 water tests there were 5 *Enterobacter cloacae* and 1 *Enterobacter* spp. isolates were identified from water samples. Enterobacter therefore are rarely found in the water system in QEUH/RHC.

WATER SAMPLING

245. Dr Kennedy was looking at the water samples and the IMT mentions that since August all outlets had been resampled and had multiple negative samples. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** There were two further outlets testing positive in September and the resampling results were not yet on the tracker. If you had an outlet that had tested positive for an organism, the first thing you would do is clean it because they had filters on them. You would flush the outlet and that might

be enough, then you would retest it. If it was still positive, you might take off the tap, dismantle it and decontaminate it.

246. The tracker was a spreadsheet of the water results. DMA Canyon and Estates personnel were responsible for maintaining the “tracker”.

247. If the outlet still tests positive you would replace the tap or remove the tap if the outlet were not being used. Resampling would occur to see if that was a consistent finding or if it was local contamination of the outlet, such as surface or retrograde contamination of the filters.

248. I have been asked by the Inquiry if the removal of a rap would create a dead leg. Tap removal would be replaced by a new tap. If a tap was removed permanently I believe the associated pipework is also removed. Estates personnel are better placed to answer this question. A dead leg cannot be flushed.

CHILLED BEAMS

249. Tom Steele had asked for routine swabbing of the chilled beams to see if anything had grown on them. If it had, this would change the hypothesis to that of airborne transmission. However, that was not what we were seeing; we were seeing aquatic organisms. Some of these organisms would not survive in a dry environment. I am unsure whether airborne transmission was a part of the hypothesis at the time. It did not make sense to swab these. The only way that hypothesis would have worked is if there was leakage from the chilled beams. I know this had happened, but I think that had all been fixed by this point. If there was leakage and there was water dripping through and contacting the surface of the chilled beams, picking up whatever organisms that were there, that water was then somehow accessing or getting into the environment such that patients were getting infected. The chain of possible transmission starts becoming convoluted.

250. I have been asked by the Inquiry why I think they had been fixed at this point. This was discussed at the IMT on 13 September 2019 **(A36591627 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 80)** where it is recorded that “Interventions have been taken to minimise/eradicate condensation occurring and leaks from the chilled beams”.

251. I have been asked by the Inquiry why I think the chilled beams had been fixed. This was discussed at the IMT on 13 September 2019 where it is recorded that “Interventions have been taken to minimise/eradicate condensation occurring and leaks from the chilled beams”.

252. I have been asked by the Inquiry why I was confident that there had been no further leakage since they had been fixed. I assume that if a leak cannot be fixed or wasn’t fixed this would be escalated through the Estates Department.

253. I did not know at the time what specific actions were taken to minimise/eradicate the condensation occurring and the waters leaks from the chilled beams. I now know that dew point controls have been fitted.

254. I would expect to see Organisms associated with skin squames and dust such as Staphylococci, Bacillus species, Corynebacteria, and possibly Streptococci.

255. Also, if this was what was happening, I would not expect to see only water organisms. There would be fungal spores, Gram-positive organisms that can survive in dry environments and dust, and skin organisms from skin squames. That is not what we were seeing. A lot of Gram-negatives do not survive for 20 minutes on a dry surface. Some of them do, but a large number of them do not. Had we seen a mix of Gram-positives and Gram-negatives then the hypothesis might have been reasonable.

256. If the leak was from source water i.e. the water circulating within the CBUs then Gram-negatives would support that hypothesis. My understanding at this time was that condensation on the outside of the units was the problem rather than leakage of internal water from within the CBUs.

257. I was not part of the IPCT when the chilled beam hypothesis was raised. It was noted as a hypothesis in the first IMT of the 13th September 2019 that I attended. I have no experience of chilled beams.

258. I have been asked by the Inquiry to what extent, if any, do I think condensation forms on chilled beams. I cannot give an opinion about this as I have no experience of CBUs.

259. I have been asked by the Inquiry why this was not an active concern when I was involved in the latter IMTs. It was noted as a hypothesis in the IMT of the 13 September 2019 and closed at the next IMT as a hypothesis on Tuesday 8 October 2019.

260. Following the chilled beam hypothesis, the mitigations were:

a) Leaks had been fixed
b) Environmental swabbing occurred
c) Water testing of the water system serving the CBU occurred
d) Biocide was introduced into the water system serving the CBU with repeat water testing
e) Ongoing air sampling and swabs of the CBU
f) And I am aware from documents that dew point control(s) were fitted.

AIR SAMPLING

261. During this IMT we discussed the recent results of air sampling within Ward 6A. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** It had previously been mentioned that a high count had been

taken by the nurses' station. However, you need to take into account what is happening when sampling.

262. In areas of high human activity, such as the nurse's station, the particle counts can be high. Air samples are taken in the patient's room to get a sense of how many particles there are. The technician who takes the samples records if a patient (and visitor) is resident in the room at the time. Samples can sometimes be taken in the corridor, and we always find the corridor particle counts are higher. At the time, a sample was taken at the nurses' station. Particle counts are higher in areas that people frequent. There is no order of sampling. Outside air can be sampled first if convenient.

263. I have been asked by the Inquiry how likely it is that a nurses' station will have a number of nurses standing around it. Very likely. That is where they will do their admin functions and also acts as the central nursing hub of the wards.

264. I have been asked by the Inquiry why the nurses station was tested for particle counts when the high count results were not acted on. I cannot answer that question. I did not organise the sampling sites. But my view is there is no value testing particle counts in an area where there are a number of people present. Or if sampling needs to be done in such an area then persons present should be noted.

265. I have been asked by the Inquiry why the nurses' station was to be re-tested when portable HEPA filters were placed in the corridors. This was to see if the stand alone HEPA units reduced particle counts.

266. I have been asked by the Inquiry how I knew it was the nurses at the nurses' station and not a deficient ventilation system. The counts were very high and there were a number of staff present during the sampling period. We know that human activity can increase counts.

267. In the context of sampling for particle counts, activity would be numbers and movement of people within the sampling site.

268. There are no national standards for particle counts to confirm if air quality is acceptable or not. In GGC we have historically used particle counts of lower than a thousand to infer acceptable air quality.

269. I do not know why there are not national standard for particle counts. There is no guidance on particle count levels. One thousand particle count number comes from GGC experience. I would consider a “high count” to be over 10,000 thousand.

HEPA FILTERS

270. I have a very simple view on the effectiveness of portable HEPA filters, which is that they cannot do any harm and they might do some good. There are concerns about how they might disrupt airflow. A further consideration is are they big enough for the area you are going to use them in? Apart from the noise and inconvenience, I did not see any reason why they should not be used.

271. I have no experience of ventilation systems in hospitals and no experience of HEPA filters in hospitals.

HYPOTHESIS UPDATE

272. In this IMT, Annette Rankin referred to these being unique organisms in the QEUH. **(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 83)** However, I do not agree with this description. There had been a look back at Yorkhill data and there was no change, so they were not unique. We had seen these organisms previously.

273. I have been asked by the Inquiry to what extent, if any, are these organisms considered unusual or very rare if I do not think they were unique. These organisms are unusual. In a ten year period between 2010 to 2019 in under 16 year old patients in GGC isolated from blood cultures there were 4 cases of *Achromobacter,* 3 cases of *Delftia acidovorans* and 43 cases of *Stenotrophomonas maltophilia*.

274. You may not see many of these organisms but when you look back you do see them being isolated in the Microbiology laboratories. In fact, you see them being isolated from other units. There were not many of these environmental organisms but we as microbiologists were aware of them.

275. We would expect a certain percentage of these immunosuppressed patients to have an infection during their treatment. That is one of the major clinical risks.

276. I have been asked by the Inquiry what percentage would I expect to see. As noted in the Case Note Review blood stream infections can occur in between 20 to 45% of patients in some series. See para 77.

277. There are only two places you can get an infection from: your own body, or the environment. I have already talked about the fact these patients had Hickman lines, which is a type of Central venous catheter. The patients would go home, and they could be exposed to an aquatic source at home. This was not a typical outbreak. It would not be usual practice to take a number of disparate organisms, which inhabit different ecological niches, display different transmission dynamics and group them all together and call this an outbreak. We would normally see one specific organism and we would investigate possible sources from which that organism could be coming from.

278. I used the term pseudo-outbreak in this IMT outwith its normal usage to try and highlight the broad outbreak definition being used and that all Gram-

negative organisms were defined as being potentially from an environmental source even though they were disparate organisms, which inhabit different ecological niches, and displayed different transmission dynamics. I could also not see any objective reason why some enteric organisms i.e. *Klebsiella* and *Enterobacter* were included into an environmental definition of the outbreak, whilst enteric organisms such as *E. coli* were not included. Thus, my initial view when joining as a member of the IMT was that the definition was too broad, not specific enough to be useful and therefore normal infections in this patient group would always fall within the outbreak definition and therefore perpetuate the outbreak.

279. A pseudo-outbreak in, the classic sense, is where a single organism is identified from microbiology samples, which do not match the clinical scenario, or are uncommonly isolated environmental organisms. This looks like an outbreak but the reality is that there is a contaminant that is being identified. There are many sources of contamination published in the literature which include clinical wipes, manufacturing contamination of sample collection bottles or swabs, fluids, and contamination within the laboratory.

280. I have been asked by the Inquiry how many infections would need to be present in this patient group before it could properly be called an outbreak. Outbreaks are usually defined as being caused by two infections from a single species of organism and if the outbreak occurs over a period of time genetically closely related progeny of that original single species organism. It is not usual to treat a range of different infections as an outbreak.

281. I used the term “pseudo outbreak” in an attempt to draw attention to the unusual and very broad outbreak definition used in this outbreak.

282. I have been asked by the Inquiry why I believed that it might possibly be the first described pseudo outbreak in the world. There is no literature that I am aware of that describes a similar situation. Most outbreaks in the literature are reported as single organism point source outbreaks. This may be as a result

of reporting bias where Journals will only publish outbreak reports that have clearly identified mitigations that curtailed the outbreak. The literature pertaining to this outbreak contains two reports by Inkster et al that are both single organism reports and which does not describe the entirety of the outbreak as defined by the IMTs, nor reflect the totality of the situation as recorded in IMTs. Both papers are single organism specific reports.

283. At that time, my view was that this was not a typical point source outbreak. It had all manner of Gram-negatives collectively considered, and that was because that was how this outbreak was being defined. If you look at this patient population and you look at national or unit specific surveillance data, you will get infections that involve a wide range of Gram-negative organisms. Overall, on a national basis there is a higher prevalence of Gram-negatives infections in this patient population than there were historically.

284. As regards these Gram-negative infections I am unclear how much of this was normal background infection that we would see in this patient group, if it was the result of a change of use of antibiotics, how much of it was the change in the global epidemiology of Gram-negatives that they had become more prevalent in causing infections, how much of it was the way the outbreak was defined and how much was a true result of environmental transmission.

285. I have also made comment in this IMT within the hypothesis update section about the new hypothesis related to biofilms. Biofilms are ubiquitous in water systems to a greater or lesser extent. My view on this would be that, with the range of organisms that were being isolated from patients, every single biofilm, and mix of organisms within that biofilm that could possibly exist, would have to exist in every single outlet within the hospital. It did not sound to me like it was biologically plausible that that was the case. However, I am not an expert on biofilms.

286. A biofilm is a thick layer of prokaryotic organisms that have aggregated to form a colony. The colony attaches to a surface with a slime layer which aids in protecting the microorganisms.

287. I have been asked by the Inquiry why it is not biologically plausible to have every single biofilm in every single outlet. My understanding is that biofilms usually inhabit the last 2 metres of pipework in a water system or areas where water can stagnate. The organisms that make up that biofilm are relatively stable. As a result there should be some consistency in the organisms being collected from samples from that outlet. You can see this in the *Stenotrophomonas* organisms collected from the outlets in the basement water tanks where genetically similar organisms are present over a period of months. Over time this population is replaced by another stable but genetically different population of *Stenotrophomonas.* On this basis you would expect a limited number of organisms coming through from an outlet.

288. We had a large number of organisms isolated from patients, and I felt that if that was the case then we were dealing with a range of different biofilms which were all different because we did not have any pattern. Biofilms are important. But I did not know how or to what extent they were important and if they explained all the findings. The hypothesis was not discounted at that point. We wanted to see if a root cause analysis would highlight any commonality that would be helpful in identifying a potential source(s).

289. Serious “contamination” of a water system would result in a range of biofilms.

290. I have been asked by the Inquiry how difficult it would be to prove the biofilm hypothesis. This would be difficult and destructive to prove requiring the removal of pipework, taps, and elements of the water system and subject them to specialist testing.

291. I have been asked by the Inquiry why it was not discounted as a theory. I believe because it would be difficult to disprove.

IMT MINUTE 25 OCTOBER 2019

INCIDENT UPDATE

292. At this IMT there were discussions about the complexity of considering patient pathways when carrying out the Root Cause Analysis, since patients are not in ward 6A for their entire stay. **(A37992819 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 85)** They have day passes out of the ward. It had to be recognised that we only had strict control of the environment when children were resident in GGC.

293. When patients were outwith that environment, we had no control over any potential exposure. The children would be exposed to the same organisms in domestic water systems or in public water systems as they would in 6A. They were still at risk, and they were still undergoing treatment. I do not know why it is called a new hypothesis in this IMT minute because it is clear to me that any aquatic environmental source at your home or in the hospital is a potential source of infection.

IMT MINUTE 5 NOVEMBER 2019

INCIDENT UPDATE

294. I have been asked by the Inquiry to Describe the IMT of 5 November 2019 **(A36591709 –IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 86)**. Emilia Crighton was the Chair. I was there as a Consultant Microbiologist. I presented the results of the WGS on *Enterobacters* as discussed previously. See para 181.

295. I have been asked by the Inquiry about a presentation I gave on sequencing results of Enterobacter blood stream infections from RHC. See report and para 181. **(A42401483 - Report by Professor Alistair Leanord and Doctor Derek Brown titled - Application of whole genome sequencing to identify**

relationships among isolates of Cupriavidus spp., Enterobacter spp., and Stenotrophomonas spp. isolated from clinical samples and from water and drainage associated sources within the healthcare environment. - Bundle 6 - Document 40) and supplementary statement **(A47848718).**

296. I discussed the sequencing results with Mr Derek Brown who did the sequencing and the analysis before my IMT presentation on 5 November 2019

297. I have been asked by the Inquiry why Enterobacter was chosen as the blood stream infection for the presentation, and why Stenotrophomonas was not chosen. See Reports in para 181

298. I have been asked by the Inquiry to what extent I would agree, if at all, that gram negatives are exogenous infections. I do not believe all Gram-negatives are exogenous. Many are endogenous such as the enteric bacteria *Enterobacter* and *Klebsiella*. Both *Enterobacter* and *Klebsiella* are members of the normal colonic flora in humans. As result of the treatment of these haematology/oncology patients there can be translocation of organisms through the intact, but compromised gut wall into the blood stream thus causing a blood stream infection. There are estimated to be 300-500 different bacterial species in the human gut at high concentrations of 10^{9-12} colony forming units/ml. WGS showed there was no genetic linkage between *Enterobacter* isolates and in my opinion they were more likely to be from an endogenous source. Most probably from the patients bowel flora. I also did not think that other predominantly enteric bacteria such as *Klebsiella* should be included as an environmental organism.

299. For example other Gram-negative organisms such as *Stenotrophomonas* and *Cupriavidus* are ubiquitous in nature and have a wide range of aquatic reservoirs. These are examples of exogenous organisms.

300. I have been asked by the Inquiry if I considered the blood stream infections from the RHC to be endogenous or exogenous. It is impossible to know precisely.

301. I have been asked by the Inquiry what my rationale for that view is. Some enteric organisms are capable of being transmitted in an aqueous environment. When this occurs the organisms are all either indistinguishable genetically or very closely linked if the outbreak occurs over a period of time.

302. The reports referenced at paragraph 181 show when the sequencing of several different organisms was carried out and the process for sequence analysis. These also show who worked with me, on the sequencing analysis. If anyone does this as a role and what roles they hold and what tools are used when carrying out sequencing analysis.

PATIENT REPORT

303. At this IMT we discussed that there had been no Gram-negative bloodstream infections since 1 October 2019. **(A36591709 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 86)**. Ward 6A has had a reduced clinical caseload and was not receiving any new diagnosed patients. We put in place a number of interventions to mitigate, and we do not know exactly which one works. For a five-week period we had not seen any new Gram-negative infections. I think there was a feeling that although it was early the mitigations we had put in place might be working.

304. I have been asked by the Inquiry what mitigations had been put in place. Chlorine dioxide dosing, Point of use filters on taps, a protocol for dealing with out of specification results from water samples.

HAND HYGENE AUDIT

305. During this IMT **(A36591709 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 86)**. Gillian Bowskill gave an update on hand hygiene and told the IMT there was going to be a better education programme for the parents, as their compliance with hand hygiene was poor. The staff were also having training. They had hand hygiene coordinators and lots of training and audits were done. I am aware there was something new introduced; however, Gillian Bowskill or Sandra Devine could speak in more detail about this.

306. I am certain that the hand hygiene coordinators were doing a lot of work with the parents. I know one of the senior charge nurses was doing an awful lot of ground-breaking work on line care. This included the protocols on how to look after lines which I think was the best in the world. This was over and above the normal procedures.

FURTHER INVESTIGATION REQUIRED

307. It was noted that discussion was to take place between myself and HPS regarding the genetic sequencing methodology. It was to look at what methodology we were using, because you can use different methodologies, but that never happened. It was written down, but it did not happen.

308. The methodology used for WGS is in the reports I reference at paragraph 181 as are the other methodologies that can be used.

309. I have been asked by the Inquiry why the discussion between myself and HPS never happened. This was never pursued by HPS.

310. This was partly because we are not funded to look for environmental organisms and in the Reference Laboratory we were transitioning a number of our phenotypic organism testing methodologies to whole genome sequencing

methods. It was also due to this outbreak finishing and we were not getting a range of environmental organisms coming through.

311. I have been asked by the Inquiry what I mean by “not funded to look for environmental organisms”. That the budget from NSD does not include costing to do sequencing work from environmental organisms. The Scottish Microbiology Reference Laboratory, Glasgow is funded by NSD to do microbiological work that supports Public Health outcomes.

312. I have been asked by the Inquiry which part of GGC microbiology service and labs would sample water, in particular looking for environmental organisms. The Environmental laboratory based in the Clinical Microbiology Department at Glasgow Royal Infirmary.

313. It all got caught up in another piece of work from genome sequencing that was being commissioned from NSD through HPS at that time. I think it was probably going to be wrapped up as part of that work, but we are still doing that work and it is taking us a lot longer than we thought. Work has continued but it is not stated in the IMT. NHS Assure has given us funding to do sequencing after the fact. So, it hasn’t disappeared, it is just taking a bit of time and has happened through a different mechanism.

314. National Services Division is a Department within National Services Scotland.

IMT MINUTE 11 NOVEMBER 2019

HYPOTHESIS UPDATE

315. There is a request at this IMT that a water leak in ward 6A should be included as a hypothesis. **(A37993248 – IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 87)** Water sampling was continuing at this point and there was discussion about how significant the leak was; whether it was a lot

of water, whether there was saturation in some of the framework behind the kitchen, the sink unit and what was being tested. There was a lot of water testing, and in fact, on 5 November 2019, there were embedded documents that were on the previous minutes, which were all test results of that sampling.

316. The water sampling was getting routinely reported back to the IMT and all the water testing was negative. I do not know what testing was done. It would be a big job to find out what samples were taken from that period from our datasets. Suffice to say, if it was added to the hypothesis, it did not stand the test of time. It was not biologically plausible that a water leak in a kitchen could cause what we were dealing with at the time. It's not unusual to get water leaks in buildings. They are reported by staff. Estates deal with them quickly, and you take water samples if required.

317. I have been asked by the Inquiry why it is not biologically plausible that a water leak in a kitchen could cause what I was dealing with at the time. I understood the extent of the water leak was minor and according to Estates there was no sign of mould and the leak was dealt with as soon as it was reported.

318. I have been asked by the Inquiry why Laura Imrie would have requested it be included in possible hypothesis if it was not a plausible cause. I think Laura Imrie may be better placed to answer this question.

319. I have been asked by the Inquiry how concerned I was on hearing there was a further positive blood culture for gram negative bacteria in a Ward 6A patient? I was concerned that there was the potential for ongoing infection within the ward.

CASE DEFINITION REVIEW

320. At this IMT, **(A37993248 – 11.11.2019 IMT Gram Negative Blood Ward 6A – Bundle 1, Document 87)** Annette Rankin raised concerns that the case definition had been updated to exclude the *Enterobacter cloacae* cases as endogenous, based on the outcome of the WGS investigation.

321. I have been asked by the Inquiry why Annette Rankin was concerned about the new case definition excluding Enterobacter cases as endogenous. I think Annette Rankin would be best placed to answer this question.

322. I have been asked by the Inquiry what my reaction was to Annette Rankins concerns. I did not agree with her. I felt the WGS evidence was sufficient to remove *Enterobacter* from the case definition. See para 146.

323. I have been asked by the Inquiry what other blood steam infections were tested using WGS. During the period of the IMTs only *Enterobacter* were sequenced. However we sequenced *Stenotrophomonas* and *Curpriavidus* species later. See report **(A42401483 - Report by Professor Alistair Leanord and Doctor Derek Brown titled - Application of whole genome sequencing to identify relationships among isolates of Cupriavidus spp., Enterobacter spp., and Stenotrophomonas spp. isolated from clinical samples and from water and drainage associated sources within the healthcare environment. - Bundle 6 - Document 40)** and supplementary statement **(A47848718).**

324. A definition is what you make it. If you put a mixture of every Gram-negative organism into a basket, as your definition, that then defines the outbreak. I believed there was good scientific evidence that there was no linkage between the *Enterobacters* that we sequenced from clinical cases. All these clinical *Enterobacter* organisms were genetically very distinct. There were very few environmental isolates we could sequence, thus making direct comparisons difficult. However, the WGS did show, in my opinion, that there

was no point source outbreak for *Enterobacter* infections, and that the very wide genetic diversity in the WGS results meant that on the balance of probability they were more likely to have arisen from the patient's own bowel flora than from an environmental source.

325. Annette Rankin is absolutely right; her definition of the outbreak was all Gram-negative organisms. That would include organisms that would be normal organisms from your gut such as *E. coli*, *Enterobacter* species and *Klebsiella* species. I felt that we could exclude *Enterobacter* because there was no common source, or they were genetically distinct, and we could differentiate between them. I did not understand why some enteric organisms such as *E. coli* were excluded from the definition but other normally enteric organisms such as *Klebsiella* and *Enterobacter* species were classed as environmental for the purpose of the outbreak definition.

326. I have been asked by the Inquiry to what extent, if any, would a wider approach advocated for by Annette, encompassing all gram negative bacteria have been better for patient safety. I don't believe it would. The wider the definition would mean there are more false positive infections that would be attributed as part of the outbreak that were not related to the outbreak.

327. Annette Rankin felt that because it was defined as all Gram-negatives and they were Gram-negatives, they should still be included within the outbreak as defined by the IMT, which does not make scientific sense to me. I come from a scientific driven perspective, Annette Rankin came from a definition perspective. I felt that the WGS data did not support that definition and new evidence was not being used to refine the outbreak definition.

328. I have been asked by the Inquiry why Annette's position on gram negatives did not make scientific sense to me. This was because there was WGS data showing that the *Enterobacter* were all distinguishable. See **(A42401483 - Report by Professor Alistair Leanord and Doctor Derek Brown titled - Application of whole genome sequencing to identify relationships**

among isolates of Cupriavidus spp., Enterobacter spp., and Stenotrophomonas spp. isolated from clinical samples and from water and drainage associated sources within the healthcare environment. - Bundle 6 - Document 40) and supplementary statement **(A47848718).**

329. I have been asked by the Inquiry what I mean by I "come from a scientific driven perspective" and Annette comes from a "definition" perspective. Annette has an epidemiological background and I have a scientific background. My understanding is that epidemiologists like to keep definitions as constant as possible to be able to identify trends over time.

330. I have been asked by the Inquiry to what extent, if any, could these sides be applied to the clinicians. There was no obvious delineation in opinion as a result of speciality that I was aware of.

331. I have been asked by the Inquiry how many clinicians at the IMTs were on the data driven side. I do not know.

332. I have been asked by the Inquiry what I meant when I said that I "felt that WGS data did not support that definition and new evidence was not being used to refine outbreak definition". My view was that the WGS data showed that there was no genetic linkage with *Enterobacters* and that they should be removed as part of the outbreak definition and there was no evidence that they were linked.

RISK MANAGEMENT/CONTROL MEASURES

333. There was some discussion at this IMT **(A37993248 – 11.11.2019 IMT Gram Negative Blood Ward 6A – Bundle 1 - Document 87)** about the use of hydrogen peroxide vapour (HPV) cleans being carried out on top of the clean already being carried out after each patient was discharged from 6A. HPV had been used before in several outbreaks. It was a discussion about whether it

was going to help. It is very disruptive, and it is toxic. You must move the patients out of their rooms. Therefore, there always has to be free rooms or half the ward has to be decanted.

334. I do not know exactly how toxic HPV is but it cannot be used where patients are situated or by operators without protection as it is an irritant of mucous membranes i.e. eyes, respiratory tract.

335. There are several issues with it. It is helpful in some scenarios but my thinking at the time was that I did not think it would be helpful in this situation. I think the IMT committee decided not to do it at the time and to await events. HPV would have no effect on any of those hypotheses. This must have been accepted because we agreed not to do it. It was one of those things that was not discounted but it was felt it was not needed at that time. I do not recollect it happening at any time.

336. I have been asked by the Inquiry why HPV would have had no effect on any of the hypotheses, or why HPV was not needed at that time. HPV would not be capable of entering the water system where the hypothesis stated that the infections were coming from. It would have also been disruptive to the functioning of the ward and the number of patients the ward could hold at any one time due to the necessity of decanting patients whilst HPV fogging was undertaken.

IMT MINUTES 14 NOVEMBER 2019

INCIDENT UPDATE

337. The IMT notes that the final report from HPS has been received, which states there is no evidence from the data to continue restrictions to admissions. **(A37993497 – IMT Gram Negative Blood Ward 6A – Bundle 1 -Document**

88) My view was this was positive. HPS were there to support the Board and the IMT, so to get that opinion was very important and helpful.

338. HPS supports the board as it has a range of skills and experience that complements the experience and skill of the personnel within the Board.

339. We also discussed the SBAR that had been drafted to allow us to plan for the re-opening of Ward 6A. **(A38694861 – SBAR dated 14 November 2019 – ward 6A – Gram Negative Bacteria – Bundle 4 - Document 48)** Dr Murphy expressed concern that the source of infections had still not been found. Dr Crighton advised that the new Nurse Director during the meeting with the Chief Nurse (CNO) shared HPS' view that sometimes a source cannot be identified.

340. New lines of enquiry were not proposed to identify the source of infections at this stage.

341. Several things can happen in an outbreak, and sometimes you do not find the source. You implement a multitude of interventions all at the same time because you do not have the luxury of time to implement them separately in a step wise fashion to see which one has an effect. Controlling an outbreak is not an experiment. You cannot change one thing and then see if there was an effect and then if there is no effect, change another individual thing to see if that has an effect. So you do everything all at once. All the appropriate interventions happen as closely, and as quickly as you possibly can make them happen, such as prophylaxis, changing practices, changing areas, testing, cleaning audits.

342. There could be several reasons why you might not find the source. Either the hypothesis could be wrong, it could not be linked with the area, or the hypothesis could be right, for example, as previously mentioned, the patients had intravenous catheters and were going home, where they could have been exposed to an aquatic environment from domestic sources or from other

aquatic sources. It still means that the environment is a source of infection, but just not the hospital environment.

343. In its widest term, the environment always must be suspect. This is why we did the sequencing. We have this tool, so if we see future infections, we will be able to sequence those organisms and drop them in to an epidemiological context so that we can try and understand if transmission has been occurring.

344. And you keep any mitigations you have put in in place. If you withdraw them, it should be done slowly, one by one in a measured way while you are still monitoring, so you can see if there has been any difference. That is a professional and scientific way of doing things. At this stage no mitigations were withdrawn.

345. The future process for investigating Gram-negative infections was also discussed at this IMT and it was agreed that there would be a Root Cause Analysis (RCA) for each new case. There had been a previous RCA, which showed that there were two risk factors. One was the Hickman lines, and I cannot recall the other one. With root cause analysis, you are really trying to see if there are any common risk factors. If you for instance have had new cases, have they, for example, all gone through a particular theatre, had a particular line put in? It then gives you an immediate and specific focus to look at for any initial mitigations.

346. Some of the risks found with root cause analysis are central parts of patient treatment in this patient group – they are all immunosuppressed and they have all got lines. A Clinician is also required to be part of the team that performs the RCA. That is important, because then the Clinician can describe how at risk the patient was and also how significant the infection was, or if it is thought to be a contaminant for instance. A RCA is a tool that allows you to make immediate assessments of whether there are concerns or not.

347. We also discussed the Systems Process Control (SPC) charts that were included in the HPS report, and it was confirmed those would be continued by the GGC IPCT surveillance team. They are a standard tool produced by the infection control team. We have SPC charts for C. difficile, MRSA, Gram-negatives, environmental Gram-negatives, and we have also collected Gram-negative and environmental Gram-negatives into the same plot. Epidemiologically, within the UK and globally, Gram-negatives are now the predominant organism in this patient group and overtook Gram-positives several years ago. SPC is a quality tool that is used in industry, and it is used to show if quality is poor. It allows you to monitor trends in a variable system.

IMT MEETING - 10 DECEMBER 2019

(A38172486 – 10.12.19 IMT Meeting Minutes – Ward 1D PICU – Gram Negative – Bundle 27 – Volume 9 - Document 9)

348. The three incidents all occurred in the Paediatric Intensive Care Unit (PICU) RHC. Theatre 8 was implicated in the transmission of cases 1 and 2 because the patients had been in there, and there was a concern that transmission of organisms could have occurred in the theatre as a result.

349. The hypothesis for the serratia case was possible water transmission, because the water as a source could not be ruled out. Serratia was also in the NIPCM as an alert environmental organism.

350. New actions taken forward from this IMT are, as per the IMT minutes:

"New actions from IMT:

a) Weekly Safe Patient Environment audits.

b) Routine weekly swabbing of POUF's, drains and CHWB's over a 4 week period commenced this week.

c) Routine weekly water sampling will be carried out over a 4 week period checking for all Gram negatives. Monthly water sampling will check for any Mycobacterium.

d) All drains will continue to have weekly Hysan dosing.

e) P Joannidis will share the PPVL room document to the IMT.

f) The IC Data team have produced a SPC chart for all Gram negatives in PICU, details of occupied bed days to be supplied.

g) Trigger will be 2 Gram negative isolates in a 30 day period or 2 HAI in a 2 week period.

h) RCA will be completed for any new blood cultures.

i) As requested by the Scottish Government there will be a retrospective look back for a period of 6 months and RCA completed for the 2 cases in the time period."

351. I have been asked by the Inquiry what "Hysan dosing" is. Hysan is a chlorine based disinfectant. Dosing refers to pouring Hysan into the drains and leaving it for 10-15 minutes in an attempt to eradicate resident organisms.

352. Routine weekly water sampling was started for all gram negatives to test the hypothesis that these infections were attributable to organisms in the water.

NICU MEETING MINUTES 27 DECEMBER 2019

(A41890001 – NICU Meeting Minutes dated 27 December 2019 – Bundle 27 – Volume 10 – Document 26)

353. My role during the NICU meeting on 27 December 2019 was Lead ICD.

354. I decided not to undertake any environmental sampling because the yield from environmental sampling is usually very low, if anything at all. The rooms were to be terminally cleaned and sampling results would not inform doing anything differently. Three cases would not be sufficient for environmental sampling to be undertaken.

AICC MINUTES – 14 JANUARY 2020

(A32180724 – Minutes – AICC Meeting – 14 January 2020 – Bundle 13 - Document 24)

355. The Inquiry asked why I requested some central guidance on sampling drains and when it is the be carried out from HPS and the Scottish Government. This was a topic that was repeatedly coming up at IMTs. There is no guidance in the NIPCM about how to sample and what thresholds for levels of bacteria would be “out of specification”. This made interpreting the results of drain sampling meaningless. Organisms will always be found within drains. I did not receive a response from HMS or the Scottish Government.

AICC MINUTES – 4 AUGUST 2020

(A32700337 – Minutes – AICC Meeting – 04 August 2020 – Bundle 13 - Document 25)

356. The Inquiry asks why I was waiting for guidance about sampling of drains. This was a topic that was repeatedly coming up at IMTs. There is not guidance in NIPCM about how to sample and what thresholds for levels of bacteria would be “out of specification”. This made interpreting the results of drain sampling impossible.

357. I did not know who in HPS would provide the response about sampling of drains.

358. I was not involved in the upgrade works in Ward 2A of the RHC in or around August 2020 that I can remember. I was involved in discussion with the Capital Estates team about drain traps for shower trays in 2A and about the ventilation requirements (separate ventilation system from the ward ventilation in 2A) for the Scottish Paediatric Molecular Radiotherapy Service ("SMaRT Kids") [atiend room in 2A. This room has a separate ventilation system from the rest of the 2A ward. I cannot recall the dates however.

359. My understanding about why these upgrade works were being undertaken at this time was this was part of a capital program to rectify defects within the water and ventilation systems in 2A.

360. The Inquiry asked me what "out of specs" means in the context of water sampling. It means that the test results fall out with the parameters set by GGC such that the water would be deemed a "fail". In the absence of any recognised guidance for threshold levels that would be considered out of specification, GGC developed and measured against its own internal thresholds.

361. The Inquiry asks me what "retrograde contamination" is. My response can be seen in paragraph 83.

362. The agreed protocol, simply put involved flushing the outlet, retesting the outlet, removing the outlet from use until 3 negative samples had been returned. This is an Estates protocol dealing with what to do if an outlet returned growth from water samples taken from it. Mr Kerr Clarkson Estates can give the exact protocol. I had no input into the agreed protocol about Ward 6A.

363. Re-flushing is running an outlet for a prescribed time.

364. The filters on the water outlets were changed at regular intervals stipulated by the manufacturer.

365. The Inquiry asked me what extent would a total viable count of 37 in a room cause any concerns. As a single test it would require the outlet to be flushed and retested. Which is what occurred.

BICC MINUTES – 11 AUGUST 2020

367. I have no recollection of discussions Sandra Devine and I had with Tom Steele about infection control in or around August 2020. **(A32700321 – Minutes – BICC Meeting – 11 August 2020 – Bundle 13 – Document 62)**

CRYPTOCOCCUS

GENERAL:

368. Cryptococcus belongs to Basidiomycetous yeast (group of higher fungi that have septate hyphae and spores borne on a basidium) with 2 species complexes, Cryptococcus neoformans and C. gattii.

a) *C. neoformans:* has a worldwide distribution, is ubiquitous in the environment, having a number of environmental reservoirs; pigeon droppings, decaying matter of soil. Positive soil samples for *C. neoformans* can be found in areas frequented by pigeons, chickens, turkeys, or occasionally other avian species. The organism has been recovered from the guano bird species including canaries, parrots, munia birds, and budgerigars. It can also be isolated from trees.

b) Environmental reservoirs of *C. gatti*: are trees. It has not been isolated from bird guano.

369. Further information regarding Cryptococcus is in the report from the Expert Advisory Sub-Group. **(A39235063 – Report prepared by Cryptococcus IMT Expert Advisory Sub-Group dated 5 April 2022 - Bundle 6 – Document 39**).

370. The most common manifestations of Cryptococcal infections in humans are Pulmonary cryptococcosis, Cutaneouscryptococcosis and Cryptococcal meningitis. However, any system of the body can be affected.

371. Further information regarding Cryptococcus is in the report from the Cryptococcus IMT Expert Advisory Sub-Group. Cryptococcus is not a common infection.

372. Infections mainly occur in immunosuppressed individuals: HIV infection with CD4 <200uL, immunosuppressive therapy or solid organ transplantation, innate immune deficits, patients with advanced renal or liver disease, diabetes, rheumatological diseases and sarcoidosis. There have been cases reported in apparently immunocompetent individuals.

373. Further information regarding Cryptococcus is in the report from the Cryptococcus IMT Expert Advisory Sub-Group.

374. I was asked how common it is to see cases of Cryptococcus in children. This question is best answered by reference to the Cryptococcus IMT Expert Advisory Sub-Group.

375. I was asked by the Inquiry what my experience of Cryptococcus was in a healthcare setting prior to the QEUH/RHC. I had seen a handful of cases whilst working at the Southern General Hospital/QEUH as part of interaction

with the Neurosciences Institute. Between 2015 to date, I know of two cryptococcus infections at QEUH/RHC.

CRYPTOCOCCUS 2018:

376. The Inquiry states they are aware that there were Cryptococcus infections in QEUH/RHC in 2018. I did not have any understanding of Cryptococcus infections at QEUH/RHC in 2018/2019. I was not involved.

CRYPTOCOCCUS IMT 2 JULY 2020:

(A41890578 – 02.07.2020 IMT MINUTES WARD 6A - BUNDLE 1 - DOCUMENT 94)

377. I Chaired the IMT on 2 July 2020. The issue was that a routine Cryptococcus antigen screen was carried out on the patient as a result of a temperature on the [redacted] June and reported as positive. My clinical area of responsibility as an ICD was in RHC. An ICD would be expected to Chair an IMT.

378. I first became aware of the issue when I attended the video meeting on Tuesday 30th June 2020 Convened by Chief of Medicine Women & Children Directorate following an IC Alert on 29th June 2020. This meeting agreed that an IMT would be convened, and an IMT was called to properly discuss and investigate the case.

379. From 04 April 2020 to 08 October 2020, 18 Cryptococcus tests were performed. The results below have been collected from the Microbiology LIMS system (Telepath).

Date	Lab No	Sample	Tpath list number	CrAg GGC result	Ref Lab result
[redacted]20	[redacted]	Blood	75	Negative	
[redacted]20	[redacted]	Blood	61		Positive (NEAT)
[redacted]20	[redacted]	Blood	60	Negative	Positive (NEAT)
[redacted]20	[redacted]	Blood	57		Positive (NEAT specimen) Positive by lateral flow device only
[redacted]20	[redacted]	Blood	58	Positive (Titration Negative <1:5 x2) Lab comment positive sample on direct testing	
[redacted]20	[redacted]	CSF	50	WCC<5 RBC<5 No organisms seen	
[redacted]20	[redacted]	CSF	52	Negative	Negative
[redacted]20	[redacted]	Blood	45	Positive Titration <1/5	Positive (NEAT)
[redacted]20	[redacted]	Blood	46		Positive (NEAT specimen) Positive by lateral flow device only
[redacted]20	[redacted]	Blood	35	Positive <1:5 (Titration Negative <1:5)	Positive (NEAT specimen) Positive by lateral flow device only
[redacted]20	[redacted]	Blood	31	Positive <1:5 Original report on 03.08.20	

				Negative Amended to Positive on 04.08.20	
[redacted]20	[redacted]	Blood	28		Performed by MicroPathology Warwick Cryptococcus neoformans DNA- not detected
[redacted].20	[redacted]	Blood	27	Positive <1:5 (Titration Negative <1:5)	
[redacted]20	[redacted]	Blood	24	Negative <1:5 Weak positive discussed with CP and amended to negative	Negative
[redacted]20	[redacted]	Blood	21	Negative	Negative
[redacted].20	[redacted]	Blood	20	Negative	
[redacted].20	[redacted]	Blood	19	Negative	
[redacted].20	[redacted]	Blood	18	Negative	

380. Please see email from Professor Elizabeth Johnston, Director, PHE Mycology Reference Laboratory, to Kathleen Harvey-Wood and others dated 7 July 2020 in which Professor Johnston says, “I do not think based on this evidence that a full scale look for environmental sources is warranted at this stage. I cannot be definitive that these represent false positives, although it is likely

and they are less than proof of infection." **(A49751664 – Email re lab results – 13 July 2020 - Bundle 20 – Document 98, page 2095)**

381. The patient's test results for cryptococcus can be seen in the table above.

382. Further investigations into this matter were that John Hood would inspect the plant rooms. These showed they were "clean with no evidence of pigeon ingress or pigeon fouling"; email from John Hood **(A48305542 – Email from J Hood to S Devine – Inspection of Level 12 plant rooms 3 July 2020 – Bundle 27 – Volume 8 - Document 59)**

383. Other actions were to await results from Mycology Reference Lab, the Clinical team will provide an update for ward staff. There was to be no change to current antifungal prophylaxis regime. IMT will reconvene when results from Bristol are available.

384. I had no concerns with how matters were dealt with, and I am not aware of any issues with communication between colleagues that arose as a result of this incident.

385. In the IMT of 2 July 2020 **(A41890578 – 02.07.2020 IMT minutes Ward 6A – Bundle 1 - Document 94)** Dr Murphy stated that 'there is no clinical evidence of Cryptococcus but the patient is being treated as if they have this'. This was Dr Murphy's clinical judgement. I had no reason to question it. It is in line with my opinion that there was no microbiological evidence of invasive Cryptococcal infection. It would be a sensible precaution to start antifungal treatment while awaiting the results of further diagnostic tests.

386. In the IMT of 2 July 2020 I stated that 'there were 3 serum samples from lateral flow test using neat serum. All three were negative by latex agglutination'. The relevance of all three being negative was that samples had been tested using neat serum i.e. directly. The antigen released by Cryptococcus as the result of an infection can be at a very high level. To find

the level of antigenaemia the neat serum is diluted in a stepwise fashion to find the highest dilution at which it is still reactive. After dilution to 1:5 these samples were negative. This means that the antigen levels were low. In the context of the clinical picture as described by Dr Murphy these results could reflect an early infection or were possible false positives.

387. The Inquiry asked me why samples were sent to Professor Elizabeth Johnston, Director, Mycology Reference Laboratory, Public Health England at Bristol for further testing to decide if there is any increase in positivity over time. This is because levels of antigen can rise and fall over time. Samples were sent to Bristol to check and confirm the initial results. This would be normal practice for a cryptococcal infection.

388. Sending samples to Reference laboratories is done by the on-site Microbiologists as a routine. I had no involvement in sending these samples. Results from the laboratory in Bristol are received by post, with the results scanned into the Laboratory results system as a scanned copy of the report which is attached to the original sample record in Telepath. Results of the sample testing can be seen in the table above.

389. The Mycology Reference laboratory reported the result as Positive (NEAT specimen) Positive by lateral flow device only. As per the email from Liz Johnson the lab were unable to titre the antigen and they found faint and very faint banding at 1:2 and 1:4 dilutions respectively. Both above the 1:5 dilution where the test in GGC was negative.

390. In the IMT of 2nd July 2020 the hypothesis is noted as follows:

a) Environmental – community or hospital
b) Testing – false positive
c) Activation of previous latent infection

i) All Cryptococcus ultimately comes from the environment as it has wide environmental reservoirs. The spores are normally inhaled and it is almost certain that this event is universal. In an immunocompetent individual spores will reside in latent form within macrophages within the lung. In an immunosuppressed individual an antigenaemia likely occurs as a result of reactivation rather than new infection through exposure to the fungus in the environment (Wake 2023) **(A49404293 – Wake RM et al "Cryptococcal Antigenemia in Advanced Human Immunodeficiency Virus Disease: Pathophysiology, Epidemiology, and Clinical Implications", Clin Infect Dis. [2023 Feb] 18;76(4):764-770 – Bundle 27 – Volume 8 - Document 60**). The hypothesis this was from the environment was reasonable.

ii) The information given to the IMT was that there was no signs of clinical infection, the antigen titre was low and positivity was seen on neat serum only, there was advice from Dr Johnson from the Mycology Laboratory was "I cannot be definitive that these represent false positives, although it is likely and they are less than proof of infection" and that literature shows there can be a high level of false positives using the CrAg. In my opinion I believe the hypothesis this was a false positive reaction was reasonable.

iii) All Cryptococcal infection is a reactivation of latent infection. This hypothesis is a reasonable hypothesis. However, this describes the aetiology of a natural infection with Cryptococcus.

391. At the time of the case there was no positive finding to implicate the hospital as a source. Plant room inspections had shown them to be clean with no pigeon fouling or ingress or with recent filter changes.

392. In my opinion I believe the Cryptococcal antigen test results were a false positive reaction

393. I checked the antigen test rates over the last two years, out of 376 the majority being negative. The tests were all looked at from GGC. 6 tests from 3 patients

were positive. I did not give an exact number to the IMT as I did not think it was necessary to inform our thinking on this particular case. I had already stated the majority were negative which I felt described the situation with initial CrAg lateral flow testing.

394. In the IMT of 2 July 2020 I advised that fungal air counts were analysed: The Inquiry asked what the significance was, if any, of my comments on fungal air counts: “As expected the Beatson had zero counts in 79% of samples, which is pretty good. In Ward 4B the counts were not as good with zero counts of 62% of samples. Ward 4C drops to 40% of samples and Ward 6A dropping to 20% of samples with zero counts.” This is a reflection of the air quality as a result of the filtering system within those ward areas.

395. QEUH had higher rates than the Beatson because there is no HEPA (H12) filtration in some of the areas in QEUH/RHC. Personnel in Estates will be best able to confirm this.

396. I took no further actions to investigate these findings following the IMT. Air sampling that had been done previously were being looked at by Dr Hood as part of the Cryptococcal sub group work.

397. The Inquiry asked me to what extent were higher rates of fungal air counts at QEUH/RHC linked to non-compliant rooms and wards with SHTM ventilation guidance. I think the ventilation Engineers in Estates are better placed to answer this question.

398. I do not know how the use of chilled beams impacted the ward and room air fungal particle counts at QEUH/RHC.

399. The Inquiry asked me how the lack of HEPA filtration impacted ward and room air fungal particle counts at QEUH/RHC. At its simplest HEPA removes particles (including fungal spores) as a result of filtration and the expectation

would be that lack of HEPA filtration would mean that particles (including spores) would be raised.

400. I do not know to what extent air permeability impacted the fungal air particle counts. I did not have any concerns about the rooms in QEUH/RHC.

401. I am not aware of any negative air pressure rooms in the Ward housing the patient.

402. Higher counts of fungal air particles at the QEUH/RHC would mean that there was higher exposure to particles (which can include fungal spores) and this would be a possible risk to immunosuppressed patients.

403. I have been asked by the Inquiry how the higher rates of fungal air counts at QEUH/RHC contribute, if at all, to the patient Cryptococcus infection in 2020. I do not believe it did. Cryptococcal infection is thought to be reactivation of previously inhaled spores that are latent within the body. As previously stated there was no clinical or microbiological evidence of infection as confirmed by the Mycology Reference Laboratory in Bristol. See email above.

404. I stated further in the IMT that ‘if a patient has not got prior Cryptococcus infection that there is a 30% false positivity rate using lateral flow antigen testing’.

405. I have been asked by the Inquiry how lack of prior Cryptococcal infection impacts the antigen testing. Prior Cryptococcal infection was defined in the Dubbels paper as people who were being tested with Cryptococcal antigen test as a requirement for monitoring treatment progression. That is they had already been diagnosed as having an invasive cryptococcal infection. This was not the case in this case. This was a first time diagnosis and therefore prior does not apply. All tests have sensitivity (false negative) and specificity (false positive) limitations. As Dubbels paper shows the false positivity rate was 34% for first time low level (1:2 to 1:5) Cryptococcal antigen levels.

406. Prior Cryptococcal infection was defined in the Dubbels paper as people who were being tested with Cryptococcal antigen test as a requirement for monitoring treatment progression. This was not the case with this patient. This was a first time result.

407. Other testing carried out on the patient was microbiological testing for Aspergillus, blood cultures, faeces, skin swabs, throat swabs, urine samples totalling 65 samples for the period from admission at 21.06.20 to 26.03.21. Numerous blood results would have been taken. A listing of all tests from haematology and biochemistry with the results attached could be a substantial body of data and may not provide insight without reference to the clinical condition of the patient at those points in time.

408. The paper by Dubbels **(A49404310 – Low Cryptococcus Antigen Titers as Determined by Lateral Flow Assay Should Be Interpreted Cautiously in Patients without Prior Diagnosis of Cryptococcal Infection Dubbels M. et al 2017Dubbels 2017 – Bundle 27 – Volume 9 – Document 3)** is the evidential basis for the 30% false positivity rate using lateral flow antigen testing that I stated at the IMT on 02 July 2020 **(A41890578 – IMT minutes Ward 6A –– Bundle 1 - Document 94)**.

409. I had no further involvement after the IMT closed.

410. I have been asked by the Inquiry why the conclusion was reached that the further case of cryptococcus was a false positive result.
Two hypothesis were considered as per my email of 8 July 2020 **(A47946639 – Email chain – Bundle 19 – Document 60)**

1. An early clinical infection that has been ameliorated by antifungals
As can be seen in the table below the CRP was decreasing for several days before the antifungal fluconazole was started. When the antifungal fluconazole was started the CRP was 15. This level of CRP does not indicate a serious invasive infection. On this basis I do not think the antifungal played any role in

the clinical recovery as the recovery from a peak CRP level on the 25.06.20 had been underway for 4 days prior to receiving antifungal treatment on the 29.06.20. The CRP is normalised by the 01.07.20.

2. A false positive result in a case with no clinical indicators of Cryptococcus infection.

At the time of the IMT the patient was showing no signs of cryptococcal infection and had a very low cryptococcal antigenaemia that was felt by the Dr Johnson at the Mycology Reference laboratory to be "less than proof of infection". There is evidence that false positives in this situation can be as high as 34% (Dubbels 2017). In an invasive infection, antigenaemia would be much greater that seen in this case. The patient was started on antibiotics and had been on meropenem and teicoplanin. The C-reactive protein (CRP) which is a non-specific marker for infection was being monitored from the 21.06.20 - 05.07.20. See table below. The results below have been collected from the Biochemistry LIMS system (Telepath).

A normal CRP is < 5mg/l.

Date	CRP	Comment
21.06.20	35	Admission + antibiotics
22.06.20	58	
23.06.20	111	
24.06.20	89	
25.06.20	118	
26.06.20	75	1st CrAg test
26.06.20	70	
27.06.20	76	
28.06.20	34	
29.06.20	15	Fluconazole started
30.06.20	7	
01.07.20	5	
02.07.20	4	Date of IMT

03.07.20	3	
04.07.20	2	
05.07.20	2	

411. As can be seen the CRP was decreasing for several days before the antifungal fluconazole was started. On this basis I do not think the antifungal played any role in the clinical recovery as the recovery from a peak on the 25.06.20 had been underway for 4 days prior to receiving antifungal treatment on the 29.06.20. In my opinion the patient did have an infection that was effectively treated with antibiotics given on admission.

412. Taken together it is my opinion that the Cryptococcal antigen test results were false positive reactions.

413. There were 18 tests for Cryptococcus at that time from this patient. The CrAg test becomes negative on 24.08.20 and this is confirmed by Bristol on a sample taken on 01.09.20.

414. This is not in the IMT minutes which is a summation of discussions that took place during the IMT meeting on the day. This information would not be known at that stage.

415. HIIORTs were sent to HPS on the 02.07.20 and 09.07.20.

416. I had no concerns at the time that the minutes of the IMT of 2 July 2020 **(A41890578 – IMT minutes Ward 6A - Bundle 1 – Document 94)** were an accurate summation of the meeting discussion. As Chair I would have seen and approved the draft minutes.

417. My name was not listed as being in attendance at the Cryptococcus Sub-Group Meetings following the IMT of 2nd July 2020 as I was not a member of the Group and had no communication with them. I attach no significance to me not being on the group. We were coming out the first wave of Covid at the

time and as Lead ICD for GGC there were other competing priorities on my time.

418. I have been asked by the Inquiry if I read Dr John Hood's report for the Cryptococcus Incident Management Team Expert Advisory Sub-Group final draft dated 5 April 2022 **(A39235063 –Report prepared by Cryptococcus IMT Expert Advisory Sub-Group dated 5 April 2022 - Bundle 6 - Document 39)**. I read a draft report dated September 2020. It is Microsoft dated in my files as 10th September 2020. I assume I read it at or close to this date. I noted the theory that Cryptococcal infections resulting from deficiencies in the building as a result of pigeons was unlikely.

419. I was satisfied with the management of the Cryptococcus incident in 2020 by NHSGCC.

420. I am aware of 2 cases that have been published in the literature regarding Cryptococcus infections in QEUH/RHC between 2015 to date. Please see **(A47709447 – Farrer, Inkster et al, 'Genomic epidemiology of a Cryptococcus neoformans case cluster in Glasgow, Scotland, 2018' (2021) 7(3) Microbial Genomics 1 - 01 March 2021 - Bundle 19 – Document 47)**

AICC MINUTES – 30 SEPTEMBER 2020

(A32700549 – Minutes – AICC Meeting – 30 September 2020 - Bundle 13 - Document 26)

421. Filtration units were being changed in relation to flushing water as estates were increasing the backwash chlorine dioxide level of the 3 filtration units in the Basement Tank Room.

422. I cannot recall what Sandra Devine said about the specialist ventilation group.

423. To my knowledge Dr John Hood prepared the draft cryptococcus report. I noted the theory that Cryptococcal infections resulting from deficiencies in the building as a result of pigeons or their guano was unlikely.

424. I cannot specifically remember what was discussed at the meeting in relation to the draft cryptococcus report.

RISK ASSESSMENTS WARD 4C

425. I was not involved with the risk assessments in 2020 that were carried out in respect of Ward 4C and so cannot comment on them.

426. In 2021 Risk Assessments were carried out in respect of Ward 4C in order to actively assess the 'risk associated with the exposure to airborne pathogens from ventilation systems, for immune compromised patients'. I looked at the Particle count data and the Fan validation data, and was a signatory to the Risk Assessment. I took no further specific action following the Risk Assessment. This Risk Assessment was dealt with via Estates.

427. I agree with this assessment. Air quality is one of the mitigations that keep patients safe. Other mitigations are use of respiratory protective equipment, prophylaxis, cleaning, precautions such as single rooms and closed doors, visitor access, and restricting staff and visitor access whilst they are ill.

428. I have been asked by the Inquiry if any further action should have been taken. I am not an engineer but I believe only a complete retro fitting of the ventilation system, its air handling units and subsequent air locks, door sealing, monitoring systems would have been required. This would have removed the clinical function of the Unit for potentially several years even if it was possible. Therefore a cohort of patients with treatable disease would not

have been able to be treated. A complete retrofitting of the ventilation system would have reduced any adverse risk.

429. I am unaware of any risk assessments occurring for Wards 6A or 4B. and so I cannot comment on them.

430. I have been asked by the Inquiry why upgrade works being carried out in Ward 2A at RHC were not carried out in the adult hospital Ward 4C. I am not an engineer but I believe only a complete retro fitting of the ventilation system, its air handling units and subsequent air locks, door sealing, and monitoring systems would have been required. This would have removed the clinical function of the Unit for potentially several years even if it was possible.

431. I have been asked by the Inquiry to what extent the upgrade works carried out to Ward 2A resulted in a higher level of protection to patients from risk to infection, than that offered in Ward 4C, both at the time and now. Ward 2A currently meets ventilation standards whilst 4C does not as laid out in SHTM03-01 but has the mitigating factors as laid out in the 4C Risk Assessment of:

1. NICE guidelines (2016) recommending the use of single rooms for accommodating high-risk patients, **(A36871036 – National Institute for Health and Care Excellence – Haematological cancers: improving outcomes – NICE guideline – 25 May 2016 - Bundle 27 – Volume 9 – Document 4) .** All accommodation in Ward 4C is in single rooms.

2. Antimicrobial prophylaxis medicines : The use of antimicrobial prophylaxis medicines are strongly recommended in patients being treated for acute leukaemia. Several classes of drugs are used for prophylaxis but the azoles, particularly posaconazole, are the most commonly used. Posaconazole has been shown in multi-centre, randomised controlled trials to be highly effective, in one trial published in the NEJM showing a reduction in overall mortality in addition to fungal related mortality. Furthermore, there is prospective,

observational, single centre, real-life data showing significant clinical benefit. In addition there is a good understanding of how posaconazole works at the cellular level that explains its efficacy as a prophylactic agent. All international guidelines including IDSA and ESCMID recommend anti-fungal prophylaxis in high-risk patients.

3. Regular routine surveillance for possible fungal infection as noted above.

4. Management of patients in single rooms with movement outside this environment only for essential imaging or diagnostic/therapeutic procedures. Limited access by visitors.

5. Adults Ward 4C is located on the 4th floor of the Queen Elizabeth University Hospital and is supplied by 3 Air Handling Units located on level 12 plant room 124, these AH-units also serve adjacent ward levels 5, 6 &7 for the C core and have thermal wheel recovery incorporated within them at source. The original filtration and pressure set up from building hand over for ward 4C was as follows :

General ward - G4 rated primary filtration and F7 Secondary filtration at source with an ambient (0pa) pressure cascade from room to corridor.

As an additional risk reducing measure within ward 4C, installation of recirculation air scrubber fans (Camfil Camcleaner 400 concealed fan units) located within the ceiling of each toilet bedroom on ward 4C was carried out and then each space validated to quantify the improvements achieved. The Cam cleaner consists of a pre-filter (bag) and a secondary HEPA filter. See report details of fan settings, air volumes, room pressures and noise levels achieved while maintaining SHTM03-01 compliance.

Subsequent improvement modifications include :

1. Oct/Nov 2018 plant re calibration and ventilation system re balance to change ward 4C Room Differential pressures to corridor to be nominally positive (+ve)

2. Jan 2019 Installation of F9 secondary filtration to improve the source air quality delivered to these departments.

3. Jan 2019 Deployment of mobile city M HEPPA air scrubbers to assist in reducing the existing particulate within the Air.

4. January 2020 CVG (Ceiling Ventilation Grilles x10) removed and replaced with a standard ceiling tile to reduce the risk of particulate moving from the corridor ceiling void into the corridor transfer area and rooms.

5. 4C, installation of recirculation air scrubber fans and particulate counts carried out in October 2020.

432. I do not believe that there is any evidence that CBUs in 4C have been shown to have any direct infection risk to these patients. I understand that this was one of the hypothesis put forward at an IMT but was not proven.

433. I have been asked by the Inquiry to what extent, if any, did the lack of HEPA filtration impact patient protection from infection in Ward 4C. The increased risk this posed to the patients cannot be quantified as my understanding is that there is no evidence that HEPA has a protective effect from the trials published in the literature. However, I am not a ventilation expert and others with more expertise may be batter placed to answer this.

434. I have been asked by the Inquiry to what extent, if any, did lack of HEPA filtration in Ward 4C contribute to higher levels of infection in patients. The increased risk this posed to the patients cannot be quantified as my understanding is that there is no evidence that HEPA has a protective effect from the trials published in the literature. However, I am not a ventilation expert and others with more expertise may be batter placed to answer this.

435. I am unaware of any direct evidence that lack of air permeability impacted patient protection or caused higher levels of infection in ward 4C.

436. Negative air pressure impacted patient protection from infection in Ward 4C as it would allow air to enter rooms when the opposite is what is required. What is required is that air is being blown out of the room as a protective effect against the entrainment of organisms. I am unaware of any direct evidence that negative air pressure contributed to higher levels of infection in patients.

437. I have been asked by the Inquiry to what extent, if any, did the non-compliance with SHTM in relation to air changes per hour in Ward 4C impact patient protection from infection in Ward 4C. I am not aware of any direct evidence that this increased levels of infections in patients or impacted patient protection from infection. Taken in isolation the non-compliance in ACH would not have impacted patient protection in this patient group as there is no reason to dilute the air as only organisms from staff, visitors and the patient would be present and they would not have high numbers of spores. I am not a ventilation expert but I believe increased ACH is used for temperature and odour control.

438. I have been asked by the Inquiry what action has been taken to improve on risks associated with airborne pathogens to patients in Ward 4C following the risk assessments from 2020 and 2021. In answer to this I would advise to see mitigations as per the 4C risk assessment.

439. My understanding from reading current reports is that Ward 4C was never built to a compliant SHTM standard.

OTHER RELEVANT RECORDS

440. It is noted in the minutes that a hand hygiene audit has been carried out with 100% compliance. This audit was most likely done by a hand hygiene audit nurse who goes onto the ward. Everyone will know the audit nurse. As a result, there is a Hawthorn effect where practice changes as a result of the observation being in place. Once that observation is removed then practice tends to lapse into a more normal pattern of behaviour. You would normally expect a 90-95% audit score as normal.

441. There was a very good study that if showed if you were able to take every single opportunity for hand hygiene in an eight-hour shift, it would take up to two and a half hours of hand washing if hand washing was performed after every opportunity required to wash ones hands. That is the reality. We know that nobody does that. Alcohol gels made life a lot easier, but we do not live in a perfect world. Boards still do hand hygiene audits because it is a great audit tool and it is great for picking up poor practice. The output of the audit is reported within the Department/Ward and the Internal Infection Control Committees.

COMMUNICATION

442. I was not involved with communication with patients and families. That would be for staff in the relevant department and the clinical team. My understanding was that staff members in a department would communicate between themselves through huddles. I have never attended a huddle. The nurses who work within a department would be able to explain this in more detail. The clinical team or the clinician would communicate with patients and families, since they can put any questions into context of how the care is going or what to expect from that care. Communication with patients and families was not a routine thing that microbiologists were doing at that time.

443. In terms of other communication there would always be someone from the “Comms Team” at an IMT. They were very helpful. Communication was a

standing item on the IMT agenda. They would write the statement that would go out, if required, and this would be shared with the Chair of the IMT to ensure accuracy and appropriateness.

444. When I was Lead ICD that we would receive a draft communications document and you would either okay it or make edits as appropriate. Infections can be quite technical and maybe the “Comms Team” had not picked up the detail. So sometimes I would have to make a correction it and send it back before it could be signed off, I have never known the “Comms Team” just to put something out without involving the Chair of the IMT. That never happened as far as I am aware.

445. I received the draft communications document from the member of the Communications team that would be attached to the IMT or incident.

446. The draft communications document would be about whatever incident was being dealt with. The member of the Communication team attached to the IMT would, after a meeting, prepare a draft statement, either as a holding statement or for media release, which would be checked with the Chair of the IMT for factual accuracy.

447. It would be Dr Crighton who as the Chair of the IMTs I was involved in, who would sign off on any communication. I was happy with how this process of communications worked. I was there to do my specific job and my specific role, and I communicated to the people with which I was involved. I cannot comment on the broader communication system, but as far as I was aware there was not anything that caused me concern.

IMPACT ON PROFESSOR LEANORD AND OTHER STAFF

448. The major impact has been on the staff. We now have many microbiologists who are reluctant to take on an Infection Control role due to the current

investigatory and political spotlight that it has and still is under. We struggle to get a Microbiologists to take on these roles and we are the poorer for that.

449. The Scottish Government is keen that Infection Control Doctors with experience or expertise in the built environment are part of the planning process. There are not many ICDs with that experience and there is the potential that this lack of expertise could hold up future planning and builds. Some ICDs will be involved with a hospital build once in their career. Many will not. Therefore, the learning is almost generational. That is going to be a big issue about how knowledge transfers and how ICDs keep current and don't deskill on a niche expertise that may never be used.

450. The number of senior man hours these events has taken up is phenomenal. As part of my research output, I would normally produce a number of scientific papers in every year. That stopped, as all of the focus has been on trying to support the Board, then the Oversight Group, and now the Public Inquiry.

451. I could also raise stress, upset, personal responsibility, team dysfunction and lots of things that sit there in the background. Ultimately, I think ICDs are entering into a very different world going forward. There will be a range of questions that will come out of this Inquiry that we will not be able to answer. There is decades of knowledge on antibiotic use and antibiotic resistance for instance, but there is not the same depth of knowledge on the environmental aspects of buildings or what it means to healthcare.

452. The role of infection control doctor can raise levels of stress and upset because the current climate whereby Infection Control and the decisions made by Infection Control Teams is under scrutiny and concern from ICD and ICNs that they will be put under intense future scrutiny. There was no dysfunction in the IPCT whilst I was Lead ICD.

453. We do not have the scientific knowledge to answer all the unknowns currently within the topic area of how a building, its microbiome, and patients (of all vulnerabilities) interact with the building environment.

454. There will need to be many years of concerted research, what does normal look like, what does good look like, what does bad look like. There is no legislation that says we should do any kind of water testing apart from Legionella. Yet we are being asked to affirm what water quality we have against standards which we have had to develop ourselves within GGC because it reflects our understanding of the water system and there are no external standards which apply. There are no legal requirements apart for statuary Legionella testing.

455. I am aware of the guidance applicable to water systems in the hospital in SHTM 04-01, but I am not conversant with it.

456. I am aware of the guidance applicable to water systems in the hospital in SHTM 04-01, but I am not conversant with it. However, someone else in a different Health Board might have a completely different set of hospital specific parameters that may be more rigorous or less rigorous than the one used by GGC that they use to assess the performance of their water system. There is no standardisation. So, I think there are a lot of questions to be asked. We can develop the answers but some of that is going to take time. I would like to think the public, the press and the politicians will allow us to research the build environment and give us time to get these answers.

Declaration

457. 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.

CURRICULUM VITAE

OF

PROFESSOR ALISTAIR THOMAS LEANORD

BSc, MBChB, MD, DTM&H, FRCPath, FRCP Edin

PERSONAL DETAILS

Name Alistair Thomas Leanord

D.O.B. [redacted]

Address [redacted]

GMC No [redacted]

Phone [redacted]

Email [redacted]

QUALIFICATIONS

2015	FRCP Edin (Edinburgh)
2004	FRCPath (London)
1996	MRCPath (London)
1993	DTM&H (London)
1992	MD (Glasgow University)
1987	Glasgow University Degree of MBChB
1984	Glasgow University BSc in Immunology (2:1)

EMPLOYMENT HISTORY

2021 – Present	**Chief of Medicine, Diagnostics NHS GGC**
2019 - 2021	**Acting Lead Infection Control Doctor**
2018 - 2021	**Clinical Director of Laboratories, Greater Glasgow and Clyde**
2017 – Present	**Director, Scottish Microbiology Reference Laboratories, Glasgow**
2008 - Present	**Consultant Microbiologist, Greater Glasgow and Clyde**
2009 - Present.	**Honorary Professor of Microbiology, University of Glasgow**

Consultant Microbiologist based at Glasgow Royal Infirmary, Glasgow. I am Clinical Director for Laboratory Medicine in Glasgow. I am Director of the Scottish

Microbiology Reference Laboratories, Glasgow. I have academic and teaching responsibilities at Glasgow University.

Clinical Director of Laboratories,
Director, Scottish Microbiology Reference Laboratories
Consultant Microbiologist, Greater Glasgow and Clyde, NHS

Key outputs of my role within Glasgow:

- Chief of Medicine for Diagnostics involves responsibility for the delivery of all imaging, nuclear medicine, medical illustration and laboratory services across NHS GGC. I am responsible for approximately 200 Consultants and a number of junior medical staff and indirectly responsible for 3,000 staff at various grades and skills.
- Acting Lead Infection Control Doctor. I took over this role on resignation of the previous incumbent in autumn 2019. The role involves giving clinical direction to the 5 other ICDs and working closely with the ICM and the 46 members of the IPCT.
- My major focus as ICD has been 2 fold: involvement in the response to the Board being put into Level 4 measures as a result of environmental infection issues in QEUH and the Boards response to Covid-19.
- Clinical Director of Laboratories with responsibility for 120 Consultant and approximately 1,000 technical staff across all laboratory disciplines.
- The main responsibilities are to provide Clinical Leadership, manage and improve Quality and to ensure safe systems (Governance) are embedded within the Diagnostic Directorate.
- I have been a Consultant appraiser for approximately 10 years, annually appraising a significant number of Consultant colleagues.
- Director of the Scottish Microbiology Reference Laboratories, Glasgow Royal Infirmary. I am responsible for the National staphylococcal, meningococcal, pneumococcal, haemophilus, Salmonella, *Clostridium difficile,* parasitology and the antimicrobial resistance laboratories based in GRI, Glasgow. A large work plan is currently in progress transitioning all organisms onto a sequencing platform.
- As past Sector Lead in QEUH Microbiology, managing a Department, processing over half a million specimens, covering two laboratory sites, the key challenge was developing and maintaining a diagnostic service operating within tight financial constraints, whilst managing the change culture prevalent within the NHS.
- The integration of major diagnostic laboratories. Firstly, the VI and SGH Microbiology departments (2009), secondly, the integration of Yorkhill and parts of the Gartnavel service (2012). This involved planning and engagement with key laboratory stakeholders, clinicians, management, Staff side and GPs, to enable the smooth transfer and integration of service delivery.
- The introduction of new diagnostic testing systems; e.g. Vitek, Chlamydia PCR, automated urine testing and liquid TB culture.
- Implemented new reporting structures and working practices within the microbiology lab.

- I am the Clinical member of the Programme Board for renegotiating the Managed Service Contract for the Glasgow diagnostic services for the next 10 years. This is a [redacted] contract.
- Led the Microbiology planning team for the building of a new [redacted] pound laboratory block on the Southern Campus. This involved co-ordinating planning with architects, management, engineers, building control, other diagnostic specialities and service users.
- Lead daily ward rounds, attend to patient referrals and lead antimicrobial ward rounds delivering a clinical service to patients, advising on clinical management, Infection Control and antimicrobial stewardship issues.
- Deliver OOH Infection Prevention and Control advice.

Honorary Professor of Microbiology, University of Glasgow.

Key academic outputs

- Director of Scottish Infection Research Network. SIRN has a remit to increase networking and capacity for Healthcare Associated Infection research within Scotland. The Group reports to the Scottish Government. As Director I am responsible for liaising between Government agencies, University bodies and Industry to set strategic direction, influence change and develop links that strengthens the HAI R&D framework within Scotland and beyond. Chair the SIRN Steering group made up of Government representatives, University academics, NHS clinicians, Nurses and National Educationalists that enable us to deliver on our National remit.
- Am the PI for the SHAIPI (Scottish HAI Prevention Institute) consortium which has membership drawn from 6 HEI's, 19 Co-Is, NHS Health boards and Pharma stakeholders. This is a 5 year programme of work, with key strategic aims, costing [redacted] awarded December 2014. The main role as Lead PI is maintaining cohesion, focus, and ensuring the programme delivers on its strategic aims.
- Successfully gained funding of [redacted] that has successfully supported a number of research projects and Research Fellowships aligned to the HAI priority areas.
- Individual grant funding of [redacted] awarded to support work in a range of current HAI topics and AMR related areas.
- Development and delivery of teaching modules on HAI and Infection to medical students, science students and nurses. Training of postgraduate trainees as part of their training RCPath curriculum program.
- Member of the CSO Experimental & Translational Medicine Research awards committee since 2014.

2013 – 18 AMR and HAI Medical Adviser to the Scottish Government

I was the Medical Adviser to the AMR and HAI Policy Unit at the Scottish Government, advising the Cabinet Secretary for Health on policy development and delivery on HAI and antimicrobial resistance within Scotland, liaising with other parts of the UK.

Communication, expert advice, professional and clinical leadership were the key elements of this role.

Key outputs:

- Delivery of professional leadership and advice to the Scottish Government AMR and HAI Policy Unit and appropriate Ministers, liaising internally with CMO, CNO, CVO, CPO and CDO offices. Externally with the Scottish agencies; Health Protection Scotland, Health Improvement Scotland, Health Facilities Scotland, SMC, HEI, NHS Education for Scotland, Scottish Antimicrobial Prescribing Group, the Scottish Health Boards, the Infection Control Network, the Scottish Microbiology and Virology Network, and the Consultants in Public Health Medicine group.
- To provide clinical leadership as appropriate on matters arising within and outwith the NHS and across Scotland around HAI, AMR and decontamination.
- Developed close working relationships with Infection Control Managers, Doctors, Nurses and NHS Board HAI Executive leads to secure policy implementation at tactical and operational level.
- National Lead for the Scottish implementation of the UK Five year Resistance strategy (2013-18). Proposed, developed and populated the structures required in Scotland to deliver on the UK AMR strategy (Controlling antimicrobial resistance in Scotland [CARS] Chaired by the CMO). This is funded ([redacted] for a 5 year period comprising 4 key workstreams, (surveillance, prescribing, research and engagement) bringing together key partners, to implement cross cutting developments, in a One Health model.
- Represented Scotland at UK level at the UK AMR High Level Steering Group (HLSG) which acts as the advisory Group to DH and the DAs, Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection (APRHAI), HLSG Diagnostics subgroup, and a number of National Expert Advisory groups as appropriate ie CPE, PVL, CDI.
- Led the review of national mandatory surveillance and AMR and HAI targets as part of Sir Harry Burns Review of Targets in Scotland.
- Inputted into a number of Scottish National groups including: Chair of ScotMARAP 2 policy development, member of the Scottish Antimicrobial Prescribing Group, Scottish Antimicrobial Resistance HAI (SARHAI [Chaired by CNO]) Committee, Scottish Antimicrobial Prescribing Project Board (HIS), Health Protection Scotland AMR and HAI Programme Board, Scottish Microbiology and Virology Network Steering Group, National CPHM Group, Scottish HAI Commodities Steering Group, Infection Intelligence Platform Project Board member and member of the SARHAI Commissioning Group which co-ordinates and financially supports work within the Scottish NHS around AMR and Infection Prevention and Control.
- Member of the Vale of Leven Response Committee tasked with delivering on the Inquiries 75 recommendations.
- Contributing to the Chief Medical Officers Annual report.
- Member of the working group that developed new National HAI standards “Healthcare Associated Infection (HAI) standards 2015”.
- Scottish member of the UK Joint Working Party on the prevention and control of multi-drug-resistant Gram-negative bacteria which published in 2015.

- Conveyed key strategic and policy messages on HAI to a wide audience and linked with and advised SGHD communications colleagues on issues and messages for the media.
- Provided support and advice from a medical and Board perspective to the HAI Policy unit for Parliamentary Questions, ministerial correspondence, and briefing papers.

2009 - 2013. Consultant Microbiologist, Health Protection Scotland

Key Health Protection Scotland outputs

- Clinical Lead for the AMR and HAI Teams. This involved working within the AMR and HAI program encompassed by HAI surveillance (ECOSS and prescribing), the *C difficile* programme, MRSA/MSSA, SSI surveillance program, Reference laboratories, and guideline production.
- Contributing author of the Scottish Antimicrobial Prescribing Group (SAPG) - Report on Antimicrobial Use and Resistance in Humans in 2008-12.
- Chaired the National Carbapenamase producing Enterobacteraceae (CPE) guidance group 2013. Member of the UK PHE CPE guideline group.
- Member of the UK multi-drug resistant Gram Negative group developing guidance for this new emergent threat. Published 2015.
- Chaired the National HPS *C difficile* guideline group. Published new Guidance 2014.
- Microbiology and Infection Control Doctor support to other teams within HPS; the HAI ICPT team, Environment and Health, Immunisation and Vaccine Preventable diseases, Respiratory Infections and Travel Health.
- Developed and piloted *E coli* bacteraemia surveillance systems within HPS
- Support to ISD regarding data collection and user front end access to web platforms through the ECOSS team.
- Member of the Reference Laboratory Working Group since 2006 and have been involved with appraising services, tests and commissioning of the Scottish Reference labs. Developed and streamlined the Scottish SLA with PHE for reference services provided outwith Scotland, realising a [redacted] saving.
- Provided microbiology input into the MRSA Pathfinder Programme and special studies on hospital transmission of MRSA leading to the recommendation on admission screening for MRSA.
- Attended and contributed to NAG, SAPG, HAI Programme Board, IC Network, SMVN, HAI Commodities Steering Group,HPN committees. and the HAI Policy Group.
- Member of several short life groups within HPS and Nationally eg PID assessments, HAITF Surveillance sub group.

2005 – 2008 Lead Clinician, Microbiology Service, NHS Lanarkshire

- Lead Clinician for Microbiology within Lanarkshire. I led the Microbiology Specialist Sub Group reporting to the Core Directorate Team. The main role was developing the strategic direction of the Microbiology Service in consultation with key stakeholders, providing clinical leadership in the

operational delivery of the implementation plans and ensuring the service delivery was consistent with the Clinical Governance framework and fit for purpose. A main challenge of the role was the functional integration of the three disparate Microbiology Departments. This involved managing peoples' expectations of the service redesign, standardising testing procedures, integrating the on-call service, and developing Area services based on single sites. This was achieved through supporting others during the process, along with robust communication. I was responsible for staff job planning and staff appraisal for 65 members of staff.

- **Key outputs as Lead Clinician:**
- Developing a strategic NHS Lanarkshire Microbiology framework, set within Lanarkshire's Picture of Health Plan
- Implementation of a Quality management system throughout the Microbiology Departments
- Delivery of single site Area services for chlamydia, antenatal testing, and hepatitis testing
- A rolling programme developing standardised SOPs
- A single NHS Lanarkshire laboratory handbook
- Uniformity in computer reporting styles and report comments across the three departments
- Rotation of staff, both medical and BMS between sites
- Developing formal linkages with Community Health Partnerships management teams and GPs.

1998-2005 Consultant Microbiologist, Monklands Hospital, Airdrie

- This was a single handed position responsible for a Microbiology Department of 28 people processing 290,000 specimens per annum. This large workload necessitated the introduction of automation. The Department had over the years successfully introduced the Vitek 2, the Aura (for sensitivity testing), the Sysmex UF100 (urine analysis) and the COBAS (Chlamydia and Neisseria PCR).
  The Department performed a wide range of microbiology tests, acted as the area mycology centre for NHS Lanarkshire (NHSL) and is the area centre for Chlamydia and Neisseria PCR. Approximately 60,000 serological specimens were processed annually.
- As Head of Department I was responsible for policy, staff training, quality assurance, and Health & Safety within the Dept and for communicating and liaising with other Microbiologists within the County.
- Diagnostic, clinical and Infection Control advice to a 550 bed hospital with daily ITU rounds, Renal unit ward rounds and Haematology ward rounds. I had very close links with the ID Unit attending the unit on a daily basis and at weekly case conferences. I also attended the Haematology weekly case conference. I have had several years of direct paediatric experience when the NHSL paediatric service which was based at Monklands Hospital prior to it being moved off site to Wishaw. Being single handed I was used to, and capable of handling a high clinical workload and the attendant stress.
- Diagnostic, clinical and Infection Control advice to the majority of the County's GPs. The laboratory at Monklands served approximately 85% of the

Lanarkshire GPs.

2001-2006 Lead Infection Control Doctor within Lanarkshire Acute Division

- I was the Lead Infection Control Doctor within Lanarkshire Acute Division for 5 years (2001-2006) working with a team of 21 people, which included, Nurse Consultant, Infection Control Nurses, Tissue Viability Nurses, TB contact tracing service, and Surveillance Nurses. The Lead role involved chairing the Divisional Infection Control Committee, reporting to the Health Board Area Communicable Disease Committee, policy production and implementation, and leading the Division in attaining Quality Improvement Scotland compliance. A key role was the integration and co-ordination of the previously independent three Infection Control Teams into a unified Area IC Team.
- I also led, on a NHSL basis, on other central policies, eg decontamination as per the Glennie report. Whilst performing this Lead role I was responsible for the implementation of Local and National HAI policies within NHS Lanarkshire.

  I have wide experience of outbreak management, starting in 1996 with the Lanarkshire O157 outbreak, and have experience of MRSA, meningococcal, Norovirus, *C difficile* and Salmonella outbreaks both within hospitals and the community.

  I provided the Infection Control input into the planning process for Wishaw General Hospital, meeting with architects, project managers, staff and estates from the initial 1:200 plans through to the detailed floor plans.

1998-2001 Infection Control Doctor Monklands Hospital, Airdrie

- Responsible for Infection Control and clinical advice to colleagues in Monklands Hospital, a 550 bed District General.
- Chair of the Hospital IC Committee and member of the Area Control of Communicable Disease Committee.
- Wide range of IC experience including outbreak control, theatre commissioning, estates planning, liaising clinically and providing ICPT advice to the ID Unit, Renal unit and Heamatology Unit.
- Member of the Area Drug and Therapeutics Committee

March 1996 -1998 Consultant Microbiologist/ICD Law Hospital, Carluke

- Responsible for a Microbiology Department of 15 people processing 75,000 specimens per annum.
- Responsible for Infection Control and clinical advice to colleagues in Law Hospital, a 500 bed District General.
- Chairman of the Infection Control Committee, Chairman of the Clinical Waste Committee, Member of the Drug and Therapeutic Committee, Member of the Area Ethics Committee, Member of the Area Control of Communicable Disease Committee.

July 1993 - March 1996 Senior Registrar
Western Infirmary, Glasgow

Feb 1993 - July 1993 Career Registrar
Western Infirmary, Glasgow

Dec 1991 - Feb 1993 Senior House Officer
Southern General Hospital, Glasgow

Aug 1991 - Dec 1991 Senior House Officer (Infectious Diseases)
Ruchill Hospital, Glasgow

Apr 1990 - July 1991 Research Fellow (Microbiology)
Department of Medical Microbiology
Aberdeen University

Aug 1988 - Mar 1990 Medical Officer
British Antarctic Survey

Feb 1988 - July 1988 Junior House Officer (Surgical)
Vale of Leven Hospital

Aug 1987 - Jan 1988 Junior House Officer (Medical)
Southern General Hospital

1.

COMMITEES

International (Past)

- Chair of the Local Scientific Programme Committee. 13th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). This was a 6,000 delegate International Conference.
- Member of the European ECCMID Programme Committee 2003.

National (Past)

- Treasurer: British Infection Association. This is a UK wide Professional Society. As Treasurer and Council member I was involved with a large number of UK Government consultations, strategic direction setting within the UK Infection/HAI agenda and administrative business. BIA has [redacted] in assets, and 1,400 professional members. 2006-2013.
- Member of the Royal College of Pathologists Infection Research Committee, representing the Scottish Infection Research Network. This is a UK group tasked with embedding research into the RCPath curriculum for training. 2008-2010.
- Member: Scottish Regional Council of the Royal College of Pathologists 2004-7.
- Member: Association of Clinical Pathologists Committee on Microbiology.. 2002-7

- Member of SIGN Guideline 104; Antibiotic prophylaxis in surgery. This National group reviewed, developed and published antibiotic prophylaxis guidelines for elective surgery. 2005-08. Update group 2013.
- Meeting secretary/ Member: Scottish Microbiology Association 1996-2009
- Member: NHS Education Scotland: Advisory Group e-library HAI portal 2004-6
- SISS Antibiotic Prescribing working Group 2003-2004. Published National guidance on treatment of MRSA infection.

2. PROFESSIONAL ACTIVITIES

3. Present

- Chair of the Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection (APRHAI). This is a four Nation advisory committee that advises 4 CMOs within the UK Governments on antimicrobial resistance, Healthcare Associated Infection and antimicrobial prescribing.
- RCPath Reviewers Panel: Review professional performance issues for the College 2005- present
- Peer reviewer for CSO Grant Proposals

4. Past

- Examination question writer for the Royal College of Physicians (Infectious Disease) Knowledge Based Assessments. This sets examination questions and papers for the Royal College of Physicians (London) KBA. 2007- 2010.
- Assistant Editor of the Journal of Hospital Infection 2005-2007
- Inspector NHS Quality Improvement Scotland; Healthcare Associated Infection: infection control standards
- Chair: Working group to produce the Scottish HAI Induction training: NHS Education Scotland
- Co-founder and contributor to the Flemingforum meetings and website. The site attracted over 200,000 hits per year from approximately 40,000 people and was an educational resource for medical microbiologists, virologists, infection control personnel and tissue viability nurses. This was run through a Limited Company 1999-2009.
- Responsible for NHS Lanarkshire Acute Division QIS compliance 2002-2004.
- Inspector NHS QIS; Healthcare Associated Infection control standards 2002-2004

RESEARCH/GRANTS

- Principal Investigator and Director Scottish HAI Prevention Institute (SHAIPI). This is a newly awarded National research Consortium of 6 Scottish Universities, 5 Chief-investigators and 19 Co-Investigators. Total funding [redacted]. 2015-19
- **Antimicrobial prescribing for urinary tract infection in the community: its effect on bacterial resistance and clinical outcome.** A Leanord**, W Malcolm, C Wuiff, S Berry, C McCowan, [redacted] SIRN/CSO 2013.**
- **The diagnostic use of metabolomics for the early recognition of sepsis** A Leanord**, A Davidson, A Roe [redacted] SIRN/CSO 2013**
- **Case control study to identify the risk factors for the development of *S aureus* and *E coli* bacteraemias within NHS Scotland** A Leanord, **O Blatchford, J Wilson, C Wuiff, C McCowan.[redacted] SIRN/CSO 2013.**
- **Where is norovirus control lost?** A Leanord, **C McCowan, E Curran. [redacted] SIRN/CSO 2013.**

- **Clinical and Operational Assessment of the HINS-light Environmental Decontamination System within a large Intensive Care Unit. J Anderson, M MacClean, M Booth, J Coia,** A Leanord**, S McGregor [redacted] SIRN/CSO 2013.**
- **The role of *Clostridium difficile* and viral gastro-enteritis as a cause of hospital outbreaks in patients with severe diarrhoea. W Carman,** A Leanord**, J Coia. [redacted] SEHD. 2007. This study evaluated PCR for the diagnosis of *C difficile* from primary samples.**
- The molecular genomic evaluation of the effect of sub-inhibitory antibiotics on *Streptococcus pneumoniae*. **A Leanord**, T Mitchell. [redacted] SEHD 2007.
- *Streptococcus pneumoniae* protein arrrays to assess immunogenic protein profiles and the diversity of the humoral immune response towards *S. pneumoniae*. T Mitchell, **A Leanord**. 2006
- Early v late ligation of the inferior mesenteric artery. V Shoemeckou, A MacDonald, **A Leanord**, E Simpson. 2007
- The molecular epidemiology of *H influenzae*. Bayer [redacted]. 2003-4

5. PUBLICATIONS
6. Books

Consultant Editor Managing Infections: decision making options in clinical practice. Bartzokas CA, Smith GW. BIOS Scientific Publishers, 1998.

7.
8. Papers

- Probabilistic Modelling of Hospital Admission Screening Strategies for Carbapenemase Producing Enterobacteriaceae (CPE) in the United Kingdom S Manoukian, S Stewart, S J Dancer, H Mason, N Graves, C Robertson, **A Leanord**, S Kennedy, K Kavanagh, B Parcell, J Reilly Applied Health Economics and Health Policyv (in press)
- Epidemiological situation, laboratory capacity and preparedness for carbapenem-resistant *Acinetobacter baumannii* in Europe, 2019. Felix Lötsch et al. Euro Surveill. 2020;25(45):pii=2001735. https://doi.org/10.2807/1560-7917.ES.2020.25.45.2001735
- Cost burden of Clostridioides difficile infection to the health service: A retrospective cohort study in Scotland C. Robertson, J. Pan a, K. Kavanagh, I. Ford, C. McCowan, M. Bennie, C. Marwick**, A. Leanord** doi.org/10.1016/j.jhin.2020.07.019
- **The changing face of methicillin-resistant *Staphylococcus aureus* infections.** Alistair T Leanord **and John Coia. Med J Aust 2017; 207 (9): 379-380. || doi: 10.5694/mja17.00641**
- **Testing Greco-Roman medicinal minerals: the case of solfataric alum**

E. Photos-Jones, G.E. Christidis , M. Piochi , C. Keane , A. Mormone, G. Balassone, V. Perdikatsis , A. Leanord **Journal of Archaeological Science: Reports 2016:10:82-95**. http://dx.doi.org/10.1016/j.jasrep.2016.08.042

- Archaeological Medicinal Earths as Antibacterial Agents: the case of the Basel Lemnian sphragides" by Effie Photos-Jones, Christine Edwards, Flavio Haener, Chloe Keane, Linda Lawton, **Alistair Leanord**, and Vassilis Perdikatsis (2016 in Press)
- Prevention and control of multi-drug-resistant Gram-negative bacteria: recommendations from a Joint Working Party. A.P.R. Wilson, D.M. Livermore, J.A. Otter, R.E. Warren d, P. Jenks, D.A. Enoch, W. Newsholme, B. Oppenheim, **A. Leanord**, C. McNulty, G. Tanner, S. Bennett, M. Cann, J. Bostock, E. Collins, S. Peckitt, L. Ritchie, C. Fry, P. Hawkey. J Hosp Infect 2015 http://dx.doi.org/10.1016/j.jhin.2015.08.007
- Testing Dioscorides' Medicinal Clays for their Antibacterial Properties: the case of Samian Earth. E. Photos-Jones, C. Keane, A.X. Jones, M. Stamatakis, P. Robertson, A.J.

Hall, **A. Leanord**. Journal of Archaeological Science (2015), pp. 257-267 DOI information: 10.1016/j.jas.2015.01.020

- Where is Norovirus Control Lost (WINCL) Study: an enhanced surveillance project to identify norovirus index cases in care settings in the UK and Ireland. Evonne T Curran, Jennie Wilson, Caroline E Haig, Colin McCowan, **Alistair Leanord** and Heather Loveday. Journal of Infection Prevention 2015: 1– 7. DOI: 10.1177/1757177415613133
- MRSA screening: where, how and when? J Coia, **A Leanord**, J Reilly. BMJ 2014:349:g5075
- To wet or not to wet- a comparison of wet and dry swabs for nasal MRSA screening. **A Leanord** et al ://www.journalofinfection.com/article/S0163-4453(11)00174-5/pdf
- Boron and Samian Earth: Literary evidence, geological occurrence and past medicinal applications. M. Stamatakis, E. Photos-Jones, **A. Leanord**, A J Hall. Archaeology, School of Humanities, University of Glasgow, Glasgow, UK. 6th Helenic Conference, Athens 2013.
- Cross-sectional study of *Clostridium difficile* ribotypes in Scotland (July 2010 to June 2012 A. Banks, D.F.J. Brown, C. Wiuff, H. Mather, **A. Leanord**, J.E. Coia
- Intervention study on the impact of PCV7 and Prevenar13 on invasive pneumococcal disease in Scotland J. Wilson, D. Henderson, G. Edwards, **A. Leanord**, C. Wiuff. Abstract Nr. 2768 ECCMID Berlin. Oral presentation
- Effects of Clarithromycin at Sub-Minimum Inhibitory Concentrations on Early ermB Gene Expression, Metabolic Activity and Growth of an erm(B)-Expressing Macrolide-Resistant Strain of Streptococcus pneumoniae
  Riana Cockeran, H. C. Steel, N. Wolter, L. de Gouveia, A. von Gottberg, K. P. Klugman, **A. T. Leanord**, D. J. Inverarity, T. J. Mitchell, C. Feldman, R. Anderson Open Journal of Respiratory Diseases Volume 02, Number 01 (February 2012) PP.1-8, Pub. Date: 2012-02-29, DOI: 10.4236/ojrd.2012.21001
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Supplemental Statement by Professor Alistair Leanord in response to questions from the Inquiry

1. The report was instructed by the Central Legal Office. The report was to:

   "provide a detailed description of the nature of the samples that are, and are not, available for whole genome sequencing (WGS) to be carried out, in terms of the paediatric oncology patient group and the environment (including water and drainage) within the Queen Elizabeth University Hospital (QEUH) and Royal Hospital for Children (RHC) where they were treated from 2015 to 2020".

   "undertake WGS of the organisms identified on these available samples and the spectrum of heterogeneity identified compared with expected population heterogeneity".

   "analyse the results of the WGS and provide your opinion on whether these results demonstrate evidence that would or would not support:

   a. Transmission from the environment to the patient.

   b. Transmission from patient to patient.

   c. Transmission from patient to environment".

2. The report was co-authored with Derek Brown, who is a Clinical Scientist working in the Scottish Microbiology Reference Laboratory, Glasgow. He has expertise and experience in whole genome sequencing (WGS). Mr Brown has the technical and scientific expertise to extract, sequence, analyse the outputs of the sequencing, and to construct the necessary dendrograms and distance matrixes required for analysis. Mr Brown wrote the first technical draft and I co-authored the report with the clinical significance and the conclusions of those results.

3. The finalised report was sent to the Central Legal Office. NHSGGC was aware of earlier iterations of the data, which had been presented to the Paediatric Haematologists. This formed part of the response to the concern that transmission of environmental organisms was occurring in the QEUH and RHC.

4. The analysis of the *Cupriavidus* species was supported by a research grant from NHS Assure. NHS Assure received a report that included an analysis of the *Cupriviadus* data.

5. We used sequencing in the autumn of 2019 to inform the IMT. I became a member of the IMT from 13 September 2019. Having had no prior exposure to the IMT, or the information it had been dealing with, my initial impression was that a range of Gram-negative organisms were being attributed to the environment at the QEUH/RHC, many of which could be of an endogenous nature (i.e. coming from the patient's own body flora). After discussions with the Clinical Scientists at the Scottish Microbiology Reference Laboratory, Glasgow, we felt that we could use our expertise in WGS to attempt to see if there were any direct relationships between the organisms found in the environment and the patient's organisms.

6. At this time discussions started around how NHSGGC could resume a normal Paediatric transplant service. The concerns from the Clinicians was that infections in these immunosuppressed patients would continue to occur, and how could there be confidence that those infections did not arise from the hospital environment. I was aware that we could use WGS to try and understand the dynamics of some of these organisms, helping the IMT understand the relationship of past infections (thus helping it to rule in or out any ongoing hypothesis about the source of infections) and importantly to be able to look at any new infections in patients, and show if there was a possibility of a direct transmission event from the hospital environment.

7. Initially we took *Enterobacter* as the first organism to be sequenced. This was because of a SBAR dated 07 October 2019 that was presented at an IMT on 08 October 2019 which showed an increase in E*nterobacter* infections from 2016-2019 to date. *Enterobacter* was also the second most common organism isolated from the clinical cases. Lastly, we had a sequencing pipeline for Gram-negative organisms that we felt we could adapt to produce an answer reasonably quickly.

8. In a retrospective study like this it is only possible to use organisms that have been identified and stored from previous years. We had to identify firstly what

organisms had been stored and then try and retrieve those organisms from freezers and attempt to culture them. We used Telepath, which is the laboratory data system, to identify all *Enterobacter cloacae* from paediatric cases within the RHC over the time period 2015 to 2019 and seven human clinical isolates from GRI from Jan to Sep 2019. We identified if any had been stored and looked for the stored isolates and attempted to culture them. Once cultured, we extracted the DNA and sequenced the organisms. The isolates that were sequenced from Glasgow Royal Infirmary were included to act as a comparison to the RHC population of *Enterobacters*.

9. There is no other methodology that can be used when using stored organisms. In effect, serendipity plays a large part in these look back exercises. WGS was not performed in real time during the period of concern. Other typing methods, as delivered by the UKHSA Reference Laboratories Colindale, were used to identify possible transmission during the period. WGS is not a routinely used diagnostic typing method due to cost, complexity, and the specialist expertise and equipment required. WGS has the highest discriminatory ability available and is predominantly a typing tool used in Reference Centres for typing some organisms e.g. *Salmonella* where Public Health is an issue or used in University departments for research purposes. All the WGS was undertaken retrospectively from October 2019 to 2022 at the Scottish Microbiology Reference Laboratory, Glasgow, using their expertise and specialist equipment. See para 31-35 for further details on typing methods.

10. There is no routine service for sequencing environmental or clinical isolates outwith the criteria dictated by National Services Scotland(NSS). Currently organisms *Salmonella*, *Shigella*, *Neisseria meningiditis* and *Streptococcus pneumomiae* are routinely sequenced in the Scottish Microbiology Reference Laboratory, Glasgow which is part of the National Reference Laboratory service, as a UKAS accredited service.

11. At the IMT on the 05 November 2019 I reported the finding from the initial set of *Enterobacter* sequencing, which showed that “first analysis of WGS shows no relatedness in *Enterobacters* by case definition, ward or year”. My conclusion at the time, as it still is, is that there was no evidence that the

Enterobacter infections were related, or that the WGS confirmed a common source for these infections. The balance of probabilities points to the conclusion that these infections were endogenous and originated from the patient's own microbial flora.

12. There are approximately 40 trillion bacteria and 37 trillion human cells in the average human. We have more bacteria than cells. Many infections originate from the body's own resident bacteria.

13. From 2020 to 2022 we collected organisms that were identified as causing the largest number of clinical cases. We required enough organisms to be stored such that there were enough representatives that could be sequenced to form an opinion about their heterogeneity and population size, such that we could form an opinion about the probability that they were related to each other or environmental sources.

14. On the basis that there were a sufficient number of clinical cases, sufficient environmental samples and sufficient isolates stored and cultured, we sequenced three genera; *Stenotrophomonas maltophilia*, *Enterobacter* species, and *Cupriavidus* species. All isolates of these genera available to us were collected. In the case of *Stenotrophomonas maltophilia*, this was broken down as 25 human clinical isolates (23 from QEUH/RHC, one from Royal Alexandra Hospital (RAH), and one from Victoria Ambulatory Care Hospital (VIC ACH) collected between June 2015 and June 2020. Water and environmental isolates were collected from QEUH/RHC (n=56) and RAH (n=3) between Mar 2018 and Feb 2020 (Jul 2020 for two RAH samples). In the case of *Enterobacter* species a total of 42 isolates available to us (seven human clinical isolates from GRI from Jan to Sep 2019; six environmental isolates from QEUH/RHC from 2018/19; 29 human clinical isolates from 24 patients from QEUH/RHC between Jan 2016 and Jul 2019) identified by the diagnostic laboratory as *E. cloacae* were sequenced. In the case of *Cupriavidus* species the vast majority of isolates that were available to sequence were collected from RHC, and from Ward 6A in QEUH whilst the ward was being used for paediatric cases. There were a couple of isolates collected from Ward 4A and 4B (adult haemato-oncology and transplant unit) and from the basement tanks and plant rooms situated within QEUH. There

was one *Cupriavidus* isolate from the VIC ACH. There were 28 *Cupriavidus metallidurans,* three of which came from another Health Board.

15. We also sequenced four of the ten cases of *Pseudomonas* (three *Ps. aeruginosa*, one *Ps. putida*) infection in the paediatric haemato-oncology population that were of interest. This illustrates that we can only sequence what has been stored and that can be cultured after minus 80 degree storage. These numbers of *Pseudomonas* are too low on which to base any conclusion except to say that all the three *Ps. aeruginosa* from clinical infections were genetically distinct and not related.

16. The data from WGS shows that each genus sequenced has distinct epidemiology that is reflected in the genetic profiles that differentiate each genus from each other.

17. *Stenotrophomonas maltophilia* has a population that is very heterogenous. Overall, the population of *S. maltophilia* seen in patients and the environment in the QEUH/RHC reflects the global population of *S. maltophilia*. There are representatives of every known global subtype of *S. maltophilia* within QEUH/RHC. There is nothing unique about *S. maltophilia* infections within the hospitals, it reflects the global picture of *S. maltophilia* found in nature. More specifically the subtypes of *S. maltophilia* also reflect the subtypes of *S. maltophilia* globally. We see in the hospital subtypes (clades or “families”) of *S. maltophilia* that are seen only in the environment and not in patients. This is probably as a result of these subtypes being optimised to exist and multiply in the low nutrient environment of a water system and do not have the virulence genes required to cause an infection within the body. We see in the QEUH/RHC a reflection of the global pattern of *S. maltophilia* where we see the same subtypes that can infect patients. These subtypes of *S. maltophilia,* by inference, carry a different set of genes, that include virulence genes that their environmental only cousins do not carry. Therefore, all *S. maltophilia* do not seem to be equal, some strains are able to infect patients, and some do not seem able to infect patients. This to me is an important distinction that requires more research to understand the risk that an isolate of *S. maltophilia* from the environment may represent to a patient. The risk of infection to a

patient is therefore the product of the degree of immunosuppression within the patient and the subtype of any potential infecting *S. maltophilia*.

18. It is hard to know how long a *S. maltophilia* can colonise a water outlet for. This is a direct result of the Estates policy of flushing, removing, and cleaning outlets with the subsequent requirement of needing three negative samples before an outlet can be put back into use. Thus, we have in almost all instances only single isolates from an outlet. This is not the case in the basement water tanks, where it is not possible to remove any of the nine sampling points in the basement filters. These sampling points are cleaned if positive but cannot be removed. We see in this instance a population of very close genetic relationship being present over several months. This population, although long lasting does change over time (months), being superseded by a different but again, very closely related strain.

19. One of the concerns with working with stored isolates is how representative is the isolate that has been individually picked from the original culture plate from what could be possibly tens of individual colonies, stored and then on subsequent reculturing, again only one colony is picked for sequencing. To answer this, we sequenced all the isolates of *S. maltophilia* from a primary water sample and found that they were genetically homogenous with differences of 25 or less single nucleotide polymorphisms (SNPs) between them. We have performed the same experiment with a primary culture of *Cupriaviadus* and found a similar close genetic homogeneity within the primary sample plate. In my opinion, these experiments show that although the overall population of the species is very heterogenous, within a single sample the organisms cultured are clonal and genetically very closely related.

20. In my opinion these factors tell us three things about *S. maltophilia*:

    - Firstly, a colonised outlet will have a stable strain associated with that outlet, which will be present over a period of weeks to months if the outlet is not able to be cleaned and removed

    - Secondly, although the population of environmental organisms is heterogenous, all possible members of that population do not colonise

that outlet once the outlet has its resident strain, so it appears there is strain exclusivity to an outlet once it is established

- Thirdly, that *S. maltophilia* must be present in the mains water supplies from Govan Road and/or Hardgate Road for the organism to be present in the prefilter sampling points in the basement tank room.

21. WGS of *Cupriavidus* species identified a range of non-Cupriavidus species which had been misidentified. The diagnostic laboratory identified, reported and stored the isolates as *Cupriavidus pauculus*, *Cupriavidus gilardii* or *Cupriavidus* species. Of the 155 isolates recovered, 138 of them were members of the *Cupriavidus* genus (five different species) and 17 organisms were from other genera. Misidentification of environmental isolates by conventional methods used within a diagnostic Medical Microbiology laboratory is not surprising. The identification method used in a Medical Microbiology laboratory would not be expected to be able to identify many environmental Gram-negative organisms. This is because the database used to identify organisms does not have many, or in some cases any, type strain environmental representatives in them. Also, it is clear from the sequencing data that the populations of environmental organisms are very heterogeneous with large genetic differences between members of the same species such that a single type strain may not be representative of the population as a whole.

22. WGS showed that species of *Cupriavidus* form stable low diversity populations within the water system. *C. pauculus* formed three clades (“families”) that were stable across all three floors of RHC over a three year period.

23. One clinical isolate from 2016 co-located with one of the environmental clades which had representatives in it from 2018 onwards. This isolate has been linked to a sink in the Aseptic Pharmacy Unit in RHC. Whereas we can exclude any environmental link with any of the contemporaneous *Cupriavidus pauculus* clinical infections, we cannot exclude the possibility that this 2016 case is linked to the environment as we have no contemporaneous strains with which to compare it.

24. Bacteria are like small biological clocks. They will mutate their DNA in a predictable fashion such that differences in Single-nucleotide polymorphisms (SNPs) can record the time period over which two organisms genetically diverged. Looking at the time difference of approximately two years between the environmental isolates collected in 2018 and the clinical isolate in 2016 it is possible that the clinical isolate could be an ancestor of any of four environmental isolates taken two years later.

25. The case of *C. metallidurans* shows strong evidence of a clinical link between the patient and the water system. This result was seen in samples taken from another Health Board. It does illustrate the ability of WGS to make a link between a clinical isolate in the patient and the environmental isolates which are resident within the water system.

26. *Enterobacter cloacae* was identified by the diagnostic laboratory and stored. On sequencing, these isolates formed nine different *Enterobacter* species or subtypes, all recognised taxonomically as members of the *Enterobacter cloacae* complex. Each species or subtype grouped in species level clustering. The reason for the misidentification within the diagnostic microbiology laboratory is described above in para 21. The important point with misidentification is that using standard diagnostic identification methods it may look to a Clinician or Medical Microbiologist that there is an increase in a particular organism, whereas the reality is that this increase can be made up a of several different genera and species with no linkage to each other.

27. *Enterobacter* species cluster within species. *Enterobacter* species are recognised to be part of normal human bacterial flora (enteron = intestine, bakterion = small rod). Analysis of a possible environmental source in the QEUH/RHC was hampered by the low isolation frequency of *Enterobacter* species from the potable water tested. Using WGS there was no common genetic link between any of the *Enterobacter* isolates, all were genetically distinct. On the balance of probabilities there is no linkage between *Enterobacter* infections and the hospital environment. There is no evidence of a common source outbreak. *Enterobacter* species were isolated from the hospital potable water on 6 occasions over 2015-2020 out of 10,311 (excluding Legionella) water tests taken over this period. *Enterobacter*

species were not isolated from samples taken from wards 2A/2B. On the balance of probability, it is my opinion that *Enterobacter* infections are sporadic endogenous infections originating from organisms carried in the patient's intestine which are able to translocate across the intestinal wall and enter the patient's blood stream to cause a bacteraemia. In my opinion the paucity of *Enterobacter* species within the potable water system makes the environment an unlikely source for infections.

28. The genetic diversity within the populations of *C. pauculus* and *S. maltophilia* is not a reflection of the number of samples taken but reflects the genetic heterogeneity within the species. This is a product of the taxonomic definition used to describe the species. As stated above, the population of *S. maltophilia* infections at the QEUH/RHC reflects the population of *S. maltophilia* within the world at large.

29. The main limitation of this analysis is that it is retrospective and as a result it was only possible to sequence what has been stored. The majority of saved environmental isolates relate to the period post March 2018 when water testing frequency was increased, and it became routine for the Environmental Water Laboratory at Glasgow Royal Infirmary (GRI) to routinely store any isolates grown from a water sample. Prior to March 2018 water testing was done less frequently and in a reactive fashion as part of Infection Control Incident/IMT investigations. Not all isolates from water testing were saved prior to March 2018. Prior to March 2018 environmental isolates were saved on an ad hoc basis as advised by the ICD.

30. In a number of cases, where reactive sampling as part of an Infection Control Incident/IMT investigation did not grow any pathogen or grew a pathogen which was not the pathogen of clinical interest, no environmental comparison could be made to the organism that was isolated from a patient. The report by Dr Dominique Chaput showed that no isolate of concern was ever isolated from water samples taken as a result of an IMT decision to implement reactive sampling.

31. Typing in its broadest sense allows for the differentiation of two similar isolates of the same species. There are many different forms of typing, each

having different abilities to differentiate isolates, different costs, differing expertise and specialist equipment required and different times to obtain a result. WGS looks at differences in the DNA structure between two organisms. It is the most discriminatory typing method available.

32. There are several stages to the identification of an organism.
The first stage is to use a dye, called a Gram stain to differentiate the organism into one of two classifications, either Gram-positive (stains purple) or Gram-negative (stains pink) depending on the bacterial cell wall. This binary classification correlates with clinical features, epidemiology, and pathogenesis. Many antibiotics target the cell wall, therefore this classification into Gram-positive and negative organisms predicts the response to many antibiotics. The second stage is to use a biochemical test, or more sophisticated phenotypic tests (e.g. MALDI, akin to a mass spectrometer) which allows microbiologists to identify an organism to a Genus and a species level e.g. *Stenotrophomonas maltophilia.*

33. Typing is the characterisation of micro-organisms beyond the level of the species, generating a strain or clone specific characterisation. There are a number of reasons to type organisms: for the surveillance of infections in human, animal, or contamination in food sources, to identify if changing numbers of organisms are associated with changes in strains; comparing isolates with those from elsewhere; outbreak investigation (rapid and early detection of outbreaks by identification of relatedness of strains; investigation of sources and possible transmission chains); the identification of virulence factors and the detection of new evolving pathogenic strains.

34. There are two main typing methods. Phenotyping which uses physical attributes to identify similarity and differences between organisms and genotyping which uses genetic attributes to identify similarity and differences between organisms. Genotyping also allows for the discrimination between phenotypically indistinguishable strains.

35. Concentrating on genotyping which classifies organisms based on genetic characters there are several molecular genotyping methods used in outbreak investigations: Pulsed-field gel electrophoresis (PFGE), Multilocus variable

number tandem repeat (VNTR) analysis, Multilocus sequence typing (MLST) and Whole Genome Sequencing (WGS). Each method has differing degrees of discrimination as a result of looking at different percentages of the genome. WGS has the highest degree of discrimination as it can look at the whole genome of the bacteria and gives a “fingerprint” of that particular isolate. This may represent over 3,000 individual genes and several million base pairs. WGS allows for the rapid sequencing and assembly of the whole genome sequence of the organism and represents the ultimate level of discrimination. WGS is widely applicable, producing highly portable data that meets international standards for repository into databanks. However, WGS does require complex bioinformatics to analyse and so a high level of expertise and equipment is required to perform the sequencing. Although costly, it is becoming more affordable and will most likely replace other typing techniques as costs fall.

36. WGS also allows for the description of the relationship between organisms within the population. By this I mean it is possible to show how related one organism is to another and to use this information to describe clades or “families” which exist within a heterogeneous population of organisms, such that you can identify if certain families are more capable of transmitting and causing infections in patients than other families. This could be used to identify environmental organisms which have the potential to cause infections.

37. The scientific hypothesis that was tested by sequencing, was to show if there is direct evidence that transmission occurred between the environment and the patient. WGS allows for the identification of any possible link between organisms and patients. Where an isolate in a patient and an isolate from an environmental source are not genetically close this excludes any possible link between the environmental source and the patient. If samples differ by a large number of SNPs (we used <25 SNPs to identify possible transmission), this definitively excludes any evidence of direct transmission between those organisms. Looking at the sequencing data, on the balance of probabilities, if there is no genetic closeness (i.e. less than 25 SNP difference) between isolates causing a clinical infection and isolates from the environment, then

there is no evidence of direct transmission from the environment to the patient.

38. Although I was not directly involved with typing of isolates during the period when infections were causing concern, having looked at the records I know that isolates were sent for typing to the UKHSA Reference Laboratories Colindale, London for typing. It was known by the IMTs that the typed organisms were identified by the Reference Laboratory at Colindale as being different from each other.

39. The possibility of a link to infection was part of the terms of reference of the sequencing report. It was also the driving factor in using WGS to try and understand the microbial populations, the dynamics of those populations, and the potential for transmission from the environment to the patient. My own view is that an infection link is a causal link that needs to be demonstrated scientifically. By using sequencing, it is possible to show if there is any evidence of direct transmission from the environment to the patient. The WGS data shows that despite the ubiquity of the environmental organisms *Stenotrophomonas* and *Cupriavidus*, there is no evidence of direct transmission from the environment to any patient. In my opinion, on the balance of probabilities this means that the hospital built environment is unlikely to be the source of the infection. The one exception, as described in para 23 and 24, is one clinical infection caused by *Cupriavidus* (linked to the Aseptic Pharmacy Unit in RHC) in 2016 that we cannot rule out.

40. The use of the terms variability (lack of fixed pattern) or diversity (showing a great deal of variety) have no significance in terms of transmission of infection.

41. I have no specific expertise in the use of SPC charts or the methodology. However, I know that NHSGGC followed the process as recommended by Health Protection Scotland (HPS).

42. We (Derek Brown and myself) did not experience inadequate data collection or data sharing whilst completing the WGS work. All water samples were coded with a unique code for each outlet such that they could be identified easily. These samples were taken by DMA, a contracted water company.

Environmental samples from hard surfaces (e.g. sinks, drains, surface tops, ventilation ducting) were normally taken by either the Infection Control Team, or the ward nursing staff. There were no codes to identify precisely where the sample had been taken from, and indeed the complexity of doing so would have been overwhelming to develop in a short time span. It would not be normal practice to give unique codes to each potential surface sampled. This would not be normal Infection Control practice and I am unaware of a universal coding system for environmental samples being in use in any hospital. Furthermore, to do so within a modern hospital environment would take an enormous resource and be impractical as a result of movement of equipment, patients and the number of potential sampling points within a room (sinks, taps, drains, flooring, ventilation grills, horizontal surfaces, touch points etc), which may or may not be utilised as a result of the hypothesis being tested.

43. These environmental samples were taken to inform real time decision making by the IMT. The Microbiologist or Infection Control Doctor within the department would be aware where the samples had been taken from and would report back to the ward accordingly. Many of the organisms found from environmental samples were not stored and saved and as a result were not available for sequencing. This is normal practice within a diagnostic laboratory. The QEUH Microbiology Department will process approximately half a million samples a year. Once routine samples (which an environmental sample is classed as) are cultured, plates are kept on a rolling seven day period. Once they are a week old they are bagged and destroyed by autoclave. This allows the laboratory to go back within a seven day period to do any further work on an isolated organism e.g. further antibiotic sensitivity testing, typing if required, before it is discarded. It would be unrealistic to store, archive and retrieve cultures from routine samples sent to the Microbiology Department. Lack of space within most laboratories means seven days is the maximum that most laboratories can store culture plates for. This is compliant with UKAS Accreditation standard ISO15189 which is the ISO standard Laboratories are accredited to. There is therefore a lack of hard environmental samples to compare with the clinical isolates. Water samples

sent to the Environmental Laboratory at GRI were kept after March 2018 as a matter of routine. Prior to March 2018 isolates were stored on an ad hoc basis, as dictated by the Infection Control Doctor or the laboratory staff. All isolates received at the reference laboratory for sequencing had been stored at -80°C.

44. The microbiology department now has a dashboard which displays data for Potable Water, Environmental and Reference Laboratory samples. There is a link to a scan for these via the lab number so that any typing results can be accessed from a centralised database.

45. During an outbreak, the response of an infection control team is precautionary. Hypothesis are generated and tested to attempt to identify the source or sources of the outbreak. It is not possible to await the outcome of any investigations before putting in place interventions that may or may not have an effect on any transmission events. It is usual for an Infection Control team to advise that a number of mitigations and interventions should be put into place as a matter of urgency. I do not believe that these measures were put in place solely to address public confidence. They were put in place to ensure patient safety was not compromised whilst the source of the infections was being sought.

46. In light of the evidence from the sequencing work we have done, I do not agree with the conclusion of the Case Note Review that the vast majority of cases were either possibly or probably linked to the hospital environment. On the balance of probability, the sequencing evidence, in my opinion does not support this conclusion. In all the sequencing we did in the three major organisms, *Stenotrophomonas maltophilia*, *Cupriaviadus* and *Enterobacter* species we found no evidence of direct transmission from the hospital environment to patients, except for one case in 2016 which we cannot exclude as there were no contemporaneous environmental samples to allow for a direct comparison. We cannot exclude the possibility using samples taken in 2018 that the case in 2016 could have transferred from the environment at that time.

47. I did have input providing the initial *Enterobacter* WGS results to the Case Note Review and responded to a draft of the Case Note Review regarding Microbiology Laboratory process.

48. On seeing a mixed culture it is important to have as much information about the patient and how the sample was taken to interpret the result. I would want to know if the patient was colonised with organisms (e.g. MRSA, *Candida* species), how was the sample taken (through a line, skin puncture etc.), the experience of the operator, what organisms have been isolated (e.g. are they normal skin flora showing the possibility that the sample has been poorly taken and contaminated, or if through a line whether there is contamination either through the catheter hub, or if organisms resident on the line had been sheared off by taking the sample through the line), what is the clinical diagnosis and what are the patient risk factors for an infection. Analysis of blood culture results from the QEUH and RHC over a six year period 2015 to 2020 shows that 17% of blood cultures have two or more organisms identified. I do not consider multiple bacteria in one blood culture sample as being unusual.

49. More than one species or strain of bacteria within a sample does not exclude a common source of infection but I would expect that if a common source was present the same combination of species should repeat on a regular basis, or a single common species or strain should be more prevalent within samples that have mixed cultures.

50. I am no longer an active member of the Infection Control Team at QEUH.

51. To demonstrate if there were an above normal number of bacteraemias within the Paediatric haemato-oncology unit in RHC would require a comparison of bacteraemia numbers and patient activity over a specified time period, with appropriate statistical analysis to determine whether there is any true increase beyond chance. This was done by HPS in their “Review of NHSGGC&C paediatric haemato-oncology data, Oct 2019” which reviewed and compared Gram-negative, environmental, enteric and Gram-positive infections during 2015-2019 from Scottish units in RHC, Royal Aberdeen Childrens Hospital, and Royal Hospital for Sick Children (Lothian) and concluded that there was

no increase in RHC in all Gram-negative and environmental organisms over this time period compared to the other two Scottish units. RHC did have statistically lower rates of Gram-positive infections. When looked at over discrete time periods, 2017-2019 and 2018-2019, there was no statistically increased rates of infection with environmental organisms in RHC compared to the other two Scottish units during those time periods.

52. As to whether there were more bloodstream infections than normal or more unusual bloodstream infections, I have not seen the data nor carried out any analysis to answer the questions. Others may be better placed to answer these questions. In order to answer these questions, an analysis would need to compare historical data from Yorkhill Childrens hospital prior to 2015 with RHC data post 2015. The analysis would need to look at activity, bed occupancy and the balance between inpatient and outpatient care within the Units. Another factor to consider would be the changes in diagnostic testing such as the introduction of the MALDI-TOF in around 2012/2013 which increased the number of named species that the diagnostic laboratory could identify. Previous to MALDI-TOF environmental organisms would have been described as “oxidase positive Gram-negatives” and would not have been speciated.

53. I am not aware that the Case Note Review asked for data from other Scottish or UK units to perform a comparative exercise.

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.

Scottish Hospitals Inquiry
Witness Statement of Questions and Responses
Jennifer Armstrong

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 introduction, questions and answers are produced within the statement.

Personal Details

1. Name, qualifications, chronological professional history, specialism etc – please provide an up-to-date CV to assist with answering this question.

A I have attached a word document with an updated career summary which addresses the questions above. This is attached in the reference document which accompanies this questionnaire (Please see Appendix D).

Professional Background

2. Professional roles within academia.

A I have no formal professional roles within academia. However, within my Medical Director job, I have 2 roles which are linked to academia. These are the lead director for under and post graduate medical and dental education and the lead director for Research and Innovation for NHS GGC. I have highlighted and described these roles in detail on the updated document provided for question 1.

3. Professional Roles within the NHS.

A I have set out all professional roles in the career summary document in chronological order from qualification in 1988 to the present day in 2024. I have worked in public sector for over 36 years; this comprises 31 years in the NHS with 5 years as a senior medical officer in the Scottish Government.

4. Professional roles including dates when roles occupied.

A I have set this out in the career summary document in section A.

5. Professional roles within NHS GGC.

A I have set these out in section A.

6. Professional roles within QEUH/RHC.

A I do not have a professional role specifically within the QEUH/RHC. My job spans across the whole of GGC from acute services to mental health and primary care. GGC is one of the largest healthcare organisations in the UK and as Board Medical Director, I have a cross system post which spans the whole organisation.

7. Roles and responsibilities within the above areas.

A I have set out in the career summary in section A, my current and previous roles and responsibilities for NHS GGC.

8. If had more than one job, how was work split?

A I do not have more than one job.

9. How many hours a week did you spend in your role at QEUH/RHC?

A This is not applicable given my answers above.

10. Who did you report to?

A I have always directly reported to the Chief Executive of NHS GGC: from 2012-2017 this was Robert Calderwood and from 2017 to present day, this is Jane Grant. I am part of the board executive team for GGC.

11. Who reported to you?

A I refer to the current structure diagram for the Board Medical Director as I have both direct reports (hard line) and professional reports (dotted line). This is set out in the career summary in section A.

12. Describe an average working day in your role.

A I have certain fixed points which involve meetings and other activities to fulfil the responsibilities of my role both internally and externally to GGC. However, there is a very wide range of other activities in which I am involved, given the breadth and depth of my role right across the organisation.

13. Which of your colleagues did you work with most closely on a daily basis?

A The executive team based in JB Russell House at Gartnavel Hospital (the Board Headquarters), the Board medical directorate team and senior clinical leaders across GGC.

14. Refer to Estates Team bundle, document 29 – Organograms showing the organisational structure within the QEUH.

a) Does the organogram match the organisational structures of the QEUH?

A The bundle I have reviewed sets out the acute sector organisational structure which, in 2015, comprised 6 divisions. The acute sector was led by the Chief Operating Officer (COO), who was part of the Corporate Management Team (CMT) and reported directly to the Board Chief Executive (BCE). I note that estates and facilities are also included but, as the diagram indicates, the Director of Estates now reports to the Board Chief Executive.

b) If not, why not?

A The chart is mainly setting out the divisional structure of acute. However, the organisational structures at the QEUH included both site-based management teams as well as cross system management teams. This has been described in GGC's submission to RFI 5 which includes a high-level organogram showing acute, partnerships and directors, and detailed organograms for specific areas which do indicate sectoral working.

c) How does the structure and hierarchy operate across the different sectors?

A For the QEUH/ /RHC, there are 2 main teams highlighted in the diagram: this is the South Sector team and Women and Childrens team who managed the QEUH and RHC respectively. Both these teams also managed other services across GGC. However, there are other teams, set out in the diagram, who managed services across GGC and at the QEUH/RHC. This would include Diagnostics and Regional services. For example, adult haemato-oncology services in ward 4B are based at the QEUH but linked managerially to the Regional Directorate.

SMT (pre 2015) (questions 15 – 32)

Infection Prevention & Control (IPC) Senior Management Team (SMT)

There are a number of teams to which this could refer. However, I am interpreting the question as the Senior Infection and Prevention Control Team IPC SMT). Pre 2015, this team was led by the Infection Control Manager (ICM), Tom Walsh and his direct reports including the Lead Infection Control Doctor (LICD), Professor Craig Williams, and the Associate Nurse Director for Infection Prevention and Control Sandra MacNamee (Devine).

The IPC SMT led and coordinated the IPC sector based teams and the surveillance team. The structure is designed to ensure a consistent approach is taken across all sites and services and to ensure national/local guidance is followed.

The sector IPC teams are based on all main sites in GGC and each team had responsibility for a geographical area. A separate IPC team provides a service to mental health inpatient areas and health and social care partnerships. Each team comprised an Infection Control Doctor (ICD) and Infection Prevention & Control nurses (ICNs). A separate surveillance team (nurses and data managers) lead on the monitoring and prevention of surgical site infections and monitoring of all Healthcare Associated Infection referred to or identified by the IPC team. The SMT was made up of these teams and chaired by Infection Control Manager, Tom Walsh.

Tom Walsh reported to me. I met with Professor Williams, Tom Walsh and Sandra Devine to discuss infection related matters, either formally through board committees, or informally, through catch ups/phone calls etc.

However, I was not a member of the SMT and I did not attend the meetings. I therefore would suggest that questions 15-32 maybe better addressed by Tom Walsh.

AICC (pre 2015) (questions 33 to 44)

This refers to the Acute Infection Control Committee (AICC). I understand that the inquiry has AICC minutes and papers. I was not a member of this group, nor did I attend the meetings. This committee reported to the Board Infection Control Committee, which I chaired. I note the AICC chair was Dr David Stewart, deputy medical director of acute services with Tom Walsh deputising. The LICD and the AND were members at this time.

I am not a member of the AICC and I did not attend the meetings. It may be more appropriate if the questions in section D from questions 33 to 44 are addressed by either the chair of the committee or members of the SMT who attended to the Acute Infection Control Committee (AICC) on a regular basis.

BICC (pre-2015)

45. What is the BICC?

A The Board Infection Control Committee (BICC) is a standing committee within NHS GGC, with a range of multi-disciplinary members, with specific areas of expertise within infection control, pharmacy, Board nurse director, senior medical clinicians, public health experts, estates, health and safety and both public and trade union representatives. I was the HAI executive lead for GGC from April 2012 to January 2020. One of the responsibilities of this post was to chair the BICC. I rarely missed a meeting and organised any annual leave to ensure I was able to chair the meeting. There were rare events whereby a deputy stepped in for me.

46. What was the purpose of the BICC?

A The committee's Terms of Reference (TOR, updated from March 2017) are included in the Governance and Quality Assurance Framework for Infection Prevention and Control 2019. This was an amalgamation of previous papers and sets out clearly the governance framework within which Infection Control operated in GGC. **(Please see A49401488 – Bundle 27, Volume 8, Page 9)**. The history of the Framework's development up to 2021 was covered in our response to the Oversight Board draft report which the inquiry have under RFI 1 6.

The committee's purpose was to provide a single corporate function for policy approval and strategic monitoring of infection control across GGC; facilitate collaboration between GGC and other agencies; liaise with appropriate committees within GGC; and monitor performance and ensure consistent application of IC policies based on national manual and local Standard Operating Procedures (SOPs). It reports directly to the NHS Board and other board governance sub committees including the board clinical governance group, as well as nonexecutive chaired groups which have changed over the years (quality and performance committee; acute services committee; and care and clinical governance committee).

47. What was escalated to the BICC?

48. Who was in the BICC?

49. How often did the BICC meet

50. What issues were discussed at the BICC?

53. To what extent, if any, were there issues with record-keeping of BICC minutes etc?

A The answers to each of these questions is set out below:

The Public Inquiry have access to minutes and papers of the BICC and these were submitted by GGC in the summer of 2020 prior to the development of formal RFIs with additional minutes and papers for 2020 submitted under RFI 1 2.4 and it sets out clearly that the committee met 6 times per year. It had the support of a secretariat with the agenda, papers and minutes and considered standing items on the agenda which included:

- Healthcare Associated Infection Reporting Template (HAIRT), implementation plan; policies for review and endorsement; educational issues.
- New Build project from late 2014 onwards (at my request).
- Exception reports and updates including the variant Creutzfeldt–Jakob Disease (vCJD) group; Antimicrobial Committee; Acute and Partnership infection control committees and recent outbreaks/incidents.
- Any new business, which was a range of issues from reports to new guidance and action plans on a broad range of issues.
- Update from Public Health Protection Unit.

Section C (the exception reports) detail the issues escalated to the BICC: Mainly red and amber outbreaks and a whole range of other issues e.g. antimicrobial reports. There are clear lines of reporting from ‘bed to board’ and these are set out in appendix 1 of the accountability framework. The HAIRT is a Scottish government template which is in use for all boards across NHS Scotland. This was made up of reports from across the board area.

54. What if any input did the BICC have in the specification of the QEUH/RHC before handover in January 2015?

A From the time I started chairing the BICC in 2012, The BICC had no input to the specification of the QEUH/RHC before handover in January 2015. However, it did have a role in *seeking assurances* from the project team about the specification, and I have detailed this role below in chronological order:

BICC seeking assurances from the project director and team:

There was some discussion about the new hospital which started in July 2014 at the BICC. This spanned over 3 meetings and included meetings between the Infection Control Team (ICT) and the project team as well as subsequent emails including general management and others. Discussion of the new hospital is set out in the paragraph below:

28/07/2014: BICC (28th July 2014)

In relation to the new hospital, Dr Armstrong asked if infection control were involved in the commissioning group. Tom Walsh confirmed that Fiona McCluskey is liaising with Sandra on this and Sandra advised that she has nurses sitting on the groups that they have been asked to be involved in. Rosslyn Crockett (then Board Nurse Director) asked Tom and Sandra to ensure that they are part of the commissioning group. Dr Armstrong asked for an update to be provided at the next BICC and for this to be an agenda item at future meetings. Tom asked what the procedure is for migration of departments and was informed that Grant Archibald (then chief operating officer) is the chair of the on the move programme board and David Loudon is in charge if the commissioning group. Tom agreed to email David Loudon.

29/07/2014

Tom Walsh emailed David Loudon, Project Director and Director of Estates for GGC on 29th of July 2014 offering further support and saying BICC were keen that Infection Prevention and Control Team (IPCT) are appropriately involved in the on-going and future commissioning of the new facilities and offered support.

David Loudon responded on 30th July noting good engagement with the project team and IPCT and to ensure that IPCT were aware of any future or emerging issues, Fiona McCluskey (Consultant IC nurse with the project team) has asked all project team members to alert her to any infection issues, which she would pass to Sandra Devine. He also noted that IPCT was consulted during the design stage. **(Please see A49401487 – Bundle 27, Volume 8, Page 37)**.

06/10/2014: BICC – Senior Nurse Advisor

There were subsequent discussions on 6/10/14 at the BICC, when the Senior Nurse Advisor for the project attended the meeting. She provided a detailed overview along with

a paper setting out who had been involved and in what capacity from Infection Control in the design and at all the stages of work. **(Please see A49401486 – Bundle 27, Volume 8, Page 39)**. There were technical questions from both Professor Williams about ventilation/multi-drug resistant TB (MDRTB) regulations and transplant patients and from the Dr Andrew Seaton, a consultant in infectious diseases, concerning the relocation of the adult unit. Fiona McCluskey agreed to contact Brookfield and get back to ICT.

01/12/2014

At the subsequent BICC meeting on 1/12/14, the Professor Williams reported that he has not heard back regarding issue with transplant patients, and if a contingency plan was in place for MDRTB patients and the emergency flow of paediatric patients. I suggested a formal letter to David Louden asking for an update on these issues and Professor Williams agreed to do this. I also stated that all these issues should be addressed prior to opening.

22/12/2014 – 14/01/2015

There were then a series of emails including the Professor Williams, David Loudon, Wallace Whittle, Currie Brown as well as others, which sets out the position and their opinion that this has been designed to the standards. However, there are further queries from the Professor Williams on the guidance and David Loudon suggests a meeting, which I asked Professor Williams to attend. **(Please see A49401485 – Bundle 27, Volume 8, Page 43)**.

27/01/2015 – 09/02/2015

There are a series of emails from clinicians, managers and Professor Williams seeking clarity from David Loudon. On the 5/02/15, there is an email from Professor Williams together with annotation from David Loudon to Jamie Redfern, General Manager, Paediatrics (later Director for Women and Children), concerning both the MDRTB rooms and the Bone Marrow Transplant (BMT) rooms in paediatrics. The conclusion is that lobbied rooms can be used for MDRTB and the BMT rooms are a similar specification to the rooms in Yorkhill and could be used. There is finally an email from me seeking follow up. **(Please see A49401484 – Bundle 27, Volume 8, Page 47)**.The inquiry has, under RFI 7 2.24, the SBAR dated 26.4.2016 which summarises multiple emails concerning the Infectious Diseases Unit (IDU) including the view of the LICD late January/early February 2015 that the lobbied rooms were acceptable for MDRTB and other infections of high consequence.

29/01/2015

There is an email from me to the Chief Executive, Robert Calderwood outlining issues with rooms and indicating awaiting further guidance from David Loudon. **(Please see A49401483 – Bundle 27, Volume 8, Page 50).**

55. What, if any input did the BICC have into changes in the contract for the QEUH/RHC handover in January 2015?

A The BICC did not have any input into changes in the contract, nor did it have any input into the specification of the new hospital.

I will describe below the only area of involvement I had, which led to an additional service, the adult Bone Marrow Transplant (BMT) Unit, being added to the QEUH in 2013. My role was to assess the clinical case and present to a subcommittee of the board to gain funding. I was not involved in the specification or contract variation for the unit thereafter.

I put forward the proposal to the Quality and Performance (Q&P) committee in July 2013, along with the Chief Operating Officer, Jane Grant (JG), to ask the committee to approve the transfer of the Bone Marrow Transplant Unit at the Beatson Oncology Centre (BOC),

together with haemato-oncology beds at the Southern General Hospital, to the new hospital at an additional cost of £840,000. This had been put through the Board's change process and costed with the project team. The clinical team expressed the view that the services should be co-located with an on-site Intensive Therapy Unit (ITU), which would enable future proofing of services.

This was agreed by the Q&P committee, with an action for the project director to progress. The design and planning of the unit was taken forward by the project team with input from the LICD and external expert advice. The Q&P approval and BMTU design were covered in a timeline submitted under RFI 1 6 and referenced in later timelines submitted under RFI 7.
I did not have any input into this and did not see the specification or the plans for the unit.

Summary of Section E

- The BICC had a clear role and remit, and the governance document sets this out together with terms of reference and membership.

- I, along with the Chief Operating Officer, put forward a proposal in July 2013 to move the Adult BMT unit at the BOC along with the Southern General Hospital haemato-oncology beds to the new hospital. This had clinical support and had been through the Board's change process. The Q&P Committee agreed the proposal and the funding of £840K. Thereafter, the project team, with input from LICD and other experts, took forward the planning and specification of the unit and the contract change.

- I had asked for assurance and ensured that the new build was put formally on the agenda for BICC from July 2014 onwards. The BICC received assurances from the project team that there had been and was ongoing involvement of IC in the design and commissioning stage.

- Between October and December 2014, Professor Williams raised issues with the project team regarding BMT rooms and rooms for patients with infectious diseases. This led to a

formal email to David Loudon, Project Director seeking assurances. He, in turn, asked the contractors. Professor Williams looked for further guidance and assurance as well as sought advice from Health Facilities Scotland (HFS).

- I have **no** expertise in the areas of ventilation, nor the questions being posed regarding BMT and Infectious Diseases. However, I sought to ensure that the project team director engage directly with members of the IPCT as well as senior managers and clinicians to resolve the questions in advance of the hospital opening. Professor Williams along with David Loudon provided assurance to the BICC, me and others that these areas had been resolved in February of 2015. The outcome was the rooms were safe to use with some further work on reviewing specification of BMT.

Involvement in specification of the new hospital prior to January 2015

I cannot answer any of the questions in this section as I was not involved in the specification of the new hospital prior to January 2015. These questions would be best answered by the project director of the QEUH or the team.

In terms of the questions 56 - 79:

A I can summarise that I was not involved in the specification, nor consulted, nor offered advice in the specification for the new hospital. I did not give information or advice on the various NHS guidance, I had no access to plans, manuals or designs. I did not have knowledge, give advice, or receive documentation on the specification and design of the ventilation or water systems, and I did not discuss any of this subject matter with the project team.

I was not involved in and nor do I have any specialist expertise in design, specification and planning for the ventilation or water system for the new hospital. I have not seen any plans, manuals and specification for any of the rooms in the new hospital. I have described the events of late 2014 which involved seeking to address issues raised at the BICC under the previous section.

For questions 80 - 90:

A I know that there are NHS guidance notes (Scottish Health Technology memorandum), but I am not familiar with them and don't have an in depth knowledge of this area. It is only in recent times, I have become aware of these notes and derogations. I am not sure what the impact of non-compliance is and I am not sure which are mandatory or voluntary. I was not involved with the specification of the new QEUH/RHC and did not take part in the clinical output specification and I am not familiar with the RDD.

For questions 91 - 134:

A I had no involvement in the commissioning or validation of the new hospital and this was led by the project team. I don't recall receiving, and I did not ask for, any information from them concerning the outcome of the commissioning and validation.

I do not have specialist expertise or knowledge to be able to address issues regarding the **questions 103 - 113**. I did visit the hospital prior to opening, but I don't have any expertise in reviewing ventilation or HEPA filters and I did not discuss these with any colleagues or any external partners. I did not liaise with the project team over ventilation or water. None of these areas were within my remit or role.

I have described the information sought in **question 54** by the BICC and LICD from the project director and in **question 55**, the request to include the adult BMT Unit and haemato-oncology beds in the new hospital. I understand there was external advice sought but I passed this to the project team to enact. I can't recall a meeting in the RHC in 2013, and I don't know who made the decision on the RHC rooms specification.

For questions 114 - 116, and 126: I have detailed the BICC involvement on gaining assurance from the project director on both BMT and ID facilities in answer to question 54.

Summary of Section F

- I had no expertise nor involvement in the specification of the new hospital prior to January 2015. I joined the board in 2012 after the design and planning stages of the project.

- I have set out in answer to the questions 54 and 55, my only involvement prior to 2015.

Risk assessment at Occupation.

In relation to questions 135 to 139:

A I have no knowledge nor involvement of the risk assessment at the QEUH/RHC and I have not seen any documentation in relation to risk assessment.

140: DMA Canyon Reports

a) Have you seen these reports before?

A I have seen them briefly and, as I am not an expert nor is this my area of responsibility, I have not read them in detail.

b) Was this the DMA Canyon 2015 report (document 29)

A I note document 29 is the DMA Canyon report though I am not familiar with it.

c) In her statement, Dr Inkster has advised the Inquiry that you called her when you were told HFS had found the DMA risk assessment reports, and that you were' *really worried about patient safety implications'* When did you first become aware of this report?

A I first became aware in or around late June/early July 2018.

d) Who made you aware of this report?

A The Chief Executive called me into her office and showed me a hard copy of these reports and drew my attention to some of the issues highlighted.

e) What actions did you take upon becoming aware of this report?

A As the reports were highly technical, I was keen that they were shared with Dr Inkster who had been managing water incidents and for her to make an assessment of them. I can't recall the phone call with Dr Inkster. I did not have a copy of the 2 reports, and I asked Tom Walsh, who did have access to them, to share immediately with Dr Inkster. **(Please see A49401482 – Bundle 27, Volume 8, Page 56)**.

In addition, there is also an email with a briefing note and presentation which was given at a board seminar on 3/7/18. This sets out the 2 reports and describes how the Board will take forward an internal review, and support an external review, of the water systems at the request of Scottish Government (SG). This was to be led by the Chief Operating Officer with support from the Infection Control Manager. A Water Systems Review SBAR dated 8.8.2018 was submitted to the SHI under RFI 7 2.24; **(see also A49401481 – Bundle 27, Volume 8, Page 61 and Bundle 13, page 921)**

For questions 140 f) to r): (p is answered below)

A I cannot answer these questions as these were estates reports and I don't have the knowledge or expertise to address these questions. Following the discovery of these reports, the Chief Executive ensured that all the actions were completed along with the new Director of Estates. I do not know why Infection control only advised in 2018.

For questions 141 and 142:

A These questions maybe better addressed by estates colleagues.

p) What was the impact, if any, of the failure to implement in 2015 recommendations on patient safety or bring its conclusions to the attention of the IPC team within the hospital?

A. I cannot comment on the technical issues within the DMA Canyon report and how this impacted on the management of the water supply within the QEUH/RHC as this is perhaps best addressed by estates and infection control colleagues. The Board's internal investigations suggested that there was no clear link between the hospital, including its water supply and the environment with the exception of 2 individual cases in 2016 and 2019. The Board has also commissioned external reports to consider this matter. Ultimately my understanding of the available evidence is that there is no increased risk of infection over and above that of other comparable hospitals.

Summary of Section G

I was not involved in the risk assessment prior to or at occupation. I became aware of the DMA Canyon report in summer of 2018 when the chief executive asked me to review them in her office. I asked Tom Walsh to send the reports urgently to Dr Teresa Inkster, the LICD to determine if there were any implications. I presented a briefing note and presentation to board members in July 2018 about the reports. The COO led the review of the water issues to send a full report to SG.

The available reports, including in relation to epidemiology, review of evidence and WGS do not indicate that the environment at the QEUH/RHC presented any additional risk of infection to patients over and above the normal risk. The summary of evidence presented also highlights more likely causes. I am not an expert in these areas but many of my colleagues who are due to give evidence, are experts in these areas.

Infection Control in General

I have set out in question C (SMT pre 2015), the structure of the SMT and how it related to the different sectoral teams. A detailed organogram covering the IPCT from 2014 to 2022 was submitted under RFI 5 and sets out in detail the structure and the numbers/names of staff who comprised the infection control team. There was a team for the QEUH and one for the RHC with the structure described.

The Assurance and Accountability Framework document 2019 has already been submitted to the inquiry, which sets out how the surveillance and monitoring works from point of care to the board and the various reports which set this out (appendix 1). The response to outbreaks is also set out in appendix 7. All PAG and IMT minutes for the entire QEUH site since April 2015 have been submitted to the inquiry under Section 21 notice 2 [RFI 11], unless previously submitted under RFI 7 2, or within timelines submitted under RFI 1 6 (the timelines covered the 2018 water IMT and 2019 cryptococcus IMT).

Many of the questions relating to the QEUH team specifically, maybe best addressed by Tom Walsh, the infection control manager. **(questions 143-156).**

Many of the specific issues in **questions 157-177** may be best addressed by the LICD/Sandra Devine for Infections control. Questions relating to HAI/Risks of infections etc are perhaps best addressed by the IC clinicians.

Water supply in General

This section requests information about the water safety group: I was not a member of this group and did not attend any of their meetings. I note the Board Water Safety Group minutes were submitted to the inquiry under RFI 7 2.13.

Questions 178 - 186:

A I would suggest that Mary-Anne Kane, Interim Director of Estates, or Tom Walsh may be better placed than me to address the questions in this section. The remaining questions from **187-196** may be better addressed by estates colleagues and LICD.

Horne taps and filters (questions 197- 202)

Question 197a) b) and c): Understanding of the use of Horne taps

A I note that I am recorded as being present in the IMT of 19/03/18. I have little recollection of the meeting. I have read the paragraph regarding decontaminated taps and issues about autoclave Horne components. However, I don't recall this. I don't have the expertise and I cannot answer the question **197 a) b) or c)**. This maybe better addressed to the LICD/ICM.

Question 198 a) to g) to 201– Meeting Friday 6/04/2019

A I have reviewed bundle 10, document 1 and it is the minutes of a water review meeting held on Friday 6th of April 2019. I was not at this meeting and have not any specific knowledge of it and I cannot answer the questions set out in 198 to 201.

Question 202 – Point of Use Filters

A I have a basic understanding of Point of Use (POU) Filters only and these questions would be better addressed to LICD and Estates.

The Water Incident

203. What concerns did you have about the water supply at QEUH/RHC?

A I had no concerns about the water supply in QEUH/RHC prior to March 2018. No one had raised any concerns with me concerning the water supply. Water testing and results were raised in October 2017.

204. When did these concerns emerge?

A Date concerns emerged: 01/03/2018.

205. Please provide details of the concerns as they emerged in 2017 into 2018 in respect of water issues?

a) When did the concerns arise?

A **2017:** The concerns raised in 2017 had been about water *testing* and the *receipt of results*, which are set out in the minutes for the 4th of October 2017 (this was the meeting which led to the 27-point action plan). At that meeting, David Loudon advised that GGC were compliant with testing and the estates manager undertook to ensure results were timeously provided. I was not made aware of any positive samples, which would indicate that water supply was an issue.

In addition, a retrospective review of the Microbiology Senior Management Team minutes for 2017 did not suggest any concerns raised there; A retrospective report showed appropriate reactive water testing in relation to infections with no positive results as far as I am aware. A report, "Management of infection control incidents in ward 2A/RHC during 2017' was submitted under RFI 7 5.4." **(Please see A40615542 – Bundle 14, Volume 2 page 75 to 78)**.

2018: On the 1st of March 2018, Dr Inkster emailed me and others to alert us to 'a significant issue' with the water supply in ward 2A. **(Please see A39240389 – Bundle 27, Volume 9, Page 377)**. Due to the weather situation, (beast from the east), it was not possible to hold an IMT and Dr Inkster was updating by email.

b) Nature of the concerns:

A Dr Inkster's email set out there had been cupriavidus isolated from a patient's blood culture in January 2018. There had only been 2 previous isolates before in RHC: 1 in September 2017 and one in February 2016 which was linked by typing to a contaminated water supply in the aseptic unit. The patient responded to treatment. Another case of a patient with pseudomonas was raised in Feb 2018, with an outlet positive, but patient had not been in that room.

c) Possible causes of concerns:

A a number of outlets were tested positive for cupriavidus. The source was unclear and awaiting results from main tanks with swabs from taps which included flow straighteners implicated in incidents elsewhere.

d) What Actions were taken in response to these concerns:

A Control measures were put in place, not using showers, washing patients with bottled water or wipes with hand hygiene using sinks with alcohol gel. It was HIATT red and reported to Health Protection Scotland and a draft statement at present. These actions were the advice of the lead ICD for the Board, Dr Inkster. The IMT minutes of the 2018 water incidents have been provided to the inquiry and were submitted in a timeline under RFI 1 6. I was not present at the IMT on the 02/03/18 nor 09/03/18. There were control measures in place and no new patient cases reported.

206. Refer to IMT Bundle 1, Document 16, page 63 (IMT 12/03/18)

a) What is your recollection of this meeting?

A I cannot specifically recall this meeting: I have identified emails which may provide context.

11/03/18: On evening of Sunday 11/03/18, Dr Inkster emailed me, and she asked me to call the next day. I note an email from Dr Brenda Gibson, the lead clinician for haemato-oncology on Sunday 11th of March highlighting that despite sanitisation to the water supply on ward 2A, bacteria were still present. She suggested an emergency meeting the next day (Monday 12th) and asked that Dr Inkster contact me. Dr Inkster also highlighted the SBAR of the taps to me on 12/03/18. **(Please see A49401480 – Bundle 27, Volume 8, Page 62)**.

b) Dr Gibson raised concerns that the pathogens found from the samples taken were potentially lethal organisms to immune suppressed patients within ward 2A. What was your reaction to this?

A My (and indeed everyone's) focus at the meeting was on the very vulnerable group of young patients and it was really concerning when the pathogens were described. The focus was to do all we could to ensure the safety of patients and that trumped everything. One patient was described as being colonised with steno and no patients giving cause for concern. Dr Gibson expressed concerns which we all shared. The response given by Dr Inkster was that we could deliver a safe source of water and she also confirmed that the patients should not be moved to other wards as the water outlets had not been tested.

The hypothesis at that meeting was that the organisms were being transmitted by human touch and not the water supply.

c) Do you think the action plan from this meeting was adequate?

A The action plan was extensive, with further actions added including all showers put out of use; sterile water for drinking; bottled water for washing and bathing; and wipes for younger patients. In addition, all shower heads were replaced with disposable ones; taps sanitised; 22 mobile hand wash basins to be delivered at 10pm and fitted the following

day. I note I have been minuted as trying to accelerate the showers fitting. The IMT agreed the action plan and no-one suggested further actions.

d) Do you think these significant and very serious concerns were being given the appropriate amount of gravitas?

A The minutes don't convey the gravity with which the senior team was treating this situation. At 7.26am when I read Dr Inkster's email from Sunday evening, I immediately cancelled my meetings and alerted the senior team at the RHC together with the chief officer, Jonathan Best. I set up an early teleconference with Dr Inkster followed by one with the senior divisional team. In addition, Jonathan Best also sets up teleconference for later in the day after IMT which, I believe to be about this topic. **(Please see A49401477 – Bundle 27, Volume 8, Page 67)**. I also went to the RHC for a meeting with the team and then onto the IMT. I can't recall all the details, but there were a lot of discussions about this issue.

The meeting was organised for that day at the request of Dr Brenda Gibson with a multidisciplinary group of experts, all focussed on taking actions at pace. The current actions were designed to prevent children coming into contact with taps/showers and water with actions put in place to resume safe water use. Many preventative actions had already been implemented on Friday evening as soon as the results from the taps were known. At this point, there were no new cases, HPS (Health Protection Scotland) was briefed, and the HIATT was red.

An urgent briefing note was also jointly agreed with Mary Anne Kane/Dr Inkster and sent to me/Jane Grant on the 15/03/2018 setting out all the actions. **(Please see A49401478 – Bundle 27, Volume 8, Page 68 and A49401475 – Bundle 27, Volume 8, Page 69)**.

207. IMT of the 16/03/2018

a) What were the concerns raised at this meeting?

A I remember Dr Inkster phoned me to say that there were three new HAIs in the haemato-oncology patients. I immediately went to RHC and attended the IMT for 16/03/2018 as this was a concern. I don't specifically recall this meeting, but I note the minutes and the discussion as set out.

b) What discussions took place relating to the source of infection?

A I cannot specifically recall this meeting and I can only note what is set out in the IMT minutes. I do, however, note that HPS are in attendance and Health Facilities Scotland (HFS) were asked for advice.

c) Did the increase cases cause concern?

A As I have set out in a), I recall being concerned when Dr Inkster phoned me and heading straight over to the RHC to attend the IMT.

d) What concerns did you have following the meeting?

A I was **not** content to leave this over the weekend and I felt we needed urgent advice from external agencies to determine if there were any advice/actions we needed to take to ensure we did all we could for our patients.

e) What actions did you take?

A I set up urgent teleconferences over the weekend (17/03/18 and 18/03/18) as I was keen that we get urgent advice from NHS England, Health Facilities Scotland (HFS) and HPS. The Chief Executive, Jane Grant, joined, along with GGC team of LICD, General Manager and Public Health team, together with external experts. There was a further teleconference on Saturday at 4pm with NHS GGC, HPS, HFS, and Public Health England (PHE). There are notes highlighting what the group agreed. On the Sunday, Point of Use (POU) filters were discussed and recognised as an effective mechanism for preventing passage of bacteria, and the need to ensure proper fitting. It was emphasised this was a short-term measure. There was also discussion on longer term measures. There was a further teleconference with PHE, HFS, HPS and GGC setting out measures as well as communication. These are in the 'water incident' narrative submitted under RFI 6. **(Please see Bundle 14, Volume 1, Page 105 and Bundle 5 page 116).**

f) Action plan from meeting notes you are going to speak to Jane Grant to see if a proactive press statement should be actioned. What happened?

A It was agreed that we should issue a proactive press release given the public interest in this issue. This was agreed with Dr Inkster, the chair of IMT and a full statement was proactively issued by GGC later that evening to all media and this is included within the 'water incident' narrative submitted to the inquiry under RFI 6, and submitted under RFI 1 22.6

208. Bundle 1, Document 18, page 70, IMT 19/03/18

a) What measures were being taken to manage the situation?

A I cannot specifically recall this meeting, but I note that I was there, so would refer to the IMT minutes, wherein I note reference to the weekend calls. There was a focus on ensuring measures were implemented at pace e.g. extra staff to ensure installation of POU filters. The details of all the measures are set out in the minutes with the full support of HPS/HFS. The hypothesis at this stage was perhaps a batch of contaminated domestic product to explain how ward 4B had cupriavidus in the water.

b) What was your involvement?

A The response was being overseen and led by the lead ICD with advice from HPS/HFS and the IMT. I was keen to ensure board support for all actions and was there to support the LICD.

c) What information were patients/parents given regarding this situation?

A For patient information, this is set out in the 'water incident' narrative submitted to the inquiry under RFI 6 which contains family and staff briefings with narrative context. This was led by the LICD/Directorate management team, and they may be better placed to answer this question.

d) What information were staff given regarding the situation with water?

A This information has been submitted to the inquiry under 'water incident' narrative under RFI 1 6. This was led by directorate team and Jamie Redfern/Jennifer Rodgers maybe better placed to address this question.

e) Who was responsible for overseeing the response?

A IMT guidance sets out the roles and responsibilities, and the IMT has an independent role to ensure effective response. The chair of the IMT leads the response. To co-ordinate the requirements of resources, then the directorate team, in conjunction with the acute SMT, will oversee and co-ordinate the response. The Executive team will be kept appraised or may support with significant issues/decisions as well as ensure board kept updated.

f) What is your view of the control measures put in place?

A The POU filters were confirmed, and quality checked in many areas throughout the RHC/QEUH on morning of 22/03/18. Further specialist advice was sought from Suzanne Lee, an expert in water recommended by Dr Inkster. HPS/HFS were asked to join the response before formal escalation took place on 19/03/2018. There was a range of control measures which were already in place. Please see **A49259264 – Bundle 27, Volume 9, Page 401** and **A40562758 - Bundle 14, Volume 2, Page 105.**

209. In the IMT of the 4th of June 2018, Jamie Redfern advises that a weekly report of actions and investigations is being issued to you. What did these reports contain? Did you follow them up for further information?

A There is a note of a conference call on 24/05/2018 and a draft action plan. I was keen to ensure all possible actions were taken to ensure patient safety. My recollection is that I asked to meet with the team to ensure we were clear on key actions and progress. I also included the COO, Jonathan Best. There is an action plan which sets out a series of 10 actions with responsible people named. (**Please see A49401474 - Bundle 27, Volume 8, Page 73; A32249275 – Bundle 13, Page 379; A49401472 – Bundle 27, Volume 8, Page 83; and A49401471 – Bundle 27, Volume 8, Page 84).** From my recollection, the agreement was for a weekly report with a weekly teleconference to follow up which I did. Events were overtaken as can be seen on 4/06/2018 meeting.

210. What is your understanding of how the rest of the water incident unfolded?

A I have taken this question to mean the 2 incidents from 1/03/2018 to 27/03/2018 then the second one from 04/06/2018.

March 2018: The incident started on the 01/03/2018 to the last IMT held on 27/03/2018. The IMT was stepped down and a separate group was set up with IPCT, facilities, HPS and HFS to investigate filters; new taps and chlorine dioxide, to ensure a long-term response was in place. There was a full report in April 2018 which has been submitted in the water timeline submitted under RFI 1 6.

May 2018: There had been a series of PAGs in May 2018 reviewing some infections which were not thought to be related to water. The May 2018 PAG minutes which consider a possible link to drains are included within the RFI 1 6 water timeline. In the HOIRT 20th May 2018, it is noted that there was to be a review of antibiotic prescribing, specifically meropenom but this does not appear to have been completed. Please see **A36412022 – Bundle 27, Volume 9, Page 402**.

June 2018: The second part of this incident started on the 04/06/2018 at the request of the Dr Gibson and the consultants: Jamie Redfern's email sets out the actions which were advised by the IMT and HPS were also in attendance. There were 8 further IMTs and all have been submitted to the inquiry in the water timeline under RFI 1 6. The focus was more on the general environment and drains. Admissions were initially restricted to the ward then re-opened fully on 21/06/2018. Triggers were agreed and if no new cases for 6 weeks, normal triggers would be resumed. HPS were updating SG daily and the first teleconference between senior staff in GGC, HPS and senior SG officials took place on the 15/06/18 and they were appraised of all the information. This is included in the water incident narrative under RFI 6. The IMTs were stepped down in 21/06/2018 with the ward opened to admissions. (Please see **A38662372 - Bundle 27 Volume 9, Document 18, page 405)**.

211. Was this incident resolved successfully? Explain your answer.

A At the time, it was felt the incident had been resolved. The POU filters essentially ensured patients were protected, and there was a long-term plan in place for the water supply. Patients were back being treated by staff in the appropriate environment albeit with infection control restrictions. We had engaged with SG, HPS, external experts, patients, parents, staff and the media. In the external review by Drs Montgomery and Fraser, they commented that the organisation had performed well. In the teleconference with SG/HPS and GGC, SG officials commented that they were reassured and did not identify any further actions GGC should take. Please see documents for question 210.

212. Refer to IMT Bundle 1, document 35, page 149, (5/09/18)

a) What were the issues with the drains?

A I have reviewed the minutes and the action plan. These areas are not within my remit nor my expertise to answer and I would suggest either LICD or senior estates colleagues maybe better placed to address these questions.

b) Refer to Action Plan at page 153 – what actions were taken to remedy these issues? Were the issues resolved?

A These areas are not within my remit nor my expertise to answer and I would suggest either LICD or senior estates colleagues maybe better placed to address these questions.

213. The inquiry is aware that chemical dosing of the drain alongside the water system was instigated. Please explain how that process came about and, in your view, whether it was/is effective:

A I don’t have the technical expertise to answer this nor was it within my remit. Either the LICD or a senior estates expert maybe better placed to answer this question.

Summary of section K

There was a full and focused response to the first phase in March 2018 with both immediate short- and long-term actions agreed. Support and advice were sought from across the UK. Reporting to both external agencies and internal GGC governance. There was a range of hypotheses, which were put forward by the LICD and IMT. The Point of Use filters were fitted at pace on 22/03/2018. This was an effective measure to prevent bacteria coming into contact with children and enabled long term solutions to be pursued.

In April/May 2018 there were PAGs set up to explore some infections in ward 2A. These were reported to HPS. There were some areas which were raised, but not concluded e.g. meropenom prescribing. However, the focus moved to drains as the POU filters had been fitted.

In June 2018, the clinical team were concerned and further IMTs were held with full involvement with HPS/HFS and teleconferences started with senior officials at the SG and GGC. The issues of drains were raised and became the main hypothesis.
The safety of patients was paramount with a full range of investigations and actions with the sole purpose of protecting vulnerable patients. There was a proactive press release and continuous reporting both internally to the Board and externally to SG through proactive teleconferences and a whole range of other reporting routes. The RFI 1 -6 water timeline submitted to the inquiry covers the reporting of the incident as does the ‘water incident’ RFI 6 narrative

Other Water Incidents

214. What other specific events to you recall in relation to water? Do you have any recollection of debris in the water tanks? Refer to IMT Bundle, document 45 as starting point:

A I note that this relates to document 45 which is a minute of an IMT on the 5/10/18. I cannot answer the questions set out and, as far as I can recollect, I was not aware of debris in the tanks. These questions are better addressed by LICD or estates colleagues who were present at the meeting and who were tasked with taking these actions.

215. What are the NHS procedures for raising concerns about water or water infections?

a) How were these dealt with by you?

A I have set out in other questions the governance around Infection Control and the reporting from 'bed to board' under section E, as well as the 27-point action plan in section DD and detailed in this section and other sections about how concerns were dealt with.

b) How is it confirmed they are dealt with?

A Please refer to the Infection Control governance structure of the board with the various reporting levels through the board to HPS and SG with requirements to review the national manual and ensure compliance and formally report on all incidents to ensure they are appropriately managed. In addition, other measures such as whistleblowing policy set out how these concerns are addressed.

c) Do you recall specific incidents and in particular any that gave you concern?

A I would refer to the answers given in section K, section S, section W and section DD.

The Ventilation System (questions 216-229)

I do not have the specialist expertise to answer these questions and indeed, these matters mainly relate to estates colleagues, the project team or those with specialist infection control expertise. As I noted before, I was not involved in the design, building, commissioning or maintenance of these systems. I do not have responsibility for these matters.

Wards and Hospital Occupation from January 2015 (230-237)

These questions maybe best addressed by the project team or those from external contractors. I do not have the knowledge; expertise nor was I responsible for this area.

March 2015 – 2A/B (238-247) and P

238. In March 2015 – in her evidence to the inquiry Dr Brenda Gibson raised concerns regarding the safety of ward 2A prior to patient migration:

a) What was the intended use and purpose of Ward 2A?

A Please refer to answer set out in question 54.

b) Were you aware of the intended use and purpose at the handover of QEUH/RHC in January 2015?

A Please see my full answer set out in question 54.

c) What were the ventilation requirements specific to ward 2A?

A This was not within my remit/expertise to set out the ventilation requirements of 2A and as I have indicated. I was not involved with the specification, planning, construction or commissioning of ward 2A.

239. There were concerns in March 2015 regarding ward 2A/B – refer to Estates team bundle: documents 35 and 37

a) What were the concerns at the time?

A I have read this bundle, and I was not aware of any of these issues, and I don't have the remit, knowledge nor expertise to answers these questions.

b) Why was ward 2A handover accepted by NHS GGC in January 2015 without the HEPA filtration being in place?

A As I have already set out, I was not involved in the handover, or commissioning of this site. I cannot answer this question as it is not within my role or remit.

240. Dr Gibson in her statement refers to HEPA filters not being in place at point of handover in wards 2A/B;

a) Explain your understanding of the situation.

A I was first alerted to this issue on Friday, 5th of June 2015 by Professor Williams. He described that he had initially visited the unit on 29th of May 2015 and had identified work which needed to be addressed. On further inspection, Mary Anne Kane had discovered that HEPA filters had not been fitted. **(Please see A49401464 – Bundle 27, Volume 8, Page 88).**

b) What was the impact of HEPA filters not being installed?

A This would mean that it would be potentially unsafe to move children to the unit and that the unit could not move into the RHC without filters.

c) What was the potential impact on patients of the absence of HEPA filters?

A I am not an expert, so if further details are required, an ICD or clinician may be able to describe the issues better.

d) What was done to resolve any HEPA filter issues?

A In a subsequent email that day, he advised that facilities had sourced filters and Professor Williams asked that adult facilities be double checked. **(Please see A49401521 – Bundle 27, Volume 8, Page 89).** The COO (Grant Archibald) then led the process and the email reports delivery of the filters with validation. He sets this out in an email and was taking this forward. **(Please see A49401523 - Bundle 27, Volume 8, Page 90).**

e) Should HEPA filters have been installed at handover:

A Yes.

f) Who was responsible for providing HEPA filters and ensuring they were installed in the build?

A I am not able to answer the questions regarding the build, handover and commissioning as I was not involved in any of those areas. This is best addressed by the project director/team.

g) Who signed off the handover without HEPA filters being installed?

A As in answer f) above, I don’t know as not involved in this process.

h) Which infection control doctors and nurses were consulted?

A I don’t know as not involved in this process.

i) Why was handover signed off without HEPA filters?

A I don’t know as not involved in this process.

241. What other wards were missing HEPA filters following handover? Please provide details:

A I cannot answer this. It may be best answered by senior estates senior manager or project team colleagues.

242. Describe how the lack of HEPA filtration in ward 2A was managed, what was your responsibility/involvement, what was the outcome?

A Please see answer to question 240d) This sets out that Professor Williams raised the issue, which was escalated to me as well as Grant Archibald. The Chief Operating Officer was responsible for the acute division and took the lead in ensuring that these filters were sourced and delivered.

243. To what extent were you satisfied that the relevant work had been carried out to secure the ward for patients?

A It is not part of my remit to assure the relevant work. This was reviewed and led by the Grant Archibald together with estates colleagues and Professor Williams.

244. Bundle 8, documents 25-31(page 125-133) Please provide a summary of the events discussed in these emails.
Please provide a summary of the events discussed in these emails.

Please include.

a) What was the issue with ward 2A

A **Pre move**: I have set out in question 240, my knowledge on the HEPA filters which were fitted in June 2015.

Post move: the inquiry had shown me a series of emails during July 2015 where there is discussion concerning the particle counts, the ward suitability to carry out transplants and the advice which was being sought from clinical and engineering experts. To the best of my knowledge, I became directly involved in early August 2015 when Sandra Devine forwarded an email to me concerning this issue on 07/08/2015 which I sent to Grant Archibald and David Stewart (attached)

b) Why were the transplants not proceeding?
The email from the ICD sets out that additional advice was being sought from a UK Public Health specialist as well as internal clinical and estates specialists to assess if the rooms could be used for transplantation.

c) What steps were being taken to resolve this?

A As the chief operating officer (COO) is the most senior manager of the acute division, the responsibility for managing the situation lies with the COO and the local senior managers of the unit. However, the process of doing this requires input from experts in infection control, the clinical team and the estates team together with the management team so that a clear position is reached. To this end, Grant Archibald organised a meeting on Monday 10th of August to gather input from multiple disciplines to seek to resolve this.

d) Who was involved in this and what were their roles?

A There is an action plan of the meeting on the 10th of August which was chaired by Grant Archibald. The action notes sets out who attended the meeting and this included me, Executive Medical Director, Dr Gibson, lead clinician for haemato-oncology unit, Dr Hood, consultant in Microbiology, Professor Jones, consultant in Microbiology, David Loudon, Director of Estates and Project Director, Dr Mathers, Chief of medicine Women and Children, Sandra McNamee, Associate Nurse Director Infection control, Peter Moir, estates and project team, Jamie Redfern, General Manager Women and Children, Dr Stewart , Deputy Medical Director and Tom Walsh, Infection Control General Manager.

e) Who was responsible for decision making/managing this situation?

A The Chief Officer was leading the group but was seeking clear advice and an agreed position from the multidisciplinary group. He allocated tasks to the attendees at the meeting and asked that they all be forwarded to him..

I note that I was copied into an email trail on the 24/08/15. This was an email from David Loudon with a response from Grant Archibald. In the 24/08/15 email, Grant Archibald sets out that he wishes David Loudon, as the director of estates, together with Professor Williams, the LICD, to answer questions that he has set out.
(Ref: A49661442 – Bundle 27, Volume 4, Page 327).

245. Refer to Bundle 8, Document 31, page 133

a) Dr Gibson stated that the clinical team has 'lost faith', outcomes have been 'compromised' and that matters are not being addressed with the 'appropriate sense of urgency'; what is your view on this?

A **24/08/2015**: I understood completely Dr Gibson's frustration as there was a child who urgently required a BMT. From the emails and my recall, I became aware of the work to address concerns in ward 2A in early august 2015. I noted that the Chief Operating Officer was handling this issue with urgency along with the Director of Estates and with advice from the LICD. **(Please see**
A49401522 – Bundle 27, Volume 8, Page 92).

- There had been meetings and actions to move this forward as set out in the meeting organised by the chief officer on the 10th of August, 2015.

b) What was the outcome to Dr Gibson's email?

A I received the email dated Friday 4th of Sept 2015 at 5.30pm. I forwarded it to both Grant Archibald and Robert Calderwood, Chief Executive at 6.25pm and indicated that I would speak to Professor Williams later regarding the issues. On Monday the 7th of September, I sent an email at 08.15am seeking a meeting at 4.45pm that day to discuss the issues. **(Please see A49401520 – Bundle 27, Volume 8, Page 94).**

I set out that there had been daily calls to drive this forward suggesting there was a lot of effort to progress this issue. I provided a structured approach to the issue and asked people to prepare information for the meeting so it could be considered. I also forwarded

this to the Robert Calderwood and asked to meet with him that day. **(Please see A49401519 – Bundle 27, Volume 8, Page 95).**

246. Refer to bundle 6, document 4. (this is the minutes of the 7th of September meeting referred to in b) above.

a) Do you recall this meeting?

A Yes.

b) What was the purpose of this meeting?

A I wished to address the issues raised by Dr Gibson and as set out in the notes of the meeting, to 'identify the progress made in resolving the Bone Marrow Transplant (BMT) room, estates issues in RHC and determine position for the paediatric haematology oncology service in being able to start new cases… and the need to plan for patients currently awaiting transplant'.

c) What were the circumstances which led to this meeting?

A It was to address Dr Gibson's concerns highlighted above in b) and to move this forward with all the key facts to get the best outcome for the patient.

d) The minutes state that the sealed rooms are providing the appropriate level of 10 Pa positive pressure. How was that conclusion reached? Do you still agree with this conclusion?

A I don't have the estates nor IC background to answer this question, so I don't know how that conclusion was reached, and I am not an expert in current pressures within the unit.

e) What actions were taken following this meeting?

A **Wednesday 9th of Sept**:
the minute of the meeting sets out clearly the issues and findings from each of the 3 areas: estates, infection control and clinical issues. Jamie Redfern had undertaken to follow up on all the actions to ensure completion and set out a document which brought together the clinical issues, the infection control issues and the estates issues to enable a 3 director sign off. I forwarded the email and minutes to David Loudon and Grant Archibald and copied in Robert Calderwood. **(Please see A49401515 – Bundle 27, Volume 8, Page 101)**.

247 Refer to Bundle 6, Document 5, page 22

a) Do you recall this email?

A I am copied into the email dated 11/09/2015, but I don't specifically remember it.

b) Do you recall speaking to Sandra McNamee regarding the safety of ward 2A?

A I don't specifically recall this conversation.

c) The balance between proceeding with a child's treatment and the safety of the environment is discussed. What is your view on this?

A What is set out are several issues, which needed to be taken into account when considering the options available. The well-being and safety of the patient is paramount. What Sandra Devine is doing is setting out different aspects of the issue which need to be clearly understood before a decision is made.

d) In his email of 11th Sept 2015, Grant Archibald states that the ICT doctors say they have not had a handover from the senior ICT and lack information to inform their decision making regarding the safety of ward 2A. Were ICT doctors provided with all the information required to make an informed decision on this?

A I cannot answer this question and it may be better address by the ICM/LICD as I don't know the facts here. However, what I can say is that we did ask the directorate team with estates, Professor Williams and Dr Gibson to review all the parameters and provide advice to me, Grant Archibald, David Loudon and David Stewart, the deputy Medical Director on this issue, so there was clear advice based on facts. This process is set out in question 248 below.

Summary of 0

A In the answer to question 54, I described the process and issues which were considered by the BICC between November 2014 and February 2015 regarding the BMT rooms in 2A. The advice from the LICD, estates and external contractors was the rooms were appropriate for BMT treatments. This was documented in emails and at the BICC in 2014 and 2015. Further work was to be undertaken by Professor Williams and David Loudon to review other UK units as, I understood, there was no national specification for the design of these facilities.

I was not involved with the design, specification, planning, building or handover of the unit. This was the remit of the project team and contractors.

The HEPA filters were not in place, this was rapidly escalated, and Grant Archibald led the process to ensure they were installed. This was required as the clinical and Infection Control advice was children could not be moved to the unit without the filters in place. This hepafilters were subsequently fitted. To the best of my recall, in early August 2015, I was advised of the situation in ward 2A directly by Sandra Devine. I advised the Chief Operating Officer for acute services. He convened a multi-disciplinary meeting to discuss the issue on the 10/08/2015. This resulted in a series of actions. If there is a need to review the technical details of the document, this could be addressed by others with specific expertise in these areas.

In September 2015, I was directly emailed by Dr Gibson, setting out the need to resolve the estates and infection control issues for the BMT rooms in 2A as there were patients awaiting transplant. I immediately convened a multidisciplinary group to ensure that there was a thorough assessment of all the options. The decision advised that following infection control review and further estates work, that the rooms should be used. This was signed off by clinical, infection control, management and estates colleagues. Thereafter by a 3 way sign off at executive level with the final decision by Robert Calderwood.

Ward 2A – Paediatric BMT – Specifications

248. Dr Mathers states that 'the facilities are at least as good as the RHSC and are believed to be built to a higher spec. They are NOT identical. They are not as high spec as the Beatson Adult System. This does not mean that they are suboptimal standard. What is your interpretation of this? Do you or did you believe that the RHSC was of the necessary standard to treat patients? Please provide an explanation. (Bundle 4, Document 4, page 13)

A **Tuesday 15th of September 2015**: This email from Dr Mathers to Jamie Redfern, copied to me, describes his assessment of the situation. This sets out his conclusion that he would support treatment at the RHC. However, it was important that we receive expert advice which comprises the management team, the infection control advice and the clinical advice. On the 15th of Sept, 2015 I responded to an email from Jamie Redfern and asked him to set out the whole picture with Professor Williams and the treating clinician, Dr Gibson, setting out the pros and cons then a recommendation. **(Please see A49401514 – Bundle 27, Volume 8, Page 102)**.

Therefore, I understood the argument Dr Mathers set out but I thought there required to be a 'whole picture' set out with estates, the clinical team and the management team with a properly constituted paper and the agreed sign off with estates, with the clinical team and the management team before a definitive decision was made.

a) Who was the document shared with?

A I don't know who else Dr Mathers shared it with apart from the people mentioned in the email.

b) What action was taken:

A On the 16th of September, Grant Archibald confirmed Dr Gibson and Professor Williams were in agreement with Dr Mather's conclusions**.** On Thursday 17th of September, there is an email from Me, Grant Archibald, David Loudon and David Stewart setting out the recommendations and signalling our agreement. This was sent to the Chief Executive, who responded that day with *'thank you for the very comprehensive email, setting out all the issues and background to this complex situation. I believe you and colleagues have taken all reasonable steps to review and rectify problems and the decision to proceed with the treatment of this BMT patient is arrived at after due consideration of all the risks and benefits and I agree with your recommendation'*

(Please see A49401516 – Bundle 27, Volume 8, Page 109 and A49401518 – Bundle 27, Volume 8, Page 114).

249. Please refer to Estates Bundle, Document 109
This email details a meeting which took place to discuss Ward 2A BMT isolation rooms. Ian Powrie states that the meeting was arranged at your behest. The email states that the rooms were all built to SHPN 04-01 standard however this design is not suitable for neutropenic patients and the rooms should have been built to SHPN 03-01 standard and this was agreed by clinical representatives at the meeting.

a) Were you aware of this before this meeting?

A I cannot recall this meeting. I am not familiar with the SHPN guidance, and this is not within my remit nor expertise. However, I have provided the SHI with the emails from David Loudon to me concerning a specification for ward 2A which had been set out by Professor Williams prior to his departure and now approved by Dr Inkster in May 2016. I have also provided the email which I forwarded to the directorate team as I was keen that they and the clinical team review the proposal with estates and infection control. For details of the meeting or the specification, it would be better to ask Dr Inkster or David Loudon directly as I don't have expertise to address this. I am not sure if this was the prelude to the meeting referred to in document 109. My recollection as to the origins of this work on specification was that I emailed the chief executive on 30/12/2015 highlighting an email sent by Dr Peters to Dr David Stewart which he had forwarded to me. I set out to the chief executive that I had sought external input into the Ward 4B issues but not the other issues highlighted and was looking for a way to address the concerns. I recall that this led the chief executive (as far as I can remember) to set up a meeting on the 21/01/2016 with members of the GGC project team, external contractors, Infection control, me and the chief officer to review concerns. The Director of Estates developed an action plan following this meeting. I do not have the expertise to address the areas in the action plan and other witnesses may be better placed to do this. I have provided the SHI with the emails on the need to address the concerns highlighted and the action plan which resulted from the meeting on the 21st of January to review concerns.

b) What actions were taken?

A I understand that the funding was approved, and cubicles upgraded but it may be better to ask estates colleagues for further details if required. I have also identified an update from David Loudon to myself and the chief executive setting out the tender for this work which was sent in May 2017 and I have provided this email to the SHI. This perhaps links back to the meeting set out in document 109. If there is a need to review the technical details and implementation, this is perhaps something which Dr Inkster or David Loudon could address.

Ref Documents:

A49661443 - Bundle 27, Volume 8, Page 215
A49661444 – Bundle 27, Volume 8, Page 230
A49661445 – Bundle 27, Volume 8, Page 213
A49661446 – Bundle 27, Volume 8, Page 234
A49661447 - Bundle 27, Volume 8, Page 243
A49661448 - Bundle 27, Volume 8, Page 267
A49661450 - Bundle 27, Volume 8, Page 283
A49661451 - Bundle 27, Volume 8, Page 288
A49661453 - Bundle 27, Volume 8, Page 289
A49661454 - Bundle 27, Volume 8, Page 291
A49661456 - Bundle 27, Volume 8, Page 269
A49661457 - Bundle 27, Volume 8, Page 300
A49661458 - Bundle 27, Volume 8, Page 298
A49661459 - Bundle 27, Volume 8, Page 301

Summary of Section P

A A risk assessment was undertaken for ward 2A by the directorate team and the LICD. This took account of clinical, environmental, infection control and management issues. The advice given was to enable to BMT to take place at the RHC. This was agreed by the senior executive team and chief executive.

I cannot recall the meeting set out in 249 and it is not within my remit nor expertise. For details on the upgrade, estates colleagues may be better able to address the details. However, I have identified emails which may be associated. In May 2016, I have forwarded a proposed tender from David Loudon to the senior management team to ensure clinicians are fully sighted on this and given the opportunity to review this. This

maybe related to the subsequent meeting in September 2016 but I cannot be certain. I have attached 2 further emails from David Loudon which may be related to the meeting and are a summary of the tenders in 2017. In addition, I have set out a summary of events which, as far as I can recall, led to the development of the specification and tenders. This was led by the chief executive and Director of Estates in 2016.

June – July – Ward 4B (250.- 268.)

250. In June 2015 patients migrated to ward 4B – at the point of migration NHS GGC had accepted handover of the ward from Multiplex – save for defects – did you consider the ward to be compliant with guidance and suitable to meet the needs of BMT patients? If so why, if not why?

A I cannot answer this question. As I have outlined in question 54, I did not have the expertise to assess the ward for compliance with guidance and suitability for BMT patients. I was not involved in the design, planning, building, handover or commissioning of the unit and was not an expert in what changes to the specification were required.

251. What was the intended purpose of Ward 4B?

A I was not involved with the specification, planning or design of the original purpose of 4B as this took place before I joined GGC.

252. Did the purpose change prior to January 2015? And if so, what changes were made?

A I have outlined in question 54, the process in 2013 when the Chief Operating Officer, Jane Grant and I put forward a paper to the Quality &Performance committee to secure resource and agreement that the adult BMT service move to the QEUH from its current home in the Beatson, together with the haemato-oncology beds at the Southern General Hospital There was clinical support and clinical reasons for this proposal. It cost circa £840K. The proposal was approved along with the funding. Thereafter, this was passed to the project team to work with the LICD to ensure design, specification and building of this. They then took forward the change for ward 4B with the builder.

253. Were there changes required to the ventilation system prior to January 2015? If so, why?

A I cannot answer this question as this was taken forward by the project team and was/is not part of my remit.

254. What was your involvement in these changes?

A I was not involved in these changes.

255. There were issues with ward 4B almost straight away, with an SBAR being prepared around the 7th of June 2015;

a) Discuss the concerns about ward 4B. Refer to estates document 30- what was the purpose of the SBAR?

A I note the concerns set out in Anne Parker's SBAR, which was sent to me and others on 6th July 2015. It sets out the environmental issues and the need to move high risk patients back to the Beatson Oncology Centre (BOC) and to ensure access to the critical care transfer teams if required. There are several other recommendations which set out the need to remedy the faults to enable the service to move back.

I became aware of this issue on 1st of July 2015 when the Tom Walsh emailed me to alert me that there were several actions being taken at the unit to address high particle counts. On the 3rd of July 2015 a further email from Tom Walsh indicated that the changes were not adequate and he attached an email from Professor Williams. I asked for an update that same evening and Tom Walsh responded to say that the clinical view was that transfer plans should be worked up for the unit to return to the BOC and they would have further discussion on Monday 6th of July 2015 regarding this and all issues are covered in detail in timelines submitted to the inquiry under RFI 7.

I forwarded this immediately to the Robert Calderwood, Chief Executive and the Chief Operating Officer, Grant Archibald, to say this was urgent. I received two BMT briefing documents: one from Gary Jenkins, the Director of Regional Services which is in the main BMTU timeline submitted to the inquiry under RFI 7 (and in Section 21 notice 1/RFI 10) and the SBAR from Anne Parker on the 6th of July 2015.

There was agreement, with the advice of the clinicians and the ICT, to transfer the patients back to the Beatson Oncology Centre on the 8th of July 2015. There is an email from Gary Jenkins, which details this on the 7th of July 2015 for the information for Scottish Ministers, who wished an urgent briefing. It also highlights the work to take forward rectification with the Brookfield, Multiplex, Estates and Facilities and ICT. I forwarded the press release to the CMO. **(Please see A49073362 – Bundle 14, Volume 1, Page 413)**.

b) Less than one month after migration to ward 4B patients were decanted back to the Beatson. Is this correct?

A Yes.

c) The issues raised in the in the SBAR from June 2015 were present at the point of NHS GGC taking occupation in January 2015, and when Ward 4B was handed over to NHS GGC. Is that correct?

A As I have stated before, I was not involved in the occupation or handover and I don't have a detailed knowledge of the estates issues within 4B. This is better addressed by the project team.

256. How was the ward signed off and handover accepted given the issues which arose immediately following handover prior to patient migration?

A I don't know given I was not involved in this process.

257. Refer to Estates team bundle, document 39

A With specific reference to question 257a, b,c,d , estates bundle, document 36, As far as I can recall, I had no awareness or knowledge of this early testing and cannot answer these questions.

258. At the BICC meeting on the 27th of July 2015 Professor Craig Williams states that in respect of ward 4B 'the *unit was not built to the correct specification and Brookfield have agreed to rebuild this area and the timeframe for this is 12 weeks'*

a) Did you agree with Professor Williams statement at the time?

A I can't recall this statement, but I note it is in the minutes. I did pass his paper, setting out what was asked for and what was built, to Robert Calderwood as set out in question 260. However, I can't address what is the correct specification, nor if Brookfield Multiplex agreed to rebuild this area within a timeframe of 12 weeks.

b) Do you agree now?

A I think this is best answered by the estates/IC colleagues who may have looked at the specification and perhaps members of the project team who were in touch with Brookfield at that time.

c) If the ward was built to specification, why were patients decanted to the Beatson less than a month after migration?

A I am not party to the estates and specification documentation. However, patients were moved back to the BOC on the advice of the clinical and infection control team.

259. Works were carried out to ward 4B – do you recall the nature of these works and why they were carried out?

A There has been a detailed timeline of ward 4B submitted by GGC to the inquiry and it sets out all the detail and works to 4B prior to the return of the patients. Technical details are in Section 21 notice 1/RFI 10 - background and discussions/decision making in timelines submitted under RFI 1 6 and RFI 7. It maybe that estates and IC colleagues are best placed to address this detail.
Refer to Document **A43502680 – Bundle 20, Page 13.**

260. What is this document?

A It is a document which considers the specification of the adult BMT unit and also considers the commissioning of the unit.

261. Why did Craig Williams send it to you?

A I have no recollection of the reason why Professor Williams sent it to me. However, I did forward it to Robert Calderwood and Grant Archibald on receipt and let Professor Williams know I had done this. **(Please see A49401512 – Bundle 27, Volume 8, Page 118 and A40241788 – Bundle 27, Volume 9, Page 411)**.

262. What was your response on seeing the document?

A I don't remember.

263. Did you share it with anyone?

A Yes, I sent it directly to Robert Calderwood, the Chief Executive and Grant Archibald, the Chief Operating Officer.

264. Why did you request the report?

A See answer to 261 and email in references.

265. What actions were taken following this report?

A I don't know, as the estates and contracting issues were not my remit.

266. What is your understanding of the ward specification?

A These questions are better addressed by estates/IC as I have never specified a ward, and am not sure how it is done, and not in my remit.

267. What is the importance of ward having certain specifications?

A These questions are better addressed by estates/IC as I have never specified a ward, and am not sure how it is done, and not in my remit.

268. If a ward did not have a required specification relevant to its purpose, would this be putting patients at risk?

A These questions are better addressed by estates/IC as I have never specified a ward, and am not sure how it is done, and not in my remit.

Summary of Section Q

I have highlighted that I cannot address the technical issues concerning specification, planning, building and I outlined in question 54, the process in 2013 to approve the relocation of the BMT unit from the Beatson to the new QEUH.

There were rapid actions taken to transfer the patients back to the Beatson in July 2015 on the advice of clinicians and infection control. A report by Professor Williams on Ward 4B specification and commissioning was sent to me and thereafter Robert Calderwood. It indicated the specification did not match the actual delivery. However, this is an area is best responded to by estates/project colleagues.

Ward 2A – Invasive Fungal Infections (269)

I note this relates to an SBAR dated 30/10/2017 and is to all ICDs at the QEUH. I have not received this or seen this as far as I can recall and to my recollection, I was not aware of it at the time. I think that the LICD or Director of Infection, Prevention and Control may be best placed to address these questions.

Decision to close wards 2A/B and move to 6A and 4B (270-271)

270. Discuss the issues surrounding and leading up to the decant of patients from ward 2A in 2018

a) What was the lead up and background to this refer to IMT bundles?

A I have read all the bundles and note the context. However, I did not attend the IMTs and I have set out the emails and papers which I and others at the corporate level considered.

04/09/2018: I got an email from Dr Inkster advising that she was reconvening the water IMT due to 3 patient bacteraemias and issues with the drains. The patients were not giving cause for concern. **(Please see A49401510 – Bundle 27, Volume 8, Page 119)**.

05/09/2018: This email was sent by Tom Walsh and highlights the HPS email from Annette Rankin with Chief Nursing Officer's instructions to review every case being discussed by the IMT with an SBAR to HPS. The email from Sandra Devine sets out the triggers of 2 cases within 14 days and this IMT was set up following 2 cases within 11 days. She explains '*they were different organisms but Teresa's opinion is that they are associated with the water, so the IMT process has commenced as normal*'. **(Please see A49401509 – Bundle 27, Volume 8, Page 120)**.

13/09/2018: This email from Kevin Hill reports on Infection Control advice following the IMT meeting on the 13/09/2018. IC advised that it is 'unsafe' to continue to treat BMT and haemato-oncology patients in their current environment (ward 2A) at the RHC. The meeting also discussed options, ruling some out, while agreeing transfer of 3 BMT patients to ward 4B and asking Anne Harkness to scope out an option in QEUH. **(Please see A49401508 – Bundle 27, Volume 8, Page 122)**.

14/09/2018: A full executive meeting was held with some members of the IMT to discuss the options and advice. **(Please see A49401511 – Bundle 27, Volume 8, Page 124)**.

20/09/2018: This email from Kevin Hill sets out a response to a clinical question, the reasons and rationale for the decant and the process taking place to prepare the adult ward. This was sent to SG in response to their questions. **(Please see A49401504 – Bundle 27, Volume 8, Page 126 and A49401507 – Bundle 27, Volume 8, Page 129).**

26/09/2018: This email, from Grant Archibald, sets out that the process of transferring all the patients to the adult ward was complete with OP the next day. **(Please see A43171441 – Bundle 27, Volume 9, Page 533)**.

b) What was your involvement?

A My role in this process was at a corporate level rather than an operational level. The executive team, of which I am a member. was taking advice from the IMT and the operational team. I was also updating the internal board committees and linking with senior colleagues at the SG. In addition, I was also receiving updates from the ICM/SMT.

c) What risk assessments were carried out in respect of the decision to decant the Schiehallion Unit to ward 6A and 4B?

A On the 14/09/2018, a water meeting exec team. This was held at the QEUH and I have provided a note of the meeting to the SHI. It sets out the advice of the IMT and the agreed actions for a full risk assessment to be led by KH. The divisional team working with the IMT and directorate team carried this out.

d/e) The advantages and disadvantages of the move are set out in a paper on 17/09/2018.

A The detail of this was discussed by the IMT and the directorate team. The IMT considered papers on this issue. It may be better for the directorate team to address all the advantages and disadvantages.

f) What additional measures were put in place to ensure patient safety as part of the decant

A This was taken forward by the divisional team. Kevin Hill sent the full action log which sets out all the actions.

g) What concerns, if any, did you have about where the patient cohort was being moved to? If so, why did you have those concerns?

A Many of these concerns are highlighted in the disadvantages of being disarticulated from the childrens hospital with easy access to all the services for patients and for parents. There was also the issue about an adult ward as opposed to purpose built childrens ward. There were concerns for the elderly patients who were being moved to Gartnavel for them and family visiting and the impact on winter capacity beds for the QEUH.

h) What was your understanding of the suitability of wards 6A and 4B for the treatment of immunocompromised children?

A This was not optimal for the reasons set out in g). There would also be a curtailment of the adult BMT timetable to enable them to provide beds for children in ward 4B. However, the ICT and the IMT signed off both wards once some work had been completed.

i) Please comment on the facilities within ward 6A, the access to the ward and the distance from key facilities such as PICU and the crash team:

A This question may be better addressed by the operational teams. However, I note the development of SOPs in the action log.

j) Please comment on the facilities within ward 4B, the access to the ward and the distance from key facilities such as PICU and the crash team:

A This question may be better addressed by the operational teams. However, I note the development of SOPs in the action log.

k) Did you have any environmental concerns relating to either ward 6A or 4B? If so, what were they?

A Please see my answer to h). The IMT and LICD, ICN reviewed the wards and advised that they were fit for purpose.

l) What impact did this decant have on patients and their families?

A There was a significant impact on parents and children, which was so movingly described by parents in Glasgow 1 hearings. The impact of learning your child has a cancer is catastrophic and then compounded by worry about the facilities. These concerns were very prevalent in our minds. The focus of the corporate team, and indeed all the teams, was to do the best we possibly could for the children and families under our care. I also felt for the staff. It is a stressful job working in oncology services. Staff are highly trained and skilled at what they do. They now had to deal with uncertainties in the environment and it was clear they were losing confidence in the environment. So, both factors were huge in the decision making to move the ward, and indeed, embark on a total transformation of ward 2A/2B. The communication process and the response to the families has been submitted to the inquiry and it may be better addressed by GGC's Director of Communications (Sandra Bustillo) and the Director of Nursing at the time (Margaret McGuire).

m) Discuss and detail the works done to ward 2A/B, which was required to be done and why, what had been done and when the work was completed. Please include details of your involvement.

A I am not the correct person to address this question as I don't have the knowledge or expertise to describe this and it is the remit of senior estates colleagues to address.

n) Any other relevant information.

271. Discuss the issues surrounding the ward 2A patients when in occupation of ward 6A, in particular, views you may have in respect of:

a) Chill beams:

A I don't have the expertise to address this. It may be better to seek view of IC experts/ Director of estates.

b) Gram negative bacteraemia:

A I don't have the expertise to address this. It may be better to seek view of IC experts.

c) Water filters:

A I don't have the expertise to address this. It may be better to seek view of IC experts/ Director of estates.

d) Ventilation:

A I don't have the expertise to address this. It may be better to seek view of IC experts/ Director of estates.

e) Issues/testing/escalation/response/IMTs/SBARs:

A I am not this most appropriate person to address this. It may be better to seek view of IC experts/ Director of estates/operational teams.

f) Patient experience and patient communication:

A Jennifer Rodgers or Mags McGuire or the Director of communications maybe better placed to address this issue.

g) Internal Escalation

A HIATT scoring: this should be addressed to the LICD.

h) External Escalation:

A I have set out the external process of escalation for the areas I have been involved with e.g. SG, teleconferences, Board papers, board subcommittees etc. However, there will be other processes, e.g. IC to HPS to SG, obtaining expert advice which ICT is best to describe.

Summary of Section S

On the 4th of September 2019: There were 2 patients with gram negative bacteraemia within 11days. They were different but it was Dr Inkster's opinion that they were both associated with water and hence the IMT process was triggered.

Following the IMT on the 13/09/2019, there was a meeting of the operational management team, IC, clinicians, HPS and Public health. The IC advice was that it was unsafe to continue to treat BMT patients. Some options were discussed with some taken forward, whereas others were dismissed.

On the 14/09/2018, the corporate team then met with IC, Women and Children Senior Management Team, HPS, Public Health and Estates colleagues to discuss this and agreed the actions, including to risk assess the options for decant.

The IC team were providing advice to the operational team and ensuring that ward 6A and 4B had the appropriate arrangements in place to ensure that both wards could accept the children.

The advice from the IC team was that ward 6A environment was better than ward 2A and the children should move there and that there was no increased rate of infections in the adult site. Ward 4B already housed the adult BMT patients and there had been no increased infections.

All these issues were reported through the corporate governance structure of the board. HPS was involved in all the decisions and Annette Rankin, HPS, sat on the IMT. SG questions were addressed and there were 3 teleconferences during this period between senior GGC staff and senior policy/CNO officials in SG.

Ward 4C (272)

A I do not have the knowledge, background or expertise to answer this section. I was also not involved with the HSE actions. These areas may be best addressed by estates colleagues, HSE GGC leads or clinicians running the ward.

IMT attendance (273-309)

A The IMTs are organised and led by IC colleagues with input from a range of specialists with expertise. The policy based on national guidance is developed by Public Health colleagues and approved through committees. The output of the IMT reports to the AICC.

In my role as Medical Director and HAI exec lead, it would not be expected for me to attend the IMT. However, I have attended some IMTs and this can be at the request of the members or the chair or indeed if there is a significant organisational issue which required executive support.

I would suggest that these detailed questions of the IMT are best addressed by the ICT or a senior Public Health specialist as they will ensure the policy is updated and they will be routinely leading and attending them. I do not have the detailed expert knowledge to address them.

The minutes have all been submitted to the inquiry. All PAG and IMT minutes for the entire QEUH site since April 2015 have been submitted under Section 21 notice 2 [RFI 11], unless previously submitted under RFI 7 2, or within timelines submitted under RFI 1 6 (the timelines covered the 2018 water IMT and 2019 cryptococcus IMT).

HIATT process (310-314)

A Outbreak reporting was covered in submissions under RFI 7 2 and I am aware of this process and reported the HIATT in the report to the board. However, it was not something I was routinely involved in at an operational level and therefore it may be better to ask the ICT/ICD to describe the process.

Gram Negative Bacteria (315-340)

315. Describe the gram negative bacteraemia outbreak and your involvement in it? Bundle, document 72-88 are the IMT minutes (June 2019 onwards)

A At the time, I would receive along with other senior exec members, updates by email with a summary of the IMT from Dr Inkster and Sandra Devine, which reported on the outcomes of the IMTs**. (Please see A49401503 – Bundle 27, Volume 8, Page 135; A49401505 – Bundle 27, Volume 8, Page 138; and A49401502 – Bundle 27, Volume 8, Page 141).**

I would also refer to the page 33 of the response to the oversight board. This is incorrectly under the decision to decant but in fact is a timeline of the August to November 2019).

19/06/2019: IMT held to discuss cases of gram negative bacteraemias and 2 cases of M Chelonae.

The issues which were debated include:

1. Were the numbers of infections higher than the usual background rate?
2. Were there unusual infections occurring?
3. Was there evidence from the environmental sampling, which could be linked with these infections

There were water samples sent to a research lab, which confirmed a close link to case of cutaneous M Chelonae in 2019, but no link to the case in 2018. This was closed after many actions in August 2019. This was fully reported in the HAIRT in August 2019.

01/08/2019: Ward 6A was closed to new admissions and newly diagnosed children were diverted to either Edinburgh or Aberdeen causing great distress and increasing risk to other units and children. Children were also started on prophylaxis, which the lead clinician later described as causing vomiting and diarrhoea.

There was significant environmental testing being carried out with the hypothesis of chill beams being explored.

The epidemiology by Dr Iain Kennedy, consultant in public health and subsequently by HPS suggested that there was no increase in background levels of gram negative bacteria.

All the environmental tests failed to show any link with the children, and there was nothing to link them to the ward environment or to infection control practices in the ward.

23/08/2019: There was a change in chair as set out in section EE. The new chair emailed me on Friday 23rd of August 2019 with a report indicating the possibility of opening the ward on the 2nd of Sept, 2019 if a number of actions were concluded. She also escalated to me that an additional 2 beds were required on the transplant ward, which I forwarded that night to the Chief Operating Officer. **(Please see A49401470 – Bundle 27, Volume 8, Page 143 and A49401466 – Bundle 27, Volume 8, Page 147).**

14/09/2019: email from Dr Emilia Crighton outlining that ward 6A is microbiologically safe for patients and recommended opening to admissions. The IMT heard about risks of

sending patients to other units and furthermore, epidemiological and microbiological data did not support the decision to close the ward on 2/08/2019. **(Please see A49401469 – Bundle 27, Volume 8, Page 149).**

18/09/2019: I was on touch with Medical Director of NSS to be clear what the recommendations were from HPS to GGC. One of the key ones is the MDT approach to all new cases, which led to the development of a more robust process. **(Please see A37849990 – Bundle 27, Volume 9, Page 415).**

All the following are in the response to the oversight board from GGC which has been submitted to the inquiry.

26/09/2019: A meeting took place with Chief Nursing Officer (CNO), NHS GGC and HPS. It was agreed HPS would do a full review of the epidemiology. The chair of the IMT, Dr Crighton set out clearly the epidemiology of the infections as well as reviewing each hypothesis. **(Please see A49401467 – Bundle 27, Volume 8, Page 151).**

17/10/2019: In response to a request from HPS, a full response was sent to NSS Chief Executive from the NHS GGC Chief Executive outlining in over 11 areas key actions for NHS GGC and a full review of all water incidents from 2018 onwards. **(Please see A49401468 – Bundle 27, Volume 9, Page 417).**

05/11/2019: IMT minutes (bundle) Prof Craig White informs IMT that decision to open the ward will be taken by CNO.

18/11/2019: CNO advises that the ward can be opened once GGC confirms actions completed with further email on 20/11/2019 from CNO setting out the need for cabinet secretary to be assured of actions.
21/11/2019: A response is provided to the cabinet secretary from NHS GGC Chief Executive. The emails include the SBAR dated 7/10/19 from Dr Inkster and Dr Peters with annotated comments from Dr Kennedy and Jane Grant sets out the intention to undertake a review of all cases. (email attached)

26/11/2019: HPS publish epidemiology review and advise the ward is safe.

External reporting: One of my roles was to ensure reporting at a corporate level and there is a full timeline available for this. This include BICC (29/07/2019); email to board members alerting them to this issue (02/08/2019); HAIRT with full report on 20/08/2019); Clinical and Care Governance committee (03/09/2019); Finance and Planning Committee (01/10/2019); with further HAIRT at Board (October 2019). In addition, there were teleconferences between senior team in GGC and senior officials in SG. (minutes available) These have been submitted to the Inquiry.

316. The inquiry understands there was an increased number of line infections in ward 2A in 2016 and 2017. Please provide details of your recollection of these infections including suspected causes of these infections, the outcomes for patients and whether/how this increased rate of infections were resolved.

A My role was at a corporate level and GGC, in common with other boards, has a well-defined escalation plan which I have set out under section E. Many of the infections would have been investigated by the ICT and they may be able to furnish more of the detail. I will set out my recollection of this time from the information which is provided at a corporate level and the requests for further detail.

2016: I have reviewed the reports from 2016 for 2A and as far as I can recall, I did not receive any reports to the BICC regarding gram negative infections in ward 2A. There was one report concerning 2 infections, which was discussed at BICC and reported to the NHS Board in 18/10/2016, but these were not gram negative infections. I cannot recall gram negative infections in ward 2A being raised with me in 2016. However, it may be helpful to ask the LICD/ICT for further details.

2017: In April 2017, there was a rotavirus outbreak in ward 2A, which led to a hot debrief and discussion at the BICC and report to the Board. Due to the issues raised about IC practices, cleaning and staffing, I asked that the directorate team to put in place a process bringing together estates, senior clinical staff, senior management and IC to ensure a weekly oversight to improve this situation. The weekly reports were reviewed by me (or my deputy when I was on annual leave) and continued from June to August 2017.

October 2017: At the BICC, there was a discussion about a patient who had sadly died of a gram negative infection together with another case. Both cases had been fully investigated with direct involvement from HPS and no linkage had been found. I had requested a full update about ward 2A at the next BICC meeting.

November 2017: A paper was presented at the BICC setting out service, infection control, domestic and estates actions in ward 2A. This indicated that all the actions were working to bring down the number of infections. **(Please see A32261049 – Bundle 13, Page 343)**.

There was a retrospective report which was done to look back at all the infections in 2017 in ward 2A: This has been sent to the inquiry (report attached question 205). It documents all the infections and how they were investigated. This has been reviewed though the governance committees of the Board. Some of the key conclusions are set out below.

The work of Quality Improvement Group to reduce line infection in Ward 2A has been instrumental in helping to reduce the line infection rate from a median rate of 3.5 in 2016 to 1.26 in January 2020.

There has been ongoing involvement of external agencies during this time period to seek advice and guidance to help manage incidents and provide independent assurance to improve the ward environment in Ward 2A.

The IPC Team have followed a set of national mandatory definitions requirement for IC reporting and have complied with the National Infection Prevention and Control Manual including the reporting of incidents to HPS.
Infection Control incidents in RHC, Ward 2A appear to have been acted upon quickly and the IMT has functioned well to facilitate a multi-disciplinary approach to the management of infection control incidents.

151 water samples were taken in Ward 2A/2B from March 2017 to November 2017. All samples have been negative.

Inpatient families and carers of patients within Ward 2A have been kept fully informed of incidents and education sessions have been delivered to encourage good infection control practice.

The Stenotrophomonas maltophilia isolates that were identified from the patients affected were sent for typing. Results show that these were not linked and there has been no single source of infection found from the environment.

Questions 317-326 (IMT 25/06/2019)

317. What is mycobacterium chelonae

318. What was your involvement in the m. chelonae outbreak:

A I was not directly involved in the investigation or management of this incident; my role was to report one case to the board via the HAIRT in August 2019.

I was not directly involved in the issues which are highlighted in **questions 317 - 326**. I reported on one case to the board via the HAIRT in August 2019. It may be worth noting that this was not an 'outbreak' as described in the question above and indeed this is one of the 2 cases which we have linked to the water.
The inquiry has all HAIRTs under RFI 11

319. Three hypotheses are discussed as potential sources of contamination causing infections during this meeting. What is your view on each hypothesis?

A I was not present at the meeting.

320. The minutes mention a requirement to refer unusual episodes to HPS? Did this happen?

A I was not directly involved, but there was a review of this for the oversight board response. This extensive response from GGC to the Oversight Board clearly describes many of these issues. The Inquiry has been sent this full Oversight Board response under RFI 1 6. Perhaps if detailed evidence on this is required, then IC experts can address this.

321. Who made the referral?

A I don't know.

322. What was the outcome of this?

A I don't know what the conversations were.

323. What actions were taken?

A These are set out in the IMT minutes of which HPS a member; the LICD of HPS representative would be better placed to address this.

Question 324- 326:

A This relates to HPS involvement, extent of involvement and actions taken by HIS: this relates to IMT/operational issues, which is set out on pages 38-40 and may be better addressed by LICD or HPS representative.

Question 327 - 331

A This relates to SBAR incident, data and epidemiology, dated 07/10/19. I was not present during the discussions on this SBAR, nor was the classification discussed with me. These questions may be best addressed by Dr Crighton, Prof Leanord or Dr Kennedy.

This report was sent directly to the cabinet secretary on 21/11/2019 with annotations from Dr Kennedy setting out GGC's position. The cabinet secretary approved the ward to open shortly thereafter. **(Please see A36591647 – Bundle 27, Volume 9, Page 426; A36591643 – Bundle 1, Page 373; A38694850 – Bundle 27, Volume 4, Page 180; and A36591614 – Bundle 27, Volume 9, Page 535).**

332-338 (document 72 relates to the meeting of 19th of June)

332. What was your understanding of the cases of m.chelonae and Stenotrophomonas which were emerging?

A I was not present at these meetings. I note that they are described in the questions as 'outbreaks'. I have noted in my response to question 315 that I was kept updated by Dr Inkster and her email to me is attached on the 19th of June 2019. (see question 315 email) This indicates that there is uncertainty whether the GNB may represent normal background rates with further investigations ongoing. For the M. Chelonae, there was water sampling with the filters off for M.Chelonae and further actions detailed. Both HPS/SG informed with further IMT organised.

333. Who was updating you on the situation?

A This was mainly Dr Inkster and Sandra Devine

334. Did you have any concerns? What were they?

A At this stage, it was the beginning of the investigation and results had not yet emerged. The concerns are always for the safety of the patients, and how this would impact on both patients and staff.

335. What actions did you take?

A There are email/IMT minutes, but there was also a lot of discussion and debate about the actions and any issues we needed to address.

336. What concerns were emerging regarding the source of the outbreak?

A This is set out in the HAIRT: for the m. chelonae case, it was about the link to the water and keeping patients safe. For the other cases, it was about whether this was really an 'outbreak' and whether there were 'unusual' organisms or not.

337. What were the concerns regarding drains?

A I am not sure as this seemed to be only discussed briefly. So perhaps the LICD best to answer this.

338. What actions did you or others take?

A These are highlighted in the IMT minutes for operational actions. In addition, there is further discussion under question 315 and 416 on actions taken.

339. At page 326c, it states that there have only been 4 cases of m.chelonae reported in the adult population in the last decade and no paediatric cases and now there has been two within 12 months. Did this concern you? Was this escalated? The HIATT score is only listed as amber, do you think this appropriately reflects the severity of the situation? 25th of June

A I reference the email from the ICM setting out the findings and the actions. The questions regarding chelona cases and the HIATT scoring are best put to those who scored the HIATT at the time with the information available. It would also be for the public health team to review the epidemiology, reporting and a detailed Root Cause Analysis (RCA) of the cases.

I received an email from Dr Inkster on the 28th of June, 2019 highlighting that one of the chelona cases was linked to the pre filtered water in ward 6A while the case in 2018 was not linked.

Please see the full report with the HAIRT which was taken to the board meeting in August 2019.

Refer to IMT Bundle, Document 74,

340. The water reports from this meeting state that a water outlet come back as positive for mycobacterium even with a point of use filter on it. It was suspected the filter may be defective. What was the outcome of this? Was the filter found to be defective? Are point of use filters 100% effective?

A I don't know the response, and this would be best addressed by estates colleagues.

Chill Beams (341-345):

I do not have any expertise in chill beams and this may be better addressed to specialists within estates and IC who are better able to answer these points.

346: The issue of patient placement is also discussed to avoid putting patients from 6A into wards where there are chilled beams. The minutes state that Dr Scott Davidson will discuss this with you. Did you have this discussion? What was the outcome?

A I don't recall any meeting/emails about this issue.

IMT – 14th of August 2019 (347 – 358)

Please refer to IMT Bundle Document 77

347. Do you recall this meeting?

A No, I did not attend it.

348. What was the purpose of this meeting? Describe the circumstances leading up to this meeting.

A I have set this out in my response to question 315**.**

349. At this meeting Dr Deighan disagrees with Dr Inkster that the numbers of bacteraemia have increased. What is your view on this? Please provide reasons for your conclusion.

A I agree with Dr Deighan. The epidemiology reports from Dr Kennedy and the HPS report show the same pattern and indeed in 2018, when the ward was decanted, rates were within expected numbers as shown in Dr Kennedy's charts. There was no clear case definition and not a consistent RCA.

350. Did you agree with Dr Inkster and Dr Peters that the nature of the bacteria was a concern in that it was environmental and associated with water/soil? If not, why not? Please provide details for your answer.

A This was the same argument used in the September 2018 IMT by Dr Inkster: the issue is that numbers are small, these environmental bacteria are widespread, and they were seen in Yorkhill.

Dr Iain Kennedy's reports

351-358

I have seen these reports while reviewing documents for various investigations over the past 4 or 5 years. I was working at a corporate level, so these reports would probably have been presented at the IMT to form part of the decision making of the IMT. I am not an expert in the various methodologies or data used to construct the reports. I think these questions may be better addressed by the Public Health consultants and/or IC. I have not seen the rationale for Dr Inkster, Dr Peters and Dr Harvey Woods which led them to disagree with the conclusions.

The advice from the chair of the IMT on the 27/09/2019) and the discussion at the Atlantic Quay (26/09/2019) are (attached to question 315) and set out the advice given by the chair of the IMT. The HPS report published in 27/11/2019 seemed to be in accord with this advice.

Summary of W, X, Y, Z

The IMT started in June 2019 and there were 2 issues: 2 cases of M.Chelonae and a discussion of gram negative cases in the unit.

For M.Chelonae, one case was DNA linked to the water while the other case was not linked. This was closed in August 2019 and the response from GGC to the oversight board sets out in detail that it was fully reported and investigated at the time.

For the gram-negative cases, there was debate around whether this was actually a background rate, whether they were unusual and whether they could be linked to the environment. The detailed epidemiological review suggested that the numbers of cases were equivalent to the expected number and that these bacteria had been seen before in Yorkhill. The environmental tests were negative.

The unit was closed to new admissions at the beginning of August with newly diagnosed children sent to other units. There were considerable risks in the closure of the unit together with a further erosion of confidence in the environment.

Following concerns which were raised by IMT members, a new chair was appointed. The evidence was reviewed, a new multidisciplinary review of cases was introduced to a (rather than one person) with a RCA. A further detailed review by HPS and the University of Strathclyde concluded that the ward was safe. All the information sent to NSS and SG. The cabinet secretary announced that the ward could reopen in November 2019.

Prophylactic Medication (359-370)

It would be more appropriate for a clinician/ICD to address the detail of the questions set out in this section. This is not an area in which I have any expertise.

The prescribing of prophylactic medication is a matter for the clinical team together with support from ICD/microbiologists. It can also involve antimicrobial pharmacist and infectious diseases consultants.

There was also a review done by Dr Andrew Murray which sets out some of these issues. **(Please see A42208416 – Bundle 6, Page 10).**

In the Bundle 12, document 137 refers to an email of 8/01/2019. In the initial management meeting to discuss the issues raised by Dr Gibson (09/01/2019) Jamie Redfern mentions a review of prophylaxis in point 3. This was also discussed with consultants 2 days later on 11/01/2019. See the response to question 393.

Cryptococcus (371-395)

371. Recall your understanding of the cryptococcus infections in 2018

a) What was your impression/reaction upon learning of the presence of cryptococcus in 2018 in the QEUH?

A I will set out in chronological order when I first heard of the patients with cryptococcus infections and the events thereafter.

20/12/2018: I received following email from Dr Inkster. **(Please see A40562747 – Bundle 14, Volume 2, Page 266).**

- Jennifer - we had an IMT today re two cases of Cryptococcus neoformans in blood cultures, hospital acquired in haematology patients. I need some urgent advice re duty of candour as the paediatric patient has sadly passed away with positive post mortem samples. Can you call me at some point….

- From memory, I asked Dr Stewart, deputy medical director to call Dr Inkster back as I was at the GJH then on my way to Yorkhill hospital. Dr Stewart called me and alerted me to the situation: a child had sadly died on the [redacted] and another patient had tested positive. Both patients had cryptococcus neoformans in their blood cultures which is rare. In the case of the paediatric patient a postmortem was carried out to establish the cause of death: it found cryptococcus neoformans [redacted] while the adult patient was positive 3 weeks after transfer to the QEUH from a hospital in [redacted].

- The query was should they tell the child's parents. I responded to Dr Stewart and Dr Inkster that we should absolutely tell the child's parents, and indeed I also suggested that we should tell the adult patient. I was keen that this was done by the clinical teams in a sensitive manner and indeed, there was a question about before or after the child's funeral. I felt that this should be a judgement call by the clinician who knew the family and done with the utmost sensitivity but that we still needed to do it.

b) What is cryptococcus?

A I have reproduced the definition in John Hood's report;

C. neoformans is a fungus that lives in the environment (including soil, some trees including decaying wood) throughout the world. It has a known, although complex, association with the guts of pigeons and other birds. Although most people who are exposed to the fungus do not get sick from it, a small number of people can become infected after breathing in the spores. Only one outbreak associated with a hospital has ever been previously reported in the literature Vallabhaneni, S et al (2015)2.

C. neoformans infections are very rare in people who are otherwise healthy; most people affected are immunocompromised (weakened immune system).

c) Have you seen/heard of Cryptococcus in a healthcare setting prior to QEUH?

A As set out above, there is only one outbreak worldwide ever reported in the literature.

d) What were the issues with Cryptococcus at the QEUH? When did you first become aware of these issues? What happened in response to these issues?

A As highlighted in a), the 20th of December 2018 was the first time I was aware of any issues with Cryptococcus at the QEUH/RHC and the issue was set out in the email sent to me by Dr Inkster. In response to these issues, an IMT was set up on the 20/12/2018 and led by Dr Inkster.

372. What steps were taken in response/precautions put in place?

A The advice was agreed by the IMT on a range of actions, which are documented in the IMT. HPS and SG were informed on the 20/12/2018 by Sandra Devine in the HIORT. The weekly director's report on 27/12/2018 and 03/01/2018 summarised the IMT findings. **(Please see A36690608 – Bundle 27, Volume 9, Page 427).**

a) What were the hypotheses put forward for cases of cryptococcus? Who put these forward?

A The main hypothesis put forward by Dr Inkster in the IMT and is set out in John Hood's report:

At this time the main hypothesis was, that cryptococcal spores (from pigeon guano) were being aerosolised into the Plant room air, then getting into the Air Handling Units (AHUs) during routine maintenance, i.e. during shut down, opening and final filter change, then onwards to the patients down the duct.

b) Did you agree with these?

A At the time, the hypothesis seemed plausible, and it was the main one advocated by Dr Inkster.

c) What was your hypothesis regarding the cryptococcus cases?

A At that point, I did not have one as I was focussed on the advice from the LICD. Although I was aware of latency in crypotococcal infections.

d) What was the rationale behind your hypothesis?

A I was taking the considered advice of the IMT and acting on a precautionary approach.

373. Bundle 1, IMT document 58 (IMT 16/01/2019).

A I was at the IMT as I note I am minuted as attending. I cannot recall the meeting and cannot really add any more than is set out in the minute. I was not assigned any actions.

374. Discuss your involvement, if any, at the Cryptococcus sub- group meetings:

A I did not attend the sub-group meetings.

375. What, if any, external reporting occurred?

A The media communications were extensive around this time as well as communications to patients and families. However, Sandra Bustillo, or the directorate team may be able to address these issues. In terms of external board meetings, this issue was described in the Board meetings of 19/02/19, 16/04/19 and 25/09/2019 with full description in an accompany report (HAIRT) for each board meeting.

376. PAGs/IMTs/AICC/BICC.

A I will address the Board level committees, while others may address the other areas and I understand the inquiry have all these minutes. There was a weekly report and this incident was included as a weekly update. For the BICC, this issue was discussed on 28/01/2019, 25/03/2019 and update in 03/06/2019 minutes. It was discussed at the non-executive chaired clinical and care governance meeting on 05/03/2019 with a full paper presented by Dr Inkster In addition, it was discussed at the Board Clinical Governance forum on 8/04/19.

377. What steps were taken in response/precautions put in place?

A This may be better addressed by the LICD and is detailed in the HOIRT of Feb 2019.

378. Did you read John Hood's report?

A Yes.

379. When did you read John Hood's report?

A From my recollection, I first read Dr Hood's report in 2020. He also presented it to the executive team circa 2020. I have subsequently read the unredacted report, which was the final report in 2022.

380. What observations, if any, did you make after reading John Hood's report?

A For the report, my observations included:

- The report is a thorough investigation into each of the hypotheses concerning the origin of Cryptococcus, which was found in an adult patient and a paediatric patient in the QEUH. This was investigated by the IMT.
- I am not an expert in the issue, and it may be better to seek evidence from an ICD/specialist. However, on reading the report, on the balance of probability for a whole range of reasons from environmental factors to clinical factors, it is highly likely that this represented a reactivation of previous infection which is much commoner and more likely than a hospital acquired cryptococcus.

381. What else could have been done? How could matters have been handled differently? What concerns, if any, did you have about how matters were dealt with?

- It is perhaps helpful to outline where the origin of John Hood's report. It was not the IMT which suggested the review, although the subgroup was set up to report to the IMT. At the BICC on 28th of January 2019 the cryptococcus cases were discussed. Dr Andrew Seaton, who is a consultant in infectious diseases at the QEUH, inquired whether the 2 cases could be sporadic cases with previous cryptococcal infection, which was reactivated due to severe immunosuppression. It was agreed that there would be a subgroup set up and would look at all hypotheses. On the 30th of January,2019, I discussed this with the executive team to ensure that there was support for this and then

asked Tom Walsh, Dr Inkster and others to set out TOR. **(Please see A39235402 – Bundle 27, Volume 9, Page 430).**

- It was important for GGC to be clear what the most likely scenario was, not least for all the other patients and staff in the QEUH. The initial hypothesis did not include the most likely scenario.
- It is important to consider the evidence and what happens commonly as opposed to alighting on a cause without evidence then not considering other causes when the evidence does not fit.

Question 382-386.

A These questions relate to specific issues concerning the plant room. This is not within my remit nor knowledge and would be better addressed by LICD or estates colleagues.

387.

A I note that this relates to IMT on the 16th of January 2019, but I don't recall these discussions in detail and cannot answer the questions. It may be better if LICD or estates colleagues address these issues.

388.

A I note this relates to the IMT on 17th of January 2019 but I don't recall this detail and it may be better if the LICD or estates colleagues address these issues.

389. Three incidents are discussed including a paediatric patient who died following testing positive for cryptococcus:

A I have set out my understanding of the situation, who kept me informed and actions taken in 371a and 372.

390. Discuss this case. What was the outcome (Question 390 (Bundle 1, document 94) 02/07/20):

A I was not involved with this case and cannot comment.

391. How many cases of cryptococcus have there been in the QEUH/RHC between 2015 to date? Please provide details of each case.

A I cannot answer this question. I understand that this Data has been provided under RFI 26 to the inquiry.

392. Dr Gibson emailed you following the death of a child, she states, ‘as a consultant body we are now very concerned about the safety of our environment… we are concerned we may have moved to an even less safe environment. ‘What is your view on Dr Gibson’s concerns? (Bundle 12, Document 137)

A I was also concerned when I read the minutes from the IMT on the 07/01/2019 and I will set out a timeline below for that evening as I had already escalated these issues to the senior team before I received Dr Gibson’s email. I could absolutely appreciate her concerns as there had now been a series of IMTs from March 2018 to June 2018 then from Sept 2018 to December 2018, which included a relocation of the children and their families with staff to the adult hospital and now this incident. The GGC teams had tried to do everything in their power to address all the issues and patients and families along with staff were at the heart of all the decisions with the only aim to keep patients safe and enable staff to provide good care to patients and their families.

The timeline for 07-09/01/2019 is as follows:

A further IMT on the 07/01/2019 highlighted issues with communication and prophylaxis. This was briefly mentioned in the Acute Infection Control Committee which Dr Inkster attended and gave an update. The hypothesis was at that point focussed on a plant room.

On the 08/01/2019: I received the IMT minutes of the 07/01/2019 at 17.35pm. I read them later that evening and sent an email to Jane Grant, Jonathan Best, Margaret McGuire and Tom Steele highlighting the debate concerning issues of prophylaxis, communication and ward 6A at 9.27pm. I attached the minutes and said it would be helpful to discuss. Around 10.15pm, I received an email from Dr Gibson setting out very clearly concerns about the safety of the environment and setting out her concerns. I escalated the email to the senior team at 10.23pm. **(Please see A49401465 – Bundle 27, Volume 8, Page 152; A36690566 – Bundle 1, Page 255; and A49401501 – Bundle 27, Volume 8, Page 164).**

At 06.35am on 09/01/2019: I emailed several people and suggested a meeting with Chief Operating Officer, Jonathon Best, Tom Steele, Kevin Hill, Senior IC and Dr Kennedy. From memory, I also contacted Tom Steele about how to access hepafilters urgently; he advised that there were spare filters on the site as back up for ward 4B. **(Please see A49401500 – Bundle 27, Volume 8, Page 166)**.

On 09/01/2019: I urgently convened a meeting with senior clinical and managerial leaders, the Director of Estates, the ICM, 2 ICDs, Iain Kennedy and the Director of Nursing for GGC. Dr Inkster was invited but was on annual leave. A minute of the meeting is available and has been submitted to the inquiry under RFI 6 cryptococcus narrative.

This sets out clearly all the key issues and actions to address these issues. It was noted that the IMT on Monday 7th of January 2019 had discussed HEPA filter units and there was a comment that they were noisy and indeed there were some on the ward but not in use. Jen Rodgers and Dr Mathers said that they were no louder than a fan heater. It was agreed by me and all at the meeting that the HEPA filters should be deployed without delay. We had 30 HEPA filter units in the QEUH, which could be sourced immediately, and the ICD would visit the ward to advise where they should go. We discussed the best way to alert parents and staff and it was felt there was a need for discussion directly with parents.

On 10/01/2019: The HEPA filters were deployed with communication to staff and patients. This is the first time that these filters were deployed on this scale.

393. Dr Gibson described having to give prophylaxis to vulnerable patients and describes two serious anaphylactic reactions, which required adrenaline. What actions were taken following these concerns:

A There was agreement on the 08/01/2019 meeting to address each point in Dr Gibson's email and to meet the consultants directly on Friday 11th of January 2019 to hear their views and set out issues which require further work.

Friday, 11th of January 2019: I organised a meeting with specialist teams and the consultants, including Dr Gibson, to discuss the points raised in her email. This included Jamie Redfern reporting that there had been a review of prophylaxis requested with a microbiologist, a clinical pharmacist and a clinical oncologist to review the guidance which they took forward (there was also discussion of this issue on 07/01/2019 IMT) and the deployment of the HEPA filter units. It was confirmed the work would go ahead on the 2 rooms situated in 6A and an ICD agreed to sign off the scribe. **(Please see A44099044 – Bundle 27, Volume 9, Page 431).**

394. Dr Gibson describes two rooms with water damage and mould which had not been attended to by Estates. Were you aware of delays in addressing these issues by Estates? Whose responsibility would addressing such issues have been?

A I was not aware of this, and the response was detailed in the meeting on the 11/01/2019 detailed in the paragraph above. I am not aware what happened in this case. So, I suggest that estates/directorate team are best to provide a response.

395. Who was responsible for managing the concerns outlined by Dr Gibson?

A The directorate team would manage the concerns in partnership with clinicians and colleagues from other directorates depending on the issues raised.

Summary of Section BB: Cryptococcus

Dr Inkster set up an IMT in the 20/12/2018 as 2 patients had been diagnosed with cryptococcus neoformans in blood cultures with one patient sadly dying. There were a series of measures taken including prophylaxis for the children and investigations carried out. The hypothesis put forward was that cryptococcal spores were being aerosolised into the plant room then onwards to patients via the ducts. There was a significant amount of external and internal reporting of the incident over the months which followed. The second patient also sadly died.

I alerted the senior team to the IMT minutes of 8th of January as significant issues had been raised. Shortly after, I received an email from Dr Gibson setting out her concerns. I set up an urgent meeting the next day on the 9th of January and ensured that HEPA filters were deployed to the ward at scale on the 10th of January. I met with Dr Gibson and her colleagues as well as the senior team and IC on the 11th of January to ensure all actions discussed and agreed.

Over the course of the next few weeks, all the tests were negative for Cryptococcus neoformans and the patients were moved out of ward 6A to enable some works to be progressed. At the BICC on the 28th of January, an infectious disease specialist asked if these patients could be sporadic cases with reactivation: the committee agreed that an independent expert group should be established. This was agreed by the executive team and it was also agreed it should report to the IMT.

The report was available in draft in 2020 and sets out why the reactivation of a latent infection is the most likely cause.

Whistleblowing and Communication

396. Can you explain the key aspects of the duty to communicate effectively with patients generally?

A The key aspects of the duty to communicate with patients is set out by the GMC in guidance to doctors on Good Medical Practice and the expectations around communication with patients and their carers.

To summarise, we should communicate sensitively and considerately, recognising their knowledge and experience of health and acknowledge their concerns. We should not make assumptions about what a patient will consider significant and be willing to explain the reasons for our recommendations for treatment. We should recognise that patients may be vulnerable and be alert to signs of distress.

We should involve patients in decisions about their care and be aware of our legal and ethical duties relating to consent.

We must ensure that any information we give is clear, accurate and up to date and can be understood by those with different language or communication needs.

We must be open with patients when things go wrong and seek to:

1. put matters right, if possible
2. apologise (apologising does not, of itself, mean that you are admitting legal liability for what's happened)
3. explain fully and promptly what has happened and the likely short-term and long-term effects
4. report the incident in line with your organisation's policy so it can be reviewed or investigated as appropriate – and lessons can be learnt, and patients protected from harm in the future.

397. Can you explain how the duty to communicate should be approached when it comes to telling patients about an infection: the possible causes of the infection; and about the impact upon health; and upon future treatment?

A Infections occur during hospital admissions for many reasons. Sometimes as a consequence of the underlying illness and sometimes as a consequence of treatment. There is a duty to ensure patients are fully informed of the risk of infection, which may be increased by treatment (e.g. chemotherapy) during the consent process. It is our duty to communicate and would always involve telling a patient that they have an infection and the plan for treatment. Where this has an impact on future treatment, we would of course explain this. It might help to consider the example of a patient who has pancreatic cancer, but who develops cholecystitis (an infected gallbladder) as a consequence of placement of a bile duct stent. While this is unavoidable and is a recognised complication of the condition, it may delay further cancer treatment and this would need to be fully explained. Where an infection is a consequence of an unexpected incident (for example an outbreak of linked infections on a ward or where there has been a breach of infection control policy) this would necessitate an apology and would trigger an investigation to identify the cause and prevent further infections form happening.

398. Can you explain how the duty to communicate should be approached where something has gone wrong during care or treatment?

A When something has gone wrong during treatment, the GMC set out in their guidance how we should approach this as described in my response to question 396 above. This is professional duty of candour.

399. Are you aware of the duty of candour and how would you explain that?

A Professional duty of candour is as set out in my response to question 396 above and is a requirement of the medical regulator on all doctors at all times.

Organisational Duty of Candour is a specific legislative requirement which sets out additional responsibilities of the organisation in the event of an unintended or unexpected incident that has resulted in harm or potential harm.

The key additional requirements are:

1. To notify the responsible person of the incident, explain what has happened and what actions we will take and also to explain the reasons if there is a delay of more than one month since the incident date.

2. To offer a written apology.
3. An invitation to a meeting and the opportunity to ask questions in advance and to provide a note of this meeting.
4. To give contact details for a member of staff.
5. To conduct a review of the circumstances that led to the incident.
6. To provide a written report including any defined actions recommended.
7. To share the report with the responsible person.

In NHSGGC, these requirements are met by conducting a Serious Adverse Event Review (SAER).

400. If staff had concerns about wrongdoing, failure or inadequacy within the hospital.

a) were there procedures to facilitate disclosure of this either to other GGC staff or to individuals external to GGC? What were these?

A There are a range of ways which the organisation is keen to encourage staff to speak up

- Through the line management structure.
- Through the professional line management structure.
- Utilising the governance procedures e.g. through datix or governance processes.
- Through HR process.
- Whistleblowing procedures.
- Induction for junior doctors goes through who to raise concerns with as well as regular surveys.
- Through the clinical structures e.g. Morbidity and Mortality meetings.
- Occupational health.
- Trade Unions.
- More recent examples include peer support and confidential contacts.
- Through external organisations e.g. GMC, Health Improvement Scotland, HSE.

b) Were these procedures and details of how to use them easily available to staff?

A There was a lot of effort put in to ensure that staff are aware of the policies and procedures which enable them to raise concerns: either through on-line resources, or through training and induction. For example, junior doctors, through site based induction, are made aware of how and with whom to raise concerns. Many of the policies on the HR

connect site can help staff know where to go and recent campaigns such as Speak up are aimed at encouraging staff to do so.

c) Is disclosure in this manner something that has always been encouraged within GGC?

A Yes, it is detailed on all the available resources and avenues set out above.

401. Are you familiar with the whistle blowing policy for GGC in 2018?

A I am not a whistle blowing champion/designated expert and I have a basic knowledge of it. However, Dr de Caestecker maybe better placed to answer these questions.

402. Was the policy easily accessible to staff? Are you aware that this policy was out of date and had not been updated appropriately?

A I am not familiar with the policy nor was I aware it was out of date. However, the HR team have a speaking up campaign which brings together all the ways of raising concerns and this is very accessible and easy to reach.

403. In your view was the whistleblowing policy in place in 2018 effective?

A I am not sure if it was effective or not as I did not deal with the whistleblowing cases and did not see complaints about it from any of my dealings within the Board. This question may be best addressed by whistleblowing champions/support at GGC.

404. Has the whistleblowing policy been updated?

A I have accessed the speak up campaign site within GGC and I note from there that NHS Scotland have updated the policy and I understand from board papers, that the GGC policy has been updated.

405. What updates have been made?

A I am not sure, and this question maybe best addressed by whistleblowing champion. I understand from colleagues, one of the updates is to make stage 1 clearer.

406. Do you think the current policy is adequate?

A From Board papers, I have no reason to suggest it is inadequate, but one of the Whistleblowing champions may be able to address this question.

Whistleblowing – QEUH/RHC

407. What was your involvement in the whistleblowing process? Please provide details:

A I did not have any involvement in the whistleblowing process at the board as I was not and am not one of the whistleblowing champions and I don't investigate cases. I have referred issues to the whistleblowing champions to review, I have answered a question from whistleblowing processes, and I have received a recommendation from a whistleblowing process. (see Question 444)

408. What is your understanding of the concerns that led to the stage 1 whistleblow in 2017? Did you agree with those concerns?

A I will take this as referring to the issues raised by Dr Redding and others in September of 2017. It was not understood by me that this was a whistleblowing process. I should note that there is a full timeline been submitted to the Inquiry concerning all these emails and all the actions taken. (RFI 7 4.1).

In my email of the 28/09/2017, I invited Dr Redding and her colleagues to a meeting with many of the senior representatives which she had suggested in her email to me on the 27/09/2017. My intention was to **fully** explore and document all her concerns with the senior colleagues who had knowledge of and responsibility for the areas of concern. However, her emails to me mentioned a series of issues ranging from infection control incidents to planning and design of the QEUH which she had been involved in, but it was unclear to me what the specific issues were. I have pasted the paragraph of my email of the 28/09/2017 to Dr Redding below.

I was, however, a little unclear from your e-mails what the specific areas of concern are; and therefore, in order to ensure the meeting is as productive as possible, it would be helpful if you and Dr Peters could set out in writing clearly the areas of concern in advance of the meeting. The SBAR format is particularly useful, and if possible, I would be grateful if this format could be used.

409. Refer to emails between 5th September 2017 and 3rd of October 2017: Email chain between Penelope Redding, Tom Walsh and Jennifer Armstrong dated between 5th September 2017 and 3 October 2017

a) Do you recall receiving these emails from Dr Redding?

A Yes.

b) Dr Redding raises issues concerning patient safety and infection control: were you aware of these concerns in advance of Dr Redding's emails? If so, please provide details:

A Dr Redding raised a wide range of issues from current ongoing IMT investigations into incidents, to the roles within ICT, the design and planning of the hospital as well as ventilation issues. She also advised that she is no longer an ICD, but her colleagues can

provide more information. My answers throughout this questionnaire have demonstrated that when I have been aware of concerns, I have worked with colleagues to investigate as well as address them. Her emails lacked clarity as I set out in my response to her outlined in my response to question 408. I was keen to ensure we captured her concerns so we could understand and investigate them and engender a collective responsibility to work together to address these concerns in a constructive way.

c) What was your view on Dr Redding's concerns?

A In her email to me on the 28/09/2019, she said '*There are many contradictory versions of the information relating to the issues of recent and historical events. It is very complex to fully grasp all the facts. I feel a meeting needs to be arranged so that a record, in one document, of all the evidenced issues can be made. This will ensure that the issues are openly understood and addressed with appropriate action plans*.' I did agree with that for 2 reasons: the most important one was to ensure that patient safety was paramount and therefore to understand any patient safety issues and take clear actions. Secondly, I know colleagues in IC were often distressed by some microbiology colleagues whom they felt were always questioning/being critical of them as opposed to trying to collectively solve problems. I did want to explore the concerns, agree collectively what needs to be done and engender a collective response and ownership of the actions.

d) It would appear that Dr Redding sent emails on the 5th, 15th, 21st and 27th September 2017 before receiving a response; how would you account for this delay in responding?

A This relates to an email to Tom Walsh on the 5th of September, and emails to me and Dr Stewart on the 15/09/2017, 21/09/17 and the 27/09/17.

- My office acknowledged receipt of the email on the 15th when it came in and I responded fully on the 28/09/17 as described in the previous questions in this section. In her email of the 15/09/2017, Dr Redding says she is due to take annual leave until the 5th of October. This is later clarified in Dr Redding's email of 27/09/2017 as we arranged the date of the meeting to suit her availability.
- I note that Tom Walsh was on annual leave from Monday 4th of Sept to Monday 18th of Sept. Dr Redding emailed him on the 5th of September, the day after his annual leave began.
- I did want to discuss the concerns with Tom Walsh and Professor Brian Jones, (Consultant Medical Microbiologist, Head of Service, Microbiology & Virology, NHS GGC, Professor of Clinical Microbiology & Infection, University of Glasgow and lead ICD covering Dr Inkster's sick leave) in the first instance. I cannot recall when we discussed the concerns, but it would be after Tom Walsh's return from annual leave on the 18/09/17.

The detail of this has already been submitted to the Inquiry (RF 7 4.1) with relevant emails and details. I have detailed the executive summary below which if linked with the RFI, can perhaps address the points raised in this section.

I was keen to ensure all areas were addressed and that there was full visibility within the Board about these issues as well as monitoring to ensure actions completed. This was in some instances, complex engineering issues which took time to address. All actions, except one, were completed and signed off by October 2021.

e) The inquiry understands you did not treat Dr Redding's emails/concerns as a stage 1 Whistleblow, that is despite Dr Redding stating in her email of the 27th of September 2017, ' *I would like to avoid going to a Stage 2 of the GGC Whistle blowing policy'* Can you explain the rationale for this decision?

A The simple reason is that I had not understood from this sentence, that I was the stage 1. I had thought that whistleblowing issues at stage 1 were dealt with by a line manager and I therefore thought she had previously raised this within the line management structure of the diagnostics division where she was based. This would either be at the general manager/clinical director or chief of medicine/director of division or indeed the deputy medical director acute or the chief operating officer.

In addition, Dr Redding had not alluded to whistleblowing in her emails of 15/09 or 21/09 to me: she talked of escalating her concerns to me. I took this as a professional complaint and was keen to address the concerns she was raising.

410. Refer to SBAR of the 3rd October 2017 – Re Infection Control and Patient Safety at the QEUH

a) Do you recall receiving the SBAR on 3rd of October 2017?

A Yes, as I set out in my response to question 408, I asked Dr Redding to send me this.

b) Going through it, please provide your views on each of the following:

A As I have detailed in responses to questions 408 and 409, I was clear that my role was to ensure that those with specialist knowledge or responsibility in this wide ranging SBAR met with the microbiologists directly to discuss the issues raised. This was why I was keen that a multi-disciplinary group met to look at the concerns, identify what had been done already to address these concerns (as many actions had already been taken), explore areas of misunderstanding and seek a common agreement of the challenges. Thereafter agree actions to address remaining concerns. As suggested by Dr Redding, we would capture the concerns and the actions in one document and ensure actions were followed through.

Therefore, I cannot answer the questions set out in 410 b). For the areas of patient placement, cleaning and estates there was a need for those with specialist knowledge and responsibility to discuss the areas, determine what has already been done to address the issues and identify any gaps or areas to take forward. For the Infection Control Structure, this seemed to work well in all the teams except the QEUH team and

there was a need to understand if there was common agreement on these issues with the Infection Control Senior Management Team. For the recommendations, I do agree that there needs to be a full understanding of the concerns but also a collective willingness to address them.

411. The SBAR states that some of the issues raised, for example patient placement and cleaning were first raised in June 2015. Why were these issues not being addressed in a timeous manner?

A I cannot answer this question as many of these issues were being raised at an operational level, so I don't know what was raised, what the actions were and the response. However, what I can say is that the minutes of the meeting on the 4th of October 2017 and the subsequent emails and action plan sets out that a lot of areas had been addressed or that there was work on going to address them. In some instances, this involved quite complex engineering issues which required access to clinical rooms which had to be timetabled in. One of the reasons I was keen to get an action plan and monitor it was to raise these issues, ensure transparency and visibility not just in operational teams, but also at Board level to support progress on these areas.

412. In your view did the SBAR of 3rd of October 2017 raise valid concerns?

A Yes

413. If yes, what was the response to these concerns?

A The response to these concerns was thorough and wide ranging. There has been a very detailed timeline of events submitted to the public inquiry which shows each concern was minuted, then mapped to an action plan (27-point action plan). This was then highlighted through a range of governance groups to ensure progress and completion of all the tasks which occurred in 26/27 points. The following summary sets out the very extensive information already provided to the Inquiry:

Summary of actions to address concerns and full timeline

- In September 2017 Dr Penelope Redding raised concerns with Dr Jennifer Armstrong about infection control in the QEUH/RHC.

- Dr Jennifer Armstrong requested that their concerns be formally documented in an SBAR (Subject, Background, Assessment and Recommendation) tool, detailing specific areas of concern, so that appropriate actions could be taken. She also agreed to convene a meeting of key staff to discuss concerns and next steps. (*See Item 1 below)*.
- In response, Doctors Christine Peters, Penelope Redding and [redacted] (and not Dr Teresa Inkster) (the "Consultant Microbiologists") drafted an SBAR re Infection Control and Patient Safety at QEUH/RHC dated 3 October 2017 (the "October 2017 SBAR"). (*See Item 2 below*.)
- A meeting was convened as a matter of urgency on 4 October 2017 with the Consultant Microbiologists, Senior Directors and Senior Clinicians of GGC. (S*ee Item 3 below*.)
- Many of the various issues raised within the October 2017 SBAR and discussed at this meeting had already been identified and were in progress prior to the submission of this SBAR. (*See minutes of meetings below*. *Further information is available on request*.)
- A 27 Point Action Plan (the "Action Plan") was developed to address each of the separate issues raised.
- Regular meetings of the following committees were convened to discuss and progress the Action Plan:
  - Board Infection Control Committee (BICC);
  - Clinical and Care Governance Committee (CCGC);
  - Acute Infection Control Committee (AICC);
  - Board Clinical Governance Forum; and
  - Partnership Infection Control Support Group.
- The concerns raised in the October 2017 SBAR were thoroughly investigated and actions taken in respect of each separate issue.
- The October 2017 SBAR and Action Plan were signed off as being complete on 1 September 2021. (See email at Item 17 below.)

Refer to the minute of the meeting dates 4/10/2017

a) Do you recall attending this meeting, please provide details of your recollections:

A Yes, I chaired the meeting with senior colleagues. Dr Redding with Dr Peters went through the SBAR, which had been circulated. They were listened to, and each area was discussed with an agreed action plan at the end of the meeting.

b) There is some discussion surrounding PPVL rooms not being built to SHTM standards and that they did not provide appropriate protection for patients, something which David Loudon disagreed with. Were PPVL rooms built to SHTM standards?

A I don't know as I don't have remit nor knowledge. I suggest ask estates colleagues or David Loudon.

c) There is a discussion surrounding the Infectious Disease Unit, its relocation to QEUH and HPS agreeing to provide details of the room standards required to accommodate patients. A meeting took place with HPS on 2nd October 2017. Can you elaborate on the circumstances surrounding this, as well as the reasons for the delay in HPS providing the details required?

A I don't know as I did not attend this meeting.

d) There is discussion surrounding HEPA filters not being fitted in PICU and in prep rooms in Ward 2A. Can you explain this decision? Who was responsible for managing the installation of HEPA filters?

A I cannot answer this question and may be best addressed by estates colleagues and ICT

e) Do you agree there was an issue with cleaning practices within the QEUH/RHC? Who was responsible for the management of cleaning practices?

A I can't answer this question as it is not within my remit.

f) Water quality and testing concerns were discussed: What is your view on these? Who was responsible for the cleaning and maintenance policy of taps?

A I can't answer this question as I don't have specialist knowledge, and this may be better addressed by estates colleagues/LICD.

g) Do you agree that there was a delay in providing test results to ICD?

A I don't know as I had not seen evidence of this.

h) Dr Peters raised concerns regarding ICD requesting and receiving the water sampling results in a timely manner where a water source of infection needed to be investigated: Do you agree with this? Was there an issue with ICDs receiving test results?

A I had not seen evidence of any instances where this had occurred. This maybe something which the ICT can advise.

i) What was the extent of the issues of sewage in the neuro surgical theatres? Who was responsible for dealing with this?

A This maybe better addressed by estates colleagues or the operational management team.

J) Looking at the 'Agreement of Further Actions/Next Steps', where possible, please provide details as to what actions were taken and the outcomes of these.

A I would refer you to the summary detailed above in response to question 413 and to RF 7.4 1 as there was a huge range of actions taken with 26 out of 27 actions done. One was not technically feasible.

414. 27 point action plan – refer to Action plan arising in response to SBAR dated 03/10/2017 details. Please discuss this plan including:

a) Who was responsible for the management of the plan and updating it?

A The Infection Control Manager

b) What actions were taken in terms of each issue?

A I would refer you to RFI 7.4 1. These actions were logged and each one is documented throughout the period from 2017 to 2021. There as also extensive scrutiny from operational to Board level review. The final paper which documents all the actions is at the clinical and care governance committee in June 2021.

c) Which actions have been fully resolved?

A All actions except the one which is not technically feasible.

d) Which actions are outstanding?

A None

415. In this paper from June 2021, the Clinical and Care Governance Committee comment that many actions from the plan were still marked "in progress" in 2019 and therefore request a further update, a review and closure of the plan. Can you please comment on the final positions relating to each issue and whether, in your view, they have been satisfactorily resolved:

A All issues have been fully resolved

The updated action plan was presented by Sandra Devine and discussed at Clinical and Care Governance Committee on 8th June 2021. The committee were asked to note that 26/27 actions were now completed, and one action was technically impossible. The committee requested update to actions, 3, 17 and 24. This was done and an email sent to Chair and Vice Chair of C&CG with update of 3, 17 and 24 from secretariat and from Director of Clinical and Care Governance. The SBAR was signed off on 01/09/2021. **(Please see A38759130 – Bundle 27, Volume 9, Page 435; and A49401499 – Bundle 27, Volume 8, Page 167).**

The RFI 7.4 1 has the detail of all of the actions. If there are technical questions, they may be better addressed by the relevant director with the detailed knowledge as I cannot address these issues in detail.

416. Note of meeting about IMT on Tuesday 20/08/19

a) Do you recall this meeting?

A Yes

b) What is your understanding why this meeting was called?

A After the IMT of the 13/08/19, there were reports from clinical and managerial staff that the meeting had been very unsatisfactory and difficult: I recall that there were reports that the IMT was not working, they were not getting anywhere and there were behavioural issues. I recall having a conversation with Kevin Hill, the director for W & C who reported his concerns in JB Russell house (the Board headquarters) where he was attending a meeting.

Prior to this, there was some disquiet about the lack of direction and the focus on proving a hypothesis even when the evidence did not support it. I recall one of the senior team saying they were like ‘meercats’ and taking a lot of environmental swabs at the request of the IMT and not finding anything. Even if the results were negative, this was not accepted.

There were very significant risks with West of Scotland patients being sent to units in Aberdeen and Edinburgh that these units would become overstretched, and the risk of

errors increases as well as the impact on patients and their families from the West of Scotland and potentially impacting on their local patients. In addition, the confidence of staff, patients and families was severely impacted as this was now the 4th infection investigation in little over a year. These risks needed to be balanced against a proper assessment of the environmental risks in ward 6A which was currently closed to new admissions.

After discussion with colleagues, it was decided that we were now in a serious situation with the IMT and there was a clear and urgent need to explore the issues which had been raised. It is critical that an IMT functions well, takes account of all the evidence and makes the right, risk based decisions based on the needs of patients.
It was therefore decided that we needed to explore the issues raised with senior clinicians and managers who had attended the meeting, and this included the role of the chair.

c) What was your understanding of why Dr de Caestecker was involved?

A I asked Dr de Caestecker to chair a meeting to review the functioning of the IMT. There is a role for the Director of Public Health to do this if there are concerns raised and Dr de Caestecker agreed.
The NIPCM guidance on IMT chairing states '*Where there are implications for the wider community e.g., TB or measles, or rare events such as CJD or a Hepatitis B/HIV look back, or where there is an actual or potential conflict of interest with the hospital service, the CPHM may chair the IMT.'*

d) What was your understanding of the issues raised surrounding the IMTs? In particular, what do you understand the issues raised with the role of the chair and behavioural issues?

A I have set out in response to 416 b) many of the issues with the IMT. However, with role of the chair, this individual needs to consider all the evidence to determine what is the most likely hypothesis rather than determining the hypothesis and looking for evidence to support it. There seemed to be no clear definition of which cases were included in the IMT with no clear analysis of the reasons for inclusion. In addition, there was an anxiety that when challenged, this was taken as a personal insult as opposed to the need for constructive dialogue to get to the best outcome. There is a need to look at all the evidence, including epidemiology, to determine if this was an outbreak or not. The IMT was, by all accounts, chaotic as results were tabled, cases were added and hypotheses were not pursued that did not fit with the environment. The behavioural issues related to Dr Peters who had apparently been very intimidating at the meeting on 13/08/2018. There was a view, and this is set out in the external review, that it had become more about proving themselves right rather than a focus on the children. This is well described in the external review and is set out below.

Reference: The Queen Elizabeth University Hospital Review Report: June 2020 (Bundle 27 Volume 9, Document 11, page 145)

8.17.7. There is no excuse for the 'extreme behaviour' as reported by one witness and expressed by a large number of others in several ways, or the resultant intimidatory atmosphere that built around the IMT process during 2019. Amongst the accounts were reports of intolerance and lack of respect, for expertise and the integrity of the views of others.

8.17.9. IMTs have to remain an open-minded and constructive business-like experience where participants act as a team, and where patient wellbeing prevails over notions of the moral high-ground and uniqueness and correctness of one view to the exclusion of others.

e) Please provide details as to the discussions for re-setting the IMT process and having an independent chair

A I cannot add much more than is set out in the minutes. There was to be an independent chair either another ICD or a consultant in public health. In addition, there was discussion about ensuring the guidance was developed to reflect the lessons learned from this process and there was a range of practical suggestions to improve the effectiveness of the IMT to ensure that all information and actions are appropriately identified and that an escalation process established.

f) Please explain the actions taken and how they were taken forward:

A The deputy Director of Public Health, Dr Crighton was asked to chair the IMT and she assumed that role. Sandra Devine may be best placed to address the operational issues suggested and how they were taken forward and I understand the Dr Kennedy did revise the IMT guidance for GGC ensuring that it fit with national guidance. They may be best placed to speak to this.

g) Dr Inkster was removed as chair of the IMT following this meeting without her having the opportunity to discuss this. Do you think this was a fair approach to take?

A On the day of the meeting (Tuesday, 20th of August,2019), an email was received from Dr Peters, setting out that Dr Inkster was off sick for the next 3 days and she would

appreciate it if she was not contacted. This was sent by Dr Peters to Dr Inkster's line manager, Sandra Devine, who would normally be the person whom Dr Inkster would be expected to contact. **(Please see A49401496 – Bundle 27, Volume 8, Page 185; and A36591680 – Bundle 6, Page 70).**

There was an urgent need to ensure that the IMT, which had been set for Friday, the 23rd of August, went ahead for the following reasons:

- New admissions were still paused to the unit; Scotland's only national bone marrow transplant service was no longer functioning.
- Children and their parents were now going to other units with the consequent impact on these units' ability to cope with the west of Scotland patients as well as their own patients.
- For current patients/families and staff, the confidence in the unit was by now, very low and children were on prophylaxis, which was making them unwell in some instances.
- The IMT required support and stability with a safe space to really debate the issues and come to a risk-based assessment of the way forward.

Sandra Devine, who was Dr Inkster's line manager, had intended to discuss this fully with Dr Inkster to ensure she was fully appraised of the situation and indeed had already discussed some of the issues with her the evening before the meeting on 20/08/2019. However, Dr Inkster had now, through a colleague, advised that she was off sick for at least the next 3 days, and she was not to be contacted.

The minutes set out well the reasons why it was felt that a chair should be appointed who did not have a role with considerable input and that *independence would facilitate challenge and consideration of all views expressed*. This is crucial for good risk-based decision making, ultimately for patients and their families.

On the Thursday 22nd of August,2019, Sandra Devine had not been able to identify a chair and asked me for help. I emailed Dr de Caestecker who asked Dr Crighton, and this enabled the IMT to go ahead.

h) Dr Inkster is of the view she was forced to demit as chair of the IMT with various different reasons cited for this decision, all of which are untrue: what is your understanding of this? What reasons were given to Dr Inkster?

A I did not discuss this with Dr Inkster and I don't know what reasons she has been given. I cannot answer this question.

417. What was your involvement, if any, with the stage 2 whistleblow:

A I assume this relates to 2018 WB Stage 2: I had no involvement in that process and indeed I am not aware of what was raised. However, on the 8/10/18, I was copied into an email to Tom Walsh from Dr de Caestecker which detailed a recommendation from her recent report on whistleblowing concerns from Dr Penelope Redding and Dr Christine Peters and is set out in italics below:
The infection control team should be supported to deal with multiple emails from Dr Peters about the issues in which she has no direct role with a standard response.
Tom responded that this recommendation was very 'helpful and very timely as we discussed a recent increase in email traffic again just this morning at our SMT meeting. Teresa, Sandra and I will agree a standard response and implement the recommendation. **(Please see A40450754 – Bundle 27, Volume 9, Page 439).**

418: What was the stage 2 whistleblow process within GGC in 2018?

A This was not my area of responsibility and best answered by whistleblowing champions.

419. What do you understand to be the issues raised through stage 3 whistleblow to have been?

A I don't know.

420. With whom were these issues raised and how were they addressed?

A I don't know.

421: Do you have a view on whether these issues were resolved satisfactorily?

A I don't know.

422. What was your involvement, if any, with the stage 3 whistleblow?

A I was not involved.

423. What was the stage 3 whistleblow process within GGC in 2019?

A I don't know.

424. What do you understand to be the issues raised through stage 3 whistleblow?

A I don't know.

425. With whom were these issues raised and how were they addressed?

A I don't know.

426. Do you have a view on whether these issues were resolved satisfactorily?

A I don't know.

427. What was your involvement, if any, with the stage 3 whistleblow in April 2020?

A I received an email from Jennifer Haynes, which was about the 2017 whistleblowing issue. I had responded around the line management issue as this was where I thought stage 1 whistleblowing were raised.

428. What do you understand the issues raised though whistleblow have been?

A I don't understand what they have been and only input is the detailed in my response to question 427.

429. Dr Redding was of the view that GGC had attempted to ‘cover up’ the Whistleblow of September 2017 by not recording it as a Whistleblow. What is your view on this?

A I don't know what the process is for recording it but as set out in my response to question 409e), I did not appreciate I was the stage 1, and I would absolutely reject this assertion. I ensured full visibility of the meeting and the issues raised with non-executives within GGC.

430. With whom were these issues raised and how were they addressed?

A I don't know.

431. Do you have a view on whether these issues were resolved satisfactorily?

A I don't know.

432 – 434. Are you aware of the whistleblow to HPS in August 2019?

A Yes.

I can provide a full email trail for this issue but broadly, on the 21/08/19, I had a call and follow up email from the medical director for National Services Scotland (Dr Lorna Ramsay) which houses HPS. She set out that they had been alerted by a whistleblower to concerns which Dr Ramsay sets out in the email of 21/08/2019. I told Dr Ramsay about the meeting the night before at the GRI, which is described in my response to question 416. Other key points were around alerting Scottish Government which I was comfortable with, and I advised her we had a whistleblowing process in GGC.

I responded to Dr Ramsay on 26th August setting out that the Board's designated directors had offered to meet with the chair of IMT and I also asked Dr Ramsay to seek permission from the whistleblower to share their details. This was declined in an email response next day.

I then wondered with Dr de Caestecker if we could still investigate their concerns and she thought we could, and she had asked to meet Dr Inkster to take this forward as a whistleblowing process. (Please see A49401497).
My further engagement with this whistleblowing process is then through Dr Inkster's resignation letter which is set out in my response to EE when I suggested some of the issues raised by her in the letter could be added to the whistleblowing process already underway. Apart from this issue which I will describe below, I had no further involvement.

435. Do you consider these issues to be fully resolved?

A I don't know as no further involvement.

436. Dr Inkster and Dr Peters raised their concerns with the Scottish Government, which resulted in several meetings throughout 2019 and 2020. Are you aware of these meetings?

A No.

437. What is your understanding of why these meetings took place and the concerns raised?

A I don't know as not aware of them.

438. Were you contacted by the Scottish Government regarding these meeting? Were the concerns raised conveyed to you?

A As far as I can recall, I was not contacted and no concerns conveyed to me.

439. What actions were taken?

A I don't know.

Summary of Section DD

I am not one of the Board's experts in whistleblowing. I set out my experience with whistleblowing issues which includes responding to recommendations, requests for information and ensuring whistleblowing emails are reviewed by the Board experts to ensure all issues rigorously examined.

I described in detail my response to Dr Redding and absolutely reject that GGC concealed the stage 1 whistleblowing. It was not clear in her emails to me that I was the stage one. I took her concerns to me as a professional complaint. She emailed Tom Walsh the day after his annual leave started and I have detailed the timeline of response to her.

I undertook a very thorough review of [redacted], Dr Peters and Dr Redding's issues which they raised with me. I set up a joint meeting with them and senior GGC managers and clinicians; each concern was discussed, documented and it formed the basis of a detailed 27 point action plan which set out a clear plan to address the areas of concern. In 2021, 26 out of 27 actions were completed with one physically impossible.

I alluded to the concerns about the IMT process in August 2019 under section W. It was incumbent on the Board to step in to investigate and deal with these concerns. A new IMT chair together with IMT members, were able to take a balanced view of all the facts by careful analysis of the data and the hypothesis which had been put forward. The new chair, Dr Crighton advised in September that the ward was safe to re-open. However, the CNO advisor made it clear this was a decision for the Chief Nursing officer. The opening of the ward was approved by the cabinet secretary on 22/11/2019. The HPS report was also published, and it was agreed the ward was safe to open. I was unaware that Dr Inkster and Dr Peters were meeting with SG officials.

Resignation of Dr Inkster and other ICDs

Refer to Dr Inkster resignation letter Sept 2019 details - Objective ECM (scotland.gov.uk) (Bundle 14, Volume 2, page 572)

440. What is your understanding of why Dr Inkster resigned from her role as ICD in September 2019?

A On the 2nd of September, Dr Inkster sent an email with an attached letter to me, Dr de Caestecker and Dr Peters. There were a number of issues highlighted in Dr Inkster's letter which may have led to her resignation, and I summarised these in my response to her on the 5th of September 2019. In my letter, I set out 5 areas including workload and immediate environment, involvement and discussions within the wider IC team; lack of involvement in a forthcoming Gt Ormond Street visit; issues relating to the leadership role; the recent issues surrounding the chair of the IMT (described above); and the HR/Payroll issues. I also note issues surrounding Dr Inkster's health were mentioned in her letter to me dated 02/09/2019.

441. In her resignation letter, Dr Inkster states a colleague referred to her, "doing the work of 4 people", what is your view on this? Were there resource issues with ICDs? Please provide details.

- There was a recognition of the need to improve support towards the end of 2018/ spring of 2019. A lot of efforts were made to do this while balancing the needs of microbiology service as there was a shortage of this skill set. The areas of support to the QEUH IC service are set out below.
- In December 2018, following an SBAR from the ICM, a request was made for 2 additional ICD sessions costing circa £30K for the built environment; this was agreed by estates colleagues and funded. (Please see A38694852).
- In February 2019, there was further support from the diagnostics services which was organised by Dr Green and Tom Walsh to increase the number of infection control sessions to the QE site.
- Tom Walsh/Sandra Devine may be able to advise further on additional resources provided as well as personal arrangements put in to support Dr Inkster.

- If Dr Inkster felt that she required additional resources or to review her workload, this should be escalated to her line manager, Sandra Devine and the head of service for microbiology. I am not aware that she sought a job plan review.
- There was some surprise from the Chief of Medicine for Diagnostics, when it appeared that Dr Inkster had applied for an additional role as Training Programme Director with a proposed SLA with NSS for this role in March 2019. This had not been discussed with Dr Green. It is unclear who it was agreed by as it is usual practice for the line manager to approve these additional roles based on the needs of the service.

442. In her resignation letter, Dr Inkster refers to being undermined, being shown a lack of respect, being unsupported and undervalued during IMTs and despite discussing this with senior management these issues persisted. Were you aware of these issues mentioned by Dr Inkster before she raises them in her resignation letter? If so, were these being addressed? What are your views on her concerns?

A It may be helpful if I set out my awareness of the issues raised by Dr Inkster in the terms set out in the question and detail how these were addressed prior to her resignation letter.

Lack of respect/behavioural

- On the 31st of January 2019, Ann Gow (Director of Nursing, HIS) phoned me to alert me to a serious concern that Dr Teresa Inkster had accused another member of staff of telling her to not put anything in writing. Dr Inkster had qualified this by saying she was well supported by me and the ICT. This has been submitted to the inquiry as part of RFI 7 7.4
- I visited Dr Inkster on 4th of February 2019 and explored those concerns. Dr Inkster raised issues around staffing in ICD, support from ICT and her interactions with colleagues during IMTs. We talked about possible solutions. We also talked about a mediated meeting with the staff member she had complained about directly to the HSE inspectors. This has been submitted to the inquiry as part of RFI 7 7.4.
- On the 20th of Feb 2019, I had a follow up meeting whereby we discussed that Tom Walsh had decided to step down and Sandra Devine was temporarily taking on the role of ICM; I also had asked Dr Stewart to provide additional mentoring support to Dr Inkster. Dr Inkster raised an issue of duty of candour, which I asked her to discuss, in the first

instance, with the Dr Mathers. We discussed the need for Dr Inkster to address concerns and raise them through appropriate channels. We talked about the need to work within a team and build trust. This has been submitted to the inquiry as part of RFI 7 7.4

- 14th of March 2019, a meeting took place at the Teaching & Learning Centre at the QEUH and included Dr Inkster, Dr de Caestecker, me and Tom Steele; the notes indicate a good exchange of views and an agreed set of actions. Notes of this meeting have been included under RFI 7 7.4.
- Over the course of the following months, there were several meetings which Dr Inkster did not attend including the BICC without explanation. I was keen to meet with her and Sandra Devine on 7th of August 2019, but she asked to dial in. I sent her an email which is attached to check if things were ok. **(Please see A49401495 – Bundle 27, Volume 8, Page 192).**
- In summary, throughout 2019, there were significant efforts made to support Dr Inkster and investigate/mediate and resolve various issues.

443. The Inquiry has been told that Dr Inkster previously attempted to resign in January 2018 but was persuaded to remain in post by you. Can you provide details of this?

A On 24/01/2018, Dr Inkster copied me into an email to Professor Jones and Tom Walsh setting out her resignation. (This has been submitted to the inquiry). There were several reasons cited, but the key reason seemed to be a new structure, which the team had been working on to address the concerns set out in the 2017 SBAR of the 03/10/2017.

I understood from earlier emails from Dr Green that this had been discussed with Dr Inkster in December 2017. Dr Inkster emailed me separately to set out that it had nothing to do with me but related to her role. I note I have asked for these emails to be printed for a discussion with Jane Grant and Jonathan Best.

I recall that I discussed this with the SMT (Tom Walsh, Sandra Devine and Professor Jones). They were not in agreement with the areas set out and were surprised and upset by the resignation email. I also spoke to Dr Inkster and recall we talked about the reasons for her email, the fact that the team had worked extremely hard on many of the areas set out in her email and indeed Professor Jones had sought to cover her lead responsibilities as well as his own. I recall Dr Green also spoke to Dr Inkster and we

agreed with the SMT and Dr Inkster that we would send an email out rescinding her resignation and setting out the structure. Shortly after this, Dr Inkster sent an email to Professor Jones apologising for her email. This has been provided to inquiry under RFI 7 6.20.

Refer to: Dr Armstrong response to Dr Inkster resignation letter Sept 2019 details - Objective ECM (scotland.gov.uk) (Bundle 14, Volume 2, page581)

444. In your response to Dr Inkster's resignation letter, you state that you are keen for the issues which she raised to be fully considered and properly investigated and that a full investigation under the Boards' Whistleblowing Policy will be carried out. The issues which Dr Inkster raises are not new issues, why are they only being fully/appropriately addressed now?

A I have set out in my response to question 442 and 443 above, the resources, discussions and processes to support and resolve some of the issues raised by Dr Inkster. As set out in the note of 20/02/19, as far as I am aware, Dr Inkster did not evoke any board processes to address her concerns, and this made it more difficult to carry out formal investigations. This led to 2 issues:

1) The personal comments made by her about colleagues were made directly to HEI inspectors without any evidence to substantiate them.
2) There was no due process evoked to investigate them and enable Dr Inkster to provide evidence and colleagues to put forward their side of the events.

445. You identify 6 key issues which Dr Inkster raises in her resignation letter; do you have a view on each issue? What steps were taken to address each issue, and do you know if they have now been fully resolved?

A For ease of reference, I have set out these areas from my response on 05/09/2019 to Dr Inkster's resignation letter.

Synopsis of Key Issues

1. Workload and immediate work environment.
2. Involvement and discussions within wider IC team
3. Lack of involvement in the forthcoming visit to Great Ormond Street.
4. Issues relating to Leadership Role and chair of IMT
5. HR/Payroll related issues

6. Issues reported to HPS including: (see question 432)
a. Support from Management
b. Information flow within IMT and to Chair
c. Microbiology and Clinical Judgements
d. Issues relating to communication.

For the HR/Payroll issues, I advised that the Diagnostic Directorate would take this forward with her. For the other issues, I agreed with Dr de Caestecker that they would be incorporated into the whistleblowing review which was in the process of being set up with external HR input. I am not aware of the output of this review. I cannot answer whether they were fully resolved.

Dr Inkster, on her return from annual leave, sent me 3 further areas she wished investigated. **(Please see A49401494 – Bundle 27, Volume 8, Page 193 and A49401493 – Bundle 27, Volume 8, Page 196).**
Essentially Dr Inkster wished for the SCI process, Duty of Candour and Governance relating to specialist groups reporting to IMTs to also be investigated. This investigation was taken forward by Dr Chris Deighan and the report was finalised in May 2021 and submitted with NHSGGC's first Positioning Paper in December 2022. The delay was due to covid intervening. In summary: these concerns have been explored in detail and this review is unable to corroborate the specific concerns that were raised in her initial correspondence.

446. In July 2015, Dr Inkster, Dr Peters and Dr Wright all resigned from their roles as ICD. Dr Inkster and Dr Peters were persuaded to remain in their roles but made several future attempts to resign before finally giving up their posts. There appears to have been an ongoing problem with ICDs resigning from their role; what in your opinion caused this?

A In July 2015, there were 2 ICDs – Dr Inkster and Dr Peters who resigned their roles. This was Dr Inkster's first resignation. I was unaware of any problems prior to their resignations and as far as I am aware, they were not raised through any management process. I understood that Dr Wright's resignation was not linked to the complaints of Dr Inkster and Dr Peters.

There were allegations against Professor Williams, who was the LICD at that time. Dr Inkster rescinded her resignation, although I was not involved with this conversation at the time. Dr Peters, as far as I am aware, did not rescind her resignation and shortly afterwards was made the lead microbiologist for the QEUH site.

Dr Inkster resigned another 2 times – once in 2018 on her return from sick leave detailed in my response to question 443 above, and finally in September 2019 (which was documented in her letter), as detailed in 445. I also know that [redacted], another ICD, resigned on 2017 and this was reviewed by Professor Jones, the acting LICD at the time, covering Dr Inkster's sick leave.

Therefore, there were 2 doctors (Dr Inkster and Dr Peters) who accounted for 4 of these resignations and 1 doctor [redacted] who resigned. It may be worth commenting that these issues, as far as I am aware, were not present in the other IC teams in the North, Clyde, mental health or partnership teams who were also led by the SMT. Therefore, it seems to me that this was confined to the QEUH team and specifically Dr Peters, Dr Inkster and [redacted]

In the case of Dr Inkster's 1st resignation and that of Dr Peters, the issues raised in her first resignation were fully investigated in Dr Stewart's report and for [redacted] it may be better to discuss this with Professor Jones. For Dr Inkster's second resignation, she rescinded that and apologised to Professor Jones who had been covering her workload during her sick leave. Her 3rd one is described above. In each case, there seemed to be little attempt to utilise well recognised channels to raise issues and indeed be part of resolving the issues.

447. Was there a clear remit for the role of ICD?

A The ICD role is to provide advice and support to the local IPC nurses; to be involved in the planning upgrading and commissioning of facilities; to contribute to the 24 hour infection control medical on call service; to chair PAGs and IMTs; to attend the monthly ICD and SMT meetings as well as regular attendance at the AICC; monitor local SSI rates and investigation of data exceedance; support compliance with national targets and national standards and guidance; assist the lead ICD in reviewing and updating IPCT policies; attendance at specialist groups such as decontamination and theatre ventilation;

escalate concerns to the lead ICD; advise and support the lab manager on IPC as well as contributing to teaching, training, audit and research.

The IPC accountability framework sets out the role of the LICD and the remit of local ICT teams. There was also a joint agreement set out between the LICD and the Director of Estates – first set out in 2016 – about the role of ICD in new builds. This builds on a previous HDL (2007). As Dr Redding set out in her email to me, Infection Control is a team working together to ensure the tasks of the IC service are fulfilled. In all the sectors, and indeed within QEUH/RHC sector, except for Dr Peters, there was no ICD who raised issues with the role and their understanding of it. IC does depend on good team working and the team supporting each other.

There is a national context to the role of the ICD which has been evolving. In the minutes of the meeting with the CNO and HPS and GGC (2015), the CNO described work to review the role of the ICD after the Vale of Leven Inquiry. There was also some discussion regarding recent issues raised by ICDs on workload and role. In 2024, SG has published guidance which sets out roles of team and specialists. **(Please see A49401492- Bundle 27, Volume 8, Page 198; and A48699683 – Bundle 13, Page 197).**
There may be a requirement, as set out in the external review, to review the training programme for microbiology and infection control doctors and their role which is evolving. However I have not been directly involved in this national process and infection control/ SG colleagues maybe better placed to address these issues.

448. Dr Peters has told the Inquiry she sought clarification on her remit as ICD on several occasions but was unsuccessful in obtaining this. What is your view on this?

A My understanding was that Dr Peters demitted her role as an ICD in July 2015. However, I understand that microbiologists are required to cover IC issues when on call and this has been the case for many years. I don't know what clarification Dr Peters has sought and from whom, so I cannot comment on this issue. She has raised issues with me in 2017: this led to Dr Green convening a meeting to discuss these issues directly in December 2017. I did not attend this meeting. However I understand from Dr Green that the meeting discussed structure, roles and responsibilities and team dynamic with proposals to take this forward.

449. David Stewart undertook a review into the resignation of ICDs – Refer to Summary of Infection Control Issues details - Objective ECM (scotland.gov.uk) (Bundle 14, volume 1,page 464) – who instructed this review? What was the purpose of the review? What actions, if any, were informed by the findings of this review?

A I instructed the review following the resignations in July 2015 of Dr Peters and Dr Inkster. The purpose of the review was to determine the main issues surrounding the resignation of the 2 doctors and determine if any actions required to address these issues. There were a series of actions following the review: these included the temporary appointment of Dr Cruickshank which is set out in a letter from Isobel Neil, director of diagnostics and Tom Walsh on the 12/11/2015. The aim of this was to bring together the ICT and the diagnostic directorate to address many of the issues raised within the report. Many of the ICDs had a dual role as a microbiologist and infection control which required them to report into 2 directorates. The appointment of Dr Cruickshank as the Clinical Director for both was to support work to ensure issues addressed. There was also an Organisational Development process and a workplan set out based on organisational objectives to take forward the service. This is set out in 2015 and 2016. Some of the work was interrupted due to sickness in one of the senior managers. In 2016, Professor Williams resigned, and Dr Inkster was appointed as the lead infection control doctor for GGC. Dr Cruickshank continued with her oversight role until the 1st of August 2016 and reported that the role maybe largely redundant by then and in addition, Tom Walsh felt Dr Inkster was fitting in well. **(Please see A49401491 – Bundle 27, Volume 8, Page 200 and A49401490 – Bundle 27, Volume 8, Page 202).**

450. What is your view on each of the following issues within his report and proposed remedial actions?

a) Culture and behaviours:

A The issues set out around culture at the time indicated a mix of historical and current issues. I had not appreciated the degree of historical issues, which were driving some of the fractured relationships in the present. Some of the issues, e.g. undermining colleagues, did endure through different time periods despite interventions, either through Organisational Development (OD) or personal reflection at appraisal and with personal intervention e.g. coaching/mentoring. This may suggest a lack of awareness/insight. The

remedial actions depended on individual self-awareness and the organisational ones on all the individuals being prepared to work together.

b) Leadership style and management:

A Much of the leadership style seemed to be focussed on the LICD with some historical and current issues.

c) Team functioning and structure:

A There is a range of issues from better administration, e.g. meetings with recording of outcomes, with some of the issues concerning the organisational structures with diagnostics and IC. There are other issues which proved more qualitative and did recur in the years to come, which was the ability to reconcile different opinions and the need for risk-based assessments.

d) Service/patient concerns:

A This seemed to reflect the opinion from the 2 doctors who resigned. I do think the teams were all focussed on safety and doing the best for patients taking the whole risks into account. This was not acknowledged by individuals who felt they were the custodians of safety.

Looking back at this review, there were many findings which were predictive of what continued throughout the years. There were interventions and structural changes throughout this time and OD workshops. There were periods of stability followed by unstable periods, which often seemed to be about who was in the LICD post. There are some areas which are amenable to management actions, e.g. appointing Dr Cruickshank as clinical director for a while. There are other intrinsic individual traits, which can disrupt whole services as well as the local team, which are far less amenable to intervention. It is also worth noting that all the other ICT teams who were led by the same SMT did not experience these issues as far as I am aware. The 2015 report was at a point in time and the SMT tried to address the issues. However, as time moved on, it became clear that there were patterns which repeated themselves, which were compounded by some very complex issues, both internal and external, which made this a difficult situation to manage.

451. Did David Stewart discuss the report with you? If so, what was discussed?

A Yes, Dr Stewart did discuss the report with me. I can't recall exactly, but I was in full agreement with him that there should be a workshop sharing the findings of the report with the teams in a sensitive way. This was cancelled by other members of diagnostics and ICT who wished to let new management arrangement bed in.

452. Who was the report shared with?

A The senior teams from IC and diagnostics and the LICD in November 2015. I am not sure who else.

453. Were the issues with ICDs resolved? If not, why not?

A I think it is important to sort out what is meant by ICD. From around April 2016 to around June 2017, there was relatively calmness in the IC service. Indeed, from 2012-2017 (bar the period of the resignations in 2015), the IC team worked well. There were issues which recurred with some microbiology colleagues, and they were managed. Indeed, throughout this whole period, there has been a good IC service in the QEUH/RHC. However, there were significant pressures which, as the external review mentioned, meant that the team became more fractured as opinions differed in the reasons for infections. This came to a head in August/September 2019 and November 2019.

454. Email from C Peters to J Armstrong - 21 September 2017 details - Objective ECM (scotland.gov.uk) – (Bundle 14, Volume 1, page 696) Re.4B, [redacted] – HAI SCRIBE

a) Do you recall receiving this email?

A Yes

b) Dr Peters sets out a number of outstanding concerns, including [redacted] not having required information to allow [redacted] to sign off an HAISCRIBE and Dr Inkster being quoted as having approved the document when this was not the case. What is your understanding of this situation? Were these concerns investigated further?

A I responded on the 3rd of Sep 2017 to Dr Peters' earlier email on the 23/08/2017 setting out the process to date and explained that Professor Jones would take over the HAISCRIBE for this area. I am not party to the earlier issues about Dr Inkster being quoted as approving the document and I cannot answer this question. I understand that there is a full RFI submitted to the inquiry on this matter. The full BMTU timeline

submitted to the inquiry under RFI 7 has a detailed entry on this issue and the reasons for this.

455. Refer to Bundle 4 – SBAR – Document 33
This SBAR from 6th December 2018 recommends additional ICD sessions to support the current and ongoing requirement for expert input and advice into the built environment at QEUH/RHC.

a) What happened as a result of this?

A I took this forward with the Director of Estates and the ICM.

b) Were the additional sessions funded?

A Yes, they were funded at a cost of £30K and I understand an ICD was appointed.

c) Was there an issue with resources within ICD?

A I have set out in question 441 the response to this.

456. In your opinion were there issues with the role of ICD and what were they?

A Please see my response to question 447; there are local and national issues.

Summary of section EE

I have set out the sequence of events before Dr Inkster resigned. There had been significant efforts to enhance resources at the QEUH and these were documented by Dr Green. In addition, Dr Inkster took on an additional job in April 2019 which was not discussed with Dr Green or Sandra Devine. Dr Inkster raised concerns directly to the HIS inspector about an individual and, as far as I am aware, had not raised them using recognised processes internally nor provided any evidence to substantiate them. A mediated meeting was organised between her and the individual, At the end of this meeting, she indicated that she did not wish to take this further.

All the complaints set out in her resignation letter were thoroughly investigated through a whistleblowing review. She added a further 3 issues in an email to me after her resignation letter and they were also investigated: the report was delayed due to covid and was completed in May 2021.

She had resigned in 2018 and she rescinded it a few days later and apologised to the lead clinician who had covered the workload.

The resignations of Dr Peters and Dr Inkster in 2015 are described: there was a full investigation and the appointment of a clinical director to oversee the service until August 2016 when it appeared stable. However, many of the findings of that would apply to behaviours which recurred over the years.

The role of the ICD is under review currently by the SG team.

National Performance Framework

457. When did the escalation of the QEUH to Stage 4 of the National Performance Framework take place?

A 22/11/2019

458. What was your understanding of why NHS GGC was escalated to stage 4?

A The letter from Malcolm Wright dated 22/11/2019 sets out

In light of the on-going issues around the systems, processes and governance in relation to infection prevention, management and control at the QEUH and the RHC and the associated communication and public engagement issues, I have concluded that further action is necessary to support the Board to ensure appropriate governance is in place to increase public confidence in these matters and therefore that for this specific issue the Board will be escalated to Stage 4 of our performance framework. This stage is defined as 'significant risks to delivery, quality, financial performance or safety; senior level external transformational support required.'

459. What were the events preceding this?

A I will take the time from Sept to November 2019 as the time period before escalation. However, in order to give a little more background to the 'doctor led' review, I will describe how this review came about, in that I asked for it to be done but, from my recollection, I was not alerted to any concerns/issues before it was reported in the media in November 2019.

February 2019: Dr Inkster mentioned a duty of candour issue with an MSP and Dr Gibson during my conversation with her on 20th February 2019. I asked her to discuss this with Dr Gibson and Dr Mathers in the first instance. (see my response in question 442).

March 2019: Following an email from Dr Mathers, I had asked Dr Mathers to undertake a review of 2017 cases and other issues. Full details have been sent to the inquiry about this review with timeline- See RFI 7 7.5, and timeline at Section 21 no.5 (RFI 15)

September to November 2019: I have set out my response to question 315, the issues surrounding the re-opening of ward 6A; the IMT issues with the change in chair; the engagement with SG and HPS which led to announcement that the ward would open on 22/11/2019. In my responses to questions 440 - 443, I described events surrounding Dr Inkster's resignation.

In November 2019, the Director of Communication may be best placed to describe the media events which took place around the 14th of November 2019. Full details of the events surrounding this have been submitted to the inquiry on both the communications and the clinical review. RFI 6 Question 7 narrative (submitted to the inquiry) covers the media and political responses in November 2019.

An email from Dr Gibson sets out some of the issues. I had **not** been aware of the review outcome nor been alerted to any concerns until the case was discussed in the media. I had also not been alerted that the Cabinet Secretary had been aware of the case as set out in Dr Gibson's email. **(Please see A49402737 – Bundle 27, Volume 8, Page 203).**

460. Describe the process of escalation and the consequences of this:

A Sandra Bustillo can perhaps describe the process of escalation from media and communication point of view. The process of escalation involved Board papers being scrutinized and amended by SG; the oversight board subgroup for IC was set up and this involved a lot of information and presentations together with peer reviews; a review of all paperwork by auditor; and a new post of Director of Infection and Prevention was established with the HAI exec responsibilities incorporated into the post.

461. What actions were taken?

A The actions are set out in my response to question 460 above and the oversight board and case note review were established and published their reports with recommendations.

Case Note Review and Oversight Board

462. Please describe the process involved for the Case Note Review. Please include how this was established, who was involved, what work was done and any relevant outcomes.

A This question may be better addressed by SG colleagues as I was not directly involved with this process. In terms of the draft report, GGC clinicians and managers set out a range of concerns with supporting evidence regarding the methodology, processes and conclusions of the report together with a covering letter from the chief executive. As part of the GGC response, Dr Emilia Crighton submitted the public health commentary regarding the concerns on the methodology employed by the case note review and this has been submitted to the SHI. The senior team met with the casenote review authors to discuss the draft final report and our concerns. These responses to the casenote draft report were submitted to the SHI (RFI 1 part 6).

463. Please describe the process involved for the Oversight Board. Please include how this was established, who was involved, what work was done and any relevant outcomes.

A This question may be better addressed by SG colleagues as I was not directly involved with this process. I, along with a team from GGC, engaged with the Infection control subgroup and provided evidence to them on any areas they requested. GGC also provided a comprehensive response with evidence to the Oversight board draft reports and these have been submitted to the SHI (RFI 1 part 6)

464. Have you read the Overall Report of the Case Notes Review and noted its recommendations?

A Yes.

465. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Governance and Risk Management?

A Yes.

466. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Communications and Engagement?

A Yes.

467. What steps have been taken by GGC to implement each of the separate recommendations of the Case Notes Review, when they were taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

A In response to RFI 4 submitted to the inquiry details the status of the recommendations as of 2022

468. What steps have been taken by GGC to implement each of separate recommendations of the ‘Local Recommendations’ of the Oversight Board, when were they taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

A The response to RFI 4 submitted to the inquiry details the recommendations and actions as of 2022.

Communication- Staff information sharing

Questions 469 to 470:

A The Director of Communications would be better able to address these questions along with the directorate team.

Communication with parents;

Questions 471-473:

A The Director of Communications and the Director of Nursing for GGC at the time would be better able to address these questions.

Staff/culture within the QEUH

474. What was the working environment like within the QEUH – work life balance/ workplace culture? What issues, if any, are you aware of? What was your experience of this?

A The Director of the QEUH, Anne Harkness and the Director of HR for GGC maybe best placed to answer this question.

475. In your view, were the concerns raised by infection control colleagues regarding the general build of QEUH/RHC taken seriously? What action was taken in response to these concerns, if not already mentioned in your answers?

A Yes, the concerns were investigated, I have set out a lot of examples within my responses to the questions and no doubt there are many more from others as well.

476. Is there anything further that you want to add that you feel could be of assistance to 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.

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

Appendix A

A37805538 - Dr Armstrong response to Dr Inkster resignation letter Sept 2019 – Bundle 14, Volume 2, Page 581

A43502680 - BMT Document" - from Craig Williams to Jennifer Armstrong that considers the specification and identifies deficiencies with the BMT Unit Bundle 20, Page 13

A43955371 - Scottish Hospitals Inquiry - Hearing Commencing 12 June 2023 - Bundle 8 - supplementary documents for the Oral hearing commencing on 12 June

A38759270 - Action Plan arising in response to SBAR dated 3 October 2017
Bundle 20, Page 792

A37805537 - Dr Inkster resignation letter Sept 2019
Bundle 14, Volume 2, Page 579

A47739010 - Summary of Infection Control Issues
Bundle 14, Volume 1, Page 464

A38825069 - Email from C Peters to J Armstrong - 21 September 2017
Bundle 14, Volume 1, Page 696

A47069198 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 12 - Estates Communications

A47395429 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 10 - Water Technical Group / Water Review Group Minutes

A47175206 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 9 - QEUH Cryptococcus Sub-Group Minutes

A43293438 - Scottish Hospitals Inquiry - Hearing Commencing 12 June 2023 - Bundle 6 - Miscellaneous documents

A43299519 - Scottish Hospitals Inquiry - Hearing Commencing 12 June 2023 - Bundle 4 - NHS Greater Glasgow and Clyde: SBAR Documentation

A43255563 - Scottish Hospitals Inquiry - Hearing Commencing 12 June 2023 - Bundle 1 - Incident Management Team Meeting Minutes (IMT Minutes)

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

Appendix B

A49661442 – 07082015question244 – Bundle 27, Volume 4, Page 327

A49661443 - FW FW Pediatric BMT Ward 2A Neutorpenic ventilation – Bundle 27, Volume 8, Page 215

A49661444 - Wd 2A Ventilation spec 17032016 – Bundle 27, Volume 8, Page 230

A49661445 - RHSC BMT Meeting Monday 10th August 2015 – Bundle 27, Volume 8, Page 213

A49661446 - AHU 23 SUPPLY (2ND FLOOR ISOLATION) REPORT – Bundle 27, Volume 8, Page 234

A49661447 - FW Ward 2A isolation room Tender approvals – Bundle 27, Volume 8, Page 243

A49661448 - Fw RHC Ward 2a Draft Tender Document – Bundle 27, Volume 8, Page 267

A49661450 - RE Ward 2A isolation room modification meeting – Bundle 27, Volume 8, Page 283

A49661451 - Ward2a Tender – Bundle 27, Volume 8, Page 288

A49661453 - Fw RHC Ward 2a Draft Tender Document – Bundle 27, Volume 8, Page 289

A49661454 - RE Ward 2A isolation room modification meeting – Bundle 27, Volume 8, Page 291

A49661456 - RHC Wa69d 2a Isolation Rooms Tender – Bundle 27, Volume 8, Page 269

A49661457 - QEUH RHC - BMT Theatres Action Plan t for catch up with IC team and also david stewart – Bundle 27, Volume 8, Page 300

A49661458 - FW Infection control concerns – Bundle 27, Volume 8, Page 298

A49661459 - QUEH - BMT Action Plan ar 21 January 2016 – Bundle 27, Volume 8, Page 301

The witness was provided with a questionnaire by the Scottish Hospitals Inquiry from which some of the questions were combined and answered collectively to achieve an overall detailed response.
The details of all questions within the questionnaire are:

Appendix C

Questionnaire for Statement

A. Personal Details

1. Name, qualifications, chronological professional history, specialism etc – please provide an up-to-date CV to assist with answering this question.

B. Professional Background

2. Professional roles within academia

3. Professional roles within the NHS

4. Professional roles, including dates when roles occupied.

5. Professional roles within NHS GGC

6. Professional roles within QUEH/RHC

7. Roles and responsibilities within the above areas.

8. If had more than one role, how was the work split?

9. How many hours per week did you spend in your role at QEUH/RHC?

10. Who did you report to?

11. Who reported to you?

12. Describe an average working day in your role.

13. Which of your colleagues did you work with most closely on a daily basis?

14. Refer to the Estates Team Bundle, document 29 - Organograms showing the organisational structures within QUEH.

a) Does the organogram match the organisational structures of QEUH?

b) If not, why not?

c) How does the structure and hierarchy operate across the different sectors?

C. SMT (Pre-2015)

15. What is the SMT?

16. Who was part of the SMT?

17. How many colleagues were in the SMT?

18. What were the roles and backgrounds of members of the SMT?

19. What was the structure of the SMT?

20. How often would the SMT meet?

21. Were members of the SMT were also members of the IMT?

22. To what extent, if any, were there issues with record-keeping of SMT minutes etc?

23. What was the purpose of the SMT meetings?

24. What was the escalation process for the SMT?

25. What, if any, documentation would the SMT monitor?

26. To what extent, if any, would the SMT be involved in making policy?

27. Who did the SMT report to?

28. Who reported to the SMT?

29. How many hours per week was spent on SMT meetings and related activities?

30. What parts of the QEUH/RHC specification were considered at any meetings?

31. What, if any input, did the SMT have in the specification of the QEUH/RHC before handover in January 2015?

32. What, if any input did the SMT have in changes to the contract for the QEUH/RHC before handover in January 2015?

D. AICC (Pre-2015)

33. What is the AICC?

34. What was the purpose of the AICC?

35. Were you a member of the AICC?

36. What was escalated to the AICC?

37. Who was in the AICC?

38. How often did the AICC meet?

39. What types of issues were discussed at the AICC?

40. What documentation was considered at these meetings?

41. What parts of the QEUH/RHC specification were considered at any meetings?

42. To what extent, if any, were there issues with record-keeping of AICC minutes etc?

43. What, if any input, did the AICC have in the specification of the QEUH/RHC before handover in January 2015?

44. What, if any input did the AICC have in changes to the contract for the QEUH/RHC before handover in January 2015?

E. BICC (Pre-2015)

The Inquiry understands you were chair of the BICC:

45. What is the BICC?

46. What was the purpose of the BICC?

47. What was escalated to the BICC?

48. Who was in the BICC?

49. How often did the BICC meet?

50. What types of issues were discussed at the BICC?

51. What parts of the QEUH/RHC specification were considered at any meetings?

52. What documentation was considered at these meetings?

53. To what extent, if any, were there issues with record-keeping of BICC minutes etc?

54. What, if any input, did the BICC have in the specification of the QEUH/RHC before handover in January 2015?

55. What, if any input did the BICC have in changes to the contract for the QEUH/RHC before handover in January 2015?

F. Involvement in specification of new hospital prior to January 2015

56. Can you recall when you were first consulted about the specification of the new hospital, the QEUH/RHC?

57. Who consulted you?

58. What information or advice were they seeking from you?

59. What, if any, information or advice did you give in relation to the various NHS guidance notes (SHTMs etc)?

60. To what extent did you have access to plans, manuals and specifications for all the rooms and systems for the QEUH/RHC?

61. Can you recall if there was any information or advice sought from you in relation to vulnerable patients (such as immuno-compromised patients)?

62. If so, what was the information or advice that was sought?

63. If so, what information or advice did you provide?

64. Can you recall what was in the ventilation specification?

65. Did you request information on the designs of the ventilation system?

66. If so, who did you request it from?

67. What design documentation was provided to you?

68. Did you request information on the designs of the water system?

69. If so, who did you request it from?

70. What design documentation was provided to you?

71. Did you discuss the ventilation system with the estates/project team?

72. If so, with whom?

73. Did you discuss the water system with the estates/project team?

74. If so, with whom?

75. What did you discuss with them?

76. Who, if anyone, outside the NHS was asked to review the specification for the QEUH/RHC?

77. What meetings, if any, were you invited to review the design plans for the RCH in or around June 2013?

78. If so, what was discussed at the meeting?

79. Who ultimately made the decision on the specification of the rooms in the RHC?

80. What do you understand the purpose of the NHS guidance notes (SHTMs etc) to be? Why are they important?

81. Do you understand the NHS guidance notes (SHTMs etc) to be just guidance or are they mandatory?

82. What do you understand the potential patient impact to be from non-compliance with the SHTM guidance to be?

83. To what extent did you have communications with the Project Team for the QEUH/RHC?

84. Which other colleagues were being consulted about the specification of the new hospital?

85. What is a Clinical Output Specification?

86. Were you consulted to provide input for the Clinical Output Specification ("COS") for Haemato-oncology?

87. If not, who was consulted to provide input for the COS for Haemato-oncology?

88. Why were you not consulted to provide input for the COS Haemato-oncology?

89. What, if any, reviewable design data ("RDD") did you see?

90. What involvement did you have with RDD in the QEUH/RHC?

91. Can you explain the difference between the process of 'commissioning' a new hospital and 'validation' of a new hospital?

92. What commissioning documentation did you see?

93. If not, did you request commissioning documentation from the Project Team?

94. What validation documentation did you see?

95. If not, did you request validation documentation from the Project Team?

96. How far did you escalate, if any, the issue of the lack of validation documentation?

97. Were the BMT isolation rooms built using the specification for a multi-drug resistant tuberculosis ("MDR-TB") isolation room?

98. Why was it built to an MDR TB specification?

99. What input, if any, did you provide on the Schiehallion Ward (2A and 2B) at the RHC?

100. Were you consulted to provide input on Schiehallion Ward at the RHC (2A and 2B)?

101. What steps did you take in relation to specification of the Schiehallion Ward (2A and 2B) at the RHC?

102. What did you understand the specification to be for Schiehallion Ward (2A and 2B) at the RHC?

103. What is a PPVL?

104. How comfortable were you about PPVL being installed at the QEUH/RHC?

105. What specifically did you understand was being provided by Multiplex in relation to PPVL?

106. What air was being HEPA filtered? The air supply into the lobby or elsewhere?

107. What are positive pressure isolation rooms ("PPIR")?

108. Did you expect to find PPIR in the QEUH/RHC when the hospital opened?

109. What is the difference between PPVL and PPIR?

110. What changes were made to the contract between 2009 and 2015?

111. What involvement did you have in any changes to the contract?

112. If so, why were these changes to the contract made?

113. Who ultimately approved the changes to the contract?

114. What concerns did you have about the specification before handover of the QEUH/RHC on 26th January 2015?

115. Why were you concerned about these specification issues?

116. Which other colleagues shared these specification concerns?

117. What was your understanding of the decision-making process between NHS GGC and Multiplex in relation to the specification?

118. Can you recall any of your observations from your visit to the QUEH/RHC?

119. What observations did you specifically have in relation to HEPA filters in wards?

120. Did you raise any of your observations with colleagues?

121. If so, to whom did you raise your observations?

122. Can you recall if you had any meetings to discuss your observations?

123. If so, can you recall any of the discussion from these meetings?

124. What assurances, if any, did you receive from the Project Team that the ventilation commissioning had been done successfully?

125. If so, who, in the Project Team, gave these assurances?

126. What assurances, if any, did you receive from Currie and Brown before handover on 26 January 2015?

127. Did Multiplex seek advice or information from you or any of your colleagues?

128. If so, what advice or information was sought by Multiplex?

129. What was the response from you or your colleagues to Multiplex?

130. Did you request commissioning and validation results for any of the wards?

131. Who did you request the results from?

132. Did you receive the results?

133. How often, if any, were you liaising with the Project Team on ventilation?

134. How often, if any, were you liaising with the Project Team on water?

G. Risk Assessments at Occupation

135. Are you aware that there is a legal requirement to carry out a water risk assessment at the point of occupation?

136. Where is this legal requirement set out?

137. Are you aware if such a risk assessment was carried out at the QEUH/RHC?

138. If so, when did you become aware of this risk assessment?

139. What documentation have you seen in relation to this risk assessment?

140. DMA Canyon Reports: Refer to Bundle 6 – Miscellaneous documents – documents 29 and 30.

a) Have you seen these reports before?

b) Was this the DMA Canyon 2015 report (document 29)?

c) In her statement Dr Inkster has advised the Inquiry that you called her when you were told HFS had found the DMA risk assessment reports, and you were “really worried about patient safety implications”. When did you first become aware of this report?

d) Who made you aware of this report?

e) What actions did you take upon becoming aware of this report?

f) Who would have instructed these reports?

g) What would the cost of such reports be?

h) Who would have signed off on these reports? What would this process look like?

i) Are you aware of why the risk assessment was not undertaken prior to handover in 2015?

j) Do you have a view on why this might have happened?

k) The report makes several recommendations, do you know what was done to follow up on these recommendations between 2015 and 2017?

l) Do you know if/when the works suggested in the 2015 report were actioned?

m) What is your own view of the findings of the 2015 report? Do you agree with it or not? Explain your rationale.

n) The 2015 report highlights a number of actions required to be taken, are you aware how these actions were managed by estates? If so, please provide details of the management of the recommended actions.

o) DMA Canyon prepared another report in 2017 (document 30). Do you know what works, if any, recommended in the 2015 were carried out prior to the 2017 report?

p) What was the impact, if any, of the failure to implement the 2015 recommendations on patient safety or to bring its conclusions to the attention of the IPC team within the hospital?

q) We understand that Infection Control were only advised about the 2015 DMA Canyon Report in 2018. Do you know why they were not told sooner? What happened?

r) Do you have any concerns about the way in which the water system was managed?

141. What risk assessments have been undertaken in respect of the water system since the DMA Canyon Reports? Please provide details.

142. Following the DMA Canyon Reports, what water maintenance strategies have since been put in place? When were these actions taken? Who is/was responsible for these? Please provide details of any applicable strategies which were put in place.

H. Infection Control in General

143. How was infection control managed when the QEUH opened in 2015?

144. How large was the infection control site at the QEUH/RHC in 2015 and onwards?

145. How many colleagues were in the infection control team in 2015 and onwards?

146. How involved were you in the governance of the infection control team when the hospital opened?

147. Which colleagues were in the infection control team when the hospital opened?

148. What was their experience and expertise?

149. How often would the team meet?

150. Were there minutes of these meetings?

151. How would issues be escalated within the infection control team?

152. What was the structure of the infection control team in 2015 and onwards?

153. Who did the infection control team report to?

154. How many hours per week did you spend working with colleagues in the infection control team when the hospital opened in 2015? Did this change over time?

155. What, if any, infection control plans were prepared by the infection control team?

156. If an outbreak occurred, how would the infection control team respond to it?

157. What is HAI?

158. What, if any, distinction is there between Hospital Acquired Infection and Healthcare Associated Infection?

159. To what extent, if any, is infection (whether endogenous or arising from the environment) always a risk for certain sorts of patients?

160. To what extent is it possible to prevent infection?

161. What, if any, sorts of infection can be expected to arise no matter the level of care taken in relation to IPC/hygiene?

162. How is infection control monitored in the QEUH/RHC?

163. What infection control investigations are carried out in the QEUH/RHC?

164. Would you have expected infection control to be involved in the design of the water system?

165. Who was involved from infection control in the design of the water system?

166. To what extent did you have any involvement in the ventilation system design?

167. Would you have expected infection control to be involved in the design of the ventilation system?

168. Who was involved from infection control in the design of the ventilation system?

169. To what extent did you have any involvement in the ventilation system design?

170. How is infection control reacted to and reported internally?

171. How is infection control reacted to and reported externally?

172. How many colleagues were covering infection control for the QEUH/RHC site on 2015 and onwards?

173. Who would the infection control team go to for expert advice?

174. How often would expert advice be sought?

175. What relationships did the infection control team have with other teams (e.g. domestic team)?

176. How were these relationships?

177. How often would teams communicate?

I. The Water supply in General

178. What were the functions of the Water Safety Group?

179. How did this Water Safety Group at the QEUH/RHC come about?

180. Who was in the Water Safety Group?

181. Were you provided with updates from the water safety group?

182. Who did the Water Safety Group report to?

183. How often did the Water Safety Group have to report to another agency within the NHS?

184. To what extent, if any, were there issues with record keeping of Water Safety Group minutes?

185. What documentation did the Water Safety Group review?

186. What testing was carried out on the water supply before handover on 26 January 2015?

187. Which colleagues were involved in testing the water supply?

188. What was the outcome of the testing?

189. What remedial steps, if any, were taken after the testing?

190. When was the chlorine dioxide dosing of the water supply carried out?

191. What are biofilms?

192. What sort of organisms can be found in biofilm?

193. What discussion, if any, can you recall about bio films and taps?

194. What risk assessments, if any, were carried out in relation to taps?

195. If so, who prepared the risk assessments?

196. What, if any, communication was there with Health Protection Scotland concerning taps?

J. Horne Taps/POU Filters

197. The use of Horne Taps was discussed in the IMTs relative to the water incident. Refer to IMT Bundle 1, document 18

Please confirm:

a) Your understanding of the use of Horne taps.

b) Who authorised the use of Horne taps?

c) Why were Horne taps selected?

198. Refer to Bundle 10, document 1:

a) Are you aware of this meeting?

b)

c) What was the purpose of this meeting?

d) How did this meeting come about?

e) Did you have any concerns in terms of the discussions which took place and the use of Horne taps?

f) Do you know what actions were taken following this meeting? Were these completed?

g) Do you know if the follow-up meeting with the Horne representatives occurred? If so, what was the outcome of that meeting?

199. When the decision was made in 2014 to use Horne taps were any risk assessment carried out by NHS GGC, its suppliers or its contractors about how the taps should be used and maintained? What steps did those risk assessments recommend and were they thereafter carried out?

200. Flow straighteners: when did you become aware that they were non-compliant with SHTM 03-01 guidance? Do you know if they were non-compliant at handover?

201. Were new taps replaced in January 2019? If so, why were they replaced? Was the replacement related to the use of chlorine dioxide?

202. The use of Point of Use Filters was discussed in IMTs. Refer to the IMT Bundle
Please confirm:

a) Your understanding of the purpose of point of use filters

b) Who authorised the use of point of use filters?

c) Why were point of use filters required at the QEUH/RHC?

d) Who was responsible for the management of point of use filters and how often they were cleaned/changed?

e) How effective are point of use filters and are they still in place?

f) If they are still in place, why are they still in place?

K. The Water Incident – 2018

203. What concerns did you have about the water supply at the QEUH/RHC?

204. When did these concerns first emerge?

205. Please provide details of the concerns as they emerged in 2017 into 2018 in respect of the water issues. Initially focus on your recollection of events as they happened. In relation to the concerns:

a) When did the concern arise?

b) Nature of concerns?

c) Possible cause of concerns?

d) What actions were taken in response to the concerns?

e) In your view, how sufficient were these actions?

The following IMTs have been highlighted to assist with this: IMT Bundle Documents 16-18, 21,24, 26-29, 31-32. If you are also able to respond to the questions raised in respect of the IMTs below when considering your recollection of events.

206. Refer to IMT Bundle, Document 16

Multiple positives for cupriavidus and stenotrophomonas have been found from the taps and a showerhead in Ward 2A.

a) What is your recollection of this meeting?

b) Dr Gibson raised concerns that the pathogens found from the samples taken are potentially lethal organisms to immune suppressed patients within ward 2A.

What was your reaction to this and the potential that patients' lives were at risk?

c) Do you think the action plan from this meeting was adequate?

d) Do you think these significant and very serious concerns were being given the appropriate amount of gravitas?

207. Refer to IMT Bundle Document 17

This meeting discusses the increase in hospital acquired bacteraemia cases including Stenotrophomonas, pseudomonas and cupriavidus.

a) What were the concerns raised in this meeting?

b) What discussions took place relating to source of infection?

c) Did these increased cases cause concern?

d) What concerns did you have following this meeting?

e) What actions did you take?

f) The action plan from the meeting notes you are going to speak to Jane Grant to see if a proactive press statement should be actioned. What happened?

208. Refer to IMT Bundle Document 18.

a) What measures were being taken to manage the situation?

b) What was your involvement in this?

c) What information were patients/parents given regarding the situation with the water?

d) What information were staff given regarding the situation with the water?

e) Who was responsible for overseeing the response?

f)

g) What is your view on the adequacy of the control measures put in place?

209. In the IMT of 4th June 2018, (Bundle 1, document 23) Jamie Redfern advises that a weekly report of actions and investigations is being issued to you. What did these reports contain? Did you follow them up for further information?

210. What is your understanding of how the rest of the water incident unfolded?

211. Was this incident resolved successfully? Explain your answer.

212. Refer to IMT Bundle, Document 35:

a) What were the issues with the drains?

b) Refer to Action Plan at page 153 - What actions were taken to remedy these issues? Was the issue resolved?

213. The Inquiry is aware that chemical dosing of the drains alongside the water system was instigated. Please explain how that process came about and, in your view, whether it was/is effective.

L. Other water incidents

214. What other specific events do you recall in relation to water? Do you have any recollection of debris in the water tanks? Refer to IMT Bundle, Document 45 as starting point.

If so, please explain:

a) What the issue was
b) The impact on the hospital (include wards/areas) and its patients (if applicable)
c) Who was involved
d) What was escalation process
e) What was the result of any escalation
f) Were any external organisations approached to support and advise
g) Detail the role and function of HPS and HFS, advise if they were involved and any reports prepared by them
h) Detail advice given from external organisations; what was the advice, did you agree with it, how was any advice managed/ communicated with others in your team and your superiors?
i) Was there opposing advice and by whom
j) What remedial action was decided on and who made the decision
k) Was the issue resolved – consider any ongoing aftercare/support/monitoring
l) Detail any ongoing concerns you had, or which you were made aware of
m) Was there any documentation referenced during or created after the event? i.e. an SBAR/ minutes from a meeting – use the bundle provided to assist.
n) Did anyone sign off to say the work had been completed and issue resolved/area safe? If so, who signed off on the work?

215. What were the NHS procedures for raising concerns about water or water infections?

a) How were these dealt with by you?

b) How was it confirmed that they had been dealt with?

c) Do you recall specific incidents, and in particular any that gave you concern.

M. The Ventilation System

216. What is neutropenia?

217. What ventilation standards are required for neutropenic patients?

218. What guidance (SHTMs/HTMs/HBMs etc) did you understand applied to the following at (i) the planning, (ii) the construction and (iii) the handover of the QEUH/RHC:

(a) HEPA filtration of wards

(b) Room air change rates

(c) Room air pressure

(d) Chilled Beam Units

(e) Sealed bedrooms/ensuites

(f) Air-lock entrances to wards

(g) Back-up air handling units

(h) Pressure monitoring systems

219. What was your understanding of compliance of the above systems within the QEUH/RHC with the SHTMs/HTMs/HBMs guidance at the point of handover?

220. If anything was not compliant why did handover take place? Who would have authorised this?

221. What remedial actions were taken to deal with those systems which were not compliant?

222. What is your understanding of the process for taking air samples? Who was responsible for this?

223. Were you concerned by any air samples?

224. Why were you concerned by these air samples?

225. How confident were you in the Project Team and/or Estates Team?

226. How confident were you that they knew what they were supposed to deliver?

227. How confident were you that what was delivered would meet the needs of patients?

228. What is HFS?

229. To what extent did you have any involvement with HFS during the build phase of the QEUH/RHC?

N. Wards and Hospital Occupation from January 2015

230. At the point of taking occupation of QEUH/RHC on 26th January 2015 please confirm whether the following wards were completed, commissioned, and validated to the expected specification from Multiplex to NHS GGC:

Ward 2A/2B
Ward 4B
Ward 4C
Ward 6A
Ward 6C

231. Please also confirm your understanding of the ward specification and patient cohort to be located in each ward on the date the ward opened?

232. If a ward or wards were not handed over on 26th January 2015, or were partially handed over, please confirm:

a) Why they were held back?

b) Any financial consequence to both Multiplex and NHS GGC of the ward(s) being held back?

c) What works were carried out in order to allow this ward(s) to be handed over the NHS GGC?

233. Were any other wards, aside from those referred to above, retained? Answer as above?

234. We know that the energy centre was retained by Multiplex

a) Why was the energy centre retained?

b) What financial consequences, if any, arose for either Multiplex or NHS GGC if the energy centre was retained?

c) What works were carried out to allow hand over of the energy centre to NHS GGC?

235. Were any other parts of the hospital retained by Multiplex pending works being carried out? Why? What works required to be carried out prior to them being handed over?

236. At the point of handover on 26th January 2015 how satisfied were you that all areas accepted by NHS GGC were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

237. If not, why were the wards handed over? Were any issues escalated to more senior management/ Board level? Please confirm.

O. March 2015 – Ward 2A/B

238. March 2015 – in her evidence to the Inquiry Dr Brenda Gibson raised concerns regarding the safety of Ward 2A prior to patient migration:

a) What was the intended use and purpose of Ward 2A?

b) Were you aware of the intended use and purpose at handover of QEUH/RHC in January 2015?

c) What were the ventilation requirements specific to Ward 2A?

239. There were concerns in March 2015 regarding Ward 2A/B - refer to Estates Team Bundle, documents 35 and 37:

a) What were the concerns at the time?

b) Why was Ward 2A handover accepted by NHS GGC in January 2015 without HEPA filtration being in place?

240. Dr Gibson in her statement refers to HEPA filters not being in place at the point of handover in wards 2A/B:

a) Explain your understanding of the situation.

b) What was the impact of HEPA filters not being installed?

c) What was the potential impact on patients of the absence of HEPA filters?

d) What was done to resolve any HEPA filter issues?

e) Should HEPA filters have been installed at handover?

f) Who was responsible for providing HEPA filters and ensuring that they were installed during the build?

g) Who signed off handover without HEPA filters being installed?

h) Which infection control doctors and nurses were consulted?

i) Why was handover signed off without HEPA filters?

241. What other wards were missing HEPA filters following handover? Please provide details.

242. Describe how the lack of HEPA filtration in Ward 2A was managed, what was your responsibility/involvement, what was the outcome?

243. To what extent were you satisfied that the relevant work had been carried out to secure the ward for patients?

244. Refer to Bundle 8, Documents 25-31

Please provide a summary of the events discussed in these emails.

Please include:

a) what was the issue with ward 2A

b) Why were transplants not proceeding

c) What steps were being taken to resolve this

d) Who was involved in this and what were their roles

e) Who was responsible for decision making/managing this situation

245. Refer to Bundle 8, Document 31

a) Dr Gibson states that the clinical team has “lost faith”, outcomes have been “compromised” and that matters are not being dealt with with the “appropriate sense of urgency”; what is your view on this?

b) What was the outcome/response to Dr Gibson’s email?

246. Refer to Bundle 6, Document 4

a) Do you recall this meeting?

b) What was the purpose of this meeting?

c) What were the circumstances which led to this meeting?

d) The minutes state that the sealed rooms are providing the appropriate level of 10 Pa positive pressure. How was this conclusion reached? Do you still agree with this conclusion?

e) What actions were taken following this meeting?

247. Refer to Bundle 6, Document 5

a) Do you recall this email?

b) Do you recall speaking to Sandra McNamee regarding the safety of ward 2A?

c) The balance between proceeding with a child’s treatment and the safety of the environment is discussed. What is your view on this?

d) In his email of 11 September 2015, Grant Archibald states that ICT doctors say they have not had a handover from senior ICT and lack information to inform their decision making regarding the safety of Ward 2A. Were ICT doctors provided with all the information required to make an informed decision on this?

P. Ward 2A - Paediatric BMT – Specifications

248. Refer to Bundle 4, Document 4

a) What is this document?

b) Dr Mathers states that, "the facilities are at **least** as good as the RHSC and are **believed to be** built to a higher spec. They are NOT identical. They are **not as high spec as the Beatson Adult System.** This does **not mean that they are a suboptimal standard".** What is your interpretation of this? Do you or did you believe that the RHC BMT was of the necessary standard to treat patients? Please provide an explanation.

c) Who was this document shared with?

d) What actions were taken?

249. Please refer to Estates Bundle, Document 109

This email details a meeting which took place to discuss Ward 2A BMT isolation rooms. Ian Powrie states that the meeting was arranged at your behest. The email states that the rooms were all built to SHPN 04-01 standard however this design is not suitable for neutropenic patients and the rooms should have been built to SHPN 03-01 standard and this was agreed by clinical representatives at the meeting.

a) Were you aware of this before this meeting?

b) What information were you provided following this meeting from Jamie Redfern?

c) What actions were taken?

Q. June – July 2015 - Ward 4B

250. In June 2015 patients migrated to Ward 4B – at the point of migration NHS GGC had accepted handover of the ward from Multiplex – save for defects – did you consider the

ward to be compliant with the guidance and suitable to meet the needs of BMT patients? If so why, if not why?

251. . What was the intended purpose of Ward 4B?

252. Did this purpose change prior to January 2015? If so, what changes were made?

253. Were there changes required to the ventilation system prior to January 2015? If so, why?

254. What was your involvement with the changes?

255. There were issues with Ward 4B almost straight away, with an SBAR being prepared on around 7th June 2015:

a) Discuss the concerns about Ward 4B. Refer Estate Team Bundle, document 30 - What was the purpose of the SBAR?

b) Less than one month after migration to ward 4B patients were decanted back to the Beatson, is this correct?

c) The issues raised in the SBAR from June 2015 were present at the point of NHS GGC taking occupation in January 2015, and when Ward 4B was handed over to NHSGCC, is that correct?

256. How was the Ward signed off and handover accepted given the issues which arose immediately following handover prior to patient migration?

257. Refer to Estates Team Bundle, document 36:

a) Were you aware of the early testing being carried out?

b) Why were tests being carried out? Was it in response to the SBAR from June 2015?

c) Please provide information about your involvement.

d) Did the test result provide assurance regarding Ward 4Bs suitability for the intended patient cohort? If so, how?

258. At a BICC meeting on 27th July 2015 Professor Craig Williams states that in respect of ward 4B '*the unit was not built to the correct specification and Brookefield have agreed to fund the rebuild for this area and the timeframe for this is 12 weeks*'

a) Did you agree with Professor Williams' statement at the time?

b) Do you agree now?

g) If the ward was built to specification why were patients decanted to the Beatson less than a month after migration?

259. Works were carried out to Ward 4B – do you recall the nature of these works and why they were carried out?

Refer to Document A43502680 - "BMT Document" - from Craig Williams to Jennifer Armstrong that considers the specification and identifies deficiencies with the BMT Unit details - Objective ECM (scotland.gov.uk)

260. What is this document?

261. Why did Craig Williams send this to you?

262. What was your response to seeing this document?

263. Did you share this with anyone?

264. Why did you request this report?

265. What actions were taken following this report?

266. What is your understanding of ward specification?

267. What is the importance of ward having certain specifications?

268. If a ward did not have a required specification relevant to its purpose, would this be putting patients at risk?

R. Ward 2A – Invasive Fungal Infections

Please refer to Bundle 4, Document 23

269. This SBAR of 3rd October 2017 was produced highlighting concerns following a patient contracting an Invasive fungal infection.

a) Do you recall this incident? Please provide details of your recollections.

b) What was the outcome for this particular child?

c) Were any more invasive fungal infections detected? Please provide details.

d) In your view, did this SBAR raise valid concerns?

e) What response was taken and additional measures implemented, if any, as a result of the SBAR?

f) Was the situation fully resolved? Please provide details.

S. Decision to close wards 2A/B and move to 6A and 4B

270. Discuss the issues surrounding and leading up to the decant of patients from Ward 2A in 2018.

a) What was the lead up and background to this refer to IMT Bundle, documents 16, 23,29, 37- 48, 50, 51 53, 54, 55, 57,59, 60, 62, 76,

b) What was your involvement?

c) What risk assessments were carried out in respect of the decision to decant the Schiehallion Unit to Wards 6A and 4B?

d) To your mind what were the principal disadvantages of a decant?

e) To your mind what were the principal advantages of a decant?

f) What additional measures were put in place to ensure patient safety as part of the decant?

g) What concerns, if any, did you have about where the patient cohort was being moved to? If so, why did you have these concerns?

h) What was your understanding of the suitability of Wards 6A and 4B for the treatment of immuno-compromised children?

i) Please comment on the facilities within ward 6A, the access to the ward and the distance from key facilities, such as PICU and the crash team.

j) Please comment on the facilities within ward 4B, the access to the ward and the distance from key facilities such as PICU and the crash team.

k) Did you have any environmental concerns relating to either ward 6A or 4B? If so, what were they?

l) What impact did this decant have on patients and their families?

m) Discuss and detail the works done to Ward 2A/B, what was required to be done and why, what has been done and when the work was completed. Please include details of your involvement. Reference IMT Bundle to assist.

n) Any other relevant information.

271. Discuss the issues surrounding the ward 2A patients when in occupation of ward 6A. In particular, views you may have in respect of:

a) Chilled beams
b) Gram Negative Bacteraemia
c) Water filters
d) Ventilation
e) issues/ testing/ escalation/ response/ IMTs/SBARs impact on patients
f) Patient communication
g) Internal escalation - HIIAT scoring
h) External escalation

[Type your answer here

T. Ward 4C

272. To what extent were you aware that the ventilation system of Ward 4C does not meet the Scottish Health Technical Memorandum (SHTM 03-01) Ventilation for Healthcare Premises?

When did they first become aware of this?

What changes (if any) are you aware of the hospital management/NHS GGC making to the ward by bringing in additional equipment, when that took place and specifically what equipment was brought in?

What changes (if any) are you aware of the clinicians running the ward taking to mitigate any risk that would arise from noncompliance with SHTM 03-01?

Do you consider that the fact that ventilation system of Ward 4C does not comply with SHTM 03-01 gives rise to any increased risk of infections in patients and why they have reached that conclusion?

Are you aware of any attempt by the Health and Safety Executive to take enforcement action against NHS GGC in respect of the ventilation system of Ward 4C, what was the basis of

that action, what was the response made by NHS GGC and what was the result of any such action by HSE?

U. IMT Attendance

273. What is an IMT?

274. When is it appropriate for you as Medical Director to attend an IMT?

275. In the event of an outbreak, describe what steps are taken by an IMT.

276. How often would an IMT meet?

277. Who would make up an IMT?

278. How many colleagues would be in an IMT?

279. What are the roles and backgrounds of members of an IMT?

280. What is the purpose of IMT meetings?

281. Who was the ICD at the time of your involvement in the IMT?

282. What is the function of the ICD?

283. Is this a full-time role?

284. Who was the ICN at the time?

285. What is the function of the ICN?

286. Is this a full-time role?

287. How often would an IMT seek expert advice during an outbreak?

288. Who would an IMT seek expert advice from?

289. What other teams would an IMT communicate with?

290. To what extent would the make up of an IMT differ depending on the circumstances of an outbreak?

291. To what extent, if any, were there issues with record-keeping of IMT minutes etc?

292. How does an IMT process end?

293. What steps are taken at the end of an IMT process?

294. How do you decide that an incident is over?

295. How do you assess there is no longer a significant threat to public health?

296. What circumstances would merit a statement to the general public or other interested parties when an incident is over?

297. What, if any documentation, is prepared as a result of an IMT process?

298. What was the escalation process for an IMT?

299. What if any, report is prepared as a result of an IMT process?

300. If so, who would prepare the report?

301. What process is used to summarise the conclusions, results, and lessons learned of each IMT?

302. What, if any, de-brief meetings take place at the end of an IMT process?

303. If so, how soon after an incident is over should a de-brief meeting take place?

304. How do you evaluate how effective an IMT has been for a specific incident?

305. Who is the report shared with? How is the report communicated within the NHS?

306. Who else within the organisation is responsible for endorsing the conclusions of an IMT report?

307. What, if any steps, are taken by the NHS following the report prepared by an IMT?

308. Who is responsible for preparing any action plan based on an IMT report?

309. What parts of the QEUH/RHC specification were considered at any meetings?

V. HIIAT Process

310. What is the HIIAT?

311. Describe the HIIAT process?

312. To what extent are Health Protection Scotland (HPS) involved when there is an outbreak?

313. What documentation is during and after the HIIAT process?

314. How clear and comprehensible is the HIIAT process?

W. Gram Negative Bacteraemia

315. Describe the Gram Negative Bacteraemia Outbreak and your involvement in it

Refer to IMT Bundle, including Documents 72-88

316. The Inquiry understands there was an increased number of line infections in Ward 2A in 2016 and 2017. Please provide details of your recollection of these infections, including the suspected cause of these infections, the outcomes for patients and whether/how this increased rate of infections was resolved.

Refer to IMT Bundle, Document 73

317. What is mycobacterium chelonae?

318. What was your involvement with the m.chelonoae outbreak?

319. Three hypotheses are discussed as potential sources of contamination causing the infections during this meeting. What is your view on each hypothesis?

320. The minutes mention a requirement to refer unusual episodes to HPS? Did this happen?

321. Who made this referral?

322. What was the outcome of this?

323. What actions were required to be taken?

324. Under what circumstances would HPS normally become involved?

325. What was the extent of HPS involvement?

326. What is your view on the adequacy of the actions taken by HPS?

327. Refer to IMT Bundle, Document 83

Dr Peters and Dr Inkster produced an SBAR for this meeting (Refer to Bundle 4, document 44) which suggests broadening the classification of HAI, do you recall being advised

regarding the discussions around this SBAR? Please provide details. What was your view on the recommendations regarding broadening the outbreak definitions?

328. In your view was the case definition adopted by the IMT adequate? Please explain.

329. Refer to IMT Bundle, Document 84

A detailed discussion is noted in the minutes to have taken place regarding the definition/classification of HAI and HCAI. What is your understanding of this discussion?

330. Was the classification of HAIs and HCAIs discussed with you? What view did you take on this?

331. What was the final decision taken on the classification/definition of an HAI and an HCAI? Please provide details.

Refer to IMT Bundle, Document 72

332. What is your understanding of the cases of m.chelonae and stenotrophomonas which were emerging?

333. Who was updating you on the situation?

334. Did you have any concerns? What were they?

335. What actions did you take?

336. What concerns were emerging regarding the source of the outbreak?

337. What were the concerns regarding the drains?

338. What actions did you/others take?

Refer to IMT Bundle, Document 73

339. At page 326, it states that there have only been 4 cases of m.chelonae reported in the adult population in the last decade and no paediatric cases and now there have been two

within 12 months. Did this cause you concern? Was this escalated? The HIIAT score is only listed as amber, do you think this appropriately reflects the severity of the situation?

Refer to IMT Bundle, Document 74

340. The water reports from this meeting state that a water outlet come back as positive for mycobacterium even with a point of use filter on it. It was suspected the filter may be defective. What was the outcome of this? Was the filter found to be defective? Are point of use filters 100% effective?

X. Chilled Beams

341. What are chilled beams?

342. Are you aware of any circumstances where chilled beams should not be used?

343. Can you recall the events relating to the chilled beams at the QEUH/RHC?

344. At Page 166 of Bundle 4, Dr Peters lists reasons why chilled beams should not be used in neutropenic settings due to the infection risks associated with them, including the build-up of dust and them being a water source from condensation, leaks, and dripping water: Do you agree with this? If so, can you explain why? If not, can you explain why?

345. Refer to IMT Bundle, Document 76

a) What is the action plan referred to for chilled beams?

b) Were patients being put at risk remaining in rooms where chilled beams were located?

c) Who was responsible for the management of the swabbing/testing results taken from the chilled beams?

d) Who was responsible for addressing the leaking chilled beams?

346. The issue of patient placement is also discussed to avoid putting patients from 6A into wards where there are chilled beams. The minutes state that Dr Scott Davidson will discuss this with you. Did you have this discussion? What was the outcome?

Y. IMT - 14th August 2019

Please refer to IMT Bundle Document 77

347. Do you recall this meeting?

348. What was the purpose of this meeting? Describe the circumstances leading up to this meeting.

349. At this meeting Dr Deighan disagrees with Dr Inkster that the numbers of bacteraemia have increased. What is your view on this? Please provide reasons for your conclusion.

350. Did you agree with Dr Inkster and Dr Peters that the nature of the bacteria was a concern in that it was environmental and associated with water/soil? If not, why not? Please provide details for your answer.

Z. Dr Iain Kennedy's Reports

Please refer to Bundle 6 Documents 27 and 28

351. Have you seen these reports before?

352. Who shared these with you?

353. What do you understand was the purpose behind Dr Kennedy's reports?

354. What were the circumstances leading up to the instruction of these reports?

355. Who would have instructed these reports?

356. What was the methodology used to complete these reports? What is your view on the adequacy of the methodology used?

357. What are the conclusions of these reports? Do you agree with these conclusions, if so, please explain your reasoning.

358. Dr Inkster, Dr Peters and Dr Harvey-Wood disagreed with the conclusions of Dr Kennedy's reports. What is your view on this?

AA. Prophylactic Medication

359. To what extent if at all were there patients in QEUH and in RHC prescribed prophylactic medication as a result of concerns about increased HAIs, the water system (including drainage) and/or the ventilation system?

Please identify/describe:

a) The medications in question

b) In particular, is it the case that in contrast to the general position across UK and Scotland the following were prescribed in QEUH/RHC as a matter of course: Ciprofloxacin, Posaconazole, Ambisome, Caspofungin, Septrin?

c) What was the reason for the prescription of these medicines?

d) In particular, was the prescription of any of these linked to concerns about the environment and if so what concerns?

360. Which group of clinicians would be responsible in an individual case for the prescription of this medication to patients: i.e. would it be treating haematologists/oncologists or would it be somebody else?

361. Are you aware of any general decision being taken regarding whether this additional/different medication ought to be made available to patients; if so which bodies/individuals were involved in that?

362. In what way, if at all, did the way in which these treatments were used differ from the standard use of prophylactic medications (i.e. duration of use; dosage etc)

363. What risks did patients face if they did not receive this medication?

364. Were staff given any guidance or was there any discussion about the use of prophylactic medication?

365. Were staff given any guidance or was there discussion about how this matter was to be communicated with patients?

366. What approach was taken to discussing with patients?

367. Are you aware of any withholding of information about the prescription of prophylactic medication or any suggestion or instruction that matters to do with the use of prophylactic medication ought not to be shared with patients?

Please refer to Bundle 12, Document 137

368. In this email Dr Gibson outlines her concerns regarding the use of prophylactic medication. What is your view on her concerns raised?

369. Who was authorising the use of prophylactic medication?

370. Was there guidance in place for this?

BB. Cryptococcus

Refer to the Cryptococcus Bundle to assist.

371. Recall your understanding of the Cryptococcus infections in 2018:

a) What was your impression/reaction upon learning of the presence of cryptococcus in 2018 in the QEUH?

b) What is Cryptococcus?

c) Had you seen/ heard of Cryptococcus in a healthcare setting prior to QEUH?

d) What were the issues with Cryptococcus at QEUH? When did you first become aware of these issues? What happened in response to these issues?

372. What steps were taken in response/ precautions put in place?

a) What were the hypotheses put forward for the cases of cryptococcus? Who put these forward? Refer to the cryptococcus bundle

b) Did you agree with these?

c) What was your own hypothesis regarding the cryptococcus cases?

d) What is the rationale behind your hypothesis?

e) Discuss your knowledge of/involvement at the Cryptococcus IMTs: Refer to IMT Bundle

373. Refer to the Action Plan Bundle 1 IMT, Document 58:

a) What is this document?

b) What was its purpose?

c) What actions were you responsible for and why?

d) Did you complete your actions?

e) Were all the actions in the plan completed?

f) How did this contribute overall to the management of the cryptococcus incident?

374. Discuss your involvement, if any, at the Cryptococcus Sub-Group Meetings - actions taken, internal escalation: HPS involvement.

375. What, if any, external reporting occurred?

376. PAGs/ IMTs/ AICC and BICC involvement.

377. What steps were taken in response/ precautions put in place?

378. Did you read John Hood's report?

379. When did you read John Hood's report?

380. What observations, if any, did you make after reading John Hood's report? What actions were taken following the John Hood report?

381. What else could have been done? How could matters have been handled differently? What concerns, if any, did you have about how matters were dealt with?

382. What was your view on the pigeon infestation on the QEUH/RHC site?

383. What is your view on the pigeon contamination in the plant rooms?

384. Who was responsible for clean up regarding this?

385. What actions were taken?

386. Was air sampling of plant rooms undertaken?

Please refer to IMT Bundle 1, Document 58

387. A discussion of plant rooms and sampling for fungi and cryptococcus takes place.

a) What is your recollection of these discussions?

b) What view did you take on what was being discussed?

c) What control measures were implemented?

Please refer to IMT Bundle 1, Document 59

388. Cryptococcus and other organisms were found that are carried by pigeons giving evidence of an infestation of the plant room.

a) Discuss this meeting, including incident updates, hypothesis, risk management and control measures, further investigations, recommendations, and actions.

b) When did you first become aware of an infestation of the plant rooms?

c) What was your understanding of the extent of the infestation and how the pigeons were accessing the plant room?

d) What was your understanding of how the infected air was reaching the wards?

e) What steps were taken and by whom?

f) Was this issue fully resolved?

Please refer to IMT Bundle 1, Document 55

389. Three incidents are discussed including a paediatric patient who has died following testing positive for cryptococcus.

a) What was your understanding of this situation?

b) Who kept you informed of the situation?

c) What actions did you take?

Please refer to Bundle 1, Document 94

390. Discuss this case. What was the outcome?

391. How many cases of cryptococcus have there been in the QEUH/RHC between 2015 to date? Please provide details of each case.

Please refer to Bundle 12, Document 137

392. Dr Gibson emailed you following the death of a child, she states, “as a consultant body we are now very concerned about the safety of our environment … we are concerned we may have moved to an even less safe environment.” What is your view on Dr Gibson’s concerns?

393. Dr Gibson describes having to prophylax vulnerable patients and describes two serious anaphylactic reactions which required adrenaline. What actions were taken following these concerns?

394. Dr Gibson describes two rooms with water damage and mould which have not been attended to by Estates. Were you aware of delays in addressing these issues by Estates? Whose responsibility would addressing these issues have been?

395. Who was responsible overall for managing the concerns outlined by Dr Gibson?

CC. Whistleblowing and Communication

396. Can you explain the key aspects of the duty to communicate effectively with patients generally.

397. Can you explain how the duty to communicate should be approached when it comes to telling patients about an infection; about the possible causes of the infection; and about the impact upon health; and upon future treatment.

398. Can you explain how the duty to communicate should be approached where something has gone wrong during care or treatment.

399. Are you aware of the duty of candour and how would you explain that?

400. If staff had concerns about wrongdoing, failure, or inadequacy within the hospital:

a) were there procedures to facilitate disclosure of this either to other GGC staff or to individuals external to GGC? What were these?

b) Were these procedures and details of how to use them easily available to staff?

c) is disclosure in this manner something that has always been encouraged within GGC?

401. Are you familiar with the whistleblowing policy for GGC in 2018?

402. Was this policy easily accessible to staff? Are you aware that this policy was out of date and had not been updated appropriately?

403. In your view was the whistleblowing policy in place in 2018 effective?

404. Has the whistleblowing policy since been updated?

405. What updates have been made?

406. Do you think the current policy is adequate?

DD. Whistleblowing – QEUH/RHC

407. What was your involvement in the whistleblowing process? Please provide details.

408. What is your understanding of the concerns that led to the stage 1 whistleblow in 2017? Did you agree with these concerns?

409. Refer to emails between 5th September 2017 and 3rd October 2017:

Email chain between Penelope Redding, Tom Walsh and Jennifer Armstrong dated between 5 September 2017 and 3 October 2017 details - Objective ECM (scotland.gov.uk)

a) Do you recall receiving these emails from Dr Redding?

b) Dr Redding raises issues concerning patient safety and infection control: were you aware of these concerns in advance of Dr Redding's emails? If so, please provide details.

c) What was your view on Dr Redding's concerns?

d) It would appear Dr Redding sent emails on 5th, 15th, 21st and 27th September 2017 before receiving a response; how would you account for this delay in responding?

e) The Inquiry understands you did not treat Dr Redding's emails/concerns as a stage 1 whistleblow, that is despite Dr Redding stating in her email of 27th September 2017, "I would like to avoid going to Stage 2 of the GG+C Whistle Blowing Policy": Can you explain the rationale behind this decision?

410. Refer to SBAR of 3th October 2017 – Re Infection Control and Patient Safety at QEUH – Bundle 4, Document 20

a) Do you recall receiving the SBAR of 3rd October 2017?

b) Going through it, please provide your views on each of the following:

i. Patient Placement

ii. Cleaning

iii. Estates

iv. Infection Control Structure

v. Recommendations

411. The SBAR states that some of the issues raised, for example patient placement and cleaning, were first raised in June 2015. Why were these issues not being addressed in a timeous manner?

412. In your view did the SBAR of 3rd October 2017 raise valid concerns?

413. If yes, what was the response to these concerns?

Refer to Minute of Meeting dated 4 October 2017 – Estates Bundle 12, Document 116

a) Do you recall attending this meeting? Please provide details of your recollections.

b) There is some discussion surrounding PPVL rooms not being built to SHTM standards and that they did not provide appropriate protection for patients, something which David Loudon disagreed with. Were PPVL rooms built to SHTM standards?

c) There is a discussion surrounding the Infectious Disease Unit, its relocation to QEUH and HPS agreeing to provide details of the room standards required to accommodate patients. A meeting took place with HPS on 2nd October 2017. Can you elaborate on the circumstances surrounding this, as well as the reasons for the delay in HPS providing the details required?

d) There is discussion surrounding HEPA filters not being fitted in PICU and in prep rooms in Ward 2A. Can you explain this decision? Who was responsible for managing the installation of HEPA filters?

e) Do you agree there was an issue with cleaning practices within the QEUH/RHC? Who was responsible for the management of cleaning practices?

f) Water quality and testing concerns were discussed: what is your view on these? Who was responsible for the cleaning and maintenance policy of taps?

g) Do you agree that there was a delay in providing test results to ICD?

h) Dr Peters raised concerns regarding ICD requesting and receiving the water sampling results in a timely manner where a water source of infection needed to be investigated: do you agree with this? Was there an issue with ICDs receiving test results?

i) What was the extent of the issues of sewage in the neuro surgical theatres? Who was responsible for dealing with this?

j) Looking at the 'Agreement of Further Actions/ Next Steps', where possible, please provide details as to what actions were taken and the outcomes of these.

414. 27 point action plan – refer to Action Plan arising in response to SBAR dated 3 October 2017 details - Objective ECM (scotland.gov.uk)

Please discuss this plan including:

a) Who was responsible for the management of the plan and updating it

b) What actions were taken in terms of each issue

c) Which actions have been fully resolved

d) Which actions are outstanding

415. Refer to Bundle 4 – SBAR – Document 51 -

In this paper from June 2021, the Clinical and Care Governance Committee comment that many actions from the plan were still marked "in progress" in 2019 and therefore request a further update, a review and closure of the plan. Can you please comment on the final positions relating to each issue and whether, in your view, they have been satisfactorily resolved.

416. Refer to Bundle 6, Document 22

a) Do you recall attending this meeting?

b) What is your understanding of why this meeting was called?

c) What was your understanding of why Dr de Caestecker was involved?

d) What was your understanding of the issues raised surrounding IMTs? In particular, what do you understand the issues raised with the role of the chair and behavioural issues related to?

e) Please provide details as to the discussions for re-setting the IMT process and having an independent Chair.

f) Please explain the actions taken and how they were taken forward.

g) Dr Inkster was removed as Chair of the IMT following this meeting without her having an opportunity to discuss this. Do you think this was a fair approach to take?

h) Dr Inkster is of the view she was forced to demit as chair of the IMT with various different reasons cited to her for this decision, all of which were untrue; what is your understanding of this? What reasons were given to Dr Inkster?

417. What was your involvement, if any, with the stage 2 whistleblow?

418. What was the stage 2 whistleblow process within GGC in 2018?

419. What do you understand to be the issues raised through the stage 2 whistleblow to have been?

420. With whom were these issues raised and how were they addressed?

421. Do you have a view on whether these issues were resolved satisfactorily?

422. What was your involvement, if any, with the stage 3 whistleblow?

423. What was the stage 3 whistleblow process within GGC in 2019?

424. What do you understand to be the issues raised through the stage 3 whistleblow?

425. With whom were these issues raised and how were they addressed?

426. Do you have a view on whether these issues were resolved satisfactorily?

427. What was your involvement, if any, with the stage 3 whistleblow in April 2020?

428. What do you understand the issues raised through this whistleblow to have been?

429. Dr Redding was of the view that GGC had attempted to 'cover up' the whistleblow of September 2017 by not recording it as a whistleblow. What is your view on this?

430. With whom were these issues raised and how were they addressed?

431. Do you have a view on whether these issues were resolved satisfactorily?

432. Are you aware of the whistleblow to HPS in August 2019?

433. What do you understand the issues raised through this whistleblow to have been?

434. What actions were taken?

435. Do you consider this to be fully resolved?

436. Dr Inkster and Dr Peters raised their concerns with the Scottish Government which resulted in several meetings throughout 2019 and 2020. Are you aware of these meetings?

437. What is your understanding of why these meetings took place and the concerns raised?

438. Were you contacted by the Scottish Government regarding these meeting? Were the concerns raised conveyed to you?

439. What actions were taken?

EE. Resignation of Dr Inkster and other ICDs

Refer to Dr Inkster resignation letter Sept 2019 details - Objective ECM (scotland.gov.uk)

440. What is your understanding of why Dr Inkster resigned from her role as ICD in September 2019?

441. In her resignation letter, Dr Inkster states a colleague referred to her, “doing the work of 4 people”, what is your view on this? Were there resource issues with ICDs? Please provide details.

442. In her resignation letter, Dr Inkster refers to being undermined, being shown a lack of respect, being unsupported and undervalued during IMTs and despite discussing this with senior management these issues persisted. Were you aware of these issues mentioned by Dr Inkster before she raises them in her resignation letter? If so, were these being addressed? What are your views on her concerns?

443. The Inquiry has been told that Dr Inkster previously attempted to resign in January 2018 but was persuaded to remain in post by you. Can you provide details of this?

Refer to: Dr Armstrong response to Dr Inkster resignation letter Sept 2019 details - Objective ECM (scotland.gov.uk)

444. In your response to Dr Inkster’s resignation letter, you state that you are keen for the issues which she raised to be fully considered and properly investigated and that a full investigation under the Boards’ Whistleblowing Policy will be carried out. The issues which Dr Inkster raises are not new issues, why are they only being fully/appropriately addressed now?

445. You identify 6 key issues which Dr Inkster raises in her resignation letter; do you have a view on each issue? What steps were taken to address each issue, and do you know if they have now been fully resolved?

446. In July 2015, Dr Inkster, Dr Peters and Dr Wright all resigned from their roles as ICD. Dr Inkster and Dr Peters were persuaded to remain in their roles but made several future attempts to resign before finally giving up their posts. There appears to have been an ongoing problem with ICDs resigning from their role; what in your opinion caused this?

447. Was there a clear remit for the role of ICD?

448. Dr Peters has told the Inquiry she sought clarification on her remit as ICD on several occasions but was unsuccessful in obtaining this. What is your view on this?

449. David Stewart undertook a review into the resignation of ICDs – Refer to Summary of Infection Control Issues details - Objective ECM (scotland.gov.uk) – who instructed this review? What was the purpose of the review? What actions, if any, were informed by the findings of this review?

450. What is your view on each of the following issues within his report and proposed remedial actions:

a) Cultures and behaviours

b) Leadership style/management skills

c) Team functioning/structure

d) Service/patient concerns

451. Did David Stewart discuss this report with you? If so, what was discussed?

452. Who was this report shared with?

453. Were the issues with ICDs resolved? If not, why not?

454. Email from C Peters to J Armstrong - 21 September 2017 details - Objective ECM (scotland.gov.uk) – Re.4B, [redacted] – HAI SCRIBE

a) Do you recall receiving this email?

b) Dr Peters sets out a number of outstanding concerns, including [redacted] not having required information to allow [redacted] to sign off an HAISCRIBE and Dr Inkster being quoted as having approved the document when this was not the case. What is your understanding of this situation? Were these concerns investigated further?

455. Refer to Bundle 4 – SBAR – Document 33
This SBAR from 6th December 2018 recommends additional ICD sessions to support the current and ongoing requirement for expert input and advice into the built environment at QEUH/RHC.

a) What happened as a result of this?

b) Were additional ICD sessions put in place?

c) Was there an issue with resources within ICD?

456. In your opinion were there issues with the role of ICD and what were they?

FF. National Performance Framework

457. When did the escalation of the QEUH to Stage 4 of the National Performance Framework take place?

458. What is your understanding of why NHS GGC was escalated to Stage 4?

459. What were the events preceding this?

460. Describe the process of escalation and the consequences of this?

461. What actions were taken?

GG. Case Note Review and Oversight Board

462. Please describe the process involved for the Case Note Review. Please include how this was established, who was involved, what work was done and any relevant outcomes.

463. Please describe the process involved for the Oversight Board. Please include how this was established, who was involved, what work was done and any relevant outcomes.

464. Have you read the Overall Report of the Case Notes Review and noted its recommendations?

465. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Governance and Risk Management?

466. Have you read the Interim Report and/or Final Report of the Oversight Board and noted its local recommendations in respect of Communications and Engagement?

467. What steps have been taken by GGC to implement each of the separate recommendations of the Case Notes Review, when they were taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

468. What steps have been taken by GGC to implement each of separate recommendations of the 'Local Recommendations' of the Oversight Board, when were they taken and to what extent do you consider the implementation to have been effective? Please provide evidence to support each effective implementation.

HH. Communication – Staff/Information Sharing

469. What is your view on the adequacy of communication between staff and information sharing between staff within the QEUH/RHC? Please provide details.

470. What is your understanding of the following:
All communication from management to clinical staff regarding infection risk where there had been or was a concern about links to the hospital environment; and as regards such concerns:

a) All instruction from management to clinical staff regarding what and how to communicate with patients

b) All communication from management to patients

c) All communication from management to the media

d) The pre-broadcast advice to staff regarding the BBC programme

e) All communication between management and external bodies such as SG, HPS and HFS

II. Communication with parents

471. What is your view on the adequacy of communication and information sharing between staff and patients and families?

472. Do you believe that there were circumstances where this could have been improved? If yes, please provide details/examples.

473. What steps have been taken to improve communication failures.

JJ. Staff/culture within QEUH

474. What was the working environment like within the QEUH – work life balance/ workplace culture? What issues, if any, are you aware of? What was your experience of this?

475. In your view, were the concerns raised by infection control colleagues regarding the general build of QEUH/RHC taken seriously? What action was taken in response to these concerns, if not already mentioned in your answers?

476. Is there anything further that you want to add that you feel could be of assistance to the Inquiry?

Appendix D

Dr Jennifer L Armstrong

Education and qualifications

M.B.Ch.B (University of Glasgow)	1988
Master of Public Health (University of Glasgow)	1995
Diploma in Management, Caledonian University (**prize for best student**)	1999

Professional qualifications

General Medical Council [redacted]	1988
Membership of the Royal College of Physicians (Glasgow)	1993
Membership of the Faculty of Public Health (London)	1998
Public Health Medicine Higher Specialty training CCST	2000
Elected Fellow of Faculty of Public Health (London)	2007
Elected Fellow of Royal College of Physicians (Glasgow)	2015

Career summary

01/08/88 – 31/01/89: Junior House Officer in General Medicine
University Department of Medicine, Glasgow Royal Infirmary
01/02/89 – 31/07/89: Junior House Officer in General Surgery
Royal Alexandra Hospital, Paisley
01/08/89 – 31/01/90: Senior House Officer in Geriatric Medicine
The Victoria Geriatric Unit, Glasgow
01/02/90 – 31/07/90: Senior House Officer in Accident and Emergency
Glasgow Royal Infirmary
01/08/90 – 31/01/91: Senior House Officer in Obstetrics and Gynaecology
Royal Alexandra Hospital, Paisley
01/02/91 – 31/07/91: Senior House Officer in General Medicine
Inverclyde Royal Hospital, Greenock
01/08/91 – 31/01/94: Registrar in General Medicine
Royal Alexandra Hospital, Paisley
01/02/94 – 30/09/94: Registrar in Resource Management (part time)
Law Hospital NHS Trust, Carluke
01/02/94 – 30/09/94: Registrar in Occupational Health (part time)
Glasgow Occupational Health, Stobhill NHS Trust, Glasgow
01/10/94 – 31/01/00: Registrar in Public Health Medicine
West of Scotland Specialty Training, Greater Glasgow Health Board
2000-2004: Senior Manager North Glasgow Trust
2004-2007: Senior Medical Advisor National Services Division in Edinburgh
2007-2012: Senior Medical Advisor, Scottish Government

2012-current: I am currently the Medical Director of NHS GGC. This includes: developing GGC clinical strategy; ensuring patient safety and driving forward quality improvement; financial, staff and professional governance; and ensuring that there is a robust clinical governance system in place.

NHS Greater Glasgow and Clyde is the largest healthcare system in the UK with an annual revenue budget of £4.4 billion, employing around 41,000 staff. The board serves a population of around 1.15 million (24% of the Scottish population). We have 35 hospitals of differing types providing a comprehensive range of Acute Hospital, Maternity, Mental Health and Community Care facilities. We work with our six Health and Social Care Partnerships covering Glasgow City, Renfrewshire, East Renfrewshire, Inverclyde, East Dunbartonshire and West Dunbartonshire.

We deliver local services to a population of over 1.2 million and a wider regional population of 2.2 million and a national population to the whole of Scotland when our regional and national clinical services are included.

My current responsibilities are described below.

- I am an Executive Director and member of the NHSGGC Board and I am a member of the Corporate Management Team. I am responsible for providing professional advice to the Board and leadership to medical professionals, across NHSGGC.

- I am the Responsible Officer for the GMC in NHSGGC and provide recommendations to support the revalidation of around 4,000 doctors with a connection to the Board. It is my responsibility to ensure that all career and other grade doctors in NHSGGC are appraised annually and through this demonstrate their fitness to practice. I will put forward a recommendation for revalidation for over 700 doctors per year to the GMC.

- I provide professional leadership to medical, dental and pharmacy staff to ensure they are effectively developed, organised, integrated, and managed. I also link with senior staff across NHSGGC on matters relating to conduct, capability and ill health for medical staff and link with regulatory and advisory bodies, including the General Medical Council (GMC), Royal Colleges and NHS Education for Scotland. I ensure there is application of national policy and guidance relating to doctors, including Good Medical Practice, and other professional bodies such as Medical Royal Colleges.

- I work with the Director of Medical Education to ensure the delivery of high-quality medical education in partnership with Glasgow University Medical School, NHS Education Scotland, and the General Medical Council. NHS GGC employs around 2,000 doctors in training every year and support the education of over 800 medical students. I also work closely with the chief of dentistry in relation to undergraduate and post graduate training of dentists.

  I am the lead director for Research and Innovation in the Board and I work with the Director of Research and Innovation to deliver a range of research and innovation activity in both commercial and non-commercial environments and ensure that there is a robust research governance system in place. This includes delivery of 1040 current studies, 394 (38%) commercial; 126 (12%) sponsored and 458 (44%) eligibly funded. The West of Scotland Innovation team manage £43 million of active projects as of 23/24.

I am the lead director for the Board's approach to Prescribing Quality and Efficiency through working with the Director of Pharmacy and the sponsorship of the Area Drugs & Therapeutics Committee together with the application strong governance to support prescribing at all levels. This includes systems to coordinate over 24 million prescriptions per year, ensuring both clinical quality and efficiency for the budget of over £800m per annum, implementation of HEPMA and the strategic transformation and redesign of service and pharmacy workforce to support MFT clinical model and organisational operational priorities.

- I am the Lead director for the Corporate Planning Team (from 2017) and provide executive leadership for strategic planning for the Board, ensuring the delivery of key programmes of work including the Moving Forward Together (MFT) Implementation Strategy, Annual Delivery Plan and Clinical Infrastructure Strategy. This means that I work with the director of planning to set out both 1 and 3 years plans for the whole of NHS GGC and ensure monitoring of delivery of the plans.

- I lead the development of the clinical vision for NHS GGC setting out how services will develop and transform over the next 10-20 years across all clinical services as well as developing person centred preventative services and care closer to home. I work closely with the Director of Digital Health to drive forward the development of the digital NHS. I also chair the MFT programme board with responsibility for the implementation of large programmes of work e.g. Major Trauma, thrombectomy and stroke services, Primary Care and Mental health strategy.

- I work in partnership to improve unscheduled care pathways across the system including primary, secondary, and social care and I lead the development of the annual board's winter plan. This includes the implementation of the flow navigation centre virtual services, the development of the mental health assessment unit and the delivery of new digital ways of working.

- I contribute to the Board and Directorate's Sustainability and Value Programmes and lead on specific programmes of workstreams to support cross system financial efficiency and savings.

- I am the lead director for clinical governance, working with the Director of Clinical governance to support clear cross system governance processes to support high quality of care; this includes developing system wide national or local policies to support effective clinical governance, commissioning reports and investigations and providing regular updates and reports to various board. I also work in partnership with the Director of Nursing to ensure that there is a system of corporate accountability and assurance is effective in the provision of high-quality patient centred care.

- I was the Health Associated Infection (HAI) Executive Lead for the Board from April 2012 to January 2020 providing leadership to develop appropriate strategies to reduce levels of infection, promote continuous improvement and report to Board committees on our performance in this area.

- Externally, I link with a whole range of organisations including Scottish Government, Scottish Association of Medical Directors, national and regional NHS groups, University sectors, post graduate deans and NES, local and national staff side organisations, professional regulators, local authorities, voluntary and independent sectors, MSP/MPs and media organisations.

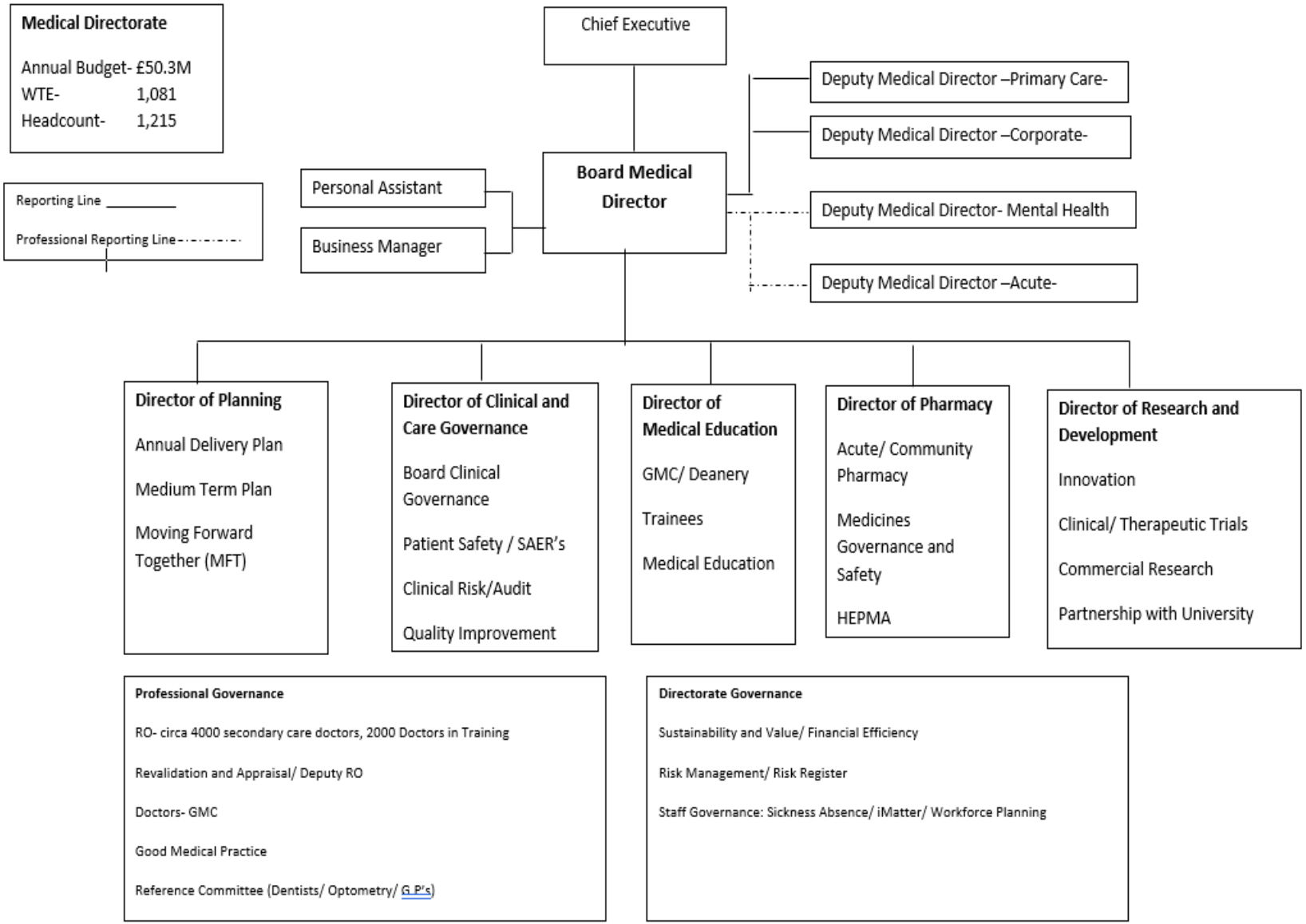
- I take part in an on-call rota (1 week in every 12) as well as direct access for urgent advice. I was the NHS Gold Commander during the Glasgow Commonwealth games in August 2014 and I have led the NHS response to Major incidents (for example Glasgow helicopter crash: Clutha Incident).

- I have had media training with experience in all forms of media interviews from written press to BBC/TV interviews on camera.

- I lead the Board Medical Directorate which consists of medical education, pharmacy, the clinical governance support unit, planning and research and innovation. The BMD has a budget of £51 million and staffing of 1.239 WTE. The organogram below sets out the organisational structure and key programmes of work.

Appendix 1- Structure Diagram – Board Medical Direct

Board Medical Directorate Management Structure and Professional Reporting Lines



SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

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