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 16 September 2024 – Volume 5

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Scottish Hospitals Inquiry
Witness Statement of
Professor Craig Williams

INTRODUCTION

1. My name is Craig Lester Cranage Williams.

2. I am currently employed as a Consultant Microbiologist at the University Hospitals of Morecambe Bay in Lancaster. I have held this appointment since 2018.

3. As a consultant my week is made up of a 40-hour week split into ten 4-hour sessions (referred to as PAs).

4. Currently, I am working as a Clinical Microbiologist. I also have an honorary contract as visiting professor at The University of Central Lancaster (UCLAN).

OVERVIEW of PROFESSIONAL BACKGROUND

5. I have been employed in multiple Consultant Microbiologist and Infection Control Doctor roles. My speciality is Clinical Microbiology.

6. My medical career began at Walton Hospital in Liverpool. I was a Pre-registration House Officer in 1982. Between 1983-1985 I was the Senior House officer on a general medical rotation.

7. Between 1985 – 1987 I worked on a Pathology Rotation including Microbiology at the Royal Liverpool Hospital.

8. Following a two-year Rotational Registrar appointment in the West Midlands Regional Health Authority between 1987 and 1989, I began the role of Senior

Registrar in Bacteriology at the Western Infirmary, Glasgow. I was also an Honorary Clinical Lecturer at the University of Glasgow.

9. Between 1993 and 1995 I became a Consultant Microbiologist at Scunthorpe General Hospital.

10. In 1995 I took up the role of Consultant Microbiologist and Infection Control Doctor at the Royal Alexandra Hospital in Paisley.

11. In 1997 I undertook the additional role of Clinical Director of Diagnostic Services in the Royal Alexandria Hospital, Paisley.

12. Between 2001 and 2002 I was employed as an Infection Control Doctor and Consultant Microbiologist at Hull and East Yorkshire Hospitals.

13. I was then employed with the Yorkhill NHS Trust between 2002 until 2016. This trust was subsumed into NHS Great Glasgow and Clyde (NHSGGC). Between 2009 and 2016 I also undertook the role of the Lead/Co-Ordinating Infection Control Doctor for NHSGGC

14. Between 2011 and 2019, for 1 day a week, I held the position of Professor of Healthcare Acquired Infection at the University of the West of Scotland.

15. Between 2016 and 2018 I was Consultant Microbiologist and Infection Control Doctor at Dorset County Hospital, Dorchester. I was also Clinical Director of Pathology, Pharmacy and Medical Physics.

AREAS OF RESEARCH

16. From 2011 – 2019, I held a part time post at the University of the West of Scotland. I undertook this research post alongside my clinical work. My research to date has included publishing over one hundred peer reviewed articles. My primary research interest is mixed species biofilm infections in

immunocompromised patients. This covers how bacteria in mixed species biofilms interact with each other, how they interact with the patient and ultimately finding the best way to remove them.

CONSULTANT MICROBIOLOGIST at NHSGGC, 2002 – 2016

17. Between 2002 and 2016 I was employed as a Consultant Microbiologist with the Yorkhill NHS Trust, which subsequently became part of NHSGGC.

18. From my appointment in 2002, I worked as a Consultant Microbiologist at the Yorkhill Hospitals which included the Royal Hospital for Sick Children and the Queen Mothers Hospital. During this period, I worked a 40-hour week, which was split between microbiology and infection control.

19. I worked with another Consultant Microbiologist and three clinical scientists. The laboratory was then relocated from Yorkhill to the newly built South Sector laboratory based on the Southern General Hospital site.

Description of Role; Microbiology

20. My role involved laboratory work, mainly covering paediatrics, but with some adult work relating to the maternity services at the Queen Mothers Hospital. My duties were to advise the technical staff in the laboratory about which organisms were relevant and which antibiotics to report to the clinical teams. I also worked on the wards managing patients with infections, giving advice to colleagues on antibiotic choice and duration and providing clinical advice on the investigation and management of patients with infectious diseases.

21. I was head of Department for the Microbiology Laboratory at RHSC. As such I was accountable for the quality of work coming out of the department and for ensuring that there was the appropriate microbiology support for the clinical specialties in the hospital. During that time, I would have reported to the Clinical Director for Laboratory Medicine for Yorkhill.

22. I have been asked who reported to me. The biomedical and clinical scientists reported to me regarding the quality of work from the laboratory. They would report to me regarding clinical aspects of the work, but would report to the Head Biomedical Scientist for RHSC regarding holidays or pay progression etc. They also reported to the Senior Biomedical Scientist with responsibility across the laboratory disciplines and the more senior laboratory management.

23. Following the merger of the laboratory to form the South Sector laboratories the paediatric focus of the laboratory was lost and the samples from children were processed in the same way as the much larger number of adult samples. I also became involved in giving advice regarding the management of adult patients with infection mainly out of normal working hours. My Consultant Microbiology colleagues, some with significantly less experience in paediatric microbiology, than me, became involved in giving advice about paediatric cases.

24. The laboratory part of my work consisted of dealing with the results from new samples as the preliminary results became available, which was normally in the morning. The clinical microbiology team would normally review the new batch of patients' blood cultures which had become positive. A consultant colleague, a clinical scientist or myself would then contact the ward clinical team to ensure that the patient who had the positive blood culture was placed on appropriate antibiotics. We would also provide advice regarding the further management of the patient and advise on any additional investigations which may have been required. We also received a significant number of incoming calls from clinicians on the wards raising queries about patients who were being treated for infection.

25. In addition to looking at blood cultures we would do a bench round in the laboratory each morning. We would go to each section of the laboratory and talk to our colleagues the biomedical scientists who were processing the samples in that section of the laboratory. They were then able to finalise the samples and issue reports to the wards on those samples. I would usually deal with infection control work in the afternoon alongside answering questions

usually by telephone from colleagues on the wards who could telephone for advice at any time of the day

26. I would also attend multi-disciplinary team meetings to discuss the patients with the clinical teams. This involved reviewing progress and results on all of the patients on that unit. I attended these on a weekly basis along with one or two clinical scientists.

Description of Role Infection Control

27. The infection control doctor(ICD) is usually a Consultant Microbiologist. As a microbiologist you are fully aware of the relevant microbiology results before you start managing incidents relating to infection control. The role falls into two main areas. The first is daily advice on infection control. At Yorkhill I would have daily discussions with the infection control nurses about any infection control problems which were ongoing with individual patients. The discussions included advice on the relevance of any microbiology results and together we would formulate a plan to reduce the chance of any cross infection. The Infection Control nursing team, being full time infection prevention and control specialists provide the majority of “hands on “infection control advice in most organisations are supported by a part time (ICD). The second area was managing outbreaks of infection. In the event of an outbreak an Incident Management Team (IMT) meeting would be convened. This was usually chaired by the ICD and if necessary, would consist of the Infection Control Nurses (ICN), clinicians, managers, domestic services and estates. The IMT would aim to ensure that the source of the outbreak was identified, and any subsequent cross-infection controlled. The IMT would also oversee any remedial measures to put in place to prevent recurrence.

28. Over time, with the involvement of Health Protection Scotland (HPS), the outbreak response teams became more structured. This included the creation of Problem Assessment Groups (PAGs). A HIIAT (Healthcare Infection Incident Assessment Tool) scoring report which if the score was red or amber was submitted to the HPS.

The Structure of the Microbiology Department at Yorkhill

29. The microbiology department at Yorkhill was split into functional sections for example skin and wounds, faeces and surgical samples. We also had the Queen Mother's Hospital on site so there were a small number of samples relating to maternity patients but otherwise it was exclusively paediatrics. The laboratory was a very specialist paediatric laboratory. This included bacteriology i.e. the isolation and antibiotic susceptibility testing of bacteria, mycology which is related to fungal infection and virology as it related to the patient population in Yorkhill, so specific transplant virology. The ability to look at all aspects of infection within one laboratory allowed us to develop a complete picture of any infectious processes going on in complex patients such as those undergoing bone marrow transplantation or having cystic fibrosis. It was a fairly unique laboratory in Scotland. The only peer laboratories would be in places like Birmingham and Great Ormond Street. Because Yorkhill Hospital was a major paediatric centre with a wide range of clinical specialties the microbiology laboratory support reflected that.

30. In the sections of the laboratory as described above there were standard operating procedures containing a list of samples that the Biomedical scientists should bring to the attention of the microbiology clinical staff. This was to ensure that the ward based clinical teams who were looking after the patient could be contacted as soon as any relevant results were available to ensure that the patient was receiving appropriate treatment. This also ensured that clinically appropriate reports were issued on key samples. On the more intensive units there is a lot of microbiology work. This included the bone marrow transplant unit, intensive care units the acute surgical unit and the cystic fibrosis unit.

Structure of the NHSGGC Infection Control Team

31. The Infection Control Manager had overall oversight of infection control within the NHS GGC. The Assistant Director of Nursing in infection control was an ICN

by training and led the ICN teams in each sector of NHSGGC, North, South and Clyde. The role of Lead/Co-Ordinating Infection Control Doctor was established to ensure that consistent advice was being provided by the ICD's working in each sector and to support the Infection Control Manager. These three roles, ICM, Assistant Director if Nursing and Co-ordinating ICD, made up the senior management team for Infection Control in NHSGGC. The Medical Director was the executive lead for Infection Control.

Move to South Sector Laboratory

32. The move to the South Sector laboratory completely changed the nature of the laboratory work that I was involved with. The paediatric microbiology service was incorporated into the adult microbiology laboratory, so paediatric samples became a small part of a much larger workload. I still retained some oversight of the paediatric bacteriology work, but the workload was shared amongst all of the microbiology consultants working in the New South Sector laboratory. The specialist virology work from Yorkhill was relocated to North Glasgow Laboratory and the mycology was also subsequently relocated to North Glasgow. This meant it was much more difficult to obtain a complete picture of infectious processes going on in complex paediatric patients.

33. The decision was taken that there would be no specialist paediatric microbiology section within microbiology, unlike for example biochemistry, where a specialist section was retained. This meant that paediatric specialist samples would be processed alongside large numbers of GP and other samples. The result of this was that staff from the microbiology laboratory in Yorkhill moved from a department where there was a tight focus on paediatric hospital samples to a laboratory processing large numbers of samples from adults and children including large numbers of GP samples which in my opinion blunted the focus on the paediatric work.

2009 – 2016, NHSGGC, LEAD/CO-ORDINATING INFECTION CONTROL DOCTOR

34. Between 2009-2016, subsequent to successful interview, I was Lead/Co-ordinating Infection Control Doctor (ICD) for NHS Greater Glasgow and Clyde (GGC). This was prior to the move to the Queen Elizabeth University Hospital (QEUH).

35. My role as Lead/Co-ordinating Infection Control Doctor was part time and undertaken alongside my role as Consultant Microbiologist. I retained responsibility as the ICD for the RHSC throughout this period and this role has been described in section 27.

36. I have been asked how my work was split between my roles during this period. I would do five PA's as the Lead/ Co-ordinating ICD. This included two PAs as ICD for the RHSC, subsequently the RHC, plus three additional sessions for co-ordinating infection control activities across the three sectors of NHS GGC. I would also that the provide ICD support to the ICM to ensure that the numerous Scottish Government infection control targets which were in place at that time were achieved to the best of our ability.

Description of Lead/Co-ordinating ICD Role

37. The role of the Lead/Co-ordinating ICD was to provide clinical leadership for the Consultant Microbiologists undertaking the role of ICD in the three Sector Infection Control teams. To co-ordinate the available ICD sessions and ensure appropriate levels of ICD support were provided by the clinical lead for microbiology. To work closely with the Infection Control Manager and the other members of the Senior Infection Control Team to develop the service and implement changes. I would also arrange meetings to share learning, discuss practice and ensure that the ICNs and ICDs were all working as a team across NHSGGC and giving consistent advice to clinical teams across the sectors in NHSGGC. This was a co-ordinating not a managerial role. The ICD's who were Clinical microbiologists working 2 PA's in Infection Control were managed by the Clinical Lead for Microbiology.

38. The Lead/Co-ordinating ICD role was distinct from that of the sector-based ICD's who retained responsibility for the provision of Infection Control advice to their sector. In Glasgow there are several hospitals which are large enough to require their own ICD. As the health board amalgamated physicians and surgeons were increasingly moving between hospitals. This highlighted occasions when the advice that was given by infection control teams differed across sites. The purpose of the Lead/Co-ordinating ICD role was to ensure that infection control advice given by ICD's was similar across hospitals.

39. Most microbiologists have a split role between laboratory work and infection control. There are no full time ICDs, the role is usually filled sessionally by Consultant Microbiologists. The Lead/Co-Ordinating ICD role, to the best of my knowledge within Scotland, only exists in Glasgow, other health boards only have one ICD so there is no need for a co-ordinator.

40. It was my responsibility to work with the Consultant Head of Microbiology to ensure that there were sufficient Consultant Microbiologist sessions provided to fill the ICD roles. The role was unusual in that the Lead/Co-ordinating Infection Control Doctor could not choose their own team but could only deploy the individuals made available by the Clinical lead for Microbiology.

<u>The Structure of Infection Control</u>

41. Infection Control is normally managed by hospital site. Each site in Glasgow was equivalent in size to some other health boards in Scotland so a large infection control team was needed to provide support to the clinical teams due to the high number of hospital beds within GGC.

42. The Infection Control Manager had overall oversight of infection control within NHS GGC. The Assistant Director of Nursing in infection control was an ICN by training and led the ICN teams in each sector of NHSGGC, North, South and Clyde. The role of Lead/Co-Ordinating Infection Control Doctor was established to ensure that consistent advice was being provided by the ICD's working in each sector and to support the Infection Control Manager. These

three roles made up the senior management team for Infection Control in NHSGGC

43. Each sector within NHSGGC, North, South and Clyde had its own infection control team. Within each team there would be a Senior Infection Control Nurse (ICN), a number of other ICN's and an Infection Control Doctor (ICD). The only full-time staff were the ICNs who were specialist nurses and had undertaken post-graduate training in infection control.

44. The role of the ICD for each sector is fulfilled with 2 PA's of consultant time from Consultant Microbiologists working in the microbiology laboratory within that sector. The Head of Microbiology managed the Consultant Microbiologists who were acting as sector ICDs.

Infection Control Senior Management Team

45. The Senior Management Team (SMT) was based at the Western Infirmary. I had one session per week with the SMT. The team was chaired by the Infection Control Manager (Tom Walsh). The team consisted of the Lead/Co-ordinating ICD (myself), the Assistant Director of Nursing (Sandra McNamee) and the Lead ICNs and ICDs from each sector.

46. The document Infection Control in the Built Environment: Design and Planning, dated June 2007 **(A33662182 – Scottish Health Facilities Note 30: Version 3 dated June 2007**, **Hearing Commencing 26 February 2024 - Bundle 13 - Miscellaneous - Volume 3, Document 16,)**, was used to ensure that any building work was done safely and to ensure that infection control precautions were implemented.

PLANNING MOVE to QEUH

47. A full-time ICN was appointed to support the project team and provide day-to-day infection control input. The only advice I recall being asked to provide was

basic information on handwashing sinks and fittings in relation to room specifications. We advised that this should be to the relevant HTM's. While there was infection control input, we were not asked to provide any further information than that provided by the ICN (Jackie Barmanory) as part of the project.

48. The next phase of the Glasgow Hospital Laboratory Project was the appointment of a preferred bidder and the commencement of stages one and two of the contract. I was not involved in these meetings and had no input into these documents. The laboratory build, listed within the project documentation was an entirely separate project to the new hospitals build.

Project Team

49. I was included in the project documentation as part of the laboratory group as Clinical Director for Laboratory Medicine, not as an ICD. This was to ensure that the laboratory building, which was built on the Southern General Hospital site prior to the opening of the QEUH, was appropriate for the laboratories which were due to move onto that site. This was a specific project group to deliver the laboratory build. We had dealings with the Project Team for this build, but this was an entirely separate building project to the hospitals build.

50. There was an Infection Control Nurse, Jackie Barmanory, attached to the project at an early stage. Jackie answered questions as they arose and would discuss queries with Sandra McNamee, Teresa Inkster and myself. My recollection is that these questions related mainly to hand hygiene sinks and fittings which we agreed would all be to the relevant national standards.

51. As Teresa Inkster was developing an interest in the built environment, I asked Teresa Inkster to be the ICD link with Jackie to respond to any questions. I also said that Sandra McNamee and I would be happy to be involved in any discussions that she and Jackie felt appropriate. The questions they received were more about the nature of the sinks, taps, fittings, and the positioning of hand hygiene sinks. However, there were no questions around which

ventilation should be used, when and how it should be fitted or any discussions around the details of ventilation or overall water design.

52. The Project Team were based separately in the portacabins next to the build. Early on in the project we were shown room mock-ups detailing the sizes of the rooms. These were plasterboard shells mocked up in a building on an industrial estate somewhere in South Glasgow to give people an idea of the size of the room. These rooms had no fittings either water or ventilation and again we were not asked to comment on anything specific based upon these room mock-ups.

Involvement in Planning Meetings

53. I can recall, as ICD for Yorkhill, having a meeting with Tom Walsh while he was based at the Health Board. John Hood the ICD for North Glasgow and Penelope Redding the ICD for South Glasgow also attended this meeting was to discuss the provision of isolation rooms for the QEUH.

54. This was before the acute division and health board amalgamated. At this time Tom Walsh was the Infection Control Manager and Sandra and Tom were based with the NHSGGC board in Dalian House. At that time a Senior Nurse, Annette Rankin and the Laboratory Manager Isabel Ferguson were leading infection control in the acute division.

55. I cannot recall the date of this meeting, but it was at some point between 2009 and 2013. This was prior to Clyde being amalgamated into NHSGGC.

56. We were asked at this meeting to advise on how many ventilated isolation rooms were necessary for the hospital. We advised that rooms would be needed for respiratory medicine, the intensive care unit, and the bone marrow transplant units. We also advised as to whether the rooms needed to be protective isolation, which is where the patient is vulnerable to infection, or source isolation, which is where the patient has the infection, and it is likely to

spread to other people. The advice was at a general level and did not include developing specifications for ventilated rooms.

57. This was the only meeting I recall being involved in for the planning of the QEUH. I am not sure where that information went because it did not materialise into the final build. We recommended a spread of rooms, so they were available in wards all over the hospital. In the end, I think for engineering reasons, all the isolation rooms were all put together to ensure that the machinery necessary for providing the airflow in these rooms was concentrated in specific areas of the hospital and not provided in each ward of the hospital. I do not recall being referred to during any other stage of the planning or attending any meetings regarding the detailed design specification.

58. In the Infection Control Senior Management Team Meeting Minutes Dated 27 August 2014 **(A40247718 – Infection Control Senior Management Team Meeting Minutes dated 27 August 2014, Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 65)** we are referring to ventilation in critical care. My recollection is that we were being asked to advise from an infection control point of view because of a tension between a Scottish Government requirement that the hospital be comprised of 100% single rooms and the need for close observation of patients within critical care units. Several options were discussed including 3 sided rooms or glass sided rooms. There is also a requirement for the same level of protective isolation to be provided in the intensive care unit and the bone marrow transplant unit as there is no anaesthetic support on the bone marrow transplant unit, as if bone marrow transplantation patients require Intensive care they need the same level of isolation as they would be receive on the bone marrow transplant unit.

<u>Involvement in Discussions Regarding Ventilation Design</u>

59. I have been asked if I was made aware of the ZPB Ventilation Strategy document dated 15 December 2009. I was not made aware of this document. I

became aware of it when I was asked about my knowledge of it by the inquiry. I was not consulted about it.

60. I have been asked when I was first made aware of the agreed ventilation derogation, i.e. that 2.5 ACH was the agreed rate. I did not know about the agreed ventilation derogation during the time that I was working at NHSGGC. I recall that I became aware of it either from media reports or via the enquiry website, I cannot be sure which.

61. I have been asked if my views were asked for before the building contract was signed in December 2009. I can confirm that they were not, I was not aware of the contents of this contract, nor was I consulted about it.

62. I have been asked if I know why GGC would agree to derogate from their Employer's Requirements that said that compliance with SHTM 03-01 was mandatory and whether in my opinion the derogation would have had an effect on the safe operation of the hospital. I do not know why they reached this decision concerning any derogation. In terms of safe operation, reading the documents that were provided by the inquiry, the derogation seems to refer to "general rooms". I take this to mean the majority of the rooms in the hospital not on specialist units or clinical areas with specific ventilation requirements. HBN 0301 part A lists the reasons for ventilation in general treatment rooms as "comfort conditions only" not to control exposure to or prevent transmission of pathogenic material. So while the derogation may have had an effect on patient and staff comfort, it is difficult to conclude, given the premise in the HBN, that from an infection control perspective it would have had an effect on "safe operation".

63. I have been asked if I think that this agreement continues to have an effect on the safe operation of the hospital. I cannot comment on this as I have not worked in NHSGGC for over 7 years and have no idea about ongoing operations at the hospital.

CONSIDERATIONS IN THE DESIGN/BUILD OF THE QEUH

Ventilated Rooms

64. The aim of ventilation in infection control is either to stop the ingress of any bacteria, virus or fungus to patients who are prone to infection, particularly bone marrow transplant patients or to prevent infections spreading through the air from an infected patient to other patients. Bone marrow transplant patients can fall into both categories at the same time as while they are prone to infection they can also be infected with respiratory viruses for example and shed large numbers of viral particles into the air around them. Ventilation along with good infection control practices and appropriate personal protective equipment are important in limiting the development or spread of infection.

65. The ventilated rooms provided for the RHC and in specialist units across the adult site, the PPVL rooms, had high pressure air HEPA filtered entering the lobby. This means that there was little possibility of air escaping from the patient's room into the corridor and due to the volume of air going into the lobby, any infection would be diluted to reduce the risk of transmission thus achieving source isolation. Ventilated rooms used to have switchable ventilation to choose between protective isolation and source isolation however this led to the possibility that the incorrect setting could be chosen so the positive pressure lobby ventilation rooms were designed to provide both source and protective isolation.

66. In terms of protective isolation, the air flowing into the lobby is passed through a HEPA (High Efficiency Particulate Air) filter which removes particles down to the size of bacteria and fungi. The HEPA filtered air is provided in sufficient volume to ensure that air blows out of the room and into the corridor so that nothing comes in through the door. This clean air also passes via the patients' room and is extracted from the patient's bathroom. This provides a continuous flow of clean air over the patient. However, for this to work the HEPA filter needs to be fitted and working correctly and the room needs to be sealed to a

standard which ensures that the air flows as designed and cannot leak out from anywhere else in the room.

67. The theoretical risk of having the HEPA filter in the patient's room is that when you open the door to the corridor there is a positive pressure from the room to the corridor so if the patient is infected and shedding viral particles these viruses could be blown out into the corridor and potentially infect others.

68. The technical guidance (SHTM-0301) stated at Appendix 2 that the lobbied side rooms are not suitable for bone marrow transplant patients or for use on infectious disease units. However, there was no further guidance to explain which alternative should be used in these specialist units. I am unclear about why these lobbied side rooms were chosen and by whom. However, I would not say that they are unsafe because similar rooms are in use at Great Ormond Street and in Leeds in the Bone Marrow Transplant units and work effectively as long as they are built and validated to the correct standards and appropriately maintained.

Air Sampling

69. While the Schiehallion unit was at Yorkhill we would sample the air in the bone marrow transplant unit once a month. In carrying out sampling a pump on the air sampling machine is set to take a certain volume of air. The air is then collected centrifugally onto a culture plate and the number of colonies on that plate would equate to the number of colonies present in the volume of air that has been sampled.

70. I do not understand the physics of the particle counter, but it draws in air and counts the number of particles in the air. These particles can be infectious particles or non-infectious dust particles.

71. HEPA filters are supposed to filter bacteria and fungal spores out of the air so that routine microbiology sampling is less useful. In addition the culture plates inoculated in the air sampling machine need to be incubated for 48 hours to

allow any collected organisms to grow so there is a delay in the result being available. The number of particles is immediately available and gives immediate results on effectiveness of the HEPA filter. However, a high particle count cannot distinguish between non-infectious dust particles passing through the HEPA filter or infectious particles So both tests are required and need to be interpreted in conjunction with each other.

72. The equipment needed to perform air testing needed to be validated for the results to be reliable. All NHS laboratories in the UK must have UKAS accreditation, the United Kingdom Accreditation Services. This involves providing validation data on the performance and accuracy of each laboratory test. Historically, every lab used to have its own air sampler. However, the decision was taken by microbiology in NHSGGC, as laboratories were amalgamated, to centralise the service on the basis that the equipment could be well looked after and validated. It did however reduce the availability of and pool of expertise in, the performance of air testing across NHSGGC.

73. Depending on where you are in the country there will be different environmental factors. The damper and the warmer the area is, the more likely there are to be fungus and fungal spores in the air. There is no nationally agreed definition of an acceptable standard of fungus in a transplant unit, this is usually monitored locally by performing air sampling at various areas in the transplant unit and in the outside air to ensure that the appropriate reduction in bacterial and fungal counts is being provided by the ventilation system and the HEPA filtration.

Protecting Patients from Fungal Infections

74. When we walk outside the dust in the air may be full of fungal spores. Our immune systems protect healthy people from fungal infection. If you have no immune system, then any fungus can grow inside you. When the function of the immune system falls below a certain level, you become very susceptible to unusual infections such as fungal infection.

75. Bone marrow transplant patients would always be placed in protective isolation which included HEPA filtered ventilated air. This is because the bone marrow is the home of the immune system. The more you supress the bone marrow, the more risk you have of infection. A very aggressive treatment for acute leukaemia will reduce bone marrow activity. This is measured indirectly by what is called the neutrophil count in the. Neutropenia is less than 0.1 neutrophils per ml and with neutrophils at this level you are at a high risk of infection. There are other patients who would also require protective isolation too such as those with blood malignancies, liver transplants and heart transplants. The duration of the neutropenia can also influence the risk of infection.

COMMISSIONING for BMT Adult Unit

76. I have been asked as to whether I provided input for the document 'Clinical Output Specification (COS), Area Haemato-oncology'**(A38233112 – New South Glasgow Hospital Clinical Output Specification – understood to be the paper referred to in Professor Craig Williams Note titled "BMT document", Bundle 27, volume 3)**. I did not. The document explicitly excludes children's services for which I was ICD at the time.

77. It appears that John Hood was involved in the creation of this document. John Hood was the Infection Control Doctor for North Glasgow which included the Beatson however as there is no date on the document, I cannot be sure if that was the case.

78. Looking at this document, I think John has clearly outlined the requirements for specialist ventilation to match those that were present at the Beatson. The special room requirements are what you would expect in any haemato-oncology rooms.

79. I have been asked why I did not speak to John Hood about the new build in or around 2009. I had no involvement in the design or specification of the new

hospital building. There were no structures in the project plan which requested input from any ICD's in any of the sectors. In addition, I had no reason to be concerned that any building was being proposed that would be out of the ordinary in terms of the specifications required for bone marrow transplant units.

Commissioning for BMT unit Children's hospital

80. I had no input into the selection of designs or specifications for the Bone Marrow Transplant unit at the New Children's Hospital. I was made aware by Dr Brenda Gibson, who was informed by the project team as part of their meetings with clinical users, that the new Paediatric Bone marrow transplant unit was to be provided with Positive Pressure Ventilated Lobbies (PPVL) rooms. I do not know who selected that design of room for this project or why that choice was made.

81. I had no direct experience with the use or operation of this type of room, but I contacted colleagues in other specialist children's hospitals around the UK and found out that this type of room was in use at Great Ormond Street and in Leeds. I spoke with my colleagues at those sites to make sure that the proposed rooms were working appropriately. They advised that the rooms were working effectively in terms of providing clean air into the patient rooms and they were not aware of any problems with infection but that they required a high level of ongoing monitoring and maintenance because they tended to leak. I spoke with John Hartley who was a Clinical Microbiologist at Great Ormond Street. John advised that we needed to make sure that the rooms did not leak, and we would need to do a lot of particle counting and pressure testing around the seams when we began to use the rooms. As soon as the air starts leaking to the patient area the function of the room is compromised.

82. I then emailed Brenda Gibson to advise her that the rooms were being used in other sites and that with appropriate monitoring and maintenance were effective.

RESTRUCTURING in INFECTION Control DUE TO MOVE TO QEUH

83. The Infection Prevention and Control Team would have moved to the new hospital after the project was handed over from the builders. However there was a period between the building being handed over to NHSGGC and patients moving in when teams would be working across the new buildings and the hospitals which were about to close.

84. The move to the QEUH resulted in services previously provided by three separate infection control teams, Paediatrics and Maternity from Yorkhill, Infectious diseases and Haemato-oncology from North Glasgow and the Southern General Hospital into the new build. These different units all had specific infection control problems. As there was not a lot of patient movement between paediatrics, Infectious diseases, the Haemato-oncology units and the general parts of the hospital it was decided to keep Paediatrics as a separate team. I retained responsibility as ICD for the RHC and for the neonatal and maternity units which moved into the retained estate at the Southern General Hospital site. Theresa Inkster retained responsibility for the ID unit and the Haemato-oncology unit and Christine Peters became ICD for the rest of the tower block and the retained Neurosciences block. We were aware that patients moving for Intensive Care would pass between teams but this had been the case when services were based at Gartnavel. There was a lot of debate about how to provide seamless infection control services to a site of this size and complexity but there were not any problems with the cover that we provided that I was made aware of. I retained the Lead ICD function so had a responsibility, alongside the infection control senior management team, to ensure that an appropriate solution to the overall provision of infection control to the new site was put in place.

The Decision to Move the Infectious Disease Unit and BMT to QEUH/RHC

85. The decision to relocate the Infectious Diseases Unit and the Bone Marrow Transplant Unit was not taken by the infection control team but we were asked, as an Infection Control team, to provide our views on this move.

86. I have been asked what the downsides were of making the decision to move the Infectious Diseases Unit and the Bone Marrow Transplant Unit to the QEUH/RHC were. We were happy with the move of the adult Bone Marrow Transplant Unit because there should have been appropriate provision of protective isolation on the new unit. However, we had more of a concern with the move of the Infectious Diseases Unit (Brownlee Unit).

87. We were concerned because in a stand-alone unit, such as the one at Gartnavel, an infectious patient could go straight into the unit into an isolation room. This happened in 2014 when we had a Viral Haemorhagic fever case in Glasgow. In addition, as a stand-alone unit any infectious waste could go out of the back door of the unit and be safely disposed of. With the proposed move they were suggesting the building of an Infectious Diseases Unit in the centre of a tower block in a large hospital. This would mean that any infectious patient would have to be moved through several clinical areas and in communal lifts to reach that unit. The highly infectious waste also needed to move through several units before being disposed of.

88. This also caused difficulty in relation to multi-drug resistant TB (MDRTB) patients requiring to be isolated. This strain of TB it is spread by airborne transmission and required specialist ventilation for that patient. With moving the unit to the centre of a large hospital you were creating difficulties in getting the patient into and out of the unit and providing the appropriate ventilation in the unit. In addition we knew at this point that the isolation facilities for adult patients would be PPVL rooms and it was not clear if the PPVL specification matched the detailed guidance provided by the department of health for the management of MDRTB.

89. My concerns were about the ventilation which needed to be provided for MDRTB patients both in the infectious disease unit and in the adult intensive

care unit should the patient require intensive care as part of their management.

90. Sandra McNamee sent the final email detailing our concerns and that a decision would need to be taken to balance those risks with any perceived benefits of relocating the ID unit.

91. There are minutes from an SMT meeting detailing our concerns around having the adult bone marrow transplant unit in the campus. In this meeting we are referring to the provision of critical care for these patients as there is a requirement for the same level of protective isolation to be provided on the intensive care unit. This is required for patients who are in protective isolation on the bone marrow transplant unit in case they require intensive care and ventilation. It is not usual to ventilate patients on a bone marrow transplant unit because there is no anaesthetic support.

VALIDATION

92. My understanding is that verification is ensuring the specification is correct, whereas validation is making sure that the construction has delivered this specification. The Infection Control Senior management team repeatedly requested information from the project team about the validation reports for ventilation in the specialist units and operating theatres. We were continually assured all areas were being built and validated to the relevant HTM standards, but no documentation was provided. We were never told that validation had not been performed or lead to believe that there were any problems or concerns with the ventilation systems.

93. I have been asked to comment on a document titled A40241814 Attachment to the Email Sent by Professor Craig Williams to Jennifer Armstrong, titled "BMT document" **(A40241814 – Attachment to the email sent by Professor Craig Williams to Jennifer Armstrong, titled "BMT document", Bundle 27, volume 3).** This document was produced after the problems in the adult

bone marrow transplant unit had been identified. It aimed to summarise the background to and current problems with the adult bone marrow transplant unit on the QEUH site prior to a meeting with the contractors to decide the best way forward in resolving the problems. It outlines the original specification document, any progress noted during the building process and the problems identified in the unit. The original specifications clearly identify that there were patients vulnerable to infection who required a protected environment. The air flows and the conditions described were based on the specification provided at the West of Scotland Cancer Centre. This document also clearly details that it is a haemato-oncology area that should be built to a specific specialist specification.

94. The section Build Progress identifies the assurance given by the project team to the clinical team that the ventilation was completed to specification.

95. The table titled 'current deficiencies identified' **(A40241814 – Attachment to the email sent by Professor Craig Williams to Jennifer Armstrong, titled "BMT document", Bundle 27, volume 3)** was put together by Estates colleagues, the Project Team and Peter Moir. This sets out the problems that had been identified in the adult bone marrow transplant unit at that time, 7th July 2015. My conclusions were a summary for Jennifer Armstrong, the medical director, describing the situation as I saw it at the time.

96. There was a discrepancy between the specifications and what had actually been delivered. The rooms leaked, there were no HEPA filters provided. This resulted in particle counts significantly above what we would have expected. For this reason I supported the return of the patients to the Beatson until we were happy that the problems with the unit had been rectified and the unit was performing to a safe specification.

97. The document titled **A40241592 Comments by Professor John Hood on the BMT document**, **Bundle 27, volume 3** is the same document with detailed commentary provided by Dr John Hood after I had circulated the document for comment. The very tight time frame was due to a pre-arranged

meeting with the contractor. This was a summary document to agree the current NHSGGC position and was in no way meant to represent a detailed plan or specification to resolve the problems identified in the adult bone marrow transplant unit at that time.

98. There is a document titled Minutes of the NHS Great Glasgow and Clyde Board Infection Control Committee (BICC) dated 1st December 2014 **(A32221707 – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 1 December 2014, Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 28)**. I commented that I still hadn't heard from Fiona McCluskey about the issue with the transplant patients and whether a contingency plan was in place with regard to the MDRTB regulations. Fiona McCluskey was a member of the Project Team from whom we had requested validation reports. From my recollection, one of the project team, I think it may have been Fiona, was asked to come to one of the AICC meetings to update us on the project. We were reassured again at that meeting that all units were being built and validated to the appropriate standards. This minute refers to the validation data that we had requested around the bone marrow transplant units and the feedback from Currie and Brown about whether the PPVL rooms provided adequate isolation for the management of patients with MDRTB met the MDRTB specifications in the department of health document.

99. Dr Armstrong had stated that the issues with the MDRTB patients and the bone marrow transplant patients should be resolved prior to the opening of the new hospital. However to do this we needed to be provided with the validation certificates of all of the bone marrow transplant areas was appropriate. Pamela Joannidis specifically asked the project team by e mail about whether the facilities were built and validated to the relevant standards, and I recollect her receiving a response to that effect. At no time was the Infection Control Senior Management team left with the impression that there were any problems with the validation or that validation had not been undertaken.

Contact with Health Facilities Scotland (HFS) and Public Health

100. The main contact between the Infection Control teams and public health took place at the board infection control meetings where public health were represented.

101. HFS is the equivalent to HPS for Estates and Facilities. If we wanted to engage with HFS we would usually do so through our Estates colleagues. A lot of the questions were highly technical and needed to be phrased appropriately and we didn't have that level of expertise.

102. I have been asked how I ensured that the HFS building notes and guidance documents were complied with. This document covers any new builds. The SHFN (Scottish Health and Facilities Note 30) **(A33662182 – Scottish Health Facilities Note 30: Version 3 dated June 2007, Hearing Commencing 26 February 2024 - Bundle 13 - Miscellaneous - Volume 3, Document 16)** relates to any kind of building or changes in rooms. All the infection control teams are listed because this guidance is applicable across the health board. In following this guidance, you need to risk assess each new build in terms of the risk to patients, the potential harm it can do and the precautions that need to be taken. This document is applicable to all new builds, rather than solely the design of the hospital. There are extensive documents produced during the project by NHSGGC which outline the governance of the new build project.

Assurances from Currie and Brown (External Consultants)

103. I have been asked what assurances, if any, I received from Currie and Brown before handover on 26 January 2015. I requested, by e mail, via the project team, that the consulting engineers, Currie and Brown, review the PPVL specification and the Department of Health MDRTB specifications side by side. There is guidance from the Department of Health that specifies the requirements in terms of isolation of air flow for MDRTB patients. This guidance pre-dates the provision of positive pressure ventilated lobbies

(PPVL) rooms and I was not sure whether the rooms met the requirements for isolation. This became important after the decision to locate the Infectious diseases unit within the new hospital build and my contact with Currie and Brown was about this specific requirement not around ventilation systems in general.

104. In the minutes of the NHSGGC Board Infection Control Committee dated 26th January 2015 **(A32221766 – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 26 January 2015, Bundle 27, volume 3)** at 4.5 titled New Build Project, there is an update that the rooms are compliant with the MDRTB Regulations. I must have received assurance from Currie and Brown that the rooms were specified appropriately to meet the MDRTB guidance. I can't recall what I was engaged with in relation to the Bone Marrow Transplant Unit, however reviewing the minute it may have been to explore the possibility of using the PPVL rooms in the paediatric build for the isolation of highly infectious paediatric patients.

105. I received this confirmation prior to February 2015 and the Infectious Diseases Unit moved in slightly later. My contact was via an intermediary in the Project Team. I did not have any discussions with Currie and Brown directly.

106. The document titled Queen Elizabeth University Hospital – Ward 4B Upgrade Works **(A40241977 – Report by Brookfield Multiplex titled "Queen Elizabeth University Hospital 4B Upgrade Works" Bundle 27, volume 3)** sets out the validations completed by specialist companies. The date of 27th October 2015, evidence bundle p385, confirms that this was undertaken after the deficiencies on ward 4b were uncovered via routine air sampling. The report covers assessments in relation to ventilation, air flows, and how the meters to measure pressure differences are functioning. The report is compiled by expert independent engineers. As an Infection Control Doctor. I would be looking for the signature of the expert performing the validation to confirm whether the rooms/wards are functioning to specification. I do not have sufficient engineering expertise to review the detailed testing outlined in

the document. This is the type of certificate that should have been provided before the hospital was handed over to NHSGGC.

Problems in the Paediatric Bone Marrow Transplantation unit

107. NHSGGC took over the new hospital new hospital on the 26th of January 2015, but patients were not admitted for some time. Before the patients were due to move into the new unit Clare Mitchell, who was at that time the lead ICN for Paediatrics, and I went to visit the paediatric bone marrow unit to see how the clinical team moving in were progressing. I noticed a workman, I think working on behalf of the Teenage Cancer Trust, drilling holes in the walls in the lobbied side room. This surprised me as the rooms were supposed to be sealed and any works undertaken would mean that the rooms would need to undergo a repeat validation.

108. On closer inspection of the lobbied side rooms in the paediatric bone marrow transplant unit, Ward 2B at the Children's Hospital, I noticed that above the air inlet grill in the lobby of the rooms the silver tubing of the ducting was visible. This meant that there were no HEPA filters fitted to the rooms. This rendered them useless in terms of providing protective isolation for reasons described earlier.

109. Further into the room I also saw that the Formica panel at the back of the toilet hadn't been sealed. It was just hung as it would have been in a normal room which suggested that the sealing in the room didn't seem to have been done properly. At this point I immediately sent an e-mail to Tom Walsh and we arranged to meet Graham Archibald, Chief Operating Officer, and David Louden the Director of Estates to urgently discuss the problems with these rooms. David Louden and Grant immediately recognised the urgency and nature of the problem. At the meeting as I had seen deficiencies in the paediatric bone marrow transplant unit, I specifically asked David Louden if there were likely to be any problems in the adult bone marrow transplant unit. He reassured me that everything was okay on the adult unit, so I continued to concentrate on the problems identified in the paediatric units.

Issues with Other Rooms Outside Ward 2b

110. As PPVL rooms were provided elsewhere across the build I asked that the rest of the rooms outside of ward 2b were checked. This included the rest of the rooms on the paediatric bone marrow transplant unit, the paediatric intensive care unit and the adult Intensive Care Unit. These checks identified that none of the PPVL rooms across the site had been fitted with HEPA filters. This meant that we had a major problem in terms of providing source and protective isolation in the paediatric build and source isolation across the site.

111. At this point no patients had been moved in to ward 2b at the new RHC. I attended a meeting with Grant Archibold and the clinical teams including Brenda Gibson, John Hood, Brian Jones and Tom Walsh. I raised the possibility of not transferring patients from Schiehallion to the new hospital as we knew that the old Schiehallion unit was providing a safe environment for children. However, leaving Schiehallion open without the full support provided by the facilities present in the children's hospital was judged, by the group, as a higher risk than continuing to move the Schiehallion patients to the new ward 2b.

112. As part of her contingency planning for the move Dr Gibson had built in a period where no bone marrow transplants were urgently needed so there was no immediate need to undertake paediatric bone marrow transplants in the new facility at RHC. John Hood, who had experience in measuring airflows in rooms, Ian Powrie and I spent some time further examining the PPVL rooms on ward 2b to make sure that we had identified all of the problems. Work then started on fitting HEPA filters to the rooms and sealing and validating them according to an agreed clinical priority list. This programme was overseen by senior clinicians, senior managers and estates officers, which included Tom Walsh and myself. I find it difficult to see how the rooms could have passed validation if the HEPA filters were not fitted and the rooms were not sealed. There are a number of validation criteria for that type of rooms which include pressure differentials and leak tests. We were given assurance from the

project team that the validation had happened, but we didn't see validation documentation. This would normally be completed by an independent contractor.

Validation of Bone Marrow Transplant (BMT) Rooms

113. In the Infection Control Senior Management Team Meeting Minutes Dated 27 May 2015 **(A40247744 – Infection Control Senior Management Team Meeting Minutes dated 27 May 2015, Bundle 27, volume 3)** under heading Project Update, New Build Adult Hospital/Children's Hospital, I mention that the BMT rooms will need to be checked for full validation. This was to make team members aware of the work being undertaken to rectify the problems identified with the PPVL rooms across the site.

114. There is also reference to an ongoing dust problem. This was because the new hospital was occupied before the old estate remaining on the site was demolished. We had concerns about patients walking through a building site to access the new hospital as this may have posed some risk to immunocompromised patients in terms of infection control and also of ingress of dust into the new building via the ventilation system during the demolition. To limit this risk we reviewed and monitored the contractors provided method statements that detailed how they were going to control the dust. This involved using water sprays, doing sectional demolition and having closed containers to take the waste offsite. We also brought patients in through one side of the new building which wasn't in proximity to the demolition work and was a safer entrance. In addition we asked Estates colleagues to check the first-line filters on the main hospital building to ensure that the filters, whose job was to remove large particles of dust were working optimally.

115. On the document titled Infection Control Senior Management Team Meeting Minutes, Dated 24 June 2015 **(A40247758 – Infection Control Senior Management Team Meeting Minutes dated 25 June 2015, Bundle 27, volume 3)** I was not present at the meeting but there is no mention in the minutes of concerns about the adult Bone Marrow Transplant Unit. As far as

we knew at this point the unit had been built to specification and validated to the appropriate standards. Christine has also stated that she was trying to get the validation for the BMT rooms. The Senior Management team had been chasing the validation reports for some time, but the documents were not provided by the project team. However, we were repeatedly reassured by the project team that the hospital had been built and validated to the appropriate standards.

116. There is also mention of VHF (viral haemorrhagic fever) patients being admitted to the hospital and how they would be managed. Tom discusses the positive pressure ventilation rooms in the Schiehallion Unit not performing properly so all of the infection control teams were aware of the problems in ward 2b in the RHC.

Problems with the Adult Bone Marrow Transplant (BMT) Unit9 (Ward 4b)

117. I was on leave when the problems in the adult BMT became apparent. Air sampling was performed routinely on all of the Haematology wards in NHSGGC to check that the ventilation was working correctly. The first routine air testing on the adult bone marrow transplant unit showed problems and the chronology of this is reflected in the document titled Briefing & Report, Bone Marrow Transplant Service, Ward 4b, Queen Elizabeth University Hospital.**(A40241798 – Email chain from Garry Jenkins, copying Professor Craig Williams, forwarded on to Tom Walsh and Jennifer Armstrong, "Subject: BMT Briefing" dated 6 July 2015 (ii) Email Attachment (Word Document), Bundle 27, volume 3.**

118. On the 30th of June Gary Jenkins was contacted by the Clinical Service Manager to inform him that none of the rooms had met the specification. This was based upon air sampling performed across the unit. From the note it looks to me from the chronology that there was an initial attempt to fix this problem by increasing the air flow in the rooms, but this did not rectify the issue.

119. There is an email **(A40241798 – Email chain from Garry Jenkins, copying Professor Craig Williams, forwarded on to Tom Walsh and Jennifer Armstrong, "Subject: BMT Briefing" dated 6 July 2015 (i) Email chain), Bundle 27, volume 3** from Gary Jenkins to Grant Archibald and David Stewart dated 06 July 2015, that states 'please find attached briefing note with regard to the discussion today and BMT issues.' This refers to the decision to move the service back to the Beatson due to the problems identified with the air quality on the adult BMT unit. There were patients in the unit and the decision was to transfer the patients back to the Beatson. The Beatson was still open and functioning as previously, so the patients were returned to an area where we knew that the air quality in the rooms was acceptable.

120. Following the discovery of problems on the adult BMT, the validation and commissioning results for this unit were again requested along with a further engineering review. We had repeatedly requested validation data but didn't receive this. We were reassured by the project team that the validation data was fine.

121. On the second page of the document titled Briefing and Overview, Bone Marrow Transplant Service, Ward 4b, Queen Elizabeth University Hospital,**(A40241798 – Email chain from Garry Jenkins, copying Professor Craig Williams, forwarded on to Tom Walsh and Jennifer Armstrong, "Subject: BMT Briefing" dated 6 July 2015 (ii) Email Attachment (Word Document), Bundle 27, volume 3.** Dr. Williams states that he reviewed the clinical specification for the unit and stated that it seemed fine. This referred to the document titled **A38233112 - New South Glasgow Hospital Clinical Output Specification, Bundle 27, volume 3.**

122. This document titled **A38233112 - New South Glasgow Hospital, Clinical Output Specification, Bundle 27, volume 3**, Area Haemato-Oncology mentions John Hood as the consultant microbiologist and was prepared some time before but is not dated. The document details the overall room requirements for a haemato oncology unit and seems to reflect the facilities which were provided at the existing Beatson unit. The clinical specification

clearly stated that the unit is for immunocompromised patients. The clinical specifications needed to be translated by the specialist engineers into a design. When I reviewed this document, it seemed to me to include all of the engineering features which I would have expected to have been present in a Haemato-oncolgy unit which meant that the original specification provided was correct but that this had not been translated into the completed unit.

RECTIFICATION – PAEDIATRIC UNIT PPVL ROOMS

123. There was a time pressure because bone marrow transplantations are urgent procedures. Once a patient begins on the pathway of a bone marrow transplant, they may need treatment for months, if not longer. If we had to take the decision to send the patient to London, for example, for transplantation as we could not provide the treatment locally, this could result in a massive disruption to the patient and their family. We knew that we needed to get the rooms into a condition where they met the standards and provided safe accommodation for the children so that we could safely resume Bone Marrow Transplants for Children in Glasgow.

124. Brenda Gibson had timed the transplant program so that there would be nobody who was seriously immunosuppressed during the period of the move from Yorkhill to the new children's hospital. However, our assumption was that we would be transplanting again from day one of the move, but this turned out not to be the case.

125. I had a meeting with Grant Archibald and David Louden, as described earlier to discuss the issues that we had found with the PPVL rooms on the paediatric bone marrow transplant unit and across the site. The paediatric bone marrow transplant unit was prioritised, and remedial work started right away. I was focused on how to fix this problem on ward 2b initially but also subsequently across the rest of the PPVL side rooms across the rest of the site. The project was overseen by a group including estates colleagues, the director of Women and Children's services Jennfier Armstrong and the Chief of Medicine for Women's and Children's Services.

126. Before we could put any transplant patients into the rooms we had to fix the problems with the rooms, ensure that the rooms were validated and then undertake final air sampling to measure how effectively the rooms were performing in terms of excluding fungi and airborne bacteria. After the rooms had been sealed and the HEPA filters fitted, we performed very detailed air sampling. The problem then however was with interpretation of the air sampling results as there are no nationally or internationally available standards for an “acceptable” level of fungi in a bone marrow transplant suite. There is published evidence that low levels of fungi can be found intermittently in bone marrow transplant units if enough sampling is done which confirmed our experience at Yorkhill. The problem we were being asked to resolve was whether the work we had done in the lobbied side rooms in ward 2a had improved the facilities sufficiently to allow bone marrow transplants, which were time sensitive, to resume. This was not decided by me alone but by a group which included Prof Gibson, the Chief of Medicine from Women’s and Children’s services, the Director of Women’s and Children’s services and estates colleagues as we were trying to balance a number of risks including transferring patients to English centres for bone marrow transplantation. Minutes of these meetings and decisions should be available.

RECTIFICATION ADULT BMT

127. I was not involved in drawing up the specifications for this unit, this was done by the Project Team in conversation with John Hood. I would have expected that, had there been any concerns regarding the specifications that the contractor Brookfield Multiplex would have sought clarification from the Project Team. In my opinion the specifications make it very clear that this was a haemato-oncology unit, that in this unit a high proportion of patients would be immunocompromised and there was a need for specialist ventilation.

128. I returned from leave on 6th July and attended a meeting which included Tom Walsh, Gary Jenkins, Theresa Inkster and Christine Peters. We discussed the events that had occurred and the problems that had been found in the adult

BMT unit and I fully endorsed the decision to move patients back to the Beatson. After this meeting I was asked by Gary Jenkins and Tom Walsh to take the lead in beginning to resolve the problems found in the Adult BMT. I was not given a specific reason for this but was left with the impression that there had been difficulty in obtaining any agreement between the microbiologists and ICD's involved. Although this problem occurred in a area outside my remit as ICD in paediatrics it had involved a number of ICD's and microbiologists and seemed to fall within the remit of the Lead/co-ordinating ICD, so I agreed.

129. There is an email chain with subject BMT SGUH **(A40241661 – Email chain between Professor Craig Williams and Professor John Hood, "Subject: FW BMT SGUH", dated 7 July 2015, Bundle 27, volume 3)** relating to a draft of the revised specification being circulated. There are comments from Gary Jenkins, Teresa Inkster and Christine Peters. There is reference to a group being set up by the Executive Lead to further discuss this. This e mail trail relates to a meeting that was planned between NHSGGC and Brookfield Multiplex scheduled for the 8th July to begin discussions on how to best resolve the problems found in the adult BMT. My recollection is that the contractors had accepted that they were liable to rectify the problems but we needed to put forward an agreed NHSGGC view as to what the requirements for the unit were. We based this on the original specification to start with but there were to be future detailed discussions regarding the revised specifications following this. This was a brief document with a very high-level specification not a detailed engineering description and while I realise the timelines for asking for comments were short it was driven by the need to formulate an agreed view prior to the meeting with the contractors.

Involvement of External Experts

130. I have been asked which experts I consulted to assist with the BMT Unit specification issue. Initially I asked John Hood, the microbiologist at North Glasgow, to be involved. I also spoke with Peter Hoffmann, a Public Health England expert. His knowledge was incredibly useful.

131. There were a lot of different opinions within the ICD's and Microbiologists in NHSGGC, so we involved Peter Hoffman and HPS to get external experts to provide advice. Peter Hoffman was an expert in the field so my view was that we should be largely following his advice. The relevance of the mention of solid ceilings is because the air flow dislodges dust from behind the ceiling panels if they are not sealed. The final decision on the revised specifications was to be made by Jennifer Armstrong.

132. We were now aware that there were problems with the specialised ventilation in the paediatric area which we were attempting to rectify and in the adult BMT. The specialist ventilation was not performing as we would have expected. Peter Moir was leading on the review to further inform the specifications for the rectification of the adult BMT unit. He was trying initially to compare the specifications which were provided to what was actually present in the Beatson unit at that time.

Submission of Revised Specifications

133. Following the submission of the revised draft specifications, the Project Team, Estates and others including myself took forward work with the contractors to continue to develop the revised specification for the rectification of the adult BMT.

134. There is an email from Peter Hoffman to myself titled Re. BMT Specification and Dated 23 July 2015. **(A40241585 – Email chain between Professor Craig Williams and Professor Peter Hoffman, "Subject: BMT specification", dated 23 July 2015, Bundle 27, volume 3)** and I had previously had a discussion regarding the revised specification. I provided Peter with a draft of the proposed specification, the details of which he refers to. This email was Peter providing his comments on the updated proposal for ward 4B. Peter states that he does not have the remit to approve this document and that it would be good to have this approved by someone in

HPS. While Peter worked with PHE in England the responsibility was with HPS and HFS in Scotland.

135. There is an email from Gary Jenkins to myself and others titled BMT Service: QEUH. **(A40241939 – Email chain from Gary Jenkins to Professor Craig Williams and others, "Subject: BMT Service QEUH", dated 17 to 23 July 2015, Bundle 27, volume 3)** This email was a summary of progress in agreeing the rectification works and specifications and listed outstanding items still to be resolved.

136. In addition to the requirement for the work to be undertaken it was important to emphasise that the work would be undertaken in a working hospital with patients in situ so I emphasised to the contractors that they needed to use the HAI-SCRIBE process because they were working in a live patient environment.

137. The HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk in the Built Environment) process assesses the nature of the work undertaken, including the location, dust, clinical risk, and creates a matrix suggesting precautions that are required to limit any risk of infection.

138. The HAI-SCRIBE process is to be followed in every building alteration or new build in the NHS in Scotland. It is usually the ICNs who are responsible for ensuring that the HAI-SCRIBE process is completed. They liaise with the Estates department to ensure that they are happy with the assessment. The ICDs would get involved if it any further opinion was needed.

139. In the document titled NHS Great Glasgow and Clyde, Board Infection Control Committee Dated Monday 27th July 2015, **(A32222054 – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 27 July 2015, Bundle 27, volume 3)** there are comments updating the BICC on the situation in the adult BMT and that the rooms in the ID room had been built to a specification that was suitable for MDRTB. We were at that time undertaking a programme of identifying and rectifying any problems found

with the PPVL side rooms located across the site. I expect that my comment would relate to the PPVL side rooms in the ID unit which must have been successfully fitted with HEPA filters and had passed validation. This was a major undertaking. The pressure testing involved blowing large volumes of air into the rooms through a huge fan and there was a lot of concern from the clinical and nursing staff about the noise and intrusive nature of this testing.

Completion of Rectification Project for PPVL side rooms and adult BMT

140. The document titled NHS Greater Glasgow and Clyde, Board Infection Control Committee Dated Monday 27th July 2015 contains a reference to our desire to get the bone marrow transplant patients back within an agreed. timeframe. **(A32222054 – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 27 July 2015, Bundle 27, volume 3)** Due to a variety of reasons, this timeframe seemed to slip. I cannot recall when BMT patients returned to the QEUH from the Beatson, but I think it was after I had left NHSGGC

141. In the Board Infection Control Committee Meeting Minutes Dated 5th October 2015, there is an update where I state that all of the rooms in the adult tower were complete except for two rooms. These rooms were the PPVL rooms. We had a program of working through those rooms based on clinical priority. The rooms needed to be checked, resealed if necessary and validated by specialist external engineering contractors before they could be used for their intended purpose. These were provided both in the adult and the paediatric hospital. This programme of rectification was based upon risk assessed list as to which rooms were most urgently needed and we could not use those rooms for patient isolation either source or protective until the sealing and validation was completed.

142. My recollection is that by around November 2015 we had completed the majority of the work on fixing and validating the PPVL rooms. We were also beginning to plan the restarting of paediatric bone marrow transplantation. The planning and rectification of the adult BMT unit was still ongoing.

143. Document Reference A32221764, Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 30 November 2015, **(A32221784 – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 30 November 2015, Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 38)** under the heading 4.5 (new build project) there is reference to the adult BMT service moving back. I don't think at this point we were anywhere near being able to return the patients from the Beatson.

144. I was not involved in the discussions about returning patients to the unit in November or December 2015. I was not aware that there were ambitions to return patients during this time. There were no realistic discussions about patients being transferred back during this time period.

145. I have been asked about a document with reference **A33680939, titled SBAR, Queen Elizabeth University Hospital (NHSGCC) Bone Marrow Transplant Unit – December 2015, Bundle 3- NHS National Services Scotland: SBAR Documentation, Document 4**. This is a situation, background, assessment, recommendation document with the title Queen Elizabeth University Hospital (NHSGGC) Bone Marrow Transplant Unit. This document was requested by Teresa Inkster, I assume at the time the problems were identified on the adult BMT. The document sought to provide an external assurance of the conditions that needed to be met to safely return BMT patients to the QEUH site. This document was prepared by Annette Rankin, who was HPS at the time. HPS were asked to look at the evidence and make a recommendation. The report notes that there is no single piece of guidance relevant to this situation and re-iterates the engineering requirements for a BMT unit. The SBAR document would go to the infection control teams and would be used to inform the final decision on returning patients form the Beatson to the QEUH.

146. I have been asked about a document with reference **A32221927, titled Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 25 January 2016, Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 36**. The minutes contain reference to ventilation issues. This confirms that the work to rectify and validate the PPVL rooms across the site and in the paediatric BMT unit were complete. The other point in the discussion is whether the specification, still being developed for the adult BMT unit, should include HEPA filters throughout the whole unit, not just the cubicles. This issue is addressed in the HPS document as “ideally provided in purpose-built units but less important if the rooms are appropriately ventilated and achieve positive pressure in comparison to the , corridor”.

147. In the minutes of meetings with the NHS GGC Board Infection Control Committee, **(A32221707 titled Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 25 January 2016, Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 28; A32221766 Bundle 27, volume 3; A32221628 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 30; A32221627 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 31, A32222054 Bundle 27, volume 3, A32222109- Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 34, A32221764 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 35, A32221927 - Bundle 13 - Additional Minutes Bundle (AICC/BICC etc), Document 36)** there is evidence of ongoing discussions between clinicians, estates colleagues and the new build process. Prior to the hospital being handed over they relate mainly to requests for validation information and concerns about whether the specifications of the build provided were appropriate for their use clinically, especially after the decision was made to include the Infectious disease unit onto the QEUH site. After the handover of the hospital the minutes relate to the problems identified and progress being made to rectify the problems. Throughout this there was clear visibility to clinical colleagues and senior

managers of events as they unfolded. It was my priority to protect patient safety and resolve the issues as they arose.

148. The document titled **A36372647 – DRAFT - Queen Elizabeth and Royal Hospital for Children, Action Plan for BMT and Theatre Operations Dated 21 January 2016 (Version 2 at 27 January 2016), Bundle 27, volume 3** was prepared and signed by David Louden. This notes that Currie and Brown have confirmed that the Isolation rooms, Theatres and Schiehallion room designs are compliant with building regulations and the relevant SHTM's and SHPN 04 supplement 1. In my opinion this suggests that the designs provided to the builders were correct but that the facilities were not built or validated correctly

149. There was a lot of discussion during the rectification process for both the paediatric and adult hospitals. The discussions immediately after the problems were identified with the adult BMT unit are in document reference **A40241741 - email chain between Professor Craig Williams, Dr Teresa Inkster, Dr Christine Peters, Gary Jenkins, Professor John Hood and Professor Brian Jones, "Subject: BMT SGUH. " dated 7 July 2015, Bundle 27, volume 3**. There was wide involvement from the clinical teams, estates colleagues and senior management and the process was clearly visible throughout the Health Board. This was a very time-consuming process. In addition to the work of identification, rectification and validation of the problems found in the new hospital build the remaining estate on the SGH site and the other major hospital sites in Glasgow were still operating throughout this period with the need to maintain patient safety in terms of infection control on all of the sites. A lot of my involvement was in coordinating the infection control input, details of the engineering specifications and physical validation was shouldered by my colleagues in the estates and facilities department.

INFECTION CONTROL GGC

150. The QEUH site had a large number of beds and diverse specialities. This included some of the most potentially infectious patients in Scotland, such as Viral Haemorrhagic fever patients but also some of the most vulnerable patients such as bone marrow transplant patients. Due to the size and complexity of the site it was difficult to manage from an infection control perspective as the usual site/sector-based model did not work well for this site.

151. There was a Lead ICN and an ICD for each sector. For example, John Higgins was the Lead ICN for Clyde and Linda Bagrade was the ICD for Clyde. There were also other Infection Control nurses in their team. The Infection Control nurses are specialist nurses and work full time in infection control so provided most of the infection control support to the clinical teams. The ICD'S would support all of the team in specific areas such as advice on the interpretation of microbiology tests and ensure that the microbiology laboratory support to the sector IC team met the needs of infection control.

Infection Control Governance

152. The work of the infection control team was led by the senior management team and governed by the GGC IPC Work Plan 2015. **(A32331798 – NHS Greater Glasgow and Clyde Infection Prevention and Control Work Plan 2014/2015 – updated November 2014, Bundle 27, volume 3)** The infection control programme was created by the senior team, Tom, Sandra and I. We then discussed this at the Infection Control SMT to ensure that everyone was happy with the roles and responsibilities. The work plan also includes the mandatory requirements of the Scottish Government and how we were going to deliver these as an infection control team.

153. Under the heading 'Healthcare Hygiene, Cleaning Services and the Built Environment', there is a topic titled 'to ensure that NHS GGC premises are designed and built to facilitate the prevention and control of infection.' The first action under this heading is listed as 'coordinating ICD jointly with GM facilities and NHS GGC Water Group'. I am listed as the lead there along with

Mary Ann Kane who is the Facilities lead. This related to ensuring that the activities across NHSGGC were undertaken in a safe environment and ensuring relevant legislation such as that covering the management of legionella in healthcare premises was complied with which was overseen by the water group. Under the action titled ‘ensure that all advice in relation to new builds complies with HFS building notes and guidance documents.’ The IPCTs (Infection Prevention Control Teams) are recorded as the lead. This relates mainly to ensuring that the HAI Scribe process was followed across NHSGGC

154. The last action that is recorded is to ‘ensure that PPM and validation of theatre is ongoing.’ I am named as the lead for that as well as S & A (Surgery and Anaesthetics). This related to the requirement that operating theatres needed to have annual validation to make sure that the air flows and ventilation are correct.

155. To ensure that this guidance was complied with and to ensure close collaboration between operating theatre users and estates teams to achieve this I set up a ventilation group specific for GGC, the theatre Validation Group. This group was chaired by a senior manager from surgery and anaesthetics. The group also consisted of representatives from Estates and the Infection Control team. This group ensured that validation was completed appropriately and on time and ensured that works that needed to be undertaken by the estates teams in operating theatres were closely co-ordinated with the users of the theatres.

<u>Senior Management Team (SMT) meetings</u>

156. The Infection control Senior Management team was the main meeting for discussion and governance within the Infection Control Team. The meetings were held once a month and the Infection Control Senior management team and lead ICN’s/ICD’s from each sector would attend. There are a number of minutes in the bundle. You will see from those minutes that there were sector reports from Lead ICNs and ICD’s in addition to discussion of overarching

infection control problems across NHSGGC and progress with the infection control plan and other targets.

157. The ICNs and ICDs also had their own meetings. The ICD meetings were designed to share information and good practice but were initially informal, and no minutes were taken. The route for escalation of concerns was the IC senior management team. There was continual liaison, almost daily, at sector level within the teams between the sector ICNs and ICDs.

158. The route for formal escalation of any concerns via the IC senior management team (ICSMT) was to the Acute and ultimately the Board Infection Control Committees via the sector reports presented at each ICSMT meeting. Anything that may have been of interest or concern was raised by each sector at these meetings.

159. The ICSMT would also monitor progress against the annual infection control plan. and produced actions should there be any problems with the implementation of the plan. Infection control policies were also discussed at ICSMT before they went forward for approval. The approval path was to AICC then up to the BICC for agreement.

160. The Infection Control Senior Management Team Meeting Minutes Dated 27 August 2014 **(A40247718 – Infection Control Senior Management Team Meeting Minutes dated 27 August 2014, Bundle 13, Document 65)** give an overview of who was present at the SMT meetings. The Infection Control Manager (Tom Walsh) chaired the meeting, Sandra McNamee along with myself formed the senior team, and the rest of the invitees represent the Infection Control teams based in each acute sector and the community.

<u>AICC (Acute Infection Control Committee)</u>

161. The AICC was mainly focused on hospital aspects of infection control. The policy ratification was via the AICC to BICC. The escalation route for any

concerns that could not be resolved by AICC was the Board Infection Control Committee meeting.

162. The main role of the AICC was to oversee infection control as it related to the acute hospital care. It was focused mainly on infection control problems resulting from hospital-based care within the acute sector. The AICC also monitored a number of Scottish Government targets relating to infection control in acute hospitals such as the rate of blood stream infection with *Staphylococcus aureus* and rates of *Clostridium difficile* infection. Aspects of antibiotic prescribing as they related to the incidence of *C. difficile* infection were also discussed.

163. There are meeting minutes titled NHS Greater Glasgow and Clyde, Acute Services Division and Dated 06 July 2015 **(A32220263 – DRAFT – Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 6 July 2015, Bundle 27, volume 3)** The notes relate to problems found on the adult BMT unit and refer to a meeting which was due to be held late on 6th July to understand what the original design specification was and how the adult BMT build was performing against that design specification.

<u>Board Infection Control Committee (BICC)</u>

164. The BICC received the minutes from the AICC, but also received reports from community care and public health, so had a broader overview of both hospital and public health aspects of Infection Control. Jennifer Armstrong took a report from the BICC to the meeting of the NHSGGC Board monthly to ensure visibility of infection control problems from “Ward to Board”. She would report any exceptions raised at BICC to the board in this report.

165. The Scottish Government aspired to have a Board to Ward reporting structure. This involved the ward staff reporting through the sector teams via the ICSMT to the AICC, the BICC and ultimately to the Board. There is always a judgment involved in what to escalate, for example reporting numerous outbreaks of Norovirus directly to the NHSGGC board would probably have had little

benefit. The infection control structures and reporting mechanisms were regularly reviewed by the Healthcare Environment Inspectorate against the Scottish Government standards and they reported no concerns at any time with the committee or reporting structure.

166. In addition to the IC senior management team there was a Lead Nurse who oversaw the surveillance function, monitoring surgical site infection rates, and two data specialists who extracted data from a number of computer systems for all of our routine reports. The lead nurse also attended the Infection Control SMT meetings. We also had admin support within the infection control team.

Water Safety Group

167. The Water Safety Group is a statutory group which monitored Water safety. Under national guidance each organisation needed to have a water safety group. The NHSGGC group was led by Estates and co-chaired by Estates and Infection Control. The Director of Estates nominated his deputy, Mary Ann Kane, Tom Walsh was the chair from the infection control side, and I deputised for him.

168. I have been asked what the functions of the Water Safety Group were. The Water Safety Group members are brought together to share responsibility and take collective ownership for ensuring that all foreseeable water-related risks are identified and assessed, that appropriate control measures and monitoring strategies are implemented and that robust incident control plans are developed. The water safety group should ensure that each hospital has a legionella risk assessment. Legionella can multiply in the hospital water system if there is a lack of flow of water or temperatures reach a level which allows the bacteria to multiply. The legionella risk assessment details where the risks may occur in the hospital water system and the steps that should be taken to mitigate this risk. There is Health and Safety Executive (HSE) documentation that details the engineering precautions that should be in place.

169. In addition to engineering controls maintaining the flow of water also reduces the risk of Legionella and other water borne infections. In high risk areas such as the neonatal units and intensive care units where Pseudomonas is considered a risk a member of the domestic staff would run the taps and other water outlets in the wards to everyday to ensure a regular flow of water through each part of the system. The domestic staff would then note in a document that they had done this.

170. In NHSGGC we also took the view that the water group would consider any pseudomonas isolates found in blood cultures. This could potentially identify any areas in addition to the “High risk” areas where pseudomonas may have become a problem. If a blood culture was found to be positive outside the usual high risk areas then the area would be added to the “High risk” list for additional water testing and flushing.

171. I have been asked how often I liaised with the Project Team on water. I never had any liaison with them. When the hospital was handed over from the builders to NHSGGC Ian Powrie, one of the Estates leaders arranged the first round of water testing which was performed by an outside contractor. He advised that, under the guidance, the Infection Control Doctor was required to observe the contractor taking the samples which I did and the correct process was followed. Any abnormal results from the testing would be dealt with by the estates department in liaison with the sector Infection Control Doctor for example in the document reference **A40241741, titled Email chain between Professor Craig Williams, Dr Teresa Inkster, Dr Christine Peters, Gary Jenkins, Professor John Hood ad Professor Brian Jone, “Subject: BMT SGUH” dated 7 July 2015, Bundle 27, volume 3** . Christine Peters refers to action on legionella testing, this would relate to legionella testing in her areas of responsibility which was the QEUH site excluding paediatrics and regional services.

172. In answer to the question, I cannot recall how often I liaised with Ian Powrie but it was often and would have been more frequently around the ventilation

problems after they had been identified across the adult and paediatric sites than any water problems.

173. My recollection of the first round of water testing is that some of the samples had raised total counts. However, there was no suggestion that there was any systematic problem in the water supply.

174. Any samples with high counts would have been dealt with by the estates teams who would have cleaned, disinfected or replaced taps as necessary and arranged subsequent retesting.

175. There is a document reference **A33795345 - Document titled "Tom WQ.doc" possibly dated around June 2018, Bundle 27, volume 3,** where I am asked questions and I provide responses. The first question is 'were you involved in the design of the water system at QEUH/RHC in your role as lead ICD'. These were questions posed by HPS to me regarding the water system after I had left NHSGGC Tom Walsh had contacted me and asked that I provided replies to these questions. I do not know what happened to this document or for what purposes it was used after I returned it to Tom.

Compliance of Taps provided in the new build

176. During the building of the hospital the guidance around taps in hospitals changed. Due to this Sandra McNamee raised this with Health Protection Scotland and it was agreed that risk assessments would be completed and if this risk assessment was put in place then the taps already fitted in the new build would not need to be replaced.

Cleanliness

177. Cleanliness in hospitals is known to be important in preventing hospital cross infection. As part of the regular general Infection Control training to hospital staff the importance of cleanliness and hand hygiene is reinforced. As part of the focus to reduce the incidence of MRSA (Methicillin Resistant

Staphylococcus Aureus) the role of Hand Hygiene Co-ordinator was established. This post supported the infection control nurses in undertaking education on hand hygiene and performing hand hygiene audits in all clinical areas. There was also a hand hygiene audit programme, based upon self-audit or peer audit, to make sure that hand hygiene was being undertaken appropriately in all clinical areas.

178. In addition, regular cleaning of the environment around the patient reduces the risk of bacteria being picked up on staff hands and transmitted between patients. The level of cleanliness was monitored by the facilities department in NHSGGC using a nationally implemented system and regularly reported to the board and the Scottish Government.

Ventilation

179. Subsequent to the rectification of the ventilation in the children's hospital and in the PPVL rooms across the site I was involved in reviewing the air sampling and checking with Ian Powrie regarding the validation reports. As I mentioned earlier in my statement, these are extensive documents compiled by expert engineers so my main role would have been to ensure that the validation had been successfully completed. Ian and other estates colleagues had more specialist knowledge about the engineering aspects of the document which is why the documents were reviewed and discussed jointly.

180. It seems that the specialist ventilation across the adult and paediatric sites was not provided to the specifications needed. In addition, the new RHC site imposed constraints on the implementation of Infection Control compared with the original Yorkhill site. On the Yorkhill site there was sufficient ward space to geographically separate groups of patients on specialist wards such as the Cystic Fibrosis wards. The design of the new hospital made it more difficult because there were less beds and less geographical separation.

Surveillance of Hospital Acquired Infection.

181. The infection control team was supported by a computer system called IC NET. This would capture the outbreaks and alert the ICNs that there was a possible issue with cross infection on the ward. There was a centralised data team that produced reports on the standard organisms we were looking for such as MRSA and *C difficile*. For standard organisms this system worked well but for more unusual organisms or one-off infections the computer system was less useful and still relied on teams to recognise links between infections. This was made more difficult in the paediatric setting with the amalgamation of the microbiology laboratories from Yorkhill into the larger South Sector Laboratories. In a smaller laboratory it is easier for a small team to have oversight of the results from the whole hospital. This is much more difficult to achieve in a much larger lab with a bigger team of Consultants and BMS staff.

Resignation of ICDs

182. I have been asked about the resignation of Christine Peters, Teresa Inkster and Pauline Wright. In July 2015, I received an email late in the day, but I cannot recall exactly when, from Brian Jones informing me that, Christine Peters, Teresa Inkster and Pauline Wright wished to resign as ICDs effective immediately. I telephoned Brian to ask why. He said that he was unable to comment or discuss this with me any further as a process would be put in place to identify and resolve any concerns that they had raised. To my knowledge a process was not implemented, or if it was it did not include me. No concerns were raised with me either by the Doctors involved, medical or general managers and I still have not been told know why they resigned.

183. Pauline Wright was due to finish her time as Infection Control Doctor two days after she resigned and a successor had apparently been identified but I had not been informed who it would be. I met the next day with Tom Walsh, Sandra McNamee and Dr Linda Bagrade and Dr Alison Balfour who were the other ICD's in NHSGGC. As I had not been informed by Brian Jones who Pauline Wright's successor would be I was unable to invite then to the meeting. At that meeting we all agreed on a way forward to cover the service

in a comprehensive way pending any problems being resolved. We were all confident that could continue to deliver the service for the long term.

184. Tom Walsh and I took this proposal to Jennifer Armstrong, the Medical Director. Her view was that she did not wish the doctors concerned to be allowed to resign their ICD sessions and wished Dr Inkster and Dr Peters to honour their 2 session commitment to Infection Control despite my clear preference that if they wished to resign that they should be allowed to and the process mentioned by Dr Brian Jones to be allowed to take its course.

185. Dr Armstrong did not mention that she was aware of any of the reasons for the resignation at that meeting or subsequently. I was therefore left to try and co-ordinate the ongoing provision of an effective ICD service in very difficult circumstances. Dr Inkster and Dr Peters in particular took any opportunity to undermine my position both in infection control and in my role as Consultant Microbiologist in the management of paediatric patients. An area where she had much less experience than I.

186. When I raised my concerns about this with Anne Cruickshank, the clinical director for Laboratory Medicine and Infection Control, I was told “that’s just Christine”. It was the lack of support from senior medical managers and the difficulty of working effectively with Drs Inkster and Peters that played a part in my decision to leave NHSGGC.

187. Dr Peters and Dr Inkster continued in their ICD roles. Dr Inkster covered the Beatson and regional services including those provided on the QEUH site. Dr Peters continued to cover the rest of the QEUH site. Their line of reporting was to Brian Jones, Clinical lead for Microbiology. I was having to co-ordinate this service and report to Brian Jones so was trying to manage a team that I did not have responsibility for, and a team who had stated that they did not wish to be ICD’s anymore but were told to continue by Jennifer Armstrong.

188. Dr Inkster and Dr Peters seem to have formed a view that Tom Walsh and I had access to large amounts of information that we were withholding from

them and had a major role in the design and commissioning of the new hospitals that we were not willing to share. Nothing could have been further from the truth. We had repeatedly, as a Senior Management Team, requested information on the validation of the new hospitals which we were unable to obtain, and we communicated this regularly at the Infection Control Senior Management teams. Drs Inkster and Peters were also at complete liberty, as ICD's for areas within the QEUH, to request this information for themselves. At no point were they asked not to do this. In terms of the actions taken around the adult BMT I fully endorsed the action taken by the Incident management meeting to move the patients back to the Beatson and although there was a wish to get the unit back in action as soon as possible there was never at any time pressure put on me to agree to an action that would in any way compromise patient care.

Managing an Outbreak

189. If there was an outbreak in one of the hospital sectors it was managed by the team in that hospital sector. The incident management team was usually chaired by the sector ICD. If there were outbreaks that were out of the ordinary, they would be brought back to the SMT as part of the sector report. Common seasonal outbreaks such as Norovirus would be managed entirely within the sector. The HIATT process picked up outbreaks such as Norovirus and usually they were scored as green which meant that no further escalation was needed. They would not be noted on the sector reports but, were aggregated together by the data team who kept records of outbreaks and incidents. If the HIATT score was amber or red the incident would be escalated internally and a report would be sent to HPS. If there were any outbreaks or incidents of unusual infection, in addition to immediate escalation, they would be reported at the ICSMT.

190. Once an outbreak was identified there was an outbreak team chaired by the ICD who would make a plan on how to deal with the outbreak. The objective was to stop patient harm and to prevent further spread or occurrence of subsequent outbreaks.

191. I did not see any indication or evidence of an increased number of infections or types of unusual infections within the patient population at the QEUH. I did not have any concerns about infections being caused by the built environment because we were rectifying ventilation in the paediatric wards and we did not undertake bone marrow transplantation there until we were happy that the ventilation was performing to the required standard. We had also at this stage transferred the adult bone marrow transplant patients back to the Beatson.

Patterns in Infection

192. NHSGGC use Statistical Process Charts (SPC) to assess the ongoing rate of infections. This involves looking at historical trends and setting limits on whether the numbers are higher or lower than would be expected. The disadvantage of these charts is that they require a relatively large number of infections over significant periods of time to generate useful charts and this system would not have been useful and in fact were not used for unusual infections.

193. In looking for patterns in infections, infection control teams rely on both the results generated by the microbiology laboratory but also on the symptoms with which the patient presents to hospital.

Cross Infection

194. I was asked how I would convince myself from a bacteriology point of view that two infections were definitely linked. This is done in a series of steps. The first is to ensure that the bacteria are the same species. The second step is to determine if the organisms are identical in terms of their typing. If two bacteria were of the same species and type then I would be confident that it is exactly the same organism. For example, if you have six pseudomonas isolates from patients on a ward with cystic fibrosis, they could all look the same on a culture plate, but when typed, using a comparison of the nucleic acids that they contain they’re all different. Despite all the patients having pseudomonas

aeruginosa, they're not the same pseudomonas aeruginosa. This means that there hasn't been any cross infection. You need to be very precise before you can be absolutely certain that it's the same organism. The names of organisms also change over time due to changes in taxonomy but also in laboratory technology, for example MALDI-ToF lab identification systems identify a broader range of bacteria than biochemical systems.

195. I do not know whether genome sequencing would help in all bacteria. For some organisms, for example MRSA, it is possible to perform typing using whole genome sequencing, but for other organisms there is not enough known about their genome and it's variability to say whether it's reliable or not. It's not really may area of expertise but there are a number of specialist reference labs where you can send isolates to be typed and discuss with them the significance of their typing results in the clinical context. It's then possible to understand the overall relevance of the typing. The IC NET system allows you to put a record of the typing. This enables you to derive patterns of infection not only from the names of the organism but also from the typing.

196. IC Net needs sufficient data to be input into it to make the links. Effectively it is a database but it needs a human to decide what to look for. We centralised the data team for NHSGGC so that there were three or four people who continuously looked at the data. This has the advantage that they gain expertise and get used to seeing the data and as such might be better at recognising patterns.

Infection Control Manual

197. The National Infection Control Manual is mandated to be applied in all healthcare premises in community and acute settings. As the Infection Control Manual became broader, the specialist units found it more difficult to comply. As an example there was a recommendation National Infection Control Manual that FFP3 masks should be worn in case of respiratory infection. From November through to March a large number of patients coming in through the paediatric emergency department have respiratory infections.

198. This meant that if the manual was applied as written, consultant paediatricians along with all paediatric staff would be wearing FFP3 masks continuously from November until March. This raised significant concerns from the paediatric staff in terms of communication amongst other things especially as the majority of these infections in children do not cause serious illnesses in adults. The role of the Infection Control Team includes trying to balance the concerns of the clinicians in this case in paediatrics and mental health with the requirements of the National Infection Control Manual and seeking additional external advice. In this case for example the HSE advised that vaccination doesn't prevent the requirement for wearing masks. In any case where a health board deviates from any recommendation within the NICM the infection control team had to provide a risk assessment for each deviation from the manual.

HIIAT Review

199. In the document reference **A32222109 - Minutes of the NHS Greater Glasgow and Clyde Board Infection Control Committee held on 5 October 2015, Bundle 13, Document 34**, dated Monday 5th October 2015. Under the Heading 5.5 Recent Outbreaks/Incidents there is mention of the *Serratia marcescens.* This is an organism that is known to cause cross-infections in vulnerable neonates, particularly in surgical units and in neonatal units.

200. This problem with *Serratia marcescens* occurred in the neonatal intensive care unit on the QEUH site which was not part of the new build but was housed in the existing maternity block on the Southern General Hospital site. The neonatal unit from Yorkhill had moved to the Southern General Unit when Yorkhill closed. The isolates of Serratia were not causing clinical illness in the neonates but were identified as part of a screening process. There was no national policy for screening neonates for Serratia and there were historical

differences in practice between the two sites. At Yorkhill, babies were routinely screened for *Serratia marcescens*, this was not the case the Southern General unit. As the Yorkhill protocol was adopted on the new combined unit this meant that we were screening larger numbers of babies for Serratia so this was one possible explanation for the apparent increase in the numbers that we were finding. However, we also needed to look into the other possible causes such as clinical practice around line care, disinfection of equipment and hand hygiene.

201. This is an example of where the HIIAT process is less useful. In this case we were discovering colonisation and not infection so while finding the Serratia was useful to point out a potential problem with infection control in the unit it was not leading to illness in any of the babies involved. Sadly, when [redacted] colonised with Serratia died the clinical team were certain that the cause of death was entirely unrelated to *Serratia marcescens* but fact of the death escalated the HIATT score from green to red resulting in a referral to HPS/Scottish Government. This made little sense to the clinical staff involved in the care of [redacted] at the time who were satisfied that the presence of Serratia on [redacted] did not contribute to the death. The investigation of the cases of Serratia on the unit was performed in collaboration with HPS who did not identify any deficiencies in NHSGGC's handling of the incident.

202. The HIATT system is supposed to enable HPS to look back and see patterns of hospital cross infection and share learning. However, in this case the discovery of Serratia depended upon on screening practices in the unit which were up to each individual health board to determine. So there was no reliable national data about the incidence of this organism, found as a result of screening not clinical illness, in neonatal units in Scotland

FINAL COMMENTS

203. I think I have now covered everything that I have been asked. I would however like to add in addition my major concerns as to how events that

unfolded at the QEUH were, interpreted and reported by a previous inquiry set up by the Scottish Government Chief Medical officer Department, I cannot recall the name of that inquiry. Their assumption that increased input from an individual ICD would have significantly changed the outcome of the building works at the QEUH was not based upon any evidence that was presented to me. In addition, there were several inferences in that report that I found personally offensive especially one implying that I left employment with NHSGGC before I was pushed. This was not the case. After giving a statement to assist that Inquiry I was not furnished with a copy of my statement or the report and was not given any opportunity to comment upon the final report before it was published.

DECLARATION

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

Curriculum vitae

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Qualifications:
1982: M.B. Ch.B. Liverpool University
1986: M.R.C.P.(U.K.) Edinburgh (Fellow 1998)
1991: M.R.C.Path.(Fellow 1999)
2000: M.D. Liverpool University

Present appointment:

2018- Consultant Microbiologist University Hospitals of Morecambe Bay

Previous appointments:

2011-19 Professor of Healthcare Acquired Infection, University of West of Scotland.
One day a week within the institute of Healthcare associated infection at the University of West of Scotland.

- The Patient Journey – optimising the management of patients through the hospital, to ensure that the prevalence of HAI is reduced - for example, measures to minimise impact of isolation on patients with reduced mental capacity.
- The Patient Environment – investigating how the healthcare environment contributes to the spread of HAI - for example, reducing patient harm and resource burden from hospital outbreaks of norovirus.
- Understanding HAI – using information about their biology to predict or prevent HAI

2016- 2018 Consultant Microbiologist , Dorset County Hospital, Dorchester
Infection Control Doctor, Dorset County Hospital, Dorchester
Clinical Director Pathology, Pharmacy and Medical Physics

Dorset County Hospital provides a range of adult and paediatric services to the population of West Dorset. The microbiology department provides a full range of Bacteriology, Virology and Mycology services processing 214,000 samples annually.

2002-2016 Consultant Microbiologist Royal Hospital for Sick Children Glasgow

Yorkhill Hospitals comprised a 370 bed Paediatric Hospital and the Queen Mothers Maternity Hospital. The Paediatric Hospital provides General Paediatric Services to Glasgow and in addition provides Tertiary services in Bone marrow and Renal Transplantation, Cardiothoracic surgery and Burns. I attended regular rounds on the paediatric intensive care unit, cystic fibrosis unit and bone marrow transplant unit and gave advice on treatment of bacterial, viral and fungal infection and infection control. The paediatric laboratory moved to collocate with adult services in 2013, since then I have also provided weekend and out of hours for the adult hospital and set up MDT's for adult orthopaedic joint replacement services

2009-2016 Lead/Co-ordinating Infection Control Doctor NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde has a total population of 1 million with 3 large acute hospitals along with 9 other sites covering mental health and health care partnerships. The role of the Lead ICD is to provide leadership for the medical staff in the 3 sector Infection Control teams and co-ordinate the available Infection Control Doctor sessions and to work closely with the Infection Control Manager and the other members of the senior infection control team to develop the service and implement change.

2010-2103 Head of Service Microbiology and from 2012 Acting Clinical Director Laboratory Medicine Greater Glasgow and Clyde University Hospitals Division.

2005 – 2008 Clinical Director Laboratory Medicine
Greater Glasgow and Clyde University Hospitals Division.

2001-2002 Consultant Microbiologist
Infection Control Doctor Hull and East Yorkshire Hospitals

1995-2001 Consultant Microbiologist, Infection Control Doctor Royal Alexandra Hospital, Paisley.

1997-2001 Clinical Director Diagnostic Services, Royal Alexandra Hospital,

1993-1995: Consultant Microbiologist, Scunthorpe General Hospital.
Honorary Lecturer, University of Leeds.

1989-1993: Senior Registrar in Bacteriology, Western Infirmary, Glasgow. Honorary Clinical Lecturer, University of Glasgow.

1987-1989: Rotational registrar appointment with West Midlands Regional Health Authority.

1985-1987: Pathology Senior House Officer Rotation, Royal Liverpool Hospital.

1983-1985 Medical Senior House Officer Rotation, Liverpool

1982-1983: Pre-registration House Officer, Liverpool

Teaching experience

I am currently co-supervising 1 PhD student at Lancaster University. The projects is the use of vibrational spectroscopy in the diagnosis of bacterial and viral infections and biofilms. I have successfully supervised 10 previous PhD students to completion I am involved in lecturing to undergraduate 2nd 3rd and 4th year medical students at Lancaster University Medical School. I also undertake ward based teaching to 3rd and 4th year medical students at Lancaster University Medical School at both Royal Lancaster Infirmary and Furness General Hospital. I was previously involved in undergraduate teaching at the University of Glasgow where I lectured and support practical demonstrations for undergraduate medical students and was also a clinical tutor at the Royal Hospital for Sick Children.

Professional and External Standing

- Scientific expert developing European wide EQA scheme for molecular diagnosis of Aspergillus, Candida and other Hospital pathogens with Quality Control in Molecular Diagnostics (QCMD) *(*2010-present)
- Expert Adviser for the NICE Centre for Guidelines (2016-present)
- Invited speaker ECCMID Portugal (2022)
- Invited Speaker Danish National Biofilms Copenhagen (2022)
- Invited speaker " Don't Panic" Hospital Infection Society Infection Control update Manchester (2022)
- Member of Hospital Infection Society Guideline development group, safe use of endoscopes 2021-2022
- Co-organiser, session chair and presenter, Federation of Infection Societies(FIS) meeting Edinburgh
- Sept 2019(2018-2019)
- Co-organiser, session chair and presenter, Eurobiofilms 2018 meeting Glasgow Sept 2018. (2017-2018)
- Invited speaker ECCMID Madrid (2018)
- Treasurer European Study Group on Biofilms an ESCMID group with the objective of ESGB to promote and disseminate studies and knowledge about methods and results of biofilm studies with relevance for infections in humans.(2012-2018)
- Invited speaker American Society of Microbiology New Orleans(2017)

- Topic Expert for production of NICE UTI in Children (CG54) review (2016-2017)
- Invited speaker Microbiology Asia Singapore (2016)
- Invited speaker 16th Scientific Meeting 2016 Mukoviszidose-Institut,Mainz (2016)
- Member of Hospital Infection Society Working Party- Final Rinse water for Endoscope Washer Disinfectors(2014-2017)
- Chair of HAI reusable medical device decontamination expert advisory steering group Health Protection Scotland(2013-2016)
- Member of Scottish Antimicrobial Prescribing Group (SAPG) (2010-2016)
- Invited speaker EU-China symposium on Biofilms Chongqing China (2015)
- Invited speaker and session chair, Eurobiofilms, Brno, Czech Republic.(2015)
- Invited Speaker Hospital Infection Society, Middle East Infection Summit, Dubai (2015)
- Member of Working group and invited presentation ISHAM Working group Fibrosis Angers, France. (2014)
- Invited Speaker Antimicrobial Therapy in Immunocompromised and Critically Ill Patients (*ATCIP*). Lausanne, Switzerland. (2014)
- Member of National Healthcare Associated Infection Steering group and Programme Board (2010-2013)
- External Advisor for the development of NICE Guideline, Management of acute diarrhoea and vomiting due to gastro-enteritis in children under 5 [CG84] (2008-2009)
- Member of NICE Guideline development group, UTI in Children(2005-2007)
- Member of topic group for Health Technology Assessment; Clinical and cost effectiveness of screening for MRSA(2005-2007)
- Member of EAPCRI. (European Aspergillus PCR Initiative) (2006-2010)

Research

My research is of multidisciplinary and applied nature which is reflected in my publications. My research strategy has been to publish in three areas of research in biofilms, microbiology diagnostics and infection control. I have a strong clinical background in these areas and have managed to develop effective collaborations with scientific colleagues in both biological and physical sciences.

Current research funding

Title	**Funding Body**	**Amount**
CORMIR: Cost-effective Portable Mid-InfraRed (MIR) Very Rapid Screening for COVID-19 in upper respiratory tract samples or saliva on naso-pharyngeal swabs.[Co-I]	Innovate UK	[redacted]
Plasma-activated antimicrobial hydrogel therapy (PAHT) for combatting infections in diabetic foot ulcers[Co-I]	EPSRC	[redacted]
Plasma activated hydrogel therapy for combatting antimicrobial resistance in chronic wounds[Co-I]	National Health and Medical Research Council (NHMRC)	[redacted]

Publications:

Peer reviewed papers

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Comparison of the lung microbiome in chronic obstructive pulmonary disease and in health: an in silico study. Short B, Delaney C, Butcher MC, Litherland G, **Williams C**, Martin L, Thornbury K, Mackay WG, Ramage G. Thorax 76 (Suppl 2), A58-A58.

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Procalcitonin for patient stratification and identification of bacterial co-infection in COVID-19. Han J, Gatheral T, **Williams C**. Med (Lond). 2020 May;20(3):e47

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Development and characterisation of a multi-species COPD biofilm. Short B, **Williams C**, Litherland G, Lundy F, Mackay W, Ramage G. *European Respiratory Journal* 2020,56: 2053

Influence of delivery system on the efficacy of low concentrations of hydrogen peroxide in the disinfection of common healthcare-associated infection pathogens. Amaeze NJ, Shareef MU, Henriquez FL, **Williams C,** Mackay WG. *Journal of Hospital Infection* 2020,106 ;1: 189-195

Artificial intelligence-assisted loop mediated isothermal amplification (AI-LAMP) for rapid detection of SARS-CoV-2. Rohaim MA, Clayton E, Sahin I, Vilela J, Khalifa ME, Al-Natour MQ, Bayoumi M, Poirier AC, Tharmakulasingam MBM, Chaudhry NS, Sodi R, Brown A, Burkhart P, Hacking W, Botham J, Boyce J, Wilkinson H, **Williams C**, Whittingham-Dowd J, Shaw E, Hodges M, Butler L, Bates MD, La Ragione R, Balachandran W, Fernando A, Munir M. *Viruses* 2020, 12; 9: 972

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Scottish Hospitals Inquiry
Witness Statement of
Kathleen Harvey-Wood

PERSONAL DETAILS

1. My name is Kathleen Harvey-Wood. My contact details are known to the Inquiry.
   This statement was first given on August 2022 with a final review and updated in July 2024.

2. I am a Principal Clinical Scientist in the Microbiology Department at the Queen Elizabeth University Hospital (QEUH), employed by the NHS Greater Glasgow and Clyde (NHSGGC). My role falls under the Laboratory Diagnostics Directorate.

EDUCATION

3. I attended Glasgow University from 1975 to 1979 and achieved a BSc Honours Degree in Zoology (Parasitology). Then from 1979 to 1982, I had a Medical Research Council (MRC) research grant where I worked on a PhD thesis on Murine Malaria, Plasmodium chabaudi.

4. Between 1982 and 1983 I was writing up my thesis and demonstrating to medical students at Glasgow University. Despite completing the write up, I was never given the PhD because I became unwell and never actually submitted it. I was then offered my current role which would take two years training, following which I was given a permanent role.

PROFESSIONAL BACKGROUND

5. I have worked within the NHS Glasgow Greater Clyde (GGC) as a Clinical Scientist since 1983, beginning my career in the Microbiology Department at Yorkhill in the Royal Hospital for Sick Children.

6. I have remained within Microbiology in the Health Board, being promoted through the clinical scientist grades to my current position of Principal Clinical Scientist.

7. Throughout my career I have completed many general audits, clinical trials, meeting presentations and validations. Clinical Scientists do a lot of validation work.

8. Between 1992 and 1997, I completed a five-year study on Toxic Shock Syndrome in children with burns which was a published work. From 1995 to 1996, I completed an audit on Gentamicin levels, which introduced once daily Gentamicin therapy. I performed a further audit involving screening of infections in cleft palate patients between 1996 to 1998.

9. Between 1997 and 2001, I completed a five-year study of Candida species in Paediatric Intensive Care Unit (PICU), and then in 2003 I set up the Molecular Section in the Microbiology Department at Yorkhill. This involved Molecular Polymerase Chain Reaction (PCR) assays on various viruses or bacteria and fungi, which were used quite extensively by the Haematology-Oncology unit as assays were performed in house. PCR is a rapid and more sensitive assay to detect infections compared with traditional culture methods. Can detect microbial DNA in clinical samples at a low level allowing early therapeutic intervention.

10. Consequently, we were completing research in areas such as Cytomegalovirus (CMV) PCR, Adenovirus PCR and Epstein Barr (EBV) PCR, these are all part of regular and routine screening for Haematology-Oncology patients. We also researched and developed Aspergillus PCR and Pseudomonas PCR assays.

GENERAL DESCRIPTION OF SPECIALISM

11. My current role is specialised in paediatrics, and I work in the field of Paediatric Microbiology.

12. I am also the NHSGGC Point of Care Co-ordinator for Microbiology. This involves doing point of care tests with patients at bedside which can be done by a nurse in the ward, but under laboratory control. An example of this work was on RSV which is a respiratory virus particularly in children, which I was responsible for this point of care service from 2003 to 2019.

13. Other examples of my work are, I validated a point of care test for Flu during the H1N1 epidemic, and most recently a fungal biomarker test, Beta-D-Glucan an ELISA test which is an assay to look for fungal infection. I introduced that in March this year to be performed in house at Microbiology Dept. GRI, Glasgow. The fungal biomarker test is important for the investigation of fungal infections in children.

14. Around 25% of my time is meant to be in research, development and audit which is why I am a Clinical Scientist; however, my job also involves clinical and scientific work.

15. I was running a molecular section in 2003 to 2015 whilst also doing Paediatric Virology, giving advice on results from these molecular assays, making sure that the assays were validated, quality controlled (QC) and also that external QCs were completed.

16. I was also doing some clinical work at that time and would be going to the Schiehallion Ward rounds and giving advice on any results. I helped with guidance on interpretation of results and advised which investigations were needed. I also requested additional tests where appropriate and was also involved in testing bacteria for sensitivity to antibiotics.

17. This involved advising on which antibiotics should be used in specific cases, advising on further sampling and giving guidance on specific

infections and best treatment options. In general, I also responded to phone calls if colleagues need advice.

18. In terms of other tasks, I give daily clinical advice and provide clinical lab liaison. This means I will go to the lab to check results to make sure they're all correct and the appropriate laboratory tests have been carried out as per our Standard Operating Procedures (SOP). We also have another grade of staff in the lab called Biomedical Scientists, who do the laboratory work on the benches; they have a separate qualification. I am the link between the laboratory work at the bench and the clinical consultant.

19. I also provide advice for investigations. The Biomedical Scientists will ask for my advice, such as which investigations need to be done in certain situations. I will also get requests from the Biomedical Scientist to check things such as the agar culture plates which have grown bacteria, yeasts or fungi, then to look at the test results performed on the organisms (colonies seen) isolated and advise on further tests to identify what the organism is that has been isolated from the culture plates.

20. I also complete reports and authorise results from the laboratory reporting queues under the paediatric queue. The paediatric samples queue separately because it's a huge hospital site with the QEUH and Royal Hospital for Children (RHC), but the paediatric samples are queued from the large number of laboratory samples that we perform on age of the patient. All samples received from RHC are reported out in the paediatric reporting queue. The Paediatric reporting queue is checked frequently throughout the day and authorised in a timely manner, so the reports are not left on the queue and results are available on Clinical Portal for the Clinicians to read.

21. There is also a rota every day within our small team. We have a Consultant Microbiologist covering for Paediatrics and myself because I'm the only Paediatric Clinical Scientist, although sometimes we also have a Medical Trainee. The rota is made up for the month for each day by the Clinical

Lead, Microbiology Dept. on an electronic excel spreadsheet which gives all the clinical staff and trainees their duties and area of responsibility for each day. The rota also records annual leave, study leave and sick leave. I am always on the Paediatric rota slot. Originally at Yorkhill there were six Clinical Scientists for Paediatrics in the Microbiology Department, however as they left or retired, they have never been replaced, so I am the only Paediatric Clinical Scientist left in post.

22. This situation has arisen because when people left or retired from the laboratory, the workload was then shared between myself and my remaining colleagues. I am unsure as to where the money was reallocated to.

23. Four of the Clinical Scientists moved to the new Microbiology Dept at QEUH site in April 2012, by which point two Clinical Scientists had already left the laboratory for other jobs/ roles and promotions in other laboratories and were not replaced. From the four that moved, three of us were Principal Clinical Scientists and one was a Consultant Clinical Scientist. Currently in Microbiology we don't have any Consultant Clinical Scientists.

24. Regarding the career structure and the appropriate levels of staff, I feel personally that there is only me, and there is no one coming behind me. There is no succession planning. I'm not training anyone to do my job at the moment, and a decision has been made by the Microbiology Management Team (MMT) not to do any higher specialist training of Clinical Scientists in Microbiology.

25. The MMT is representative of Consultants from each of the laboratories, laboratory managers from each of the laboratories and union representation such as UNISON. There is also IT representation, Virology are also involved, and some Clinical Leads. A secretary takes the minutes and there is a chairperson in charge of it for two or three years at a time.

26. Because Microbiology Dept's and the Virology Lab each have an overarching Clinical Lead, a Consultant will only take on that role of chair of the MMT for a certain term.

27. Part of the MMT team remit was to look at the laboratories, the move and the reconfiguration because the hospital build has been going on for more than ten years before it opened. These were Consultants from each of the Microbiology Departments throughout the city.

28. Prior to the merger and the move in 2012, there were Microbiology Departments (laboratories) in each hospital in Glasgow and they had their own Clinical and Biomedical Scientist staff, secretaries and support staff.

29. At the moment the Chairperson is Dr Mairi Macleod who is the Consultant Microbiologist at Glasgow Royal Infirmary and the Clinical Lead for Microbiology and Virology. Above her there are other management personnel and above that there are other laboratory and diagnostics management.

30. The Microbiology Department, Yorkhill moved in April 2012 to the laboratory building at the Queen Elizabeth University Hospital (QEUH), as the main hospital there did not open until June 2015. This meant within the three-year period between 2012 to 2015, any samples that were taken from the Children's Hospital at the Yorkhill site were then sent across the city to the Microbiology Department at the QEUH by van three to four times per day.

31. During that time, I travelled back and forward through the Clyde Tunnel to attend the ward rounds and some of the Multi-Disciplinary Team meetings (MDTs), so between 2012 and 2015, I worked both sites.

32. It was the MMT who coordinated this, they had overarching responsibility for Microbiology throughout the city after the labs were centralised. I have not seen any MMT minutes and I don't know who the chairperson was.

33. The main laboratory at Yorkhill was shut down in April 2012, and all the equipment was moved, but we still had a “hot laboratory” an area where we processed urgent samples such as urgent Cerebro-Spinal Fluid (CSF) cultures and blood cultures for the three years.

34. We were concerned because there wasn’t an onsite full Microbiology service for these three years for the paediatric hospital. The clinic liaison was supported by me, and my 2 Clinical Scientists colleagues travelling to the hospital every day to attend all ward rounds and check the results from the hot lab and RSV Point of Care tests. One of the Clinical Scientists retired in February 2013. We were given mobile phones to provide contact when we were offsite. The Paediatric Consultant Microbiologist and part time Paediatric Consultant Microbiologist who had also transferred from the Microbiology Dept., Yorkhill to the laboratory at QEUH would also travel daily to Yorkhill Hospital to attend ward rounds and give clinical advice.

35. My current line manager is Dr Christine Peters, she is the Consultant Microbiologist and Clinical Lead for this Department.

36. My current role is Paediatric Microbiology, my remit is specifically for paediatric patients and paediatric samples. I have not had training in Adult Microbiology.

37. When I moved to this site, I retained my paediatric roles and responsibilities I had when I transferred. There are differences with my role compared to adult microbiology; children get different infections, and they’re more vulnerable to infection as their immune system hasn’t matured. Also, the antibiotics used to treat infections differ, and certain infections can affect children more than adults.

38. I am part of the clinical team within Microbiology (specifically Paediatric Microbiology) and on the clinical rota as a Clinical Scientist. The rota advises what we are doing daily in the laboratory and I’m in the paediatric

column. I usually work with a Microbiology Consultant who I liaise with all day, and we will review issues we are concerned about.

39. In Yorkhill hospital we had a separate Paediatric Department, and we could specialise in the processing of the paediatric samples. At Yorkhill we did not process any adult samples or anything from General Practitioners (GPs), we only received samples from the Children's Hospital itself, whereas in this laboratory we process all the samples from the QEUH, RHC and all the GPs within a certain area in Glasgow.

40. This has meant our testing and sampling has increased as the labs have become centralised, and we are no longer just specialised in paediatrics. We still get paediatric samples because the Children's Hospital is here, but they are examined and overseen under the paediatric clinical team for children under 16 and from the wards.

41. The request forms with the samples come into the lab with the ward named on the form, so you know which ward it's for. Once processed, the results of the paediatric samples are then automatically sent to a paediatric authorisation queue so they can be checked by the team who are working in paediatrics that day. The paediatric wards get clinical liaison specifically from the paediatric team and I'm the only Clinical Scientist in the hospital doing the job, so it's very important.

42. In terms of my remit, I have no direct patient contact or going to the bedside. If I have to visit the ward to give advice, I will go to the doctor's room to speak to the clinicians, so I don't have any involvement in ward processes.

43. In my clinical role I have responsibility for the haematology-oncology ward in 2A and 2B (RHC), which later moved to 6A and 4B (QEUH). I also help with the renal team in 3C (RHC). I also have responsibility for PICU (Paediatric Intensive Care Unit), NICU (Neonatal Intensive Care Unit) and the Burns Multi Disciplinary Team (MDT) where I specialise. It's a lot of responsibility and I work hard; however, I have a great relationship with the

clinicians, some I have worked with for years. I bridge the gap between laboratory and the clinicians.

44. I liaise a lot with the Infection Control Team (ICT) and I inform them if I am made aware of a result from the laboratory where a culture is identified which I would consider an IC (Infection Control) issue. There is a National Infection Prevention and Control Manual (NIPCM) Feb 2021 Appendix 13- Mandatory NHS Scotland Alert organism/Condition list (available at http://www.nipcm.hps.scot.nhs.uk) (**Bundle 19, Document 24, Page 440)** which lists the infections/ alert organism that are considered an IC issue. At this point I would email them to let them know, for example if patient "B" had isolated an organism on this list from a sample sent to Microbiology, I would ask if they wanted further work done or investigations i.e. if we could do typing on the organism which is where we compare organisms.

45. I am usually in email contact with them daily. I am not involved in IC as such, but my remit is to let them know about results reported out from the laboratory, either from results which I would consider to be an IC issue or anything else they should be aware of.

46. I think my name would be on some minutes of meetings in relation to Problem Assessment Groups (PAGs). Sometimes Microbiology would be invited to attend to bring results, for example if we had a cluster or an outbreak, they would want to know who the patients were and what the results were.

47. The difference between IC and Microbiology and their roles is that the IC team investigate the source of the infection. They look at how the patient got the infection, where it came from, as it could be from within the patient themselves, the staff, or the environment. They also consider whether it could be patient to patient transmission, environment to patient transmission, whether it is a cluster and whether the organisms match. They will ask whether the typing suggests that there's a common organism infecting patients at the one time and consider whether it's to do with the

conditions in the ward, if it's hygiene, if it's cleanliness, handwashing, is it a staffing issue, or a cleanliness in the ward issue.

48. They will consider whether the infection is a Hospital Acquired Infection (HAI). For children, they determine why the child has the infection, if it's normally found in children and if it's a cluster of infections, they will check to see if there is more than one patient with the same organism. Once the source has been located, they work to prevent further transmission. This may be done by reviewing patient placement in consideration of the spread risk and whether they should be isolated.

49. The Infection Control Team have ownership of the HAI process and responsibility for the HAI process and the designation of an infection being reported as an HAI. This will be documented in the minutes of a PAG (Problem Assessment Group). Recommendations and outcome of PAG meeting will decide if an infection control issue is to be raised to the level of an IMT (Incident Management Team). ICT will decide if require to report the HAI issue to HPS (Health Protection Scotland) for intervention or escalation. ICT will also require to feed up to senior management team.

50. My remit is to review the data. For example, I would see three patients with the same bacteria and then check if it's a common bacteria found in human infections. There are bacteria known to cause infections, but you also have other bacteria which are not part of the normal flora of the body, they come from outside of the normal patient infections and can be spread to other patients and so if I see something coming through our results, I will inform Infection Control.

51. Both MRSA and C. difficile are examples of these infections. If I see a C. difficile result which causes diarrhoea, I will let ICT know. If I have a patient who has Tuberculosis (TB), I will let ICT know. MRSA and C.difficile are common hospital acquired infections. However, infections can spread within the hospital, and then we have to make Public Health aware, and we have to be sure that our laboratory is informing the right professionals and

making them aware of our concerns. This would include: Paediatric Infection Control Nurse, Paediatric Infection Control Doctor, Consultant on the ward where the patient/s are in, Health Protection Scotland (HPS) and Paediatric Infectious Diseases Consultant (ID) depending on the type of infection.

52. Additionally, I also inform the reference laboratories throughout Scotland to do further testing. Liaising with the reference laboratories is part of my remit as a Clinical Scientist. They specialise in reference lab work, and they have Clinical Scientists because their work is highly skilled scientific and less clinical. I know the Clinical Scientists in the reference labs, and I phone them to ask their advice and sometimes send samples to them for specialist testing.

53. Throughout the UK, there are reference laboratories. Health Protection England (HPE) have reference laboratories (now replaced by UK Health Security Agency UKHSA in April 2021), so with unusual infections they can do sequencing genetics on the bacteria to find if they are from a common source and if the strains are the same. Reference Laboratories in Scotland also do some detailed testing that we don't perform in Microbiology for example, TB testing or for E.coli O157 which causes diarrhoea, or any organism causing an infection that would be a public health interest. With Public Health Scotland, I email them often in relation to things I'm concerned about. It's within my remit to decide when things need specialist referencing. If the microbiology team come to me to say there's an issue with a pathogen and they tell me they think it needs further testing, and I will make the call and have it sent over to the relevant reference laboratory.

54. The process itself can take a lot of time, so it can take a while before we get the results back, because they're specialist labs and sometimes they batch the results. When you send a sample, you have to record where the sample has gone, when it went, who sent it, and then you have to record the result when it comes back. On receiving the result, you then review the next actions. For example, a reference laboratory result might come back,

and I might think that it needs to go to Public Health or to ICT as they need to know about that result. There's quite a lot of work with sending something off site for further testing, to make sure that the whole audit process is all tied up and accurately recorded from when it was sent and when the result was received back. Any conversations with the reference laboratory are recorded also.

55. Post 2015, the process was timely, however it did have teething problems. When we moved to the new site at QEUH, we did a lot more reference laboratory work in paediatrics than the adult hospital did, but now it seems that we're all doing about the same. I think generally when we moved to the new laboratory, paediatrics was more ahead of the game in such ways because we were specialised.

56. In our previous laboratory set up at Yorkhill we brought everything we did to the QEUH site as we wanted to carry on with that level of specialism. We were concerned that we were a specialist paediatric laboratory, but we were being moved to a large general Microbiology Department. The concern was that the specialism would get lost within that. The equipment at Yorkhill was state of the art and we took it all with us when we moved. Examples of this were our DNA extractions and PCR machines. Some things we had previously weren't in the new lab, so it was good that we brought them from Yorkhill. We did get new equipment when we moved though, such as automated antibiotic sensitivity testing and automated identification testing of bacteria, which was an improvement.

57. Despite the improvement with equipment, the lab is not the size it should be, and to go back to the planning of the laboratory, Microbiology was not initially intended to be on this site. If you look back at the Microbiology Management Team (MMT) minutes over the period of the hospital construction, you will see it was decided that we would be moved to the top floor 4th floor of the hospital laboratory building. Our laboratory is not as big as the other diagnostic laboratories in floors 1-3 and I don't think it's big enough.

LABORATORY ISSUES WITH THE BUILT HOSPITAL ENVIRONMENT

58. In Yorkhill, we had a paediatric laboratory and only processed samples from the Children's Hospital, so everybody in the laboratory was trained in processing paediatric samples. We had a larger clinical team to do the work on number of samples per head of sample, so we had a full time and a part time Consultant Microbiologist and six Clinical Scientists. In comparison to now, that was a larger number of people responsible for the samples. We also did a lot of assays and tests that weren't done in other Microbiology Departments in the city, specifically the virology section at Yorkhill, which was Paediatric Virology.

59. For all the viruses, we did lots of virus culture, and we also did viral serology and the molecular work for viruses and bacteria. Additionally, we did the point of care testing for Respiratory Syncytial Virus (RSV). Because we had a larger number of Clinical Scientists, we were able to spend more time on our work and development and introduction of new assays and clinical liaison. For example, my remit at that time was only for PICU and the burns unit, one of my other Clinical Scientist colleagues looked after haematology-oncology patients. Because that was their remit and main responsibility, was able to put all their time into that role and was also part of the line management team to look after the patient's intravenous line care. Another Clinical Scientist looked after renal unit, paediatric surgery and neonatal unit. Overall, there was more time given to the specialist areas from the clinical perspective.

60. Now, in paediatrics, despite having more patients, we only have, a Consultant Microbiologist and a Clinical Scientist, which is me, and maybe a medical trainee giving help on a daily basis. There is a rota, with the Clinical Scientist and one other medical person doing the role of what was previously done by six Clinical Scientists, a Consultant Microbiologist and a part time Consultant Microbiologist at Yorkhill. This is now my

specialism, with only Biomedical Scientists trained in paediatrics that transferred from the Microbiology Dept, Yorkhill.

61. The Biomedical Scientists that are now in the main laboratory at QEUH working on all the microbiology samples, but they don't all have specialist information or knowledge on processing paediatric samples. They get this now as part of the training, but the workbenches are all of the samples, whereas before we had a dedicated paediatric bench for Paediatric samples (area in the laboratory). When we first moved here, we wanted to have paediatric samples processed separately. It shouldn't make a difference to the quality of the results; they should be the same. I'm not saying it changes the quality, but it changes the amount of time and effort and staff involved in paediatrics. Resource is an issue, the resources put into paediatrics were changed when the laboratory moved.

62. The lab in Yorkhill was an old building across two floors whereas QEUH laboratory is much more modern, more future proof in terms of the way laboratories are going as it has a huge open plan lab. In Yorkhill we had smaller labs in different rooms, with individual labs doing different work. For example, the Virology Section and Molecular Section was in one big lab area, a Mycology Section was in another big area, then we had our category three lab (Containment Level 3 Laboratory CL3) that is a fully contained laboratory used for working on high risk biological agents and pathogen, for example TB, and then our main laboratory.

INVOLVEMENT IN THE DESIGN, CONSTRUCTION AND BUILD OF THE QEUH

63. In terms of the design and planning of the new hospital, I was not involved in the hospital itself, but I was involved in the laboratory with the Microbiology Consultants at Yorkhill. We were all involved in planning the layout and site of this new laboratory department at QEUH once the space was decided, because there was an options appraisal on where the Microbiology Laboratory should be to support the new hospital. That went

on before the final decision was taken to site it in the laboratory building at QEUH and put another floor on the top. I was involved in designing the layout of the laboratory to allow us to move the Molecular Section, which needs specific rooms for different parts of the assay process. Along with one of the Consultant Microbiologists we were involved in some respect with the layout of the laboratory here to allow us to bring the paediatric testing to the site.

64. I was not involved in the actual decision-making process of where the Microbiology Department was going to go. However, once its location was decided, my Consultants at Yorkhill involved the Clinical Scientists in the planned layout of the new laboratory here at QEUH to ensure they had some say in it. They were amalgamating laboratory microbiology departments from all over the city in to one centralised lab at QEUH, so there were a lot of people, a lot of equipment and a lot of things from other laboratories which were coming to the site. Likewise, with Glasgow Royal Infirmary, some of the labs moved to Glasgow Royal, so then we ended up with two Microbiology laboratory sites throughout the city. It was mostly Consultants we were expressing views to or discussing things with and therefore we (Clinical Scientists) had no discussions with architects, designers or planners.

65. We did however see the plans in the department, all laid out on big tables of the new laboratory. We reviewed the design of the laboratory and the location. This was done with our clinical team at Yorkhill, but I was not involved in taking that up with the architects or the designers, I wasn't involved in any way with the hospital design at all. We were asked more about infrastructure of the room, floor area in the new laboratory, and we had to make sure we had the room to put all the equipment and the right sockets. Even the benches had to be strengthened to fit our equipment.

66. There were a lot of general laboratory things and issues which weren't considered, and we needed new cooling air conditioning units on the walls because of the equipment generating heat, to make sure that the machines

did not overheat. We had quite a lot of more technology at the Yorkhill lab than the new site, so it was all part of moving our machinery and our equipment. We discussed the infrastructure within the new lab quite openly with the Consultants and I felt quite comfortable expressing my views, and that my suggestions were implemented. For example, the machinery was moved effectively, and it all went quite smoothly.

67. Initially, before the move, there was discussion that Microbiology might not actually be on the QEUH site with the alternative being a site somewhere else in Glasgow, like a central Microbiology Department or similar, possibly in another hospital. They had not planned the Microbiology service that well, and I remember wondering where NHSGGC were going to put their Microbiology Department in their new state of the art hospital. However, they then built and designed this laboratory on the QEUH/RHC site and it's called the Laboratory Medicine Building. The Laboratory Medicine Building already had plans including floors for Pathology, Biochemistry, Haematology and Genetics and this raised the question of where Microbiology would go. There was a lot of discussion on where to site this department and amalgamate all the labs in Glasgow, which they then closed afterwards. I was then involved in the discussions as to where the site would be. I was at some of the MMTs, and I remember representing the Clinical Scientists, because there weren't very many of us. As a group of staff, we needed to be represented at some of these meetings, so we had the Consultant Microbiologist, Clinical Scientists and we had the Biomedical Scientists. Also union representatives.

68. In the MMT meetings there were Consultants from all the other hospital laboratories who reported to the board. Within Microbiology there was the Clinical Lead for Microbiology and a Clinical Lead for each of the laboratory disciplines. There was also governance management, who are overarching above the Consultant of each department, and there was the overall laboratory diagnostics management system. There were no architects, designers or planners present at the meetings I attended.

69. Regarding Microbiology now being on the top floor (4th floor) of the Laboratory Medicine Building, I was not party to the final discussions where the location decision was made, but I do know the other option was build a new microbiology laboratory off site. This seemed a strange thing to do because it wouldn't have been on the hospital site, and there were issues with transport and such, so that just did not seem the best option. Additionally, the laboratories we had in the other hospitals in Glasgow were in older buildings and they wanted a new state of the art modern laboratory for future technologies. Given that, I feel that the location was probably the best decision, but we don't have the room or floor space that the other labs have who are on the first, second and third floors.

70. In the QEUH hospital laboratory building on the ground floor there is Facilities Management, so estates are on the ground floor. Then we have Biochemistry and Haematology on the first floor, Genetics on the second floor with Pathology on the third floor, and then Microbiology on the fourth floor. It does seem sensible that all the different diagnostics labs are in the same building and all the samples can come to this building for all the different tests that the hospital requires to be done on site.

71. Regarding the fourth floor specifically, there is an issue with spacing. The fourth floor was added to the top of the building, and it doesn't cover the whole of the building footprint, so our laboratory is much smaller than, for example Haematology, Biochemistry or Pathology, and they also have a much bigger laboratory space. This means our own space is more cramped, and to future proof a laboratory for going forward, there is very little room to extend to accommodate the services that maybe required in the years ahead.

72. The molecular section is how laboratories are going to go in the future, using Polymerase Chain Reaction (PCR) and Whole Genome Sequencing (WGS), but the paediatric specialised molecular virology section I had responsibility for was moved in 2012 to the new Microbiology Laboratory at QEUH. When the hospital opened in 2015, they wanted the Virology tests

to be centralised at Glasgow Royal Infirmary, so the whole section and all the equipment was moved and taken away from the department. Along with that, because we did Mycology molecular assays, they moved the Mycology Section at the same time, so we lost our Mycology Section from Yorkhill and also our Virology Section. Now we are only a Bacteriology department, not a full Microbiology department.

73. By definition, Microbiology covers all the specialisms such as viruses, bacteria, fungi and parasitology, however we lost our two specialist sections of Virology and Mycology that we had at Yorkhill when they were transferred to Glasgow Royal Infirmary. Then any samples for testing from the hospital (QEUH and RHC) had to go across the city. That was something I was concerned about, and I felt moving the services was NOT the best thing to do. There were lots of meetings about that.

74. The transfer itself of Microbiology Laboratory from Yorkhill to QEUH went smoothly and was very well organised. All the machinery was moved, and we were the first into the new laboratory. They decided when they closed all the different laboratories throughout Glasgow, that they would move them one at a time into the new laboratory building.

75. Yorkhill moved in first, so the paediatric laboratory at Yorkhill moved into the new building first, in April 2012. We were able to move all our equipment, we got everything organised and then started running our samples. The big machinery was moved, and we had it all reinstalled. The only problem was we were then at QEUH, and the childrens hospital was still at Yorkhill for three years until June 2015, so there was a lot of logistical movement of samples and clinical liaison, which meant a lot of driving back and forward. I sometimes spent most of the day in the car running between the two hospitals going between different wards at Yorkhill.

76. The logistical issues at the new Microbiology laboratory at the QEUH site also affected the sampling because of a delayed turnaround time. There were delays in the sample being received from the Pneumatic Tube System

(PTS), which at this hospital is not fit for purpose. I'm saying that because there have been issues with it, and they are well known and recognised. In fact, some of our samples when we were doing transport by vans three or four times a day from Yorkhill to the QEUH, actually arrived quicker than they did from the adult hospital and we're literally across the road from that main hospital. I have photos of the "pods " (cylindrical containers) used to carry the samples in the PTS all piled up in Microbiology specimen reception as the tube system not working to send the empty pods back to the wards to allow them send more samples. The wards were always phoning looking for pods as had samples waiting to be sent to the laboratory and the PTS was not working.

77. The Pneumatic Tube System was installed as part of the new hospital design. Each ward has a box with the large tubes attached to the wall, and you put a container in it which contains the sample. You screw the lid to secure the container, put it in the box, and you tell the computer programme where the container in the tube and the sample are to go. The tube system runs all-round the hospital, underneath the hospital, up into the lab system and all the different laboratories. This process takes a long time. At Yorkhill we did not have this because the porters brought the samples down to the laboratory because we were on site, and we had daily porter deliveries of samples at least 4 times a day. Now, on this site, the porters still do sample delivery on urgent samples, but the porter needs to be paged and I think the whole thing was to reduce the number of porters or the time involved in porters coming to the lab with samples from the wards.

78. The PTS was put in place to allow samples to transfer from the hospital, both adult and paediatrics, to the different floors in this building for different samples. It's maybe a little strong to say that the PTS is not fit for purpose, however we have had meetings about it and concerns about delays in samples reaching the laboratory.

79. I did an audit on the PTS in 2015, so I do have some supporting evidence for my view. There weren't enough pods as they ran out of them, and the

system also breaks down a lot. PICU raised concerns about the delay in samples and Biochemistry are aware of it as well. In general, if I had any concerns, I would go to the Microbiology Management Team (MMT).
As well as being part of the clinical team, there is also the Microbiology Quality Management Team who are Biomedical Scientists who do quality management and laboratory management.

80. The common issue with the PTS was the delay in receipt of the samples. The delay was caused because of breakdowns in the PTS or the programming or the container in the tube going to the wrong laboratory, like going to Biochemistry instead of Microbiology, or samples seemed to go missing. It was thought there was some kind of a “black hole” somewhere in the system as wards would say they’d sent samples, yet we did not have proof they were sent, and the samples weren’t received. This could result in misdiagnosis, or a delay in reporting of the result. A positive result could be delayed. For example, if a sample gets to the lab on the same day, we work on it within 48 hours. We’ll maybe have a result with culture and sensitivities and an antibiotic result. I can phone it out and discuss it at the ward round. However, if the sample takes two days to get to a laboratory, then you’ve got two days delay in actioning treatment for the patient.
Estates were aware of the issues as they are the department responsible for the PTS, and they worked with the contractors who installed the system.
I have no specific knowledge of any delays impacting treatment; however, if this happened it would be recorded on the Datix system.

WORK STREAMS

81. Within our Microbiology laboratory, we have the clinical work stream, and we have laboratory technical work stream. We also have a quality management stream and an Operational Manager who is a Senior Biomedical Scientist who operationally runs the laboratory. I'm not answerable to them as far as my job goes because I'm on the clinical team, so as a Clinical Scientist, I work with the clinical team rather than the

Biomedical Scientist technical team. Any concerns I have with laboratory processing, I would take to the quality management team within the laboratory. Any concerns I have raised, I feel are received well and we do all work together. We also have a senior management team within the laboratory which encompasses all the different levels and grades of staff within the laboratory and Microbiology. Below the Microbiology Management Team (MMT), we have what we call the Senior Management Team (SMT) within our department and that team then reports back to the MMT.

2012 TO 2015 – CONCERNS PRIOR TO THE OPENING OF THE QEUH

82. Regarding the causes of concern during 2012-2015, we were effectively working on a construction site for three years because the hospital had not been completed. We worked in the laboratory which geographically is not linked to the main hospital. This is a standalone building across a double road; therefore, it was possible to have this as a functioning building whilst the hospital was being constructed, or the construction was being finalised. However, there were workmen, construction and scaffolding there constantly. They opened a car park to allow us to park and enter safely to and from our work and the basic landscaping was done and roads were all in place. The traffic side was manageable, and everything was a useable site, apart from the main hospital building.

83. In 2015 when the hospital opened, there was concern for support for paediatrics within diagnostics as a speciality, as they wanted to integrate us into the routine laboratory. The other concern was the beginning of the infections in the hospital. There started to be more infections not long after we moved in, and we were aware of it from a laboratory perspective. In July 2015 we had a small outbreak of an infection called Serratia marcescens in the neonatal unit.

84. Serratia marcescens is a gram negative environmental bacterium that is commonly associated with hospital associated outbreaks in Neonatal Intensive Care Units (NICU). Serratia is ubiquitous in the environment. Babies become colonised with the bacteria which may be asymptomatic and can then develop into an infection and cause pneumonia, urinary tract infection, conjunctivitis and more serious septicaemia and meningitis.

INFECTIONS AND INFECTION CONTROL

85. The process of identifying infections comes generally from samples sent to the laboratory. Routine samples are sent weekly from different patients to look for infection, such as regular blood cultures or secretions from the respiratory tract or if they have wounds or lines in situ. There is a general process of culturing and swabbing just for surveillance of the patient. In some of the units, they have on admission screening. When a child comes from another unit, or hospital transferred here into the children's hospital, they obtain screening swabs to look for different bacteria and to look at colonisation that could potentially cause infection in the future, so we know what the risk is of that child becoming infected, it's like surveillance.

86. Part of my other job is what we call "daily macros" of results from Paediatric patients in RHC from our Telepath lab computer system. I gather all the results from the ward for every patient for that specific day and over a number of days. It pulls down all the Microbiology results on to an Excel spreadsheet and I look at these daily so I can see any patterns. It has all the patient names, the date of collection of the sample, what the type of sample is and what bacteria we isolate from that patient. From that, we get an overall impression of what is happening in that ward so we can see the infection maybe moving from patient to patient. If we see that happening, then we email ICT and let them know.

87. Additionally, these spreadsheets are used daily to discuss the results of these patients with the ward clinicians, so that is done daily on the

haematology-oncology ward. Because of COVID we don't go on the ward at the moment, but we do have a daily phone call and an MDT once a week by Teams. Prior to COVID, we were on the ward every day with someone from the Microbiology Department, so we would be on the ward with our spreadsheet discussing the results.

88. Reports are sent to all the IC team; IC Doctor, paediatric IC team, paediatric IC nurses who are trained paediatric nurses and an overarching Lead IC Doctor who looks after the children's hospital. If there are any issues, I would email my results and let them know. Then we would do further reference lab work like typing of the organism to see if it matches previous isolates, if that is requested. Usually if I go through my Clinical Lead, Christine Peters, or through the IC team and they would ask for typing to be performed. We take the results each day to the ward and discuss individual patients and their results. Also, we would phone the clinician and we would email ICT, and everything is documented in our laboratory Telepath notes.

89. Additionally, I do a monthly gather of positive blood cultures for the acute paediatric wards, they are PICU, NICU and the Schiehallion Haematology-Oncology Wards. That gives them a monthly look at and overview of the infections within blood cultures and that's also emailed out to other certain clinicians within the RHC hospital. I do some information gathering as well as part of my remit. That's also what we did at Yorkhill, gathering of information and daily lists of results, we did that as part of our paediatric service in the Yorkhill hospital. When we moved, we continued with that service. That isn't done for the adult hospital, it's only something which is done specifically in paediatrics.

90. Throughout the hospital on a daily basis, I have information at my fingertips about what's happening at the children's hospital. We call these daily list gathers of information results, it's really helpful so we don't miss anything. My remit is to do the paediatric results authorising. I will leave things for the Consultant Microbiologist if I want Consultant led authorisations so that

there is a further level of paediatric authorisation, and then the result goes to a second queue, a senior process called a clinical validation queue, for Consultant authorisations.

91. For something really significant which may have important implications for the child or for public health, the Consultant Microbiologist on that day will authorise that report. I will leave it for them, otherwise I authorise it, but sometimes it goes to a second level report. That is how we see the infections and that's how we monitor it. That's how I know if we have something new that we need to inform the ward, the clinician or ICT and where necessary Public Health.

92. Regarding Public Health, we do have a Standard Operating Procedure (SOP) for what level results are reported at and this is incorporated into the laboratory IT computer telepath system. We also have a Reporting Guideline SOP and a Quality Management SOP to tell us which organisms get reported at which levels. The Reporting Guidelines tell us what goes to ICT, what goes to Public Health, what gets communicated by laboratory staff and by the Biomedical Scientist, and what gets authorised and reported by the clinical staff. A lot of laboratory reports will also be authorised by the Biomedical Scientist and don't go to a reporting queue and will be auto-authorised out by the laboratory telepath system. General reporting, GP results and other results from the bench level will be reported at the bench by a Biomedical Scientist. Other results for clinical authorisation go on to the paediatric queue on our Telepath system and then within that paediatric queue, there's another level above that for Consultant Microbiologist authorisation.

93. There are three levels of authorisation of reporting so that we don't miss things. There is an Infection Prevention and Control Guidelines manual **(Bundle 19, Document 24, Page 440)**, National Services Scotland's guidelines (National Infection Prevention and Control Manual) **(Bundle 27, Volume 4, Document 16, page 165)** and Health Protection Scotland Guidelines on Management of Outbreaks and Clinical Incidents **(Bundle**

19, Document 25, Page 515). They should all be followed. There are also strict definitions of healthcare infections and reporting around Healthcare Associated Infections (HAI). The IC team should follow these guidelines in the management of Hospital Acquired Infections, so there are certain recommendations and good practice points within that document that Health Protection Scotland have produced.

94. Some infections are caused from within the patient's own microbiology/gut flora. If there is an infection in a patient which is thought to be related to the hospital environment rather than from the patient themselves, these other bacteria are associated with water and moist environments, and they are not common. They are also not associated with normal microbiological disease infections.

95. They had two patients close together in September 2016 and December 2016 in Ward 2A, RHC with the same infection and in my opinion that should have been investigated before the third patient infection in February 2017, because we had two patients with the same infection, but they look at separation and in time and space and to determine if the two infections could be correlated or linked. They were both line infections, one in September and one in December, but it wasn't until March 2017 they had a Problem Assessment Group (PAG) about it. **(Bundle 2, Document 8, page 16)** (**Bundle 2, Document 10, Page 22).** Microbiology would have done the testing of blood cultures which flagged positive and Elizabethkingia miricola was isolated from the 3 patients. Three paediatric haematology patients over a 6 month period. This bacterium was originally identified in the International Space Station (MIR space station, Russia in 2003), and it comes from environmental water.

96. I do not think there was a PAG about it at the time because IPCT considered the two infections not to be linked as they were three months apart. However, Eliz.miricola is an unusual, rarely encountered environmental organism associated with water and moist environments, eg condensation, the organism was isolated from the 2 patients Hickman

Lines. I consider this to have a been an early "warning sign" as there have been a few cases reported in the literature.

97. I have encountered Elizabethkingia miracola previously. I remember there was 2 patients with Elizabethkingia spp isolated from blood cultures at Yorkhill Hospital. There was one patient in 2A, RHC (QEUH site) with this line infection in 2017-18. However, this was not a new case as the patient was one of the 3 cases documented from Sept 2016- March 2017 and the same organism was isolated again. One patient, a new case isolated Elizabethkingia spp. from blood culture during the year 2019 - 2020.

98. I receive results from the cultures through my daily list and on the authorisation queue, so that result would have come to the queue, and I would see it. Blood cultures are also on my daily list. We go through the blood cultures daily on the bench because it's a separate bench process and section of the laboratory. They are blood culture samples from the bloodstream with infections so it's a specialist area of the laboratory.

99. The laboratory is divided into sections depending on the sample type. The sample goes to what we call a bench, so for example, faeces and stools, they go to a certain area in a lab and are looked at and examined by a certain team. Then there are swabs, wound swabs and throat swabs which go to a different area. There are also samples like sterile fluids, such as fluids from the brain and abscesses. Then there are blood cultures, which is blood taken from the patient and put into a special bottle of medium where bacteria can grow. This shows if there are bacteria in the patient's bloodstream. These patients also have lines, so the lines can become infected, and that a blood culture with blood taken from the line would also be processed. I do a daily blood culture list, so I would have seen that result twice, from my blood culture list and from my daily Schiehallion list. It would either have come to the authorisation queue or the Biomedical Scientist would put it on the clinical queue for authorisation.

100. All these results that go to the wards have been seen by the microbiology clinical team from our clinical authorisation. When I see something like that,

the first thing I do is phone the ward. We have a daily handover anyway with Schiehallion, it would be communicated right away. After that, the details of the patient and the organism isolated would then be emailed to the IC team and documented in our laboratory Telepath system under the patient notepad. We record the time and date, what was said by the person who entered it, so they know who said what and when. Everything is very well documented, strictly controlled and audited. Any conversation that I have with anyone I spend quite a lot of my time typing this up and documenting, as well as checking on the benches in the laboratory. If I saw anything of concern, I would inform the Consultant who was covering paediatrics for that day, and they would be informed of any conversation that was had around this result.

101. Any result that goes out from Microbiology is actioned in real time as quickly as we can. The paediatric reports get authorised quickly and we are very proactive with our reporting. Any infection is communicated immediately to the right teams.

INFECTION CONCERNS 2012 TO 2015

102. During the period of 2012-2015 at Yorkhill, there was some cause for concern relating to infections. From time to time we did see small clusters of infection, but these were appropriately managed and controlled. There is never ‘zero infection’ from environment or hospital acquired infections, that’s why we have IC teams. However, they were usually closely controlled because we had our paediatric IC team based in the hospital. The IC nurse at that time, Pamela Joannidis, was responsible for paediatrics and used to come to the lab quite a lot. She was very much part of our team and we liaised very closely with her.

103. The set up was slightly different in the children’s hospital at Yorkhill before the move, the paediatric team, Microbiology and IC all worked very closely together. Also at the time, because we were just the one hospital, the IC Doctor for the hospital, the paediatric hospital at Yorkhill was also a Clinical

Microbiologist at the children's hospital, so it was a much closer, smaller team. I think things were managed more carefully then.

104. The clusters were maybe two or three patients with the same organism in a unit, like in, PICU or Neonatal Intensive Care (NICU). That would be communicated to the IC team, and they would look at the reasons for it happening. We did occasionally have line infections in haematology-oncology, but we had a line management team, so we had a Principal Clinical Scientist and a senior advanced nurse who looked after the Microbiology results from the lines. They would liaise weekly on what was happening within the unit at Yorkhill Hospital.

105. The Principal Clinical Scientist in Microbiology who was responsible for the haematology unit retired in February 2013 and wasn't replaced, and then the senior advanced nurse in the ward involved in that line team also retired and wasn't replaced. At that time we did lose some key people with people leaving and not being replaced but for me that was an important part of what happened to my role, because key people in the paediatric service were not being replaced. I presume they weren't replaced because of financial reasons, however that question is one for a higher management level within diagnostics.

106. In July 2015, there were three babies in the Neonatal Unit at RHC on the QEUH site within a space of a week who had Serratia marcescens, this is known to be a problem in neonatal units. We would cover our other Clinical Scientist colleagues work when they were on annual leave or sick leave. My colleague, another Principal Clinical Scientist who had responsibility for NICU, however, was on annual leave at this point, so I was covering their work in addition to my own. I became aware of these three positive results of colonisation and then we had a patient with a positive blood culture. That was taken to ICT at the time and there were a series of meetings which I did not attend. Health Protection Scotland were aware of that also. That all should be documented from the Neonatal Unit between July and September 2015.

107. In that case I could see what we call colonisation, which means the bacteria infection is found in some of the swabs, like mouth, secretions, line sites or a gastrostomy site. It's there if the patient has become what we call 'colonised'. It's around the patient, it's present but it's not invasive. However, what becomes a problem is when that bacteria gets in to the bloodstream or in to the line and then it then becomes a sepsis. This is what you call a bacteraemia or a sepsis, when they require to be treated with antibiotics and that can be quite a severe infection. It's when an organism that's colonising a patient in surface swabs then becomes a true infection in the bloodstream. You could have an organism that's colonising which isn't an infection, but it can tip over to become an infection and the more colonisation you have, the higher the risk of that organism becoming an infection.

108. We don't always treat colonisation, but we let the clinicians know it's there, because if the patient becomes unwell, you know that the likelihood is that organism will be the cause of the infection, so you know you can act quickly to treat that organism.

109. Some of these organisms are bloodstream or line associated and that's what I was referring to with the haematology-oncology patients; they had bloodstream infections, so on the notes it will be blood culture positive, which means they were septic. It means they had the blood infection which was systemic through the body system rather than just having bacteria in their eye or their mouth which was sitting there but not invasive. That is the difference between the severity of infection.

INFECTION CONCERNS 2015 ONWARDS

110. In 2016 there was an increase in the number of positive blood cultures. Evidence of this is seen in the haematology-oncology patients, in the percentage of positive blood cultures, the number of total blood cultures

taken in the ward and the number that were positive with a bacteria organism in them.

111. In 2014-2015, the percentage of positive blood cultures was 9.6%, when really it should be around 5%, so that was before we moved. In 2015-2016, it was 9%, so it was the same as the previous year and Yorkhill was around about 9%. Then in 2016-2017 it jumped to 15.5%, so when you saw a difference in the number of positive blood cultures and the percentage positive.

112. It really started to peak in 2017 which could be viewed on a graph from February 2017 to June 2017. That's general sepsis within the haematology-oncology unit and it was different organisms. The other interesting thing from my perspective was the mixed blood cultures. When you have a pathogen in your blood, it's usually one organism that causes the infection, either from the environment or from your own bacteria. In 2014-2015, 15 of the blood cultures which were taken were mixed with more than one organism in them. 2015 to 2016, the year after the move, there were only 11 with mixed organisms isolated from the blood culture. Then from June 2016 to June 2017, we had 36 blood cultures with a mixed infection and that's not normally what you see. When you have a sepsis, you normally have one bacteria causing an infection. My concern was that we were seeing mixed bacteria, two or three different bacteria in a blood culture. That means that if a patient has three or four different bacteria in their circulatory bloodstream then it's from their line infection. The raw data numbers show it went from 11 to 36 mixed infections from blood cultures. This is not in context but shows the trend.

113. In June 2017- 2018, 40 of the blood cultures taken that year had mixed organisms in them. That's when I felt concerned, because normally in microbiology you have a pathogen, an organism in your blood and you treat that. However, there was another concern in that we saw a change from the gram-positive organisms to the gram-negative organisms. Gram-

negative are the environmental organisms, so we had a change in the type of bacteria we were seeing.

114. This is part of a presentation that I gave to the haematology-oncology unit when I did an audit on the blood cultures and what we were seeing. In April 2018- July 2018, we had a real increase in the gram-negatives again and also the gram-positives, which was Staphylococcus, and also the skin organisms were much reduced, so we were seeing a change in the type of organisms.

115. I performed an audit of blood culture results from June 2014 to June 2018 and gave the presentation on 30 August 2018. This was presented to the haematology-oncology unit. Another point which is relevant is the quality improvement line infection group, called the CLABSI group (Central Line-Associated Bloodstream Infections), which was set up in May 2017 to look at the line infections, as infections started to peak in Feb 2017. I was a member, and my emails indicate that 3 May 2017, seemed to be the first meeting. For the next meeting with the central venous line quality improvement group, I sent the chair monthly results of patients with positive blood cultures. That fits with my observations and the change in the number of positive blood cultures within the patient group.

116. It was the paediatric Haematology/Oncology Clinicians (Schiehallion Unit Ward 2A and 2B, RHC) who asked me to do the presentation. We had already had a year of the CLABSI group, so we went to their regular meetings, and I represented Microbiology and gave results. I would take along some statistics and some figures and then they (CLABSI group) would work out the timeline on the rates of line infections. There was a whole group of staff looking at corrective action, looking at putting line components in trays, line care bundles and improving line management practice. Then we had a new guideline on line management, so a lot of things were put in to place.

117. This CLABSI group was excellent in helping with the issue in the ward to the effect that it really did resolve the infections down to a very reasonable level in the last year, and it was a good proactive group. The presentation was focusing on both line infections, trends in general and positive blood cultures. It was an audit of blood culture results from June 2014 to June 2018 and I did the next audit and presentation in September 2018. That was really when we saw the problem starting in April 2017, as we saw a change in the trend. The presentation was part of the group, but I don't know where the presentation went. I gave it to the Clinical Staff in the Schiehallion unit.

118. Another point of interest to me was the diversity of the organism types. Normally you have certain bacteria that are known to cause sepsis, but the patients were getting unusual organisms, so the diversity and the types were not normal. If you were training someone to do Microbiology, there are certain organisms that are associated with bloodstream infection, E.coli, Kleb pneumoniae, Staph aureus, Coagulase-negative Staphylococci which are organisms you would expect would cause the infection in line infections.

119. Kleb. pneumoniae is part of the Enterobacteriaceae group of bacteria, they are gram-negatives, However the organisms we were finding were not commonly associated with microbiology findings in a sepsis. They were unusual bacteria that even some of the staff would google because they weren't normally found in routine microbiology textbooks.

120. However, there is a bit of an upside to that because our technology had improved. Some people may say that we did not have advanced enough technology to identify these gram-negative bacilli in the past. However, in the past, say ten years ago, anything we were unable to identify further we would have called them gram-negative bacilli, and we would report them out at Yorkhill, or we would send them to a Reference laboratory, which is what we do for further identification. The difference here was the diversity, the range of environmental gram-negatives, also the mixed infection in

lines, as you don't normally find three different gram-negative bacteria in one line infection.

121. We identified a couple of unusual organisms first and then the diversity of them. Then we saw the same organisms were reappearing, then disappearing and coming back again, and then the mixed infections. For me that was a big difference, the mixed infection was important, as was the switch from gram-positive organisms to gram-negative organisms in the blood cultures. Also, one of our indicator organisms which is Stenotrophomonas maltophilia, it was a new find in blood cultures since the new RHC opened, the first isolate of that organism was in April 2017 which ties in with figures that I gave you about the increase in the blood cultures. We isolated Stenotrophomonas.maltophilia in blood cultures from 2017: one patient in April, May and June, two patients in July (5 patients)and one patient in September (second episode) and then it went away again for three or four months.

122. That small cluster of Stenotrophomonas maltophilia organism over the period April to September 2017 also coincided with a general increase in the overall numbers of positive blood cultures. We seemed to see cycles and trends, and then in March 2018 we had three patients with Stenotrophomonas maltophilia in blood cultures, and again that was an indicator that something was wrong. During the period June 2017-18 there were 14 positive blood cultures isolated Stenotrophomonas maltophilia. Then we saw other gram-negatives also. You shouldn't be getting that in a patient's blood culture, that's not a normal infection or something you would expect to find in an episode of sepsis.

123. These trends are like cycles which come and go for a few different reasons. It could be there has been an intervention, I don't have feedback on what corrective actions were put in place, that is one of my issues, I will pass on all my information, but I don't get communicated with, I don't know what has happened or why something has gone away. Basically, I assume the

scenario is that have they intervened based on my information, but I don't know.

124. The other issue for me is whether the water is at the right temperature. We tend to get what we call a spring bloom and we saw that in the old hospital at Yorkhill. In the spring months when it's getting warmer and the water's warmer, the bacteria grow better, and if you don't keep your cold water cold and your hot water hot, bacteria will grow more easily. That's something for estates and management to consider because if you don't have your water hot enough, bacteria grow at body temperature (37 degrees) and some of them can grow at 40 degrees. If the water isn't not hot enough, it won't stop the bacteria growing.

125. Also, some environmental bacteria grow at cool temperatures, so the water needs to be really cold to stop the bacteria growing and also hot enough to stop the bacteria growing too. But in the warmer weather, the cold water isn't as cold. At Yorkhill we used to have meetings with Estates and I was involved so would get feedback, this hasn't happened latterly. I'm not going to put a timeline on it, but my general opinion is I don't always know what's happening, but then it's maybe not my remit to know that. Again, my concern is that I'm giving this information, it's going out in one direction but I'm not getting any information back which may ultimately be useful to inform the process.

126. If information was returned to me, it would help me to understand and predict when this is going to happen, because I have worked in Microbiology for a long time, I'm experienced and I have an insight. I see the patterns in percentages and number of positive blood cultures coming in and I know something is wrong and needs actioned. On 2 occasions during a one month period (April 2017 and March 2018) we had 40 positive blood cultures, ie 40 of them were positive from Haematology/Oncology patients. The percentage positivity rate was 26.7% and 26% respectfully and were the 2 peak months of positive blood cultures. At the moment

we're down at less than three per cent, with 1- 4 positive blood cultures a month so something wasn't right then and something is right now.

PROBLEM ASSESSMENT GROUP (PAG) MEETINGS

127. Once a concern for infection has been identified, the PAG is the first part of the follow up process. During this, they score the risk using a HIIAT score. HIIAT is the Healthcare Infection Incident Assessment Tool. The PAG would be initiated by IC, as Microbiology doesn't have that remit, we are the people who inform IC. IC would have been informed of bacterial infections at the time. If a blood culture flagged positive, and the bacteria isolated was identified as an environmental organism that would have been communicated to the clinical team on the ward, with IC informed also. Even with one infection, it should go to the Schiehallion (SCH) unit for the clinicians to do a risk assessment on the infection and decide if and what further actions need to be taken. Then if there's more than one infection, they organise a PAG. Where there is a larger outbreak or an ongoing outbreak, the next level of IC would be an Incident Management Team (IMT) meeting, and then the issue is taken to a more detailed and with more persons incident management group.

INCIDENT MANAGEMENT TEAM MEETINGS (IMTs)

128. My role at IMTs was providing results, so that is why my name would be on the list of attendees at the meetings. I had the Microbiology results and was involved in informing IC and the ward of concerns of any results that I had regarding infections, for example, Aspergillus. I would report the result and my name would be on the report as authorised to confirm this.

129. IMTs are held due to different types of infections that are considered HAI. I used Aspergillus infection as an example of an infection that would be

communicated to the Infection Control Team. There were Aspergillus infections in SCH unit.

130. In terms of invites to the IMT, the IC doctor would invite me, but at that time the IC doctor was usually a member of the Microbiology Department on this site (QEUH), so they would be working in the laboratory anyway. At Yorkhill it was the same thing, I would be invited by the Clinical Lead IC Doctor as this the Microbiology Consultant. I had probably informed any issues to Dr Teresa Inkster, Lead ICD with some of these results anyway and we would already be working closely together. Sometimes it depended on whether it was relevant for me to be there, so I'm not at all the IMTs. It would depend on my input towards the reporting out of results and the escalation of the results to IC. They may want me to be there to give them the results, or to talk through results, or to talk through whichever investigations I had requested.

131. In general, I found IMTs within the local remit fine, but when it got to a wider IMT which included people outside our department and wards, there were differences of opinion. For example, with Estates and Public Health Scotland, they had a different perspective from people in the laboratory.

132. I can’t remember the date and time, however, there was one particular meeting when I was told that what we were seeing was normal. I’ve used the word ‘normal’ very often just generally, but I was told by someone that 40 positive blood cultures a month was normal, and I said, ‘but what about the diversity of these organisms, that is not normal?’ They were trying to play it down, that was someone in Public Health Scotland. And then estates would say there wasn’t a problem with certain areas where we thought there was. There was a bit of disagreement sometimes with the different specialities around IMTs and what was actually happening.

133. The problems were the increase in the number of positive blood cultures to 40 a month and increase in the type of organisms isolated i.e.

environmental bacteria and also the number of positive blood cultures from the same patient.

134. Also the number of mixed blood cultures with different bacteria. The other concern was the number of line infections. Central line associated bloodstream infections (CLABSI) which meant patients had to have their lines (Hickman Lines) removed and on more than one occasion and were associated with clinically significant illness with some patients requiring intensive care support.

JAMIE REDFERN'S OFFICE MINUTES AUGUST 2016

(background information)

135. This was nearly six years ago, and was the first Incident Management Team (IMT)**(IMT minutes - Bundle 1, Document 6, page 22)** to discuss Aspergillus fumigatus infection in 2 patients in the Schiehallion Unit in RHC, but I would have been involved in some of the reporting and in informing other teams of the results. On the reports, we are authorising results and recommending treatment based on what we grow. So, we look at what the bacteria is, what the fungus is, what the organism is that we've grown from the sample – and then what drugs, antibiotics and antifungal would we recommend for treatment, we list them all on the report.

136. We began to see unusual infections. Different bacteria have different colony formations, and they grow on agar plates and they also look different. Bacteria grow, and they grow in different conditions and different media support them. We put samples up for culture using different conditions to support the growth of bacteria and fungi at 30 degrees, 37 degrees, aerobically, anaerobically, there are different biochemical tests to look for different organisms, this is the nature of Microbiology.

137. We also have an automated identification system called the Matrix-Assisted Laser Desorption/Ionisation Time of Flight (MALDI-TOF) and that is

advanced in identifying bacteria. We have a system of identifying bacteria to give it a name and works on a database from lots of different labs throughout the country. It could give your bacteria a name, but through experience and learning, you know what the name means. Then we get the result back and I ask the questions about why it is growing there, and where it has come from. If I got an E.coli from a blood culture, I would not phone ICT, I would still phone the clinician and give them advice but there are certain organisms where you would alert ICT, because they are not 'normal infections'.

138. So that's really where my job has changed quite a lot and where a huge increase in the laboratory's workload has occurred. From 2016 until now, there has been an increase in our workload in identifying and processing additional samples with infections that we would not normally expect to see. It has been quite a considerable increase, and I don't think the amount of work that the Microbiology Department now have in providing advice and following up results with less staff than ever has ever been raised with the Public Inquiry.

139. I don't know if the issue of staffing levels from ICT and Microbiology have been raised to the Public Inquiry, but this type of situation is not what you would find in a district general hospital Microbiology Department. Also, in terms of what you would expect to find in a laboratory, this is not common Microbiology, and I wasn't trained in environmental microbiology however I have learned a lot in the last seven or eight years because you do learn with experience. Now all the staff here in the laboratory know all the names of all these environmental bacteria. If my name has been on a report that's gone into the patient's notes, I have probably highlighted and raised something at a meeting and Dr Inkster has obviously asked me to attend, because I see she was the Lead ICD (Infection Control Doctor) NHSGGC at that time.

140. The number of blood cultures that were positive on the bench some days was high. One month we had 40 positive blood cultures from the haem-

oncology patients, I have the statistics. At the moment it's one or two a month so if you think of the workload and processing a really complex blood culture result and doing antibiotic sensitivity testing and reporting them out, that is a huge amount of work. Also, for the patient, they're having line infections and additional antibiotics to treat these infections, so these children are getting more antibiotics than they would normally.

141. The other thing is the patients maybe more unwell. We don't know why they're spiking temperatures or why their C-Reactive Proteins (CRP) were raised, so all these patients need a larger number of investigations, what we call differential diagnosis, in order to find out what the problems are. We have to ask why the children's temperatures are spiking, why their inflammatory markers are raised, why they are not responding to antibiotics. We need to escalate, switch antibiotics and do lots of other investigations. That itself has an additional workload, not only for Microbiology but for the staff on the wards taking all these extra samples.

142. When you have a child who is unwell and not responding, you have to look for the reasons as to why the child is not responding, to find what we may be missing, to find the gaps in our antibiotic treatment. We do lots of investigations, and that again takes time. Also, we sent a lot of samples to reference labs, especially the Mycology Reference lab in Bristol, because the Mycology Lab we had in QEUH, Glasgow was moved off site.

143. The Mycology Laboratory was part of NHSGGC. It was originally sited in the Western Infirmary and then transferred to an area in the Paediatric Microbiology Laboratory at Yorkhill. When the Microbiology Dept moved to the new laboratory building at QEUH in 2012 the Mycology Laboratory moved at the same time. In 2015 when the Molecular Section was transferred to Virology, GRI, the Mycology Laboratory was also moved to GRI as some of the Mycology laboratory assays were molecular (PCR). This was a decision made through an appraisal process with management but not with the full agreement of the QEUH Microbiology staff. As the Consultant Mycology Clinical Scientist was not in agreement with this and

did not want to move to GRI, she took early retirement and was not replaced. Samples were sent to Mycology Reference Laboratory, Bristol for more specialist tests/ investigations that were not available in Glasgow.

144. So we lost our Consultant Scientist, who was a Mycologist and retired and was not replaced. All these things have impacted on us and increased our workload in Microbiology.

145. This also impacted upon patients due to the investigations of the infections. They were getting more investigations done and they would be on more antibiotics. This meant you would need to monitor antibiotic treatment with inflammatory markers, and you would need to check antibiotic levels so patients would have more blood taken to look for measurement of the antibiotic in their bloodstream to make sure it was a therapeutic at the right level to treat the infection or if it was sub therapeutic, for example, not enough of the antibiotic, or it was toxic, too much antibiotic . All these extra things need to be done as well along with giving the antibiotics.

146. Antibiotics fall under my responsibility, and I would advise on treatment options and maybe switching to different antibiotics if the patient wasn't responding. Or if they go on first line therapy and then they grew for example Elizabethkingia. miricola, our first line antibiotics would cover what we call normal or common routine microbiology infections, so we would need to change and escalate antibiotics to cover Elizabethkingia miricola infection. Then if there was a fungal infection risk, patients would have to go on another type of antibiotic, an antifungal drug which treats fungal infections, and we would screen for that infection as well.

INCIDENT MANAGEMENT MEETING DATED 5 AUGUST 2016 RELATING TO INCREASE IN ASPERGILLUS INFECTIONS IN WARD 2A (meeting in Jamie Redfern's office) (A37987226 – IMT minutes - Bundle 1, Document 6, page 22)

147. In these minutes it notes, 'Kathleen Harvey-Wood added the patient was admitted to ITU' and 'Aspergillus was attributed to Ward 2A and not ITU'. We must have had the positive results before the patient moved. When a haematology-oncology patient becomes very unwell and requires ventilation as you can see there, they are moved to the PICU for support. There must have been indication that the patient was already positive with Aspergillus before they were moved to the intensive care unit.

148. The minutes also say, 'the patient had been in since 30 May and did not have Aspergillus, as it would have been picked up on screening before this date'. In this situation we would have been asked to screen for Aspergillus. Aspergillus is not routinely checked for every day, but we will look for it if a patient becomes unwell and is not responding to antibiotics.

149. Around midway through the minutes, it appears we have a positive PCR for Aspergillus which has appeared in a BAL (Bronchoalveolar Lavage) and what's being said is that Microbiology want confirmation, which means they would want a further positive result. At that stage we had one positive PCR result but sometimes you only get one, so what's being said is that we would want a second confirmatory test. What they want to see is that the case is a true positive. Aspergillus PCR is a very sensitive assay validated and performed in Microbiology (assay moved to Virology August 2015), so they would want supporting evidence because you need more results for the guidelines for the fungal infections to be proven or probable. They're saying it's a 'probable' case there because they only have one positive result. To make it proven, you need to have another test that would back it up and confirm it.

150. Further on in the minutes, Professor Gibson reported that prophylaxis was discussed with Pharmacy, and it was agreed that would be the preferred

option. It was noted that transplant patients are not routinely screened, and Dr Inkster and Kathleen Harvey-Wood agreed to meet that day to discuss the screening regime for patients. This was to do tests, what we call fungal biomarkers. We do a blood test now to screen for fungal infections, so that was probably the beginning of us doing that. This is all part of doing more tests, more screening samples. Now when we have a patient who is not responding to antibiotics, then we would screen to look for fungal infection being another reason for them being unwell.

151. There was more done prior to that because of the risk to the patients from the environment. They were given antifungal prophylaxis for fungal infections because they are drugs that treat and prevent fungal infections. Also, you're giving them a smaller lower dose so it was agreed that Ambisome would be the perfect option. It's given to provide cover as well as treatment, but also, we need to screen the patients more to look for fungal infection, to treat it more readily and earlier because it implies there was a risk from the environment. Otherwise, why would you give them antifungal prophylaxis and monitoring for fungal infection?

152. I've never had any concerns around the use of prophylaxis, I think it is a good idea, I would support it. But you're giving a patient a drug to prevent infection and they shouldn't need that. You're giving what we call prophylaxis, you're trying to prevent infection, you're intervening earlier, so what you're doing is you're giving antibiotics or antifungals prior to infection to stop infection. You do that on lots of things, in surgery and patients that are going for complex surgery, they might get antibiotics to stop them getting infections, it's called prophylaxis. But why do you need to prophylaxis these patients? You're giving them an antifungal drug to basically protect them from fungal infection. Because a risk assessment has obviously been made, that this is what they think is best to benefit the patient and so they've noted there that eight out of the ten children would be suitable to be given antifungal prophylaxis.

153. Regarding the corrective action portable HEPA (High Efficiency Particulate Air) filters to be placed in the unit, they must have been concerned if they were adding portable filters in to support the environment. Basically, what they're doing is corrective action by taking additional control measures. They are going to take actions, there are three or four things listed that they're doing, including the prophylaxis.

INCIDENT MANAGEMENT MEETING MINUTE DATED 7 MARCH 2017 RELATING TO INCREASE IN ASPERGILLUS INFECTIONS IN WARD 2A (A37989174 – Bundle 1, Document 9, page 35)

154. In these minutes it discusses concerns relating to three Aspergillus cases on the ward, each assessed using the European Organisation for Research and Treatment of Cancer (EORTC) definitions applied to Aspergillus. On the previous IMT, where they had recorded that the Aspergillus PCR was positive and it was a probable case because they did not have any further results to confirm, this is from the European Organisation for Research and Treatment of Cancer, which has a section in it defining fungal infections. This links into the definition of what is a fungal infection and that there are 'probable' cases, 'possible' cases and 'proven' cases. Three different definitions within that criteria depending on how many results you have to support the fungal infection.

155. Some of these can be diagnostic laboratory investigations, some can be radiological findings like x-ray, and can be blood tests like fungal biomarkers. Some can be actually growing the organism from cultures, there's obviously been three cases and again what's been noted as you can see, because we did not grow the Aspergillus from the cultures of all 3 patients (patient 2 isolated Aspergillus from BAL), but it was confirmed by probably radiological findings and from the blood tests that we spoke about earlier. So, there is a classification of a fungal infection. In terms of classifications I use, it's not definitive, I would not make the classification, that would be the Consultant or the IC doctor, but all my results would be

documented to help make that decision.

156. During this process there was a diversity of infections, and some were known. No external guidance was sought from me personally. However, I would imagine the IC team would escalate that to Public Health as part of an IMT. I don't know if you have any of your minutes which have Public Health representation. What would happen is, if the IC team and hospital staff were concerned and after the local IMT was held and issues with the hospital environment were discussed, then IMT would need to raise that and escalate it to Public Health Scotland and that's how I think it was escalated up through Public Health Scotland, and then to the government.

157. That would be through a decision made and actioned at an IMT through scoring it in the HIIAT process. It's from that we would make the decision relating to Public Health, press or the general public involvement. At that point Public Health would then be brought in and then sometimes they would chair meetings, or they would be maybe invited to attend meetings.

158. When it came to identifying the unusual infections from the laboratory, the guidance we had was support from the specialised reference laboratory testing. I would liaise with them and interestingly, from a professional point of view, reference labs mainly are staffed by Clinical Scientists.

159. In a previous situation, Public Health couldn't question the results because the results were there and proven, I think it was the interpretation of the results that was questioned. I think how the results were taken in context by the different management groups was slightly different. What we perceive or I perceived as a Microbiology scientist maybe wasn't how they would see it. But then they were just seeing maybe that one IMT minutes, or that it was one patient and I was seeing overarching issues because I was seeing it every day. I was seeing all the results, whereas they would be focussing on e.g. three cases and to me it was obvious from pulling everything together and seeing the diversity of infections that were coming in.

160. Those working in Estates and Facilities or Public Health Scotland did not offer support or guidance to me directly when discussing the identification of unusual organisms, this would to be at a higher level to ICT. However, I had the impression they did not want to know about it, and I had emails telling me not to email them (Associate Nurse Director, Infection Prevention Control) about things because it was causing a lot of work and they could find things out through other processes. I felt there was negativity towards me highlighting my concerns and the emails were sent to different people throughout the years who were responsible for IC.

INCIDENT MANAGEMENT MEETING MINUTE DATED 4 DECEMBER 2017 RELATING TO ACINETOBACTER BAUMANNII IN WARD 1D (A38172003 – Bundle 15, Document 10, page 696)

161. I can recall this meeting because of a problem in PICU with Acinetobacter. Health Protection England (HPE) performed what we call pulsed-field typing (pulse field gel electrophoresis- PFGE) and 3 of the isolates were found to be the same. I think what Professor Leonard has said, molecular testing, that means whole gene sequencing (WGS). But we don't always do the typing for every organism at that level for whole gene sequencing, and I think the pulsed-field testing is what Health Protection England do generally and that's what we were using throughout the time that you're talking about. That's what we use the HPE Reference Lab for, to send isolates for PFGE. Usually that would be enough to suggest that there was a cluster and that's why they would have held the IMT.

162. Typing means to compare isolates so you have the same species and the same name. The bacteria is called the same species name like Acinetobacter baumannii, but within a species of bacteria with the same name, there can be different colonial variants and there can be different strains. However, the typing shows you whether the strains match and when we send them to Public Health England, we get a report back with what we call the typing result and they then compare them. After that, what

HPE do is that they have a big database of all the isolates of the same species name that we send them, and it comes back with a code.

163. They will then look through all the Acinetobacter's that we've sent them for a number of years, and they look to find if they can match it with a previous isolate and they give it a number so that it's coded with the same number as previous matches. These are all then documented, and these documents are all available in the Clinical Portal with the patients other Microbiology results. Where you see 'sent for typing' that means the isolate was sent for typing as that is what the reference lab (HPE) perform. If they come back with the match, the reference lab give us the laboratory number of the match because it's confidential, they don't name the name of the patient whose isolate it was matched with i.e. a previous one. However, the patient's name is there when the organism was sent along with their CHI number and laboratory number.

164. However, on the report, they give you the laboratory number and their laboratory number of the matching isolates, if they consider it to be the same. You would then go and look these laboratory numbers up and find out who the patient or patients are that are found to have the same typing result. That's where I find that very interesting, because that does suggest there's a commonality between them, because they have been found to be the same strain.

165. But what Alistair (Prof Leonard) is saying there is he wants further molecular testing, which is whole genome sequencing, that looks at the sequence of the DNA of the bacteria. Now that's very detailed and most IC teams will accept the level of typing that the reference labs do with their pulsed-field typing.

166. In reference to Professor Leonard suggesting proving or disproving transmission through typing, he means doing more detailed genetic testing which we don't routinely do. I think that we may have asked for that to be

done but generally for IC purposes, the level we work at is what we call the pulse field typing result that comes back.

167. Health Protection England (now UKHSA) have a laboratory called Colindale in England. It's the big labs like that in England who review things like COVID. They work on all the unusual pathogens and they do typing. We do some local whole gene sequencing in Scotland, basically all our isolates are sent down to England and we get charged for them. It's a very good service but the results take a week or so to come back. My role now has been collating all these results.

168. Professor Leonard went on to report that over a 12 month period, the background rate of Acinetobacter has not changed when compared to previous years. The infection is one of concern in that it shouldn't be in the unit, and it is an environmental Gram-Negative. I don't personally agree with that statement, I might ask where he got the rates, the background rate. Because for me personally, there shouldn't be a background rate. If I was asked to comment on that, that's what I would say.

169. You're comparing a background to previous years, but then it's a hospital environment and comparing with previous years and saying, I'm not sure where he got these figures from. He's talking about the background rate of Acinetobacter there in PICU (1D). That's okay if you get it from time to time, but I think that's changed compared with previous years as 7 cases were being discussed. That would make me ask, 'Well why are you having an IMT then?' If this background rate has not changed from previous years so why have they raised an incident? I note that in Section 3 it is minuted: "It was also noted that trough sinks which were due to be removed and replaced in a more suitable location had not been carried out" and that Section 4 states: "SD will chase progress on replacement sinks". This had not been done by 6 months later - see minutes of IMT 6th June 2018: When more cases of Acinetobacter had been reported.

Also noted that the minutes section 4. Risk Management/ Control Measures is in a different font from the rest of the minutes. Has this been pasted in?

INCIDENT MANAGEMENT MEETING MINUTE DATED 6 JUNE 2018 RELATING TO INCREASE IN ACINETOBACTER WITHIN PICU (A37989601 – Bundle 1, Document 25, page 105)

170. It says that there are six cases in total of Acinetobacter since February 2018 and that typing has come back which indicates there's a predominant strain linked to a previous cluster of Acinetobacter in November 2017 where no source was ever found. Basically, they're talking about predominant strains. It was the previous cluster in October/November, so that would be discussed at the IMT on 4 December 2017 (**Bundle 15, Document 10, page 696)** and they did not find a source. But then they have six cases since February 2018, and they've said that it's a predominant strain linked to a previous cluster, so these six must have matched the previous ones from four months before.

171. On page 24, just under 'Risk Management/Control Measures', 2 General, it says that after the last IMT in PICU regarding the increased incidents, swabbing was done and Acinetobacter was found to be present on a baby bath, but after further investigation it was proven that it was never used on any of the infected patients from the cluster in 2017. These were found because IC go round the ward and do screening swabs of the environment and they are then sent to microbiology for culture to screen for the organism causing the outbreak e.g. to look for Acinetobacter.

172. The water is sent to the water lab at Glasgow Royal Infirmary, so I don't see the results of the water lab, but the screening swabs are sent to Microbiology, QEUH, with a different lab identifier number, different lab number stream, and a code number for the incident. We know there's a ZM number, ZM is a laboratory identifier number which is used for non-patient samples instead of a CHI number i.e. screening swabs or water etc from

the environment, so the laboratory staff know they're environmental samples and they're from whatever site like a bath, sink or tap. I'm not really involved in the processing of samples from that part of the Microbiology laboratory. But if Acinetobacter had been found on a baby bath, I would have wanted it sent for typing. It doesn't say there that they have sent it for typing, but if that was me, I would have wanted that. It never infected patients, but was it sent for typing? That's what I would want to know.

173. It is interesting that all these trough sinks have not yet been removed although this was the plan. The big three trough sinks, in the middle of the ward corridor area of PICU, they use to put waste and bathwater down instead of using the sluice room. The removal of the sinks is probably in response to this. They've been actioned to be taken out, which had not yet been done 6 months later after IMT held on 4th December 2017.
Note minutes Section 2:" KC will follow up with WM (Facility Management – not present at the meeting) - who was dealing with the removal of the trough sinks?

INCIDENT MANAGEMENT MEETING MINUTE DATED 14 AUGUST 2019 RELATING TO GRAM NEGATIVE BACTERAEMIA (GNB) Paediatric Haem Onc (**A36591626 – Bundle 1, Document 77, page 343)**

174. The reason I'm probably at these meetings more is because of my extra responsibility for PICU, this is one of my specialist areas. I phone the ward and speak to them every day, it's one of my responsibilities as a Principal Clinical Scientist. That is why I am often there in the minutes as one of the attendees, because it's probably me that has been issuing most of the laboratory reports, speaking to clinicians daily and attending the paediatric MDTs. That sets the scene of why I'm there, I am the first point of contact in the Microbiology laboratory. Two of the Haem- Oncology patients discussed in the minutes are PICU patients. I am also responsible for phoning out the positive blood cultures from Haem-Oncology patients and gathering monthly data on the number of positive blood cultures from this

patient group. Teresa Inkster was chairing the IMT and has asked me to attend the meeting.

175. The minute says that Chris Deighan pointed out the numbers of bacteraemia have not increased in reference to Iain Kennedy's epidemiology report, and then it says that Dr Inkster and Dr Peters stated the nature of the bacteria were a concern and that we're not seeing the typical pathogens for this patient group.

176. If you look at the last section of that paragraph, 'The organisms we are seeing are environmental in nature and associated with water/soil' it's exactly what I've already said, independent of this information from Christine Peters and Teresa Inkster, I'm saying the same thing as them. I've not seen this document by Iain Kennedy, but I find it very interesting they (Christine and Teresa) are supporting and agreeing with what I've said, the environment and the soil. I have already mentioned the pathogen that we thought was due to rubber tyres. (Gordonia is a gram positive bacteria that can be found in biodegradable rubber and soil)

177. Dr Chris Deighan is not someone I have come into much contact with. He's NHSGGC and Deputy Medical Director of Corporate Management. I did speak to him about the bacteraemias (blood stream infections) I was finding in that meeting. If Dr Deighan wanted to find the number of the bacteraemias and whether there was an increase in the rate, he would go to our system. The system is called ECOSS. That is how all our positive results get sent to Health Protection Scotland. They have a computer system which draws down results throughout Scotland. They can look at epidemiology within the country of increase in infections and surveillance of infectious diseases and hospital acquired infections. That would be done through Public Health, but he is corporate management, NHSGGC and not Health Protection Scotland. I'm not sure where he got that from, he does say he has referenced Dr Iain Kennedy's epidemiology report.

178. Iain Kennedy is Public Health Scotland; he provided the epidemiology report. He got the information for that from the ECOSS results that come through the Microbiology Department. Iain Kennedy's interpretation is different from mine, he was the person that said there wasn't a problem, and I explained the diversity and increase in numbers of bacteraemias. This is where we have a disagreement in where the information and data has come from or collated, in that they're saying there is no increase. However, one Consultant said there had been an increase in infections. I wonder if that was me and this is the meeting I'm talking about.

179. Dr Inkster and Dr Peters said that there was a concern that the organisms were environmental in nature, and this was one of the meetings where Corporate Management and Health Protection Scotland were saying that what we were seeing was normal and there was not an increase in microbiology issues or bacteraemia. However, Dr Peters, Dr Inkster and I, who were all at the meeting, raised a concern that this was not the case.

    I had been recording and auditing trends for years before and had given a presentation to the Haem/Oncology team. Dr Deighan and Dr Kennedy never asked for the presentation or audit results from me. I note that Dr Deighan was appointed as NHS Lanarkshire Executive Medical Director from January 2023 (added as comment Oct 2023).

180. Prior to this meeting I did not have any involvement with Dr Kennedy separate from the IMTs. My audit results and information graphs were all given to Dr Peters who is my Line Manager, so she knows about all the graphs I have produced over the last few years since 2014, because she asked me to go back, basically from 2015 to the present time. I'm still doing it now; she asked me to go back a year so we could have a reference point of the year prior to the move from the old hospital at Yorkhill to RHC, QEUH.

181. All the data is from 2014 to the present time and all information and graphs has been emailed to my line manager, Christine Peters. She has escalated where she feels appropriate to higher management, so that isn't my remit.

My remit is to give results and audits to my line manager who then decides what information to escalate and to who, and you can speak to her about that because she has all the information. That audit was done with Christine, she was at the meeting when I gave that presentation. In fact, she did a presentation also with the blood culture audit. I set the scene for the CLABSI group with my audit, and then Christine spoke to them as well.

182. I have not personally seen Dr Kennedy's epidemiology report. I don't know whether he had shown it, but I don't have it. It would be interesting to ask Christine Peters if she has seen it. I'm assuming the report is in relation to the numbers of bacteraemia in the haematology-oncology unit, because that's what we're talking about, as well as the case definition of a line infection. But the last sentence there is that the CLABSI group's excellent practices have driven rates down, and that's what I remember. I mentioned that earlier, how well their practice and the group had worked in changing the rates of infection, that group has been a really big success, so they've commented here on that already in 2019, so even three years ago we were seeing a difference.

183. But everything Christine and Teresa have said here, I completely support. I've not been party to any other reports from corporate management or from Health Protection Scotland, although they did ask me for results at one point. HPS did actually come to me and, interestingly enough, they emailed me directly without going through due process and through my line manager, asking for all my blood culture results.

184. I straightaway emailed Christine Peters and told her I had been asked to give this information out and asked if she could take it forward. (Christine Peters will have the emails I forwarded to her in support of this). There were a few occasions when they tried to get information from me without going through my Line Manager. I'm sensible, I'm not going to give Health Protection Scotland information from patients in this hospital without going through my Line Manager and Clinical Lead. That is something else to note, I was annoyed at the time with them, when they were doing that. But

they thought they could ask me, and I would give them lots of information just like that. I can't recall having had separate meetings with Health Protection Scotland, and I feel that would have been done through my Line Manager anyway, but there's a slight difference in the interpretation of results and what is seen as" normal" bacterial infections.

INCIDENT MANAGEMENT MEETING MINUTE DATED 6 SEPTEMBER 2019 RELATING TO GRAM NEGATIVE BACTERAEMIA (GNB)-
Paediatric Haem Onc (A36591637 – Bundle 1, Document 79, page 354)

185. This IMT was chaired by Emilia Crighton (PHS). Teresa Inkster had asked me to attend the meeting to take notes as she and Christine Peters were not invited to attend and Teresa was not chairing the IMT. Question as to why Teresa had stepped down as NHSGGC Lead Infection Control Doctor. Of interest Emilia Crighton was appointed as Director of Public Health in August 2023 (added as comment Oct 2023).
There was a significant discussion in relation to chilled beams following the SBAR of 25 August 2019 by the Consultant Microbiologists raising concerns **(Bundle 20, Document 65, page 1471**) and following the issues at the IMT held on 14 Aug 2019 **(Bundle 1, Document 77, page 343)**, whether they were leaking or not and whether they were cleaned. Tom Steele said, no they weren't leaking: in terms of the leak Tom Steele stated "does not believe there was a leak and the leaks would not have occurred from the chilled water circuit. If there was a leak this would have come from the hot water but anything in this would evaporate" and Dr Crighton said that they were acceptable for use in the hospital. My notes taken at the IMT record: "2 times in the same month the boilers were down and temperature trends were monitored - boiler pressure was lost and this caused the increased condensation from the chilled beams. Leaks from chilled beams associated with the duration of boiler failure. Hot water leak due to pressure failure".
Dr Valyraki (PV) informed Tom Steele that Christine Peters had photographs of the chilled beams leaking. Building regulations; chilled

beams should not be used in Haem/Oncol settings. “The American Society of Heating, Refrigeration and Air -Conditioning Engineers (2017) notes that chilled beams should not be used in Intensive Care Units, protective isolation or source isolation rooms, toilets, procedure rooms, due to cleaning difficulties and potential for build -up of contamination. Condensation should not occur on chilled beams as this is a prerequisite for safe monitoring in healthcare.” Reference:T. Inkster et al. Journal of Hosp.Infection 106 (2020) 613-616. Teresa Inkster was so concerned regarding the issues of the chilled beams that when she stepped down as Lead ICD she published this peer reviewed paper. (Of interest Teresa Inkster is no longer employed by NHSGGC – comment added Oct 2023).
I was party to discussions about chilled beams outside of this meeting.
I heard through my line manager, Christine Peters, that when we were at the ward, there were stories of them leaking and dripping on to the beds. Also, that they weren’t cleaned properly. Interestingly, our own Microbiology lab also has chilled beams. Contracted out specialised cleaning staff are here every other week now cleaning them in the laboratory. I don't think there was any cleaning done of the chilled beams before or at the time of this IMT. I have had water drip onto my head from the chilled beams in my office in the Microbiology Dept as recently as May 2023. (comment added Oct 2023)

186. I asked the question as to whether Great Ormond Street Hospital had chilled beams. **(Bundle 1, Document 79, page 354).** The reason Great Ormond Street came to mind was because they are a historical link with Yorkhill Hospital. Yorkhill Hospital was the paediatric hospital for Scotland when we were a standalone hospital and NHS Trust, and we were a benchmark. We considered ourselves the” Great Ormond Street of the north” and with some of the assays I developed I was speaking to and collaborating with Great Ormond Street. Also, during the course of some of my research I went down to Great Ormond Street and I would use them as a comparator.

187. When I was working at Yorkhill before we moved here to the QEUH, I would speak to the Microbiology Dept., Great Ormond Street about any

concerns or for advice regarding paediatrics, because there wasn't another paediatric Microbiology lab in Scotland. There wasn't another paediatric lab in Scotland at that time, the only other ones were in Leeds or in Birmingham Children's Hospital, but Great Ormond Street is the centre of excellence in the UK for paediatrics.

188. Some of our patients go to Great Ormond Street for specialist treatments and for transplants etc. If you're building a hospital or you want it to be good, it's the place to compare, that's why I referenced them, and they don't have chilled beams as far as I can remember. Minutes Section 11. AOCB "and the peer review by Great Ormond Street Hospital carried out "From my notes and not recorded in minutes : " a review by Dr Hartley from GOSH who is a Consultant Microbiologist and Director of Infection Control to visit the hospital was planned." **(Bundle 1, Document 79, page 358)** As far as a I am aware this did not happen.

189. There were disagreements with regards to Dr Iain Kennedy and Dr Chris Deighan's comments about not recognising the increase in infections. My own notes (and not recorded in the minutes) record that I informed the group and Iain Kennedy that the positive blood cultures taken from lines are mixed polymicrobial and the diversity of the bacteria isolated is different from Yorkhill. I think we were concerned that the issues we were raising were not being addressed. For me, it sounded like we were being told, 'no we don't have a problem, so we don't need to fix it.' I was concerned they did not want to admit they had a problem and take action, because if you change and make corrective actions then you're admitting there's an issue.

190. We were getting concerned because this was 2019, and this wasn't an issue we would want to continue. There was a change with our line practice and the CLABSI group, who were doing well, but the environment was still an issue from my perspective, and I did not think that they were doing enough to try and resolve the issue.

191. Estates seemed to be in denial that there was any problem with the temperature of the water however, there was a boiler problem with the hot

water temperature in June 2019 and it is referenced in the IMT 14 August 2019 **(Bundle 1, Document 77, page 343)** and 6 Sept 2019 **(Bundle 1, Document 79, page 354)**. Comment added: the boiler problems were discussed (in my notes taken) but interestingly not recorded in the minutes. Estates were also telling us the chilled beams did not leak. The other issues seemed to be not for their concern, but being Microbiology, we were seeing the results coming through and we were seeing the infections in the patients. There has to be a reason for the patients being infected.

PERSONAL IMPACT

192. No one from Corporate Management came to speak to me, including Jane Grant. Obviously, they would speak to my Line Manager first, so I think most of my issues have been raised with Christine Peters and she has taken them to management herself. In that respect, indirectly, my concerns and her concerns have been raised, but as an individual employee of NHSGGC, no one came to speak to me to discuss my concerns or my feelings. It has been actually quite hard for me, even talking about it today, I do feel affected by it all.

193. During my increased workload I wasn't offered support. I just got on with it really, it was hard. It has been a lot more work on the QEUH site than I did at Yorkhill, it's full on. Because I don't have my colleagues who I used to work with, it's been hard for me personally and even though I don't have any direct patient contact, the fact that you're putting a result out, you know the patient's name, you know the backstory, you know what's happening, it does affect you. Even though I don't visit patients, or see patients or speak to family members, I still have a duty of care, and I have responsibility for patients. That's why I work in Microbiology, despite it being emotionally hard.

194. I have also not been provided support in relation to the personal impact upon myself in my role. I don't have any colleagues to work with within my grade. When we did have one other Clinical Scientist we would work

together. But since my colleague retired and was not replaced then it has only been me. Previously, other Clinical Scientists would have gone to IMTs if it was involving their specialist area. I felt that a lot of work was left to me. I was supported by my Clinical Consultants, and I've had very good support from the Clinical teams in the wards and Medical Microbiology Consultants in the department, but I feel that my profession has not been supported and it's tough when you're on your own doing a job within your own grade.

195. I am part of the clinical team in Microbiology, and I am speaking as how I see things from my perspective rather than overarching department perspective. I have been supported by my Microbiology Clinical Consultants who are basically my line managers and who I work with on a daily basis with absolutely no problems. I'll go to them with issues or problems, like the Microbiology Consultant on for Paediatrics in the rota and we'll chat through things and sort things out. From that perspective I have been supported, but from the organisation I would say maybe not so much.

196. After due consideration I have decided to add additional information regarding the impact this has had on me personally. The rise in the paediatric infections was difficult, seeing the increase in the number of positive blood cultures and the children being unwell with line infections and having to have lines removed with some patients requiring admission to PICU. I found it upsetting and stressful phoning out the results of the ongoing environmental infections to the clinicians in the ward. I retired on 31 May 2023 and have now been retired for a year. I am spending time reviewing and answering comments to my witness statement in my own time with no financial renumeration. Retirement is for spending time with your friends and family and for starting a new chapter in your life and not being reminded of work. The problems with infections in the paediatric patients RHC are still on my mind to this day.

IMPACTS OF EXTERNAL REVIEWS AND INQUIRIES

197. In general, there has been an impact on my ability to do my role due to the external investigations and other processes, it has been very difficult. It has been difficult for me to see things in the press and difficult to read all of the reports prior to the Public Inquiry. Obviously, also the police inquiry and all the things going on between 2017-2019 in the wards with the children that were affected by this and the parents' concerns. There was quite a large amount of public information made available, particularly by one journalist who was excellent and I was aware was a Microbiology Scientist who wrote lots of articles in the Glasgow Herald and Sunday Herald. They were actually very good representations of the concerns we had.

WHISTLEBLOWING

198. I did at one point consider whether to whistleblow because I was very concerned. My opportunity now to speak to you, although it's not what I would normally do, I'm finding it's something I do need to do. When I was asked by the Public Inquiry to contribute to the investigation, I was happy to contribute because I can say from a personal view how I feel about what has happened and also what has happened to me and my profession within laboratory diagnostics. It was a good way for me to voice how I feel.

199. Overall, moving to this current site at QEUH is not what I bought in to, and it has changed my career very much. I am now doing much more clinical liaison, much more routine Microbiology and much more auditing and looking at results that come through. When a blood culture flags positive, I find I now get a sinking feeling as if I don't know where it's all going to end.

200. I wouldn't like to comment further on whistleblowing.

DECLARATION

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

Scottish Hospitals Inquiry
Witness Statement of Questions and Responses
Dr David Stewart

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.

Professional History and role within IC at QEUH

1. Please list your professional qualifications, **with dates.**

A. MB ChB 1981. MRCP (Glas) 1985

2. Please give your chronological professional history. This should include roles held where and when, and retirement date.

A. Consultant Physician in Geriatric Medicine, South Glasgow Hospitals 1992. Associate Director of Medical Services, South Glasgow University Hospitals NHS Trust 200-2006. Associate Medical Director for Emergency Care and Medical Services, NHS Greater Glasgow and Clyde 2006-2011. Lead Director for Acute Medical Services, NHS Greater Glasgow and Clyde from around 2015 (I cannot remember the precise date) until my retirement in June 2019.

3. What specialist interest / expertise / qualifications in any area of Infection control do you hold? E.g., hospital ventilation, water Legionella control and infection control related to the built environment, and epidemiology and outbreak management.

A. None

4. Please explain your role in the management of infections at QEUH/RHC and in the IMT structure from January 2015 onwards. Please also identify to whom you reported and who reported to you at all points from January 2015 to date. In effect we need a mini-CV covering this period role by role

A. I assume that IMT refers to the Infection Management Team. I had no role in this structure. On occasions I contributed to infection outbreak meetings at the request of the Medical Director or the Chief Operating Officer. I reported jointly to the Medical Director and the Chief Operating Officer of the Acute Division. No member of the IMT reported to me.

5. Can you explain the respective roles within the infection control framework of:

a. the Microbiology department

b. Estates and Facilities.

c. Public Health; and

d. external experts (i.e., Public Health England).

A. I have no detailed knowledge of this.

<u>Involvement with QEUH Prior to Opening</u>

6. Please describe any involvement you had prior to the opening of the hospital in June 2015 in each of the following stages. For each stage , a) When were you first consulted b) Who consulted you? c) What advice did you provide and d) Was it followed?

a. Planning/ design stage

A. My only role was to design the clinical model for managing acute admissions. I had no input to the physical design.

b. Construction stage

A. None

c. Commissioning and Handover stage

A. None

7. In particular were you asked for information/ advice about vulnerable patients, such as the immunocompromised?

A. No

8. With regard to ventilation in particular, were you consulted or briefed about the specifications of the ventilation system of the hospital before it opened?

A. No

9. Were you shown any plans/ specifications for particular wards?

A. I was shown plans for the emergency receiving area of the hospital and the general ward layout.

10. Did you undertake any site visits prior to the hospital opening? For what purpose?

A. On one or two occasions I visited the hospital in the final stages of construction. This was only for general interest.

11. Were you required to sign off any design matters? If so, please give details.

A. No

Transfer of Patients

12. Were you involved in transferring patients from the old site(s) into QEUH? If so, please describe your involvement.

a. Did you encounter any problems? If so, what were they?

A. My role was in the planning for the safe transfer and clinical care of patients from the old hospitals to the new facility on the days surrounding the closure of the old hospitals. I did not encounter any significant problems with this process. I had no role in deciding which services would transfer.

13. What was your first impression of the hospital when it was first opened? Did you have any concerns from an infection control perspective? If so, what were they?

A. My impressions were general, and it looked to me like an impressive facility. I made no judgements about infection control matters as this was not my role and I was not qualified to do so.

a. Are you aware of any ICPT colleagues who had concerns? If so, what were they?

A. I am aware that a number of concerns were raised by Infection Control colleagues. I do not remember the details. I passed any such concerns raised with me to the appropriate Director, usually the Board Medical Director.

14. From an infection control perspective, do you have a view on whether the proximity of the hospital to sewage works causes a risk to patients? Please give reasons for your answer.

A. No, I am not qualified to comment.

Early issues with Ventilation (Adult BMT Unit)

15. Shortly after the hospital opened an issue emerged regarding the adequacy of the ventilation in the BMT.

a. What is your understanding of the issue?

A. I remember only that concerns were raised but I had no direct involvement with this.

b. Were you directly involved? If so in what capacity?

A. I do not believe so

c. What was the nature of the concern – specifically what was thought to be wrong with the building system in question?

A. I do not remember.

d. What was the nature of the risk posed to patient safety and care?

A. I do not remember.

e. What was your role in this? What actions did you take?

A. I do not remember having any role in this.

f. In your view was the action taken sufficient to address the concern?

A. I cannot comment on this. I do not believe that I was directly involved in managing this and I am not qualified to give an opinion.

16. During the emergence of issues in the adult BMTU, what consideration was given to the adequacy of the ventilation system in the paediatric BMTU?

A. I do not know.

Infection Control at GGC

17. What was your perception of the ICPT team as at July 2015? Were there any issues which predated the hospital opening? If so what were they?

A. My memory is that there were tensions within the team and that relationships between team members infection were sometimes strained.

18. What were the staffing levels like in the ICP team while you were there? Were they appropriate to manage workload?

A. I am not qualified to comment. I did not manage this team.

a. Who was responsible for providing staffing and ensuring it was maintained at sufficient levels?

A. I do not know.

b. Did you or anybody else ever raise concern regarding staffing levels?

A. I did not, and I do not remember if anyone else did.

c. If levels were insufficient, why do you think this was?

A. I do not know enough to comment on this.

d. Can you comment on the working environment while you were there? What issues, if any, did you have?

A. I refer you to my comments under section G and the Summary of Infection Control Issues report.

Resignations

19. Dr Teresa Inkster resigned In July 2015

a. When were you advised of this? Have you seen a copy of her resignation letter?

A. I believe so but I do not remember the detail.

b. What do you understand to be her reasons for doing so?

A. I do not remember

c. What was the response of senior management to this?

A. I do not remember.

20. Thereafter Christine Peters and Pauline Wright also resigned.

a. When were you advised of this? Have you seen any resignation letters?

A. I do not remember.

b. What do you understand their reasons for doing so?

A. I do not know / remember.

c. What was the attitude of senior management to this?

A. I do not know / remember.

21. Are you aware of any other ICDs or ICNs who resigned for similar reason?

A. I do not remember.

Summary Of Infection Control Issues

22. In September 2015 you produced a report entitled Summary of Infection Control Issues (**bundle 27)**

a. What was the background to the report? Who asked you to write it and why?

A. The background is that there were concerns about the team dynamics including allegations of inappropriate behaviours, poor communication and difficult relationships within the team. I was tasked by the Medical Director to work with an HR colleague to investigate these matters and provide a report to her.

b. What were your precise instructions? Were you given Terms of Reference?

A. I do not recall the precise instructions but the scope of the review was limited to team dynamics and did not include specific clinical concerns.

c. You met with nine individuals in order to discuss the issues. Who were they?

A. I do not recall, but I believe they included the senior infection control doctors, including Drs Williams, Inkster and Peters along with the Clinical Director for the Microbiology service.

23. The issues raised fell into four categories (as per your table on page three of the report) For EACH of the four headings please describe to what extent you agree or disagree with the points/ concerns raised. Do you agree there was a problem?

a. Culture and behaviours

A. This is addressed in the report. After this length of time I cannot add anything further

b. Leadership and management style

A. This is addressed in the report. I cannot add anything further.

c. Team Functioning/Structure

A. This is addressed in the report. I cannot add anything further.

d. Service/ Patient Concerns

A. Service concerns are addressed in the report, and I cannot add anything further. Specific patient concerns were not within the remit of the review.

24. The Lead ICD came under particular fire. To what extent do you agree/ disagree with the criticisms made of him?

A. This is addressed in the report. I cannot add anything further.

25. Who did you submit the report to? What was the response?

A. The report was submitted to the Medical Director. I do not remember the response but I believe that it was welcomed.

Remedial Actions

26. Your report makes several suggestions for actions to remedy the issues. For each one can you advise:

a. Whether the suggested actions were implemented? And whether or not they were successful?

A. After the report was submitted Dr Williams left the employment of NHS GG&C. I was not involved in implementation of the suggested actions, however my understanding is that, subsequent to his departure, a number of the recommendations were not actioned. For example, the suggested Organisational Development event did not take place.

b. Leadership and management styles.

A. I do not know, but see answer above.

c. Team function/ structure

A. I do not know, but see answer above.

d. Service patient groups

A. I do not know, but see answer above.

Letter from Dr Peters and Dr Inkster dated 9 November 2015- refer to letter (Bundle 27)

27. Dr Peters and Dr Inkster wrote to you on 9 November 2015 raising concerns which they feel were not addressed by your report. Can you comment on the following:

a. They express concern that IC input into the design of the hospital was insufficient. To what extent do you agree/disagree with this statement?

A. I am not qualified to comment.

b. In particular can you comment on their assertion that ventilation specifications were not signed off, validation reports were unchecked and monitoring prior to and after patients moving in was not undertaken.

A. I am not qualified to comment as I had no detailed knowledge of these matters.

c. Adult BMT

To what extent do you agree or disagree with the points raised?

A. I am not qualified to comment. I am not an infection control expert.

d. Children's BMT- to what extent do you agree / disagree with the points raised?

A. I am not qualified to comment.

e. Isolation rooms- to what extent do you agree/disagree with the points raised?

A. I am not qualified to comment.

28. Drs Inkster and Peters suggested that an external expert be brought in to address these issues. Did this occur?

A. I do not know. There was a formal reporting structure for Infection Control and I was not part of that. Accordingly, I passed any concerns to the Medical Director, as was appropriate, and had no direct involvement with managing these concerns.

a. Did the OD (organisational development) event mentioned in the letter did this in fact go ahead?

A. I do not believe so.

29. What actions were taken in response to this letter?

A. I do not remember.

30. In December you emailed Drs Peter and Inkster, asking them of the concerns raised had been resolved. What was their response?

A. I do not remember.

Involvement of External Agencies

31. Were any agencies out with the Health Board consulted in respect of any of the issues/ remedial actions? What if anything, was the role of:

a. HPS

A. I do not know.

b. HFS

A. I do not know.

c. Public Health

A. I do not know.

d. Scottish Government Policy Unit

A. I do not know.

32. For each agency which was involved, how effective was the intervention?

A. I do not know.

Involvement in the Acute Infection Control Committee **Bundle 13- additional minutes**

33. What is the purpose of the AICC? How often did they meet?

A. My memory is that the AICC was a forum to review and advise on a broad range of matters relating to infection control in the Acute Division for NHS GG&C. I do not remember the precise details but these are published in the Terms of Reference. I do not have access to that document but would be unable to add any further detail.

a. Who attended AICC meetings? Was it always the same attendees? If not what were the criteria for attendance?

A. Again, I do not remember but this will be documented in the Terms of Reference for the Committee and in the Committee minutes. My memory is that there was a core membership but that others could be in attendance if required for specific issues.

b. What types of issues were discussed at the AICC?

A. I do not remember in detail, but there were a wide range of issues including any infection control incidents and matters more broadly relating to infection control reporting and management. This will be documented fully in the Committee minutes.

c. What documentation was typically considered at these meetings?

A. Again, I do not remember the detail but this will be evident from the Committee minutes

d. To what extent, if any, were there issues with record-keeping of AICC minutes etc?

A. I do not recall there being any issues.

e. What, if any input, did the AICC have in the specification of the QEUH/RHC before handover in January 2015?

A. I do not recall the AICC having any input to this, but if it did it will be documented in the committee minutes.

f. What, if any input did the AICC have in changes to the contract for the QEUH/RHC before handover in January 2015?

A. Again, I do not recall the AICC having any input to this, but if it did it will be documented in the committee minutes.

Cryptococcus in 2019- Bundle 1

34. The Inquiry understands that you were not involved with ICPT at this stage. How did you come to be involved in this incident? What was your role and what were you asked to do? By whom?

A. I am not sure what 'involved with ICPT' means but, for clarity, I was not at any stage a member of the ICPT nor directly involved in managing it. My memory is that I was asked to attend outbreak control meetings by the Medical Director. I do not remember why, however I do not believe that I made any significant contribution to the meetings nor did I have any actions arising from them. I cannot add anything to the meeting minutes.

a. What was the nature of the concern – specifically what was thought to be wrong with the ventilation system in question?

A. I do not remember.

b. What was the nature of the risk posed to patient safety and care?

A. I do not remember.

c. Was any action taken sufficient to address the concern?

A. I do not remember.

d. Can you comment on the effectiveness or otherwise of the IMT?

A. No

35. Prior to this incident, how many times had you come across Cryptococcus either in environmental testing or in a blood sample?

A. I am not an infection control expert and had no routine involvement in such issues. I do not recall ever coming across this issue.

a. Other than the two cases already in the public domain [redacted] are you aware of any other patients with Cryptococcus in QEUH? If so please give details.

A. I am not aware of this.

b. As you will be aware, a cryptococcus sub-group was set up to investigate the incident, culminating with the writing of a report by Dr John Hood. Have you read his report?

A. I do not remember reading this report.

c. If so, to what extent do you agree/ disagree with his findings?

A. I do not know about this.

<u>Interactions with the Independent Review, Oversight Board, Case Note Review</u>

36. Please describe any involvement you had with:

a. The Independent Review

A. None

b. The Oversight Board

A. None

c. The Case Note Review

A. None

37. What recommendations for improvement came out of these reviews?

A. I do not know.

a. To what extent of these improvements been implemented?

A. I do not know.

Whistleblowers

38. As you are aware, several ICDs embarked on whisteblowing procedures as a result of issues within IPCT.

a. When did you first become aware of this?

A. I do not remember.

b. What do you understand their reasons for doing so?

A. I do not remember.

c. Please describe any involvement you had in this procedure?

A. I do not recall having any significant input to this process. I was aware that concerns had been raised with, I believe, the Medical Director.

Infection Control Issues With Water And Ventilation Water Supply – General

39. What concerns did you have about the water supply in QEUH?

A. I was not qualified to comment.

40. In particular were you aware of any of the following

a. Water temperature: problems with energy plants – hot water temperatures are not high enough to prevent/tackle bacterial growth.

A. I have no knowledge of this.

b. Thermal control design system.

A. I have no knowledge of this.

c. Flow straighteners / regulators / tap type

A. I have no knowledge of this.

d. Debris in pipes

A. I have no knowledge of this.

e. Single room design – water outlets increased; flushing regimes; risk of stagnation.

A. I have no knowledge of this.

f. Pipe size and storage volumes; encourages water stagnation

A. I have no knowledge of this.

g. Wet rooms and floor levels

A. I have no knowledge of this.

h. Drainage system

A. I have no knowledge of this.

41. Do you consider there to have been a risk of infection from the water supply? If so, explain why.

A. I have no knowledge of this.

42. What remedial measures were taken as a result? eg. room closure and cleaning; ward closure; investigative and remedial works?

A. I have no knowledge of this.

43. Do you consider the issues with the water system (including drainage) have been resolved, or do you still have concerns? Please give reasons.

A. I have no knowledge of this.

44. When were you first made aware of the DMA Canyon reports? How did this come about?

A. I have no knowledge of this. I do not recall ever being made aware of this report.

45. Some witnesses (e.g, Christine Peters) have said that, had they had sight of the 2015 report at the time, they would not have allowed the hospital to open. Do you agree?

A. I do not know.

<u>The Ventilation System</u> Refer to Bundle 1

46. Other than the initial problems with the BMT what concerns did you have about the ventilation system since January 2015? In particular were you aware of any problems associated with any of the following:

a. Presence of HEPA Filters

A. I do not remember, however I am not an infection control expert and I am not qualified to comment on technical issues.

b. Air Changes Per Hour (ACH)

A. See answer above.

c. Air Pressure Differentials

A. See answer above.

d. Air pressure monitoring systems

A. See answer above.

e. Ward temperature issues;

A. See answer above.

f. Room ceilings, particularly in isolation rooms;

A. See answer above.

g. Rooms seals for pressure retention;

A. See answer above.

h. PPVL issues with rooms;

A. See answer above.

i. Thermal wheels

A. See answer above.

j. Chilled beams, usage in rooms designed for immunocompromised patients and leakage.

A. See answer above.

k. Any other particular features

A. See answer above.

47. Impacts from concerns with the ventilation system:

a. Do you consider there to have been a risk of infection from the ventilation system? If so, explain.

A. See answer above.

48. Were there other impacts caused by the ventilation system: e.g. closure of facilities, transfer of patients, other remedial measures?

A. I do not remember.

49. Do you consider that the issues with the ventilation system have been resolved, or do they still have concerns? Please give reasons for your answer.

A. I do not know. I have had no involvement with NHS GG&C since my retirement five years ago.

Current Situation

50. Do you have any ongoing concerns as to the safety of the QEUH? If so, what are they?

A. No. I have had no involvement with NHS GG&C since my retirement five years ago.

51. Do you have any other observations regarding your time at QEUH/RHC?

A. No.

Declaration

52. 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.

Appendix A

A43255563 – Bundle 1 – Incident Management Team Meeting Minutes

A32375944 – Letter from Teresa Inkster and Christine Peters to David Stewart 09 November 2015 - **Bundle 27**

A48890718A47739010 – Summary of Infection Control Issues – **Bundle 27**

A48890718 Bundle 13- Additional Meeting Minutes

Scottish Hospitals Inquiry

Witness Statement of Questions and Responses

Dr Christopher Deighan

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. Dr Christopher Deighan

2. Occupation

A. Doctor

3. Qualification(s)

A. MBChB: University of Glasgow, 1989. MRCP: Royal College of Physicians, U.K. 1992. M.D: University of Glasgow, 2000. FRCP: Royal College of Physicians, Glasgow, 2004.

Professional Background

4. Professional role(s) and experience

A. Executive Medical Director, NHS Lanarkshire January 2023 to Date. Consultant Nephrologist, Renal Unit, Glasgow Renal and Transplant Unit: April 2000 to January 2023. Deputy Medical Director- Corporate, NHS Greater Glasgow and Clyde: June 2019 to January 2023. Chief of Medicine, North Sector, NHS Greater Glasgow and Clyde: June 2015 to end May 2019. Clinical Director, Renal Services and Centre for Integrative Care, Regional Services, NHS Greater Glasgow and Clyde: October 2009 to June 2015. Lead Clinician for Forth Valley Renal service: April 2000 to October 2009. I left NHS GG&C in January 2023 when I commenced my role as Executive Medical Director, NHS Lanarkshire.

5. Professional role(s) and experience within NHS

A. See Response to Question 4

6. Professional role(s) and experience within GGC

A. See Response to Question 4

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

A. Consultant Nephrologist, Renal Unit until January 2023.

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

A. Renal In-Patient wards, primarily Wards 4A and 4D in my clinical role as Consultant Nephrologist

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

A. In my clinical role as Consultant Nephrologist, I was senior clinician responsible for the renal in-patients allocated to my clinical team in the renal in-patient wards. In my Chief of Medicine and Deputy Medical Director-Corporate roles, I did not have any direct management responsibility for GG&C Acute Division or QEUH / RHC.

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

A. From June 2015 to June 2019, my role was split between my clinical role as Consultant Nephrologist (7 PAs* / sessions and Chief of Medicine for North Glasgow Sector 5 PAs*/ sessions. In my clinical role, I worked in a team of 4-5 consultants, with my clinical activity divided into: In-patient work in Renal Unit Wards 4A & 4D, Level 4, QEUH, 6-7 weeks per year (including 3 ward rounds per week); On Call - 1 weekend in 8, overnight 1 in 16; Out-patient clinics: Stobhill Hospital – average 1.5 clinics per week (Wed & Thurs am); Haemodialysis - Cohort of 20 patients at Stobhill Hospital (Thurs am); In-patient renal reviews at Glasgow Royal Infirmary (GRI) on a 1 in 7 rotational basis. My Chief of Medicine (CoM) role for North Glasgow Sector was based at Glasgow Royal Infirmary (GRI), with responsibility for GRI, Stobhill Hospital and Lightburn Hospital. From June 2019 to January 2023 my role was split between my clinical role as Consultant Nephrologist (6 PAs* reducing to 5.5 PAs* from January 2022) and Deputy Medical Director: 6

PAs*. In my clinical role, I continued to work in a team of 5 consultants, with my clinical activity divided into: In-patient work in Renal Unit Wards 4A & 4D, Level 4 QEUH: reduced to 4 weeks per year (including 3 ward rounds per week); On Call-1 weekend in 8, overnight 1 in 16, reducing in January 2022 to 1 weekend in 16 & overnight 1 in 32; Out-patient clinics: Stobhill Hospital, average 1.5 clinics per week (Wed & Thurs am); Haemodialysis - Cohort of 20 patients at Stobhill Hospital (Thurs am). My Deputy Medical Director: Corporate (DMD:C) role was based at GG&C Board Headquarters at JB Russell House reporting to Dr Jennifer Armstrong: Medical Director. This role did not have any direct management responsibility for GG&C Acute Division or QEUH / RHC. (* PA = programmed activity: defined by the 2003 Consultant Contract as : 'a scheduled period, nominally equivalent to four hours, during which a consultant undertakes Contractual and Consequential Services')

11. How many hours per week did you spend in your role at QEUH/RHC?

A. See response to question 10 above. My role at QEUH was clinical as Consultant Nephrologist. From June 2015 to June 2019, I was based at QEUH for 6-7 weeks per year. For my in-patient weeks, the majority of my working week would have been based at QEUH but during these weeks, I would still have out-patient clinic and haemodialysis responsibilities at Stobhill Hospital and meetings at GRI in my CoM role. These activities would vary on a week to week basis. From June 2019 to January 2023, my clinical activity for renal in-patients, reduced to 4 weeks per year. For these 4 in-patient weeks, the majority of my working week would have been based at QEUH but I would still have out-patient clinic and haemodialysis responsibilities at Stobhill Hospital and attendance for meetings at JB Russell House and other locations in my DMD:C role.

12. Who did you report to?

A. In my clinical role as a Consultant Nephrologist at QEUH, I reported to the Clinical Director for Renal: Dr Scott Morris. In my role as Chief of Medicine for North Sector, GG&C, I reported to the Director for North Glasgow Sector. In my role as Deputy Medical Director: Corporate, I reported to Dr Jennifer Armstrong: Medical Director, GG&C.

13. Who reported to you?

A. In my clinical role, I had no Direct Reports although I would be responsible for clinical oversight of medical trainees. In my role as Chief of Medicine for North Sector GG&C, the Clinical Directors (7) in the North Sector would report to me. In my role as Deputy Medical Director: Corporate, the only Direct Reports would have been (1) the Clinical Lead for Realistic Medicine and (2) the secondary care appraisal leads in my role as Deputy Responsible Officer for Secondary Care.

14. Describe an average working day in your role.

A. A typical working day would be from 8am through to around 6pm unless I was Consultant on call for the renal unit in which case my working day may finish later depending upon the volume of clinical activity. In addition, I would spend a number of evenings a week reading papers for meetings or catching up on emails. From June 2015 to June 2019 my role was split between my clinical professional role as Consultant Nephrologist and my management role as Chief of Medicine (CoM) for North Sector GG&C as outlined in my response to Qs 10 & 11. There is no day that could be described as an average day, as each would vary day to day and week to week. The clinical activity is outlined in my response to Question 10. In my CoM role, my typical day would be dealing with professional, operational and governance issues, providing professional advice to the Director for North Sector, GG&C, and liaising with my Direct Reports. From June 2019 to January 2023, similar to the position noted above, my role was split between my clinical professional role as Consultant Nephrologist and my management role as Deputy Medical Director: Corporate (DMD-C) GG&C. There is no day that could be described as an average day as each would vary day to day and week to week. The clinical activity is outlined in my response to Question 10. In my DMD-C role, my activity focussed around supporting the Medical Director (MD) & activities / tasks & work allocated by the MD. I was Deputy Responsible Officer for Secondary Care and provided leadership within areas of Medical Staff Governance, Corporate Planning, eHealth, Clinical Governance, Medical Education, Realistic Medicine and areas of Corporate Governance, supporting the Directors of Planning, eHealth & Clinical Governance. I provide clinical leadership support to the eHealth clinical leads, Realistic Medicine Leads and Chief of Dentistry. I contributed to the GG&Cs

response to the Covid-19 pandemic across a number of areas including acting as Deputy Medical Director for the NHS Louisa Jordan.

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

A. In my clinical role, I worked most closely with my Consultant Nephrologist colleagues. In my Chief of Medicine role, I worked most closely with the Senior Management team for the North Sector and my Clinical Director reports. In my Deputy Medical Director: Corporate role, I worked most closely with Dr Armstrong as I reported directly to her. I also worked closely with the Director of Planning, Director of Clinical Governance, Director of Pharmacy and Medical Staffing Lead but not on a daily basis.

Gram Negative Bacteraemia

16. Describe your involvement in the Gram Negative Bacteraemia Outbreak

Refer to IMT Bundle Documents 72 -88; 90, 92-93, 103

A. I had very limited involvement with the Gram Negative Bacteraemia Outbreak. I commenced my role as Deputy Medical Director: Corporate in June 2019 and as noted in my response to Q10, this role did not have any direct management responsibility for GG&C Acute Division or QEUH / RHC. Apart from the IMT in January 2019 related to Cryptococcus (see response to Q 47-49), in total I believe I attended the IMT on 4 of the 21 meetings documented in IMT Bundle Documents 72 -88; 90, 92-93 & 103. The first meeting I attended was on 25/06/2019 and it is likely that I attended at the request of the Medical Director, Dr Jennifer Armstrong. I subsequent attended 3 further meetings on 14/08/2019, 23/08/2019 & 08/10/2019, deputising for the Deputy Medical Director: Acute, when not available, as noted in response to Q75 and in the document ‘Report of Issues raised by Dr Teresa Inkster to Medical Director’

Refer to IMT 25 June 2019, Bundle 1 – IMT pg 325

17. What is mycobacterium chelonae?

A. I am not an expert in microbiology or infectious diseases and therefore, this is not my area of expertise. My limited knowledge is the Mycobacterium Chelonae is an Atypical Mycobacterium.

18. What was your involvement with the m.chelonoae outbreak?

A. See response to Q16. I had minimal involvement. I attended one IMT meeting where M Chelonae was discussed (25/06/2019). Reviewing the IMT Bundle information, I cannot identify any other IMTs that I attended where this was discussed.

19. Three hypotheses are discussed as potential sources of contamination causing the infections during this meeting. What is your view on each hypothesis?

A. I did not have enough involvement to form a view.

20. The minutes mention a requirement to refer unusual episodes to HPS? Did this happen?

A. See responses to Q16 – Q 18. Given that I had minimal involvement, I am unable to comment.

21. Who made this referral?

A. See response to Q 20

22. What was the outcome of this?

A. See response to Q 20

23. What actions were required to be taken?

A. See response to Q 20

24. Under what circumstances would HPS normally become involved?

A. See response to Q 20

25. What was the extent of HPS involvement?

A. See response to Q 20

26. What is your view on the adequacy of the actions taken by HPS?

A. See response to Q 20

IMT 14th August 2019

Please refer to IMT Bundle Document 77

27. Do you recall this meeting?

A. Yes, I recall attending this meeting

28. What was the purpose of this meeting? Describe the circumstances leading up to this meeting.

A. As noted in the minute of the meeting (IMT document 77 pg 343 of IMT Bundle), this was an Incident Management Team meeting looking into episodes of Gram Negative Bacteraemia in Paediatric Haemato-Oncology patients.

29. In this meeting, you disagree with Dr Inkster that the numbers of bacteraemia have increased. What was this opinion based on? Please provide reasons for your conclusion. Have you since changed your mind on this? If so, please provide reasons for this.

A. As noted in the minute of the meeting (IMT document 77 pg 343 of IMT Bundle), I referenced an epidemiology report from Dr Ian Kennedy that I had seen. There is nothing in the minute of the meeting that suggests that I disagreed with Dr Inkster. The minute notes that my comment was in response to a comment from one of the consultants and it would seem reasonable to seek clarification. The minute goes on to note that Dr Inkster and Dr Peters went on to state that it was the nature of the bacteria that was a concern and that it was likely that the CLABSI (central line-associated bloodstream infection) work and excellent practice had driven rates of typical pathogens down.

30. Did you agree with Dr Inkster and Dr Peters that the nature of the bacteria was a concern, in that they were all environmental and associated with water/soil? If not, why not? Please provide reasons for your answer.

A. I am not an expert in microbiology or infectious diseases, this is not my area of expertise and therefore I was not able to give an informed view.

31. What was your understanding of the chilled beams? Did you have a view on the hypothesis that they were leaking and therefore the source of the bacteraemia?

A. This is not my area of expertise. I was not a core member of the IMT and only attended a limited number of meetings, as such I was unable to give an informed view.

32. What was your view on the effectiveness of the environmental testing which was taking place?

A. See my response to Q31

33. The minutes of the IMT of 14th August 2019 list two hypotheses for the increase in the gram negative bacteraemia. Please provide your comment in respect of each hypothesis.

a) The chilled beams

A. See previous responses to Q30-32. This is not my area of expertise, this was only the 2nd IMT I had attended. I was not a core member of the IMT and only attended a limited number of meetings, as such I was unable to give an informed view.

b) Patients accessing unfiltered water

A. See my response to (a)

34. To what extent were you involved in communications with patient/parents and/or staff? If you were involved, what was your brief in terms of information sharing? Were you asked to withhold any information? If so, what were you asked to withhold and who asked you to do this?

A. I was not involved in communications with patient/parents and/or staff and have not been asked to withhold information. As noted in my response to Q 75, I

contributed to the writing of the letter from Board Medical Director to the parent involved in Duty of Candour Incident.

35. The minutes note that Tom Steele requested an alternative to photos being sent to the group due to the sensitivity of some of them: Did you agree with this? What was the sensitive nature of the photographs?

A. I do not know what the sensitive nature of the photographs was. I note that, in the welcome and introduction section of the minute it records that everyone was reminded of the confidentiality surrounding IMTs.

36. The accuracy of these minutes has been disputed by some witnesses who attended this IMT. What is your recollection of what was discussed and are these minutes an accurate reflection of this? If there are any inaccuracies, please provide details.

A. This meeting was almost 5 years ago and as such, I am unable to comment on whether these minutes are an accurate reflection of what was discussed.

IMT 8th October 2019

Refer to IMT Bundle Document 83

37. Do you recall attending this meeting?

A. Yes, I recall attending this meeting

38. What was the purpose of this meeting?

A. See response to Q28: As noted in the minute of the meeting **(IMT Bundle Document 83, pg 373)** this was an Incident Management Team meeting looking into episodes of Gram Negative Bacteraemia in Paediatric Haemato-Oncology patients.

39. The minutes refer to an action plan, what was this action plan? What were the actions to be taken? Who was responsible for this plan?

A. I am unable to comment as I do not have access to the action plan. In addition, as noted in previous responses, I was not a core member of the IMT and only attended a limited number of meetings. I had not attended a meeting since 23/08/2019. I

note that Dr Davidson, Deputy Medical Director: Acute had given his apologies. He is noted as attending at the previous 4 meetings and I may have been attending in his absence.

40. Professor Craig White attended this meeting, do you recall his level of engagement at this meeting?

A. This meeting was almost 5 years ago. I do not recall the level of engagement from Professor Craig White.

41. Dr Peters and Dr Inkster produced an SBAR for this meeting (Refer to Bundle 4, document 44), do you recall the discussions around this SBAR? Please provide details. What was your view on its recommendations regarding broadening the outbreak definitions?

A. This meeting was almost 5 years ago and I do not recall the details of the SBAR or the discussions around this SBAR. I have not been sent Bundle 4, document 44. However, as noted in the minute of the meeting (IMT Bundle Document 83, pg 373), regarding consideration be given to the HAI definition of haem/oncology patients, my view as documented, based on my clinical nephrology experience, was that any change to the HAI or HCAI definition of haem/oncology patients would need to be agreed nationally otherwise there would be a clear risk of a unit being an outlier compared with other units purely due to difference in definition rather than due to differences in infection rates or infection control issues.

42. In your view was the case definition adopted by the IMT adequate? Please explain.

A. This is not my area of expertise and, as such I was unable to give an informed view.

43. What is the HIIAT?

A. As noted in the minute, the HIIAT is a Healthcare Infection Incident Assessment Tool.

44. Describe the HIIAT process?

A. This is not my area of expertise, I only attended a limited number of IMTs and I would defer to experts in this area.

45. What documentation is produced or considered during and after the HIIAT process?

A. This is not my area of expertise, I only attended a limited number of IMTs and I would defer to experts in this area.

46. How clear and comprehensible is the HIIAT process?

A. This is not my area of expertise, I only attended a limited number of IMTs and I would defer to experts in this area

Prophylactic Medication

Refer to IMT Bundle, Document 58

47. In the IMT of 16th January 2019, you undertake to discuss the use of prophylactic medication for renal transplant patients with colleagues. What was the outcome of these discussions? Explain.

A. I have little, if any, recollection of attending this meeting which took place more than 5 years ago. I note that the date was 16th Jan 2019, which is when I was Chief of Medicine for North Sector GG&C, before I was appointed to my role of Deputy Medical Director: Corporate, and my clinical management role as Chief of Medicine for North Sector GG&C did not include management responsibility for the QEUH or RHC. Reviewing the minutes and content (to IMT Bundle, Document 58, pg 261) it is likely that I attended in my clinical role in the renal unit as Consultant Nephrologist. I do not recall taking forward discussions but would note the minute from the meeting that took place the next day (17th January, IMT Bundle, Document 59, pg 266) which identifies that this meeting was attended by Dr Scott Morris who was Clinical Director for Renal at that time. In addition, the minute from 17th January states 'Prophylaxis for renal in patients on the other side of Ward 4C is going to be discussed with other clinicians within ward 4C Renal and Dr Scott Morris will liaise with Dr Inkster regarding this'. It is therefore likely that following the meeting on 16th January, I linked with Dr Morris who took this forward in his role as Clinical Director for Renal.

48. You undertake to consider the need for HEPA filters for renal transplant patients. What was the outcome of this?

A. See answer to Q47

49. Why was there an increased requirement for HEPA filters? Please explain.

A. This is not my area of clinical expertise and my clinical role did not involve management of Acute Renal Transplant patients in Ward 4C. As noted in response to Q47, the minutes of the meeting of 17th January, note that 'Prophylaxis for renal in patients on the other side of Ward 4C is going to be discussed with other clinicians within ward 4C Renal and Dr Scott Morris will liaise with Dr Inkster regarding this'.

Meeting with Dr Linda de Caestecker

Refer to Bundle 6, Document 22 – Meeting 20th August 2019

50. Do you recall attending this meeting?

A. Yes, I recall attending this meeting.

51. What was the purpose of this meeting?

A. The note of the meeting included in Bundle 6, Document 22, outlines the purpose of the meeting as described by Professor de Caestecker in the section under 'Background'. I have no other recollection.

52. On what basis were you invited to the meeting?

A. I do not recall exactly, however I had commenced my role as Deputy Medical Director: Corporate in June 2019 and subsequently had attended two IMT meeting (25/06/2019 & 14/08/2019). It is likely that I was invited in that context.

53. What were the main issues of concern raised? Did you agree with the concerns which had been raised? If so, why? Please provide details.

A. The main concerns raised are outlined in the note of the meeting included **in Bundle 6, Document 22 under 'issues of concern'**. Prior to the meeting on 20th August 2019 chaired by Professor de Caestecker, I had only attended two IMT meetings in my role as Deputy Medical Director- Corporate (25/06/2019 & 14/08/2019). I recall that at one meeting (25/06) that the facility was inadequate with a very small table, attendees sitting scattered around the room, some sitting behind others including sitting behind the Chair. At the second meeting I attended (14/08), I recall a difficult atmosphere with some confrontational behaviours. My limited involvement in the IMTs meant that I did not have the requisite knowledge of the concerns being raised to comment further.

54. The minutes detail 'behavioural issues in recent IMT meetings', do you agree with this? What were these issues and who presented these behaviours?

A. I only recall behavioural issues at one IMT that I had attended (14/08/2019) as noted in my response to question 53. I seem to recall at the time, not knowing who the individual was but was later advised that it was Dr Christine Peters who exhibited some confrontational behaviours

55. The role of chair of the IMT was discussed, what do you recall about these discussions?

A. I have no recollection of the discussion other than, as is recorded in the note of the meeting **(included in Bundle 6, Document 22),** a decision was made to identify a new chair for the IMT going forward **(see Action 1, of Document 22 in Bundle 6).**

56. What was your view on Dr Inkster's ability to carry out the role of chair within the IMT?

A. I don't recall having a view.

57. What was your view on the proposal to have a 'a small-group pre-meeting' in advance of IMTs and to implement an escalation process?

A. I don't recall having a view.

58. Consider Actions 1-8, are you aware if they were implemented? If they were implemented, in your view, were they successful? If not, do you know why not?

A. In terms of Action 1: I was aware that Dr Emilia Crighton took over as Chair of the IMT as I attended the next IMT on 23/08/2019. Under Action 2: I was also aware that an updated policy document, 'the Greater Glasgow and Clyde Outbreak and Incident Management Plan was revised (4th Edition) and was approved by NHS GGC Corporate Management Team on 5th March 2020 as I refer to this in the Document 'Report of Issues raised by Dr Teresa Inkster to Medical Director Dr Jennifer Armstrong - SCI process, infection control incidents and IMT Governance - by Dr Chris Deighan, Deputy Medical Director, NHS Greater Glasgow & Clyde - May 2021.doc' Other than this, I was not involved with or responsible for the implementation or tracking of these actions or the operational delivery or governance of IMTs or IMT staff so am unable to comment further.

Whistleblowing and Communication

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

A. The publication 'Good Medical Practice 2024' is the General Medical Council's core guidance on professional standards. This has guidance under 4 key Domains, and in Domain 4 - entitled 'Trust & Professionalism', the guidance notes under 'Communicating as a medical professional' that for all professional communication • You must be honest and trustworthy, and maintain patient confidentiality in all your professional written, verbal and digital communications. • You must make sure any information you communicate as a medical professional is accurate, not false or misleading. This means: you must take reasonable steps to check the information is accurate; you must not deliberately leave out relevant information; you must not minimise or trivialise risks of harm; you must not present opinion as established fact.

60. 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. Duty to communicate when it comes to telling patients about an infection should be approached in the same way as is outlined in the GMC's core guidance on professional standards as is outlined in my response to Q 59.

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

A. The publication from the GMC & Nursing Midwifery Council (NMC) entitled 'Openness and honesty when things go wrong: The professional duty of candour' (guidance published 2015, updated 2022) is the core guidance to professionals when something has gone wrong during care or treatment. It states that every health and care professional must be open and honest with patients and people in their care when something that goes wrong with their treatment or care 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, • offer an appropriate remedy or support to put matters right (if possible), • explain fully to the person the short and long term effects of what has happened. Health and care professionals must also be open and honest with their colleagues, employers and relevant organisations, and take part in reviews and investigations when requested. They must also be open and honest with their regulators, raising concerns where appropriate. They must support and encourage each other to be open and honest, and not stop someone from raising concerns.

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

A. Yes, I am aware of the duty of candour. This can be divided into 2 aspects. (1) Professional duty of candour – which is duty of every health and care professional to be open and honest with patients and people in their care when something that goes wrong with their treatment or care causes, or has the potential to cause, harm or distress. This is outlined in my response to Q61. (2) Organisational duty of Candour: (from April 2018) the organisational duty of candour legislation created a legal requirement for health and social care organisations to inform people (or their families/carers acting on their behalf) when they have been harmed (physically or psychologically) as a result of the care or treatment they have received. In my current Health Board, The NHS Lanarkshire Duty of Candour guidance (2019) notes that: The purpose of the new duty of candour provisions is to support the implementation of consistent responses across health and social care providers when there has been an unexpected event or incident that has resulted in death or harm that is not related to the course of the condition for which the person is receiving care.

63. If you had concerns about wrongdoing, failure, or inadequacy within the hospital:

a) were you aware of procedures to facilitate disclosure of this either to other GGC staff or to individuals external to GGC

A. Yes

b) when – and how – did you become aware of these procedures

A. My knowledge of how concerns about wrongdoing, failure or inadequacy within a healthcare setting has developed incrementally over the course of my professional career.

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

A. A culture of openness, honesty and professional duty of candour is always one that I have practised and promoted throughout my career as a consultant nephrologist and in my medical leadership role. This was something that was promoted and instilled in me by the nephrology consultants that I trained with in GG&C.

64. Are you aware of any changes made to the whistleblowing policy, do you consider that these changes improve the whistleblowing policy, and would the changes make you more inclined to disclose concerns, wrongdoing, failures, or inadequacies?

A. I am aware that the GG&C whistleblowing policy was updated following the introduction of the National Whistleblowing Standards as I sat on the Short Life Working Group which re-drafted the GG&C policy to be in line with the National Whistleblowing Standards and subsequently was involved in investigating a number of whistleblowing concerns in my role as Deputy Medical Director: Corporate. I do not have enough detailed knowledge of the previous policy to compare and therefore am unable to comment further. Across the NHS in Scotland there are multiple ways (both internal & external) in which concerns can be raised.

Whistleblowing – QEUH

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

A. I recall being interviewed in the Teaching & Learning Centre at the QEUH by Professor de Caestecker along with a second clinician, external to GG&C, in relation to an Infection related whistleblowing episode, as I had attended some of the IMT meetings. I do not recall the date or the details.

66. What is your understanding of the concerns that led to the whistleblowing process? Do you agree with these concerns?

A. I was not aware of, and do not believe I have seen (or recall seeing) the specific whistleblowing concerns other than the issues that Dr Armstrong, Medical Director asked me to review related to Dr Inkster's resignation letter and are detailed in the Document 'Report of Issues raised by Dr Teresa Inkster to Medical Director Dr Jennifer Armstrong - SCI process, infection control incidents and IMT Governance - by Dr Chris Deighan, Deputy Medical Director, NHS Greater Glasgow & Clyde - May 2021.doc'

67. Are you aware of what steps were taken to deal with each whistleblow? What is your view on the adequacy of the steps taken/the management of the concerns raised?

A. I am unable to respond to this question as I was not involved with this process other than as noted in my response to Q 66.

68. Do you think that the actions taken were sufficient to deal with the concerns raised?

A. See my response to Q 66 & Q67.

Review of Process following Dr Inkster's resignation

Refer to Report of Issues raised by Dr Teresa Inkster to Medical Director Dr Jennifer Armstrong - SCI process, infection control incidents and IMT Governance - by Dr Chris Deighan, Deputy Medical Director, NHS Greater Glasgow & Clyde - May 2021 details - Objective ECM (scotland.gov.uk).

69. What is this report?

A. As noted in the Section (1) Background, of the report entitled 'Report of Issues raised by Dr Teresa Inkster to Medical Director'. On 01/10/2019, Dr J Armstrong Medical Director GG&C, emailed Dr C Deighan, Deputy Medical Director: Corporate GG&C, regarding issues raised by Dr Inkster, Consultant in Microbiology & Infection Control in the context of whistleblowing communication to Health Protection Scotland (HPS) and Dr Inkster's letter to Dr Armstrong in which she resigned as Lead Infection Control Doctor for GG&C. Initially, it wasn't clear if these issues were being taken forward as part of the internal whistleblowing investigation

however subsequently I was asked to review the issues outlined in the report, namely • SCI process • Duty of candour regarding infection control incidents • Governance relating to specialist groups reporting to Incident Management Teams (IMTs). A fuller account of these issues is in Appendix B of the report. This report is a review of these three issues.

70. What was the purpose of preparing this report?

A. I was asked to review the issues outlined in my response to Q69 by Dr J Armstrong, Board Medical Director, GG&C.

71. Who instructed you to prepare this report?

A. Dr J Armstrong, Board Medical Director, GG&C

72. Did you have experience in undertaking similar investigations previously? If so, please provide details?

A. In my previous role as Clinical Director for Renal Services and Centre for Integrative Care, October 2009 to June 2015 at NHS GG&C, I previously led a number of conduct related investigations. I do not recall previously undertaking a review similar to this.

73. What were the key factors considered and why?

A. This was not an investigation underpinned by any policy framework, rather a review of the issues raised. As such, as noted in Section (4)- Summary of the report, given the multiple investigations and enquiries that were ongoing, the key factor was to get clarity and a fuller account of the issues raised under the broad headlines, in order to provide a clear focus for the review. As a result, I asked Dr Rachel Green (Chief of Medicine for Diagnostic Services and medical line manager to Dr Inkster) to interview Dr Inkster to get a fuller account of these issues.

74. Dr Green interviewed Dr Inkster for the purposes of preparing the report. Why did you not interview her yourself?

A. Dr Rachel Green was Chief of Medicine for Diagnostic Services and was the medical and professional line manager to Dr Inkster. I do not recall why I did not choose to interview her myself.

75. Did you view yourself to be impartial when undertaking this investigation?

A. As noted in my response to Q73, this was a review of the issues raised, rather than an investigation underpinned by any policy framework. As noted in my Declaration under Section 2 of the report. I had some involvement with the issues. I had attended three of the IMT meetings in summer of 2019 deputising for the Deputy Medical Director: Acute, when not available. As a result, I was interviewed as part of the Internal GG&C Whistleblowing Investigation. I contributed to the writing of the letter from Board Medical Director to the parent involved in Duty of Candour Incident. I had also worked with Dr Inkster as a colleague in the past and had co-authored 2 publications in 2017. Throughout my career, I have always tried to be objective in all my work, be guided by evidence and tried to avoid bias, however I can fully understand how I might be perceived as not being impartial and exhibit bias in this context – either conscious or unconscious bias. I would note however, that with the delay in completing the report (consequent of the Covid-19 pandemic from March 2020 onwards), as is noted in the summary, a number of issues identified in the report including issues with respect to SCI (SAER) policy and the Governance of Incident Management had already been picked up and addressed by policy reviews therefore it would appear that much of the review was consistent with others.

76. Dr Inkster raises concerns regarding the Significant Clinical Incident (SCI) process relating to cryptococcus infections. What are your thoughts on her concerns and were they justified?

A. Given the concerns raised about the SCI process, I asked the then Director of Clinical Governance, Mr Andy Crawford, to review this particular issue, given his expert knowledge in this area. The report notes that, in this circumstance, the SCI process did not proceed smoothly. In part, this was related to the complexity of the situation but also as noted in the report, because the Board initiated additional independent investigations into the hospital systems and the potential role of pigeon flock in exposing patients to the organism, thus creating multiple parallel reviews (IMT, SCI and board initiated review). The report suggests that following the creation of the Board initiated independent investigations into the hospital systems, that aspect of the SCI should have been withdrawn however it is

understandable (as is noted) that redefining the terms of the investigation might be perceived as unduly influencing the report. The report subsequently highlights 2 areas where the SCI / Serious Adverse Events Review (SAER) Policy could be strengthened (1) A process of corporate commissioning for a SCI / SAER instead of local service commission and (2) to ensure that all staff are aware that there is a process that underpins resolution of disputes and procedures in the context of an SCI / SAER. With respect to final visibility of the SCI and sharing with the family. I would note that the interview with Dr Inkster took place on 06/01/2020 however, the final draft of the report was shared with all reviewers subsequent to the interview, on 12/03/2020, the final report was signed off in April 2020 and shared with the family and that Dr Inkster attended the meeting that took place with the family in September 2020.

77. Dr Inkster raises concerns regarding the Duty of Candour Incident in 2018. Dr Inkster alleges that she was asked to withhold information from a child's parent regarding the source of an infection. What is your view on this?

A. Section 3.2 of the report, outlines Dr Inkster's concerns and also notes where this incident is referred to in a letter from the Chief Executive to the parent in question. They key aspects of the duty to communicate effectively with patients are outlined in my response noted in Q, 59-62. The report notes that it is clear from Dr Inkster's statement and GG&Cs letter to the parent, that there are differing views regarding this episode, that Dr Inkster clearly perceives that her duty to 'tell the truth and communicate freely with parents and patients was being undermined' whereas the letter from GG&C notes that the senior member of staff was 'trying to balance ensuring that your family and the other patient's family were advised of as much information as possible, whilst ensuring patient confidentiality, and in a way that was thoughtful, appropriate and timely'. As noted in the report, it is clear that this was a complicated scenario that involved communication with more than one family, with the need to maintain professional confidentiality. However, the report clearly notes that communication during this episode was sub-optimal and that the Chief Executive of NHS GG&C has apologised for the poor communication in a letter to the parent.

78. Are you aware of staff being told to withhold information from patients and or their families by Senior Management? Please provide details.

A. No

79. You note that, 'communication during this period was sub-optimal', are you of the view that there was a failing in terms of the duty of candour within GGC?

A. The report states that communication during this period was sub-optimal. The report goes on to note that the Chief Executive of NHS GG&C has apologised for the poor communication in a letter to the parent. Therefore, at the time of the incident, it would seem reasonable to conclude that communication did not appear to be in keeping with the principles of duty of candour as outlined in Q62– which is duty of every health and care professional to be open and honest with patients and people in their care when something that goes wrong with their treatment or care causes, or has the potential to cause, harm or distress.

80. Dr Inkster raises concerns regarding the feedback from external meetings being fed back to the IMT. How important is communication between different teams within the hospital when managing an incident such as the one in 2019? Do you believe communication was effective in this instance?

A. It is essential that good communication exists across teams when managing an incident like this. The report highlights under 3.3.1, that the Water Technical Group (WTG) appears to have been established as a sub group of the IMT but without Terms of Reference, defined remit, clear membership and the Chair of the meeting was not a participant in the IMT. Dr Inkster as well as being chair of the IMT at that point, appears to have been the link from the WTG to the IMT and attended the majority of the WTG meetings. As noted in the review, the Chair of any IMT carries a significant responsibility, including considering potential hypotheses regarding the source of infections. They are also responsible for leading the discussion at meetings and considering papers tabled at the meetings. Consideration should have been made for the Chair of the IMT to have delegated responsibility of linking the WTG and IMT to the Chair of the WTG. This would have improved the reporting line of the WTG to the IMT and would facilitate both challenge from the Chair of the IMT to the output of the subgroup and also assurance from the subgroup back to the Chair when appropriate. Section 3.3.1 of the reports highlights areas where

communication could have been better. The report notes that the Estates department took forward and tabled a paper regarding Chlorine Dioxide dosing, this was tabled at the WTG when Dr Inkster was present and was also circulated to members of the IMT. Clear actions regarding plans for water treatment with Chlorine Dioxide are outlined in the IMT action plan however the Estates paper tabled at the WTG does not appear to have been tabled at one of the IMTs. On another occasion it is noted that the minutes of the WTG from 16/08/2019 did not appear to have been finalised. As noted in Section 3.3.3 of the report: In February 2020, the Greater Glasgow and Clyde Outbreak and Incident Management Plan was revised (4th Edition) - Appendix E. This revision, which had commenced in late 2018, was approved by NHS GGC Corporate Management Team on 5th March 2020. This includes guidance for the Chair of the IMT, Subgroups and escalation process in the absence of a consensus opinion.

81. Dr Inkster raises concerns regarding infection control in the built environment. In your view, were her concerns justified? In what ways have the establishment of the NHS GG&C Infection Control in the Built Environment Group improved reporting of infection control?

A. Dr Inskter's concerns regarding infection control in the built environment were not part of this review, which focussed on the concerns noted in my response to Q.69. This is not my area of expertise and so would be unable to comment further. Under 3.3.2, the review notes that the establishment of the Infection Control in the Built Environment Group (ICBEG) should enable a clear and robust governance structure linking estates and the Built Environment with infection control, with appropriate reporting into Infection Control and Clinical Governance Structures. I left GG&C in January 2023 and am unable to comment on whether this has improved reporting of infection control.

82. Dr Inkster raises concerns regarding the governance of the Incident Management process. What is your view of the new management structure of the IMT? Is this effective? Do any concerns remain?

A. As noted in the report under section 3.3.3: In February 2020, the Greater Glasgow and Clyde Outbreak and Incident Management Plan was revised (4th Edition). This revision, which had commenced in late 2018, was approved by NHS GGC Corporate Management Team on 5th March 2020. As noted, specifically with reference to the report, this updated document included guidance for the chair in the context of complex incidents, guidance on the setting up subgroups including named leads, membership, remit and reporting. The document also includes a route for escalation where consensus cannot be agreed. As noted under 3.3.4, the issues with governance highlighted in the report appear to be addressed in the updated GG&C Outbreak and Incident Management Plan. Given my limited involvement with this IMT, with no involvement with IMTs subsequent to this and having left GG&C in January 2023, I am unable to comment on the effectiveness of this document or whether any concerns remain.

83. In your review you state you were, ‘unable to corroborate the specific concerns’ raised by Dr Inkster. Your review picked up on situations where it was recognised that they ‘did not proceed smoothly’, they were ‘sub optimal’ and the IMT process and the reporting system for infection control were reviewed and updated. With this in mind, can you further explain the reasoning behind your conclusion that Dr Inkster’s concerns were unable to be corroborated?

A. This review took place following concerns raised by Dr Inkster to Dr Armstrong Medical Director. Initially, it wasn’t clear if these issues were being taken forward as part of the internal whistleblowing investigation however subsequently I was asked to review the issues previously outlined in Q69. Dr Inkster was interviewed in January 2020. Much of the background information for this report was collated in early 2020 following the interview with Dr Inkster however the writing of this review was significantly delayed by the Covid-19 Pandemic from March 2020 onwards and as a result, the report was not completed until May 2021 at which point, as noted in the summary, the broader sum of issues identified in the report had already been picked up including with respect to SCI (SAER) policy, Infection Control in the Built Environment and also the Governance of Incident Management.

As a result, this may have influenced the conclusion that noted 'this review is unable to corroborate the specific concerns that were raised in her initial correspondence'. The concerns raised were under the themes of: (1) SCI Process, (2) Duty of candour regarding infection control incidents and (3) Governance relating to specialist groups reporting to Incident Management Teams (IMTs). Following interview with Dr Inkster a fuller account of the concerns was established. Regarding (1) SCI process, when interviewed Dr Inkster noted: 'concerns were that non experts had intervened and removed what was thought to be correct detail without her being asked to agree it and this had changed the whole sense of the document. Document control had been poor. Having asked for the SCI she has not seen a final version of the SCI which was to be shared with the patients and families and nor does she know if it has been sent.' As already noted, Dr Inkster was interviewed in January 2020.

The final draft report of the SCI was shared with all of the reviewers on 12th March 2020 with a view to sharing this factual report with the family of the patient. This report confined its terms of reference to the clinical care received as an in-patient, noting that the report from the Expert Advisory Group would provide additional information on the hospital systems and the potential role of pigeon flock in exposing patients to the organism. Dr Inkster and the other reviewers were invited to put any concerns they had with this approach, in writing to the Director of Regional Services. No reply was received from Dr Inkster or any of the other reviewers. The assumption therefore is that they were content with this approach. The final report was signed off in April 2020 and shared with the family. Following this, a meeting took place on 30th September 2020 between the family and senior representatives from GG&C including Dr Inkster. Prior to the meeting, the family wrote to GG&C with a number of questions regarding the SCI report. These were subsequently answered in a written reply in October 2020. As such, most of the concerns raised by Dr Inkster were no longer active by the time the report was written and the SCI/SAER policy had been revised and included a mechanism to underpin resolution of disputes.

Regarding (2) Duty of candour regarding infection control incidents. The issue raised related to concerns ‘that obligations to tell the truth and communicate freely with parents and patients is being undermined’ As noted in the report, it is clear from Dr Inkster’s statement and GG&Cs letter to the parent, that there are differing views regarding this episode. Dr Inkster clearly perceived that her duty to ‘tell the truth and communicate freely with parents and patients was being undermined’ whereas the letter from GG&C notes that the senior member of staff was ‘trying to balance ensuring that your family and the other patient’s family were advised of as much information as possible, whilst ensuring patient confidentiality, and in a way that was thoughtful, appropriate and timely’. The day after Dr Inkster’s interview, NHS GG&C Board Medical Director wrote to the parent in question. This letter outlined a review of the case of infection and how this case was reported both internally and to Health Protection Scotland. Dr Inkster along with the Lead Infection Control Doctor and the Chair of the IMT all contributed to the writing of this letter which detailed the reporting of the infection. What is clear and is noted in response to Q79 is that communication in this episode was poor and the Chief Executive apologised for this. Regarding (3) Governance relating to specialist groups reporting to Incident Management Teams (IMTs), Dr Inkster noted ‘An IMT in June 2019 asked for increased Chlorine Dioxide to be added to the water as the control measure for the atypical Mycobacterium. The Estates department did not take this forward but asked for External advice (from an expert on Legionella) who said this was not required. This message was not brought back to the IMT who had asked for it. The water technical group has made decisions where these were not minuted nor discussed at IMT. Dr Inkster was asked not to sit on any of the specialist groups as she was apparently influencing the outcomes from these groups.’ The report noted under 3.3.4 that (a) Dr Inkster raised the concern that the Estates department did not take forward a request from the IMT in June 2019 for increased Chlorine Dioxide to be added to the water as the control measure for the atypical Mycobacterium. There is clear documented evidence that this is not correct and that this action was implemented as requested (b) There was a further request to increase Chlorine Dioxide but was discounted after discussion at both the WTG and IMT and appropriate governance underpinning this decision appeared to be in place. In addition, as Chair of the IMT, Dr Inkster would have been in the position to ensure that the WTG was set up with clear remit, ToR and

reporting lines into the IMT. Subsequent guidance for this has been included in the revised GG&C Outbreak and Incident Management Plan.

84. Following this review did you have any further involvement with these concerns raised by Dr Inkster, or any other concerns raised by her?

A. Following the completion of this review, I do not recall any further involvement with these concerns. I was subsequently a member of the Board Infection control committee until I left GG&C in Jan 2023.

85. 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

A36591625 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591622 – Bundle 1 – IMT Hearings Commencing 12 Juen 2023
A36591628 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37991876 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37991958 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591626 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591637 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591627 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591629 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37992136 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591643 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37992498 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37992819 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591709 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37993248 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A37993497 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A41890244 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A38172455 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A41890585 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A41890404 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36690590 – Bundle 1 – IMT – Hearings Commencing 12 June 2023
A36591680 – Bundle 6 – Miscellaneous Documents – Hearings Commencing 12 June 2023
A42362240 – Bundle - TBC

Scottish Hospitals Inquiry
Witness Statement of
David Brattey

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 David Brattey.

HNC Electrical & Electronic Engineering 1989

HNC Management Studies 1991

Became a member of the Institute of Hospital Engineering now (IHEEM) and was registered with the Engineering Council as Incorporated Engineer IEng 1994

BA Degree Majoring in Business Administration & Human Resource Management 2003

City & Guilds Certificate in Sterilzer Testing Technology 2005

1973 - 1977 Apprentice Electrician Western Regional Hospital Board
1977 - 1990 Approved Electrician Argyll & Clyde Health Board
1990 - 2010 Estates Officer responsible for all engineering day-to-day maintenance and minor capital work across 5 hospitals, 10 health centers and office buildings in the primary care sector.

From 2005 I was responsible for maintaining all 90 benchtop steam sterilisers across the whole of Inverclyde and Renfrewshire Health Centers and Clinics.

In 2009 I became Authorised Person for (MGPS) at the Royal Alexandra Hospital in Paisley so as to provide backup to the AP already in post.

2010 - 2014 I was initially seconded to the Royal Alexandra Hospital for 3 months to assist the Estates Project Manager with a large amount of upgrade work across the site. This was extended for another 3 months as more money became available to carry out additional upgrades.

My secondment became permanent and I took over as Estates Project Manager in April 2011 managing a number of high value projects.

In June 2014 I was seconded to the Southern General Hospital for 1 year as Senior Estates Manager responsible for all engineering and building day-to-day maintenance across the site.

I April 2015 I took up my post at the QEUH/RHC as Senior Estates Manager responsible for all engineering and building day-to-day maintenance across the site including duties as Authorised Person (MGPS).

I retired in March 2018.

Professional Background

2. Professional role(s) within the NHS.

A Estates Officer, Project Officer, Transport Manager, Project Manager, Senior Estates Manager, Authorised Person (MGPS).

3. Professional role (s) at QEUH/RHC, including dates when role(s) was occupied.

A Senior Estates Manager for QEUH/RHC from April 2015.

4. Area(s) of the hospital in which you worked/work.

A QEUH/RHC, The retained estate including Neurosurgery, Neurosciences, Maternity, Care of the Elderly and Laboratory Building.

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

A Senior Estates Manager carrying out Theatre Validation and Verification on an annual basis. Carrying out my role as Authorised Person for Medical Gas Pipeline Systems (MGPS). Managing the Autoclave contract and associated maintenance.

6. Who did you report to? Did the person(s) you reported to change over time? If so, how and when did it change?

A I reported to the Sector Estates Manager for the first 2 years or so, then to the new Site Manager who was appointed around the middle of 2017.

7. Who selected you for your role(s)? When were you selected for your role(s)? Please describe the selection process for appointment to this/these roles?

A I was interviewed for the post of Senior Estates Manager in December 2014 by the Sector Manager of the SGH and Sector Manager of QEUH/RHC.

6. Had you worked with any of your QEUH/RHC estates, project team or management colleagues prior your role(s) at QEUH/RHC? If so, who had you worked with before this current role? When did you work with this/these colleague(s)? What role were you in when you worked with this/these colleague(s)? How long were you colleagues in this/ these previous role(s)?

A I had worked with some of my QEUH/RHC colleagues in the Southern General Estates team on my year long secondment from the Royal Alexandra Hospital in Paisley. I was Senior Estates Manager. These colleagues had been at the SGH for some time.

Specific role(s) at QEUH/ RHC

9. Describe your role and responsibilities (including day to day) at QEUH/RHC post January 2015 when the hospital was handed over from Brookfield Multiplex to NHS GGC.

A I didn't have any roles or responsibilities until I took up my post in April 2015.

10. How did your role change following handover of the QEUH/RHC in or around January 2015?

A It didn't change. I was still working at the SGH as it was still fully operational until it closed.

11. Describe your relationship with your supervisor in this role.

A I got on well with my supervisor.

12. In January 2015, how many people worked in Estates? Did the number of people working in Estates change during your time at QEUH, if so, how so?

A Approximately 20-25 people worked in Estates in January 2015. In April2015 that increased to approximately 50 people.

13. How did hard and soft facilities management operate on a daily basis? How were the operations managed? Was responsibility shared between different teams? If so, to what extent was responsibility shared?

A As two distinct teams. They had their work to do and estates had theirs. Both teams worked well together when required. My soft FM colleague and I attended the management huddle every weekday morning where in some instances issues would require both of our inputs. No.

14. How was communication between you and your colleagues? What communication issues, if any, arose?

A The communication was good. We all got on well together and I can't think of any issues that arose during my time there.

15. How did you keep a record of work delegated?

A I generally kept a note in my desk diary.

16. How was delegated work supervised?

A didn't need to supervise as such. I would only delegate to Estates Managers and Supervisors. I would check in with them to see how things were going, However they would normally get back to me to let me know the work had been completed.

17. Which other QEUH teams or departments, if any, did you work closely with?

A Most of them, but more closely with Adult and Children's Theatre Managers and The Infection Control Team.

18. Please describe your working relationship with these QEUH teams or departments (including areas of hospital work on).

A I had a very good working relationship with every department. It was generally first names all round. I don't think I crossed swords with anyone.

19. What concerns, if any, did you have about any member of staff? If so, please describe these concerns. What action, if any, did you take in relation to these concerns?

A There was one individual who transferred from another hospital who clearly didn't want to be here. I didn't know any history of this person until he started working at the QEUH/RHC. It was not long before he started taking sick leave, initially short bouts of sick leave running into longer periods. When he was at work he could only be given basic tasks relating to his trade as the Duty Managers had serious doubts about his ability to do his job. In fact they wanted to get him on a course to assess his level of competence. They tried to get him on a course but every time he had an excuse not to attend. As the

department attempted to force the issue, he went on long term sick leave. He was happy to be paid the Technician rate but was in our opinion unable to carry work of a Technician. We followed procedure regarding his sick leave with help from HR. When I left the NHS he was still there.

20. What concerns, if any, were ever raised about management/ managers? If so, please describe these concerns. What action, if any, did you take in relation to these concerns?

A I don't think any concerns were raised about managers that worked for me. There was one case where an individual went to his shop steward to report that I had raised my voice and was heavy handed with him for not agreeing to send him on a course that he wanted to go on. His shop steward contacted my General Manager and voiced his concerns about my behaviour towards his union member. My General Manager was astonished to hear these accusations and after a brief discussion with me he asked to meet with the shop steward. The outcome was that the accusations were withdrawn and the matter was closed. I didn't need to raise my voice or be heavy handed to any member of staff to get things done. I explained to this Technician that he was already qualified and the course he wanted to go on was aimed at Maintenance Assistants who had very little knowledge of the topic. This Technician at the outset did not want to be here but I stressed to him at that time that I wanted him here and to be part of the team. I told him his future was at this hospital and I really encouraged him get his head down and to stick with it. I was shocked to learn that he needed to go to his shop steward regarding this matter.

Training

21. What formal training or qualifications do you have in of the following:

a) Water

A None.

b) Ventilation

A None.

c) Infection Control

A None.

If so, can you go into more depth about any training and qualifications? – (When trained? When qualified? Who was the awarding body?) Please describe how the training and qualifications were relevant to your work at QEUH.

22. What specific roles or duties within the Project team have you had in water systems operation or maintenance? How long did you have these roles and duties?

A I didn't have any specific roles within the Project team as I was not part of the Project team.

23. How aware were you of any specific legal responsibilities/ obligations when working with the water systems. If so, please provide additional information.

A I was aware of the SHTM and The Approved Code of Practice Guidance.

24. If you did not have any roles or responsibilities in relation to the water systems operation or maintenance:

a) Who did?

A I don't know.

b) What were these responsibilities?

A I don't know

c) What did you understand the responsibilities to be?

A For the implementation procedures to ensure reliable hot and cold water supply, storage and distribution systems operate within the organisation.

d) How aware were you of any specific legal obligations/ responsibilities? If so, please provide additional information.

A I was aware that we had to comply with the SHTM and L8 guidance. To ensure that a written scheme of examination was in place in respect of controlling legionella in water systems. To provide an adequate supply of hot and cold water of suitable quality. To carry out a risk assessment for the water services so as to identify potential problems in the system, such as excess storage capacity, temperature distribution problems, low water usage and the use of inappropriate materials etc.

25. What specific roles and duties did you have in the ventilation systems operation or maintenance?

A I didn’t have any.

a) If you did not have any roles and responsibilities in the ventilation systems operation or maintenance, who did?

A I don’t know.

b) What were these responsibilities?

A To ensure that all ventilation systems were being maintained as per the PPM scheduling and complying with the SHTM guidance.

c) What did you understand the responsibilities to be?

A To ensure that the ventilation systems are inspected, serviced and maintenance of all activities are carried out safely without hazard to staff, patients or members of the public To keep an inventory of all ventilation systems.

d) How aware were you of any specific legal obligations/ responsibilities? If so, please provide additional information.

A I know we had to comply with the SHTM guidance which states that critical ventilation systems will be inspected quarterly and verified at least annually.

26. What large scale water systems had you worked on before the QEUH? What large scale ventilation systems had you worked on before the QEUH? If so, when? How did the size of those systems compare to working on the QEUH? What was your role and duties? I hadn't worked on any large scale water or ventilation systems prior to working at the QEUH/

A RHC.

Documents, paperwork and processes in place as at 26th January 2015

We know that handover of QEUH occurred on 26th January 2015:

27. Describe the site when QEUH/RHC at handover in January 2015.

A It was still a building site as far as I was concerned.

28. How long did Multiplex remain on site? How was this managed, and were records kept of Multiplex staff being on site, if so, who was responsible for this and where were such records kept? What concerns, if any, did you have?

A They remained on site for 2 years. They had two Portable cabins sited near Neurosurgery. I don't know how it was managed and if records were kept. I didn't have any concerns.

29. Operating systems at handover:

a) How many staff were allocated to maintaining operating systems and how was this determined?

A I don't know how many staff were allocated.

b) What training was put in place for maintaining the operating systems?

A I don’t know what training was put in place other than a session showing how to use Zutec and chilled water systems training.

c) Who carried out the training? Refer to Estates Communication Bundle document 5 ‘ –Brookfield Multiplex Client Training & Familiarisation Register for Ventilation’.

A Brookfield Multiplex. In reference to the above document Brookfield Multiplex carried out training on Chilled Water, however I was not aware of this and did not participate.

d) To what extent, if any, were Multiplex involved in the training?

A I was aware that Brookfield Multiplex carried out training but don’t know how this was agreed.

e) How extensive was the training provided to allow staff to operate the systems?

A I don’t know because I was not involved in this.

f) Please list the manuals/ documents that were handed over.

A I do not know what documents were handed over as I had no involvement.

30. Looking at the defects referred to in the completion certificate documents 3 above: Look also at Estates Communication Bundle, document 4 – ‘Capita NEC3 Supervisor's Report (No 46)’:

a) What are these defects?

A I had no active part as a maintenance manager with the completion certificate defects detailed on this document and as such cannot comment on them.

b) What was the impact of these defects?

A See above answer.

c) Why two years to deal with the defects?

A I was not involved but was aware that there was a 2 year warranty which may explain this time period.

d) Who decided that it was appropriate to accept handover with outstanding defects?

A The Project Director who had overall control.

e) How common is this practice in the construction industry?

A I have no idea if this is common practice in the construction industry.

31. Refer to Estates Communication Bundle, document 8 ' –Programme for handover to start of migration':

a) Do you know what this is?

A I don't know what this document is about.

b) Have you seen it before?

A No.

c) What are the numerous defects?

A N/A.

d) What is the purpose of this document?

A N/A.

e) What comments, if any, do you have regarding the number of defects?

A I haven't seen this type of document before so can't comment on it.

f) To what extent were you aware of this document at handover?

A I wasn't aware.

g) If not, should you have been aware of this document at handover?

A As Estates Manager I don't think it would have come down to my level. Certain roles specific aspects may have been passed to me to have a look at.

32. To what extent did Multiplex retain responsibility for the build following handover? Did Multiplex give any warranties? What were the terms of any warranty relating to Multiplex's work? How long was the warranty period following handover in January 2015?

A 2 years. I don't know and had no part in the terms of any warranty.

33. How many companies have on-going responsibility following handover? If so, describe the responsibilities of the companies. How long post-handover were the other companies involved for?

A I don't know how many companies have on-going responsibility following handover.

34. What concerns, if any, did you have about the opening of the hospital after handover? Refer to Estates Communication Bundle, documents 19 and 21 and 21.1 when answering.

A I didn't have any concerns as I was not involved.

a) What, if anything, was missing that you thought should have been constructed/ installed? If so, please describe what was missing.

A I don't know if anything was missing that I thought should have been constructed.

b) What concerns, if any, did you have about areas of the hospital at handover?

A I had no concerns as I was not in post at that time.

c) What time was allowed between handover and patient occupation? H o w much time was required post-handover? What concerns, if any, did you have? To whom did you raise any concerns?

A Approximately 3 months was the time between handover and patient occupation. I didn't have any concerns so there was no need to raise any.

d) if you answered no to the above, why was the opening not delayed? What were the possible consequences of delaying the opening?

A N/A

35. Refer to Estates Communication Bundle, document 22 at the point of patient migration Mhairi Lloyd states that there were rooms/ areas ‘not yet fit for purpose’: Look also to Estates Communication Bundle, document 19:

a) Detail your understanding of the concerns – namely what the concerns were any why?

A From the document I can see there were concerns regarding the rooms, however I was not involved in these e-mail discussions and can’t make any further comment.

b) Which team was responsible for addressing these concerns and ensuring that the rooms and areas were ‘fit for purpose’?

A This was during Brookfield Multiplex warranty period, and it was still their responsibility.

c) What was your involvement in dealing with any concerns?

A I wasn’t involved.

d) If so, how were matters resolved before to patient migration?

A I don’t know as I wasn’t involved.

e) Who signed off before patient migration?

A I don’t know.

36. Detail the snagging process, refer to Estates Communication Bundle, documents 90 and 91 when considering your answer detail:

a) What happened

b) How long were Multiplex on site following handover

c) Main areas for snagging

d) Records of works carried out

e) Sign off – who as responsible and when signed off.

f) How satisfied were you with the snagging process?

A After patient migration Estates including me would meet with David Wilson from Brookfield Multiplex more or less on a weekly basis. This was to resolve outstanding snagging issues as detailed in the document above. Brookfield Multiplex had a 2 year warranty period and snagging was listed in a traffic light system for action and repair. There wasn't always agreement in who was going to carry out the repairs even though Brookfield had the responsibility. It was more like a tennis match with it going back and forth before either Brookfield Multiplex or Estates agreed to carry out the repair.
There were no specific areas of snagging, Site wide across Both hospitals and the lab block. Completed work was agreed and then signed off by both parties and recorded in the register. Sign off was completed by David Wilson and Ian Powrie.
From my perspective the snagging process was competent but difficult to agree.

Asset Tagging

37. Describe and detail asset tagging:

a) What is this?

A A method to label or tag all assets throughout the hospital. Asset tagging makes it possible for the Estates team to look up an asset from an asset inventory and check the maintenance history of that asset.

b) Why is this important?

A So as to identify each asset with a unique number, it's location, area that or what it serves.

c) Who was responsible?

A Brookfield Multiplex.

d) What was the impact if this was not done?

A The impact would be that you would not know where all assets were located and whether they were being maintained.

e) What concerns, if any, did you have about this?

A I didn't have any.

f) How did you escalate these concerns? If not, why not?

A I didn't have the need to escalate any concerns.

g) What actions, if any, did you take to address any asset tagging issues?

A I didn't have actions to take to address any asset tagging issues.

38. The Inquiry understands that there was a CAMF system in place at QEUH/RHC.

a) What is the purpose of CAMF, and who was responsible for providing this?

A See answer to (b). FM First software firm.

b) How does ZUTEC differ from CAMF?

A Zutec is a database of all the assets. CAFM is a Computer Aided Facilities Management Tool that enables Facilities Managers to plan, execute and monitor all activities involved in reactive and Planned Preventative Maintenance (PPM).

c) What must be provided at handover?

A A full register of assets complete with ID tagging of each asset, along with a full planned maintenance programme of works.

(i) Who was responsible for ensuring provision of CAMF and ZUTEC?

A NHS GG&C and Brookfield Multiplex.

(ii) What were the consequences of these not being provided?

A Assets not being known, or their location and maintenance scheduling and PPM not being carried out.

(iii) What action was taken to remedy matters? Were Multiplex contacted?

A I don't know what matters required to be remedied.

39. Provide information on any issues in relation to CAMF and ZUTEC .

a) Operation

A I was not aware of any CAFM issues, but ZUTEC had a massive amount of equipment data, I believe well in excess of a million entries. Although the training made it look quite straight forward to navigate through, I found that it was not the case when I needed to use it.

b) User suitability

A I thought it was difficult to navigate through when trying to find a piece of equipment. I would enter a generic term (compressor) for the system then to say no compressors found. I felt you had to be very specific to get what you were looking for.

c) Any other matters

A I can't think of anything else.

In your answer provide details of who this was reported to, what action was taken to remedy matters.

40. Who was responsible for developing a system for asset registration? when and how long did it take following handover.

A My understanding was that Brookfield Multiplex was responsible for developing a system for asset registration.

HEPA Filters

41. To what extent, if any, were HEPA filters installed in the relevant rooms at handover (January 2015)?

A I don't know as I took up my post in April 2015.

42. What issues, if any, were there with HEPA filters? Refer to Estates Communication Bundle, document 22.

A I was not aware of issues with Hepa filters.

43. If so, what issues were you aware of?

A I didn't know of any issues as I took up my post in April 2015

44. Dr Gibson in her statement refers to HEPA filters not being in place at the point of handover in wards 2A/B.

a) What was the impact of HEPA filters not being installed?

A Areas and/or rooms not fit for purpose and most likely unsafe to use.

b) What was done to resolve any HEPA filter issues?

A I don't know as I took up my post in April 2015.

c) What filters should have been installed at handover?

A Hepa Filters.

d) Who was responsible for providing HEPA filters and ensuring that they were installed during the build?

A Brookfield Multiplex.

45. To what extent were HEPA filters missing from any other wards following handover?

A I don't know as I took up my post in April 2015.

a) What actions were taken to address missing HEPA filters?

A I don't know as I took up my post in April 2015.

Chilled Beams & Thermal Wheels

46. How does SHTM guidance apply to the use of chilled beams in healthcare settings?

A The SHTM guidance is non-specific and gives little guidance as to the suitability of chilled beam technology within healthcare premises.

47. To what extent, if any, is the use of chilled beams in areas housing immune compromised patients compliant with SHTM guidance?

A Incompatible due the possibility of condensation and the regular cleaning required to keep the chilled beam working efficiently.

48. If you have answered no to the above, what was the potential patient impact?

A See answer above.

49. Why were chilled beams selected for use in QEUH/RHC? What comments, if any, do you have about the decision to use chilled beams in QEUH/RHC?

A I don't know why chilled beams were selected. Possibly due to being deemed low maintenance and have no moving parts and quieter than conventional HVAC systems.

50. Describe your understanding at the time of the cleaning regimes in place for chilled beams? To what extent were you involved in the cleaning regimes for chilled beams?

A There was a PPM schedule in place I think this was for annual cleaning, however I think that frequency was too long and had to be reduced as the chilled beams right across the hospital were becoming dirtier more quickly. I wasn't directly involved but was aware of the need for a HAI Scribe document to be in place, issues of getting access to patients rooms.

51. What specific events do you remember in relation to chilled beams?

A I recall a dripping chilled beam in Ward 2a due to a faulty coupling between the pipe work and the coil causing water to dip onto a ceiling tile and through onto the floor.

For example:

a) Dripping chilled beams in critical care refer to Estates Communication Bundle, document 63.

A I was not aware with any incidents in critical care.

b) Issues with dew point controls refer to Estates Communication Bundle, document 65.

A Dew point control was not present.

c) Ward 2A cubicles 8-11 refer to Estates Communication Bundle, document 106, in particular page 821. In particular consider the issues with dust collecting on the chilled beam units, the PPM actioned in response and the work that you carried out in response to the issues, was it effective, was it timely? Do you consider the PPM to have been reactive rather than proactive? How was your working relationship with infection control colleagues in dealing with this situation.

A I think initially the PPM was reactive as there so many chilled beams to be cleaned. I got on very well with Infection Control Colleagues in dealing with this situation.

d) Water samples being taken from chilled beams in Ward 6A refer to IMT Bundle, document 73.

A I had left the organisation in March 2018.

e) Dripping condensation panels and chilled beams Estates Communications Bundle, document 153.

A In reference to document 153, I've no knowledge as to what caused this but could confirm that estates rectified these issues as soon as we could.

f) Any other issues/ incidents not mentioned above.

A Not that I can recall.

For each event please tell us:

a) What was the issue?

b) The impact on the hospital (include wards/areas) and its patients (if applicable)

c) Who was involved?

d) What was the escalation process?

e) What, if any, external organisations were approached to support and advise?

f) If so, what was the advice?

g) Was there opposing advice and by whom, and what was the advice?

h) What remedial action was decided on and who made the decision?

i) How was the issue resolved – consider any ongoing aftercare/support/monitoring.

j) Any ongoing concerns witness had herself or others advised her of?

k) Was there any documentation referenced during or created after the event. For example an incident report?

l) Who, if anyone, signed off the work to confirm it had been completed and the issue resolved/area safe.

52. Tell me about the use of thermal wheels in areas where immune compromised patients are treated:

A They should not be installed where immune compromised patients are being treated.

53. How was your level of knowledge of the SHTM guidance applicable to the use of thermal wheels in healthcare settings?

A My level of knowledge of the SHTM guidance applicable to the use of thermal wheels in healthcare settings is that they were permissible for general wards.

54. To what extent, if any, was the use of thermal wheels in areas housing immune compromised patients compliant with SHTM guidance?

A The installation was not compliant.

55. If you have answered no to the above, what was the potential patient impact?

A Possibility of Contaminated Air circulating within the Ward

56. What specific events do you remember in relation to thermal wheels?

A I don't remember any specific issue.

a) What was the issue?

b) The impact on the hospital (include wards/areas) and its patients (if applicable)

c) Who was involved?

d) What was the escalation process?

e) Were any external organisations approached to support and advise?

f) If so, what was the advice?

g) Was there opposing advice and by whom, and what was the advice?

h) What remedial action was decided on and who made the decision?

i) How was the issue resolved – consider any ongoing aftercare/support/ monitoring.

j) Any ongoing concerns witness had herself or others advised her of?

k) Was there any documentation referenced during or created after the event. For example an incident report?

l) Did anyone sign off to say the work had been completed and issue resolved/area safe.

A see answer above.

57. Refer to Estates Communication Bundle document 113:

a) What is this?

A I haven't seen this document before.

b) Why was it issued in 2017 and not earlier?

A I don't know.

c) At page 855 there is reference to the Estates' meetings regarding the supervisors report, was all the work carried out? At close what, if any, works remain outstanding?

A I recall being at the meetings and can confirm numerous work and repairs were carried out as this was a work in progress and continual. As I said earlier, we operated a traffic light system and have no doubt any repair in red would have been rectified as soon as practical. With regards to anything remaining outstanding I can't answer.

Water Guidance and Obligations

58. What guidance applies to water? How did you/others ensure that guidance was complied with?

A SHTM 04-01 and L8 Approved Code of Practice.

59. Who was responsible for ensuring a safe water supply following handover?

A Brookfield Multiplex.

60. What water safety training was provided to all maintenance staff, estates officers and contractors?

A I don't know.

61. What was your knowledge and understanding of Health and Safety regulations on control of legionella at the time?

A Keep hot water above 50dc and cold water below 20dc. Legionella would not be present if these temperatures were maintained. Have in place a maintenance regime of testing of taps, shower heads and water temperatures.

62. What legionella training was provided to all maintenance staff, estate officers and contractors?

A I don't know.

63. What water borne pathogens (other than legionella) training was provided to all maintenance staff, estate officers and contractors?

A I don't know.

64. Who was the Dutyholder?

A The Chief Executive / Management Team Accountable for Operational Policy.

65. How aware were you of obligations to appoint an authorised person or the like to discharge water supply safety? If so, who was appointed? When, for what period? If not, why not?

A Not initially but became aware that an authorised person would require to be appointed.

66. What skills, knowledge or experience would be required of a person filling this role?

A A thorough knowledge of the site, plant and equipment.

67. During any period where it was unfilled, what happened as a result?

A I don't recall anything happening as a result.

68. What concerns did you have, if any, about specific roles not being filled? If you held concerns did you escalate these, if so to whom?

A Initially I did not have any concerns. I was busy dealing all the issues that came my way with regards to the maintenance of the hospitals.

69. What was your understanding at the time of the SHTM guidance, particularly SHTM 2027 and SHTM 04-01, in respect of water?

A To comply with it.

70. How compliant was the QEUH/ RHC water system with SHTM 2027 and SHTM 04-01 at the date of handover – if not, what was outstanding? Who was responsible to ensure that the water system complied with SHTM guidance? What team was in place to regulate compliance? If so, please explain your knowledge, understanding and role within that team:

A I don't know how compliant was the QEUH/RHC water system with the guidance at the date of handover nor if what was outstanding. I would think it would be Brookfield Multiplex. I don't know if there was a team in place to regulate compliance.

Water - Commissioning and Validation (C&V)

71. What commissioning and validation documentation did you see before handover in 2015 – if not, who would have had sight of this?

A I didn't see any Commissioning and Validation documentation before handover in 2015 as I was not in post at that time. Possibly the Project Director or Director of Facilities.

72. Where is this commissioning and validation documentation ("C&V") stored generally on the hospital system?

A It is stored in hard copy file within the Estates Office and electronically on the NHS GG&C shared drive.

73. What is the purpose of C&V?

A The purpose is to make sure the system is fit for purpose.

74. What are the consequences of it not being carried out?

A Is the system safe to use? Could there be any unacceptable microbial contamination introduced into the system during installation? Would such contamination pose a hazard to patients, staff and members of the public?

75. How many records were kept of the cleaning and testing regime? Where were the records kept and what was the retention policy? What concerns, if any, did you have about record keeping and retention?

A I don't know how many records were kept and what the retention policy was at that time. I didn't have any concerns about record keeping and retention.

76. What concerns, if any, would you have If the water system were to have no C&V before handover in 2015? Why were you concerned?

A I wouldn't have the confidence it was safe to use or that it was compliant with the relevant guidance. My main concerns would be, Have we taken on a fit for purpose water system and how sure can I be that there are no contaminates within the system.

77. Describe the same in respect of verification and the cold-water supply system.

A Is it safe and potable and below 20dc.

78. What C&V of the water system was carried out post-handover?

A I don't know.

a) Who was responsible?

A I don't know who was responsible.

b) How was the C&V recorded?

A I don't know how it was recorded.

c) What concerns, if any, arose post-handover about C&V? If so, why did these concerns arise?

A I don't know of any concerns that arose post-handover.

Water system – testing and maintenance

79. What testing and maintenance protocols and regimes were in place? What should have been in place. If it wasn't, why wasn't it? What did you do about that?

A The testing and maintenance protocols and regimes were in place as per the SHTM 2027 and 04-01 e.g., Calorifiers, Taps, Showers, etc at the recommended frequency, e.g., Monthly, Quarterly, 6 Monthly and Annually. The hot and cold water temperatures are monitored 24/7 through the BMS.

80. What concerns, if any, did you have about the temperature and movement within the water system? How was this recorded and measured? Who was responsible for this? If Schnieder did these were these reports forwarded to yourself or other GGC employees? How were these reports responded to, what did they tell you? How were issues flagged in these reports dealt with/ resolved?

A I didn't have any concerns about the temperature and movement. The temperatures were being monitored on the BMS. The hospitals had capacity for 1350 beds and with all the other departments, I was confident that the movement of water was healthy, e.g. it was being used allowing the water to flow and return continually at the correct temperatures.

81. What concerns, if any, did you have about testing and stagnant water being in the system following testing? Please describe and provide information on how this was dealt with.

A I'm not sure if that situation ever crossed my mind.

82. What concerns, if any, did you have about dead ends/ legs in the system? Please describe and provide information on how this was dealt with.

A I wasn't concerned because there should have been no dead ends/legs within a new system.

83. Refer to Estates Communication Bundle, document 10 explain the cleaning and maintenance of the water system, taps, drains, shower heads etc. When doing so consider:

a) What is the cleaning regime?

A Draining and cleaning of calorifiers, and apparatus. Taps and shower heads were removed and cleaned in solution and thereafter hot water flush.

b) What is the importance of this?

A To maintain an efficient system and be free of any bacteria.

c) What responsibilities did you have a result of this?

A To ensure that all cleaning was carried out,

d) What did you do to ensure these responsibilities were executed?

A I would have regular checks with my Supervisors to ensure work was carried out.

e) What issues, if any, did you have fulfilling these responsibilities?

A I didn't have any issues as I had full confidence in my Supervisors.

f) What concerns if any were raised about cleaning practices? IMT bundle, document 23. Detail these concerns. Refer to NHS GGC SBAR Bundle, page 112 when providing your answer.

A I had no involvement as I had left the NHS in March 2018.

g) What, if any, matters regarding the maintenance of the water system were escalated? If so, were they escalated BICC or AICC?

A I don't know.

h) What is dosing, and why was chlorine dioxide used in the cleaning regime. IMT bundle, document 30.

A I wasn't present but know that dosing with chlorine dioxide removes bacteria within the system.

i) Clearing of drains in June 2018 following water incident -relevance and purpose. IMT bundle document 27. To what extent, if any, did this resolve the issue? IMT bundle, document 38 why was expert advice required?

A I had no involvement as I left the NHS in March 2018.

j) What happened in response to concerns about on-going maintenance and cleaning? What further action did you take personally?

A N/A.

k) What further steps could have been undertaken?

A N/A.

84. What was found in the water tanks; what if anything significant was found in the water tanks? To what extent would anything found result in a wider issue of water contamination?

A I was not aware of anything found in the water tanks. A wider issue could result if there was something found in the tanks, although there were filters on the outgoing side of the tanks prior to the pumps to stop any debris getting into the distribution pipework.

85. Concerns have been raised regarding the hospital design and the increased risk of water contamination; what is your view on the increased risk of water contamination in relation to the following:

a) Having a single barrier approach water system, resulting in fluctuating water temperatures

A I'm not sure what this is and can't find reference to it.

b) Ensuite bathrooms attached to each room

A Having en-suite bathrooms attached to each room means that you have 2 wash hand basins within close proximity of each other. This will lead to one being used more than the other, leading to possible stagnant water in the tap body. Ward and cleaning staff will have to make sure all taps are turned on to run the water through to prevent any stagnant water issues.

c) Overprovision of water outlets leading to sink removals

A Overprovision will mean less use of some sinks which could lead to stagnant water and dead end/ legs and will have to be removed including all the pipe work back to the main distribution lines.

86. Describe the water flushing regime at handover, describe your involvement, the recording process, why is it important? What is the impact if it is not carried out?

A I don't know to what extent the flushing regime was at Hand-over. I had no involvement and did not know the recording process. It is important to have a flushing regime in place whilst the buildings are empty. There was a period of 3 months from handover to patient migration. I'm sure there would have been a flushing regime in place carried out by the contractors and in house staff. If this was not in place, then issues with water quality, dead legs at taps leading to harbouring of legionella bacteria.

87. To what extent could the water system in QEUH/RHC have been more comprehensive?

A I don't know how the water system could have been more comprehensive.

88. To what extent could the water system have achieved the system objectives if operated correctly? In your answer set out what the system objectives were and how these were/ could have been met.

A I don't know what the system objectives were. I assume the objectives were to supply hot and cold water to all outlets continuously at the correct temperatures and flow rates. To continually monitor the temperatures through the Building Management System.

89. Describe any ward/area specific water systems used?

a) Detail the individual ward water specification

b) What were/ are your thoughts about this

c) Why, if applicable, did certain wards have different water systems

d) Was there a standard protocol for sanitising water systems?

e) If so, what was the standard protocol?

A I'm not sure if any ward/area specific water system were in use.

90. To what extent were the standard protocols for sanitising water systems used on a system of the size and complexity of this one?

A don't know what the standard protocols were, however I knew they were carried out by an external contractor specialising in dosing of water systems.

91. Who, if anyone, was contacted to advise on sterilisation of the water systems?

a) Who were they?

b) Had you worked with them before?

c) Describe and comment on the methodology used.

d) Who decided to accept it or not.

e) Did it work?

f) What paperwork or records were kept in relation to their installation; maintenance or flushing?

g) How were these kept on paper or electronically?

h) What equipment for recording work was used by employees doing day to day tasks?

i) How was that then reported back and checked?

A I think H&V were the specialised contractor.

Drains

94. Clearing of drains in June 2018 following water incident -relevance and purpose. IMT bundle document 27. Did this resolve the issue? IMT bundle, document 38 why was expert advice required?

A N/A

95. To what extent were you involved in the decision to proceed with a drain survey? If so, can you explain your role in this decision? What was the purpose of the drain survey?

A N/A

96. What were the results of the drain survey?

A I was not involved with clearing of drains in June 2018, nor the survey or the results of the survey as I left the NHS in March 2018.

Taps

97. Describe your involvement, if any, to use Horne Taps in QEUH/RHC, refer to SBAR Bundle, document 1. In doing so confirm:

a) Your understanding of use of Horne taps.

b) Who authorised the use of Horne taps?

c) Why were Horne taps selected?

A I had no involvement as this was part of the design specification.

98. What is your recollection of the use of Horne taps.

A I don’t have a recollection of the use of Horne Taps.

a) At the time, how aware were you of the incidents in Northern Ireland concerning Horne Taps? What was your level of knowledge of the incidents in Northern Ireland and the decision to use Horne Taps in QEUH/ RHC?

A I wasn’t aware of the incidents in Northern Ireland concerning Horne Taps. I had no knowledge of the incidents in Northern Ireland and the decision to use Horne Taps in QEUH/RHC.

b) Flow straighteners – when did you become aware that they were non-compliant with SHTM 2027 and SHTM 04-01 guidance? To what extent were they noncompliant at handover? IMT Bundle, document 27.

A I wasn't aware that they were non-compliant.

c) How involved were you with testing in high risk areas?

A I wasn't really involved. Work would be issued to the Maintenance Technician (Plumbing) to test/clean all taps in both hospitals including high risk areas.

d) What if any, new taps were replaced in January 2019? If so, why were they replaced? To what extent was the replacement related to the use of chlorine dioxide? IMT Bundle, documents 29 & 30.

A I have no knowledge if any, new taps were replaced in January 2019 as I had left the NHS in March 2018 but from the document taps were being replaced because the flow straighteners were non-compliant.

99. How involved were you in the decision to use point of use filters?

A I was aware of the decision to use Point of use Filters.

a) Who was responsible for the effective management of and installation of the point of use filters?

A The Sector Estates Manager took the lead in this with regards to the installation of the point of use filters.

b) To what extent, if any, did the point of use filters meet the water regulation requirements? How effective was the gap between the water level and the filter to prevent contamination?

A I would have assumed the point of use filters met the water regulation requirement. I don't know how effective was the gap between the water level and the filter but would hope that it be sufficient to prevent contamination.

c) Why were the point of use filters not introduced earlier? What are the possible consequences of not having point of use filters?

A I don't know why the point of use filters had not been introduced earlier. The consequences of not having point of use filters could be that contaminates could be drawn into the waste hand basin.

d) How often were you aware of the filters being changed? Were the manufacturer's recommendations followed?

A I was not aware how often the filters were being changed however I've heard the 30 day period of change. I would hope that the manufacturers recommendations on changing filters were followed.

100. What was your involvement in the cleaning and maintenance of taps; what was the cleaning regime, how was it recorded, who was responsible; any issues or concerns, if any, you had around the cleaning of taps?

A I did not have any direct involvement in the cleaning and maintenance of taps. The supervisor would issue a work schedule to the Maintenance Technician (Plumbing), through his PDA or a worksheet of the area with the number of taps to be cleaned. The technician would carry out the work as per the guidance and would record the results and report back to the supervisor. If any issues required to be escalated, then the supervisor would raise with the Duty Manager, who would then raise if required with me (Senior Estates Manager) and if I felt my boss required to be notified, I would bring the issue to his attention. I didn't have any issues around the cleaning of the taps other than the sheer number of them. I was involved in creating a facility in Plant Room 33 in the adult hospital so as to be able to clean 3-4 sets of Thermostatic Mixer Taps in one cycle. The area was to consist of a deep sink with a pipe arrangement to allow the fitting of taps to it. These taps would be fed with water at 60 dc for specified period. Once the taps were cleaned and tested, they would be stored in the facility ready to be used. This work started late 2017 and was almost complete by the time I left the NHS in March 2018.

Communication regarding cleaning and maintenance - Water

101. Have you ever been advised not to contact someone/ not to provide water testing information? If so, when? By whom? and why?

A No.

102. Have you ever refused, or directed others to refuse to provide water testing information requested by microbiologists or infection control? If so, why? Provide as much information for your rationale and the consequences of withholding information.

A No.

103. In her statement Dr Teresa Inkster states '*there was a direction from Mary Anne Kane, who was at senior director level, not to give microbiologists access to water testing results*'. Further the Inquiries investigations have lead to the findings that [redacted], Dr Redding and Dr Peters expressed concerns regarding test results not being available or forthcoming.
What is your reaction to this?

A Amazed, don't understand why this would be the case.

104. Describe how you dealt with requests for water testing results from microbiologists and infection control - what requested information did you provide? If not, why was paperwork not provided?

A I don't remember whether a request came to me directly. I do know that I was in the Microbiology Department fairly regularly and do remember giving a proforma sheet of results personally to Dr Inkster.

DMA Canyon Reports

Refer to Bundle 6 - Miscellaneous documents – documents 29 and 30

105. Was this the DMA Canyon 2015 report (document 29)?

A Yes.

106. Who ordered this?

A The Sector Estates Manager.

107. Who signed off on payment?

A I don't know who signed off on payment.

108. How was this signed off or payment processed?

A I don't know.

109. Who was the report sent to?

A Mr Ian Powrie, Sector Estates Manager.

110. At the bottom of page 2 of the report it states that '*The findings included within the report have been communicated throughout the assessment process by Allan McRobbie and David Watson of DMA Water Treatment Ltd to NHS Estates staff (Ian Powrie and Jim Guthrie) verbally in both formal and informal meetings and via email.*'

a) To what extent were you aware of these formal and information meetings? If so, what was discussed at these formal and informal meetings? When did these meetings take place?

A I was aware of them but was not part of them.

b) When did you receive the emailed copy of the report?

A Soon after Ian Powrie received it.

c) If you did not attend the meetings referred to in a), when did you first become aware of the DMA Canyon 2015 report?

A Soon after Ian Powrie received it.

d) What was the purpose of the report?

A It was a Pre-Occupancy L8 Risk Assessment to establish any issues within the water system.

e) Who had the report?

A Ian Powrie, Sector Estates Manager.

111. Our investigations indicate that you attended a meeting with DMA Canyon, Ian Powrie and James Guthrie following Ian Powrie's receipt of the DMA Canyon 2015.

(i) When did you attend this meeting?

A I don't know the exact date, but it must have been soon after the report was received.

(ii) What was discussed at this meeting?

A The DMA Canyon Report.

(iii) What actions or tasks were allocated to you at the meeting in relation to the 2015 DMA Canyon Report?

A I don't know what action or tasks that were allocated to me.

(iv) In respect of the DMA Canyon meeting with Ian Powrie and Jim Guthrie, did you have a responsibility to develop an action plan?

A I don't think so.

(v) What, if any, actions or tasks were allocated to others at this meeting? if so, to whom and what actions were they allocated?

A I don't know whether any actions or tasks were allocated to others.

(vi) What, if any, action plan was prepared following this meeting? If so, by whom? If so, what actions were to be undertaken and who was responsible for supervising these actions?

A I can't remember if an action plan was created.

(vii) If an action plan was prepared, what did you do with the action plan? What specific steps did you take with the action plan? and where was the action plan stored?

A If I was given an action plan, I would have carried out the works detailed and recorded actions taken and kept on file within the Estates Office.

(viii) If an action plan was prepared, when were the work(s) detailed in the action plan carried out, and by whom? How was the work carried out recorded, and where would these records be stored?

A If an action plan was prepared, the works would be carried out in timeous manner by Technician staff. It would be recorded on a log sheet or electronically on the NHS GG&C shared drive.

(ix) What works, if any, do you recall carrying out in respect of the recommendation is contained in the DMA Canyon 2015 report?

A I don't recall being asked to carry out any works in 2015, however I've seen minutes of a meeting in November 2017 where it states that I (DB) is developing a written scheme of examination for the QEUH with the help of DMA Canyon. I think at this point my boss was looking to create a board wide template.

(x) The Inquiry understand that you gave verbal feedback to Ian Powrie that the works were being carried out? Do you agree with this? If so what works were carried out by and when in respect of the 2015 report?

A I don't recall what piece of work I was asked to do. However if I Powrie said I gave him verbal feedback, then I must have done so.

(xi) What was your understanding, if any, of the importance of carrying out the work recommended by DMA Canyon in the 2015 report/? At any time between 2015 and 2017 were you informed of the importance of carrying out the aforementioned work, and if so, by whom?

A Estates having commissioned an external contractor to provide a report of the water systems, then surely it would be prudent to carry out any recommendations that are highlighted in the report. I think the Estates Team knew the importance of carrying out the work but can't explain why the recommendations were not carried out timeously.

112. How often were DMA Canyon present at QEUH/RHC site between 2015 and 2018?

A They were in on a regular basis but can't say the exact amount.

113. What, if anything, did DMA Canyon say about the report during their time on site between 2015 and 2018? If so, when and what was mentioned?

A I can't remember.

114. When were the works suggested in the 2015 report actioned?

A I don't know.

115. What is your own view of the findings of the 2015 report? To what extent do you agree with it or not? Explain your rationale.

A It was an accurate report of the condition and issues with the water system. I wasn't going to disagree with it as it was an external expert report.

a) Given that you stated that the DMA Canyon 2015 report *was* 'an accurate report of the condition and issues with the water system' Do you think that failing to act on the recommendations of the 2015 report impacted the condition of the water system at QEUH/ RHC? Please explain your answer.

A I don't know whether failing to act on the recommendations of the 2015 report impacted the condition of the water system.

116. DMA Canyon prepared another report in 2017 (Bundle 6 – Miscellaneous documents , document 30). What works, if any, recommended in the 2015 were carried out prior to the 2017 report?

A I can't recall what work was done.

117. What happened with DMA Canyon in 2017 – tell me as much detail as possible. Who dealt with matters, what was your role and when did you become involved? Who sanctioned the works in 2017 report?

A I don't know what happened to it. I was involved in 2017 to get a workshop built within plant room 33 to test Thermostatic Mixing Taps on masse.

118. What was the impact, if any, of the failure to implement the 2015 recommendations on patient safety?

A I don't think there was any impact.

119. We understand that Infection Control were only advised about the 2015 DMA Canyon Report in 2018. Why were they not told sooner? What happened?

A I don't know why they were only advised of the 2015 DMA Canyon Report in 2018. I thought they would have known about it sooner as they attended meetings within the estates office on a regular basis.

120. Whose responsibility was it to be satisfied that the risk assessment had been carried out? Explain how you were satisfied that the appropriate risk assessment had been carried out prior to patient migration to QEUH.

A The Project Director. I didn't see or was shown the appropriate risk assessment carried out prior to patient migration.

121. Dr Christine Peters also states that she asked for '*asked for risk assessments for waterborne infection in the QEUH and they were not forthcoming from the Project Management Team, Estates, or Mary Anne Kane.*'
What information, if any were you asked for relating to the risk assessments for waterborne infection in the QEUH? What requested information did you provide? If so when and by what means? If not why not?

A I don't recall being asked to provide any information relating to risk assessments for waterborne infection at the QEUH.

February 2016 – Sinks – Ward 2A

In early 2016 a PAG took place regarding the '*Contamination of aseptic pharmacy unit at RHC water supply with Cupriavidus pauculus*' a subsequent investigation linked the infection to sink within the Aseptic Pharmacy Unit:

122. What was your understanding of this incident?

A I don't recall this incident.

123. What was your involvement with this matter?

A I don't think I was involved.

124. What action, if any, was taken?

A I don't know.

125. What further issues, if any, arose in relation to sinks? If so please discuss, confirming your involvement and action taken in response to any issues.

A I don't recall any further incidents.

Water Incident 2018

126. Walk through 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 concern?

c) Possible cause of concern?

d) Action taken in response to concern?

e) What actions were taken in response to concern?

f) How sufficient were these actions?

A I don't recall this incident.

127. The following IMTs have been highlighted to assist with this. If you are also able to respond to the questions raised in respect of the IMTs below when considering your recollection of events.

a) Refer to IMT bundle, document 13: Cupriavidus bacteraemia in ward 2A at the end of January 2018

(i) what do you recall of this incident/ issue?

A I don't recall this incident as I was in a phased retirement and during March I was in only a handful of days.

(ii) When did it begin?

A N/A

(iii) How did it come to light? Who first reported the incident?

A N/A

(iv) What was your involvement?

A I had no involvement.

(v) What enquires, if any, did you make about replacing all the taps within Ward 2A? What did you do? Did you discuss this with anyone else? What was the outcome?

A I had no involvement.

b) Refer to IMT bundle, document 16:

A Multiple positive results Cupriavidus and now Stenotrophomonas, Dr Inkster states that the test results are from taps which have not been replaced in rooms 15 and 26. Shower head in room 12. At that IMT no cause for patient concern.

(i) What was done as result of this meeting and why?

A I wasn't present and can't comment.

c) Refer to IMT bundle, document 17:

(i) Your involvement and what measures were taken?

A I wasn't present and can't comment.

(ii) What was discussed with David Loudon if anything?

A N/A. during my 3 year period as Estates Manager only met David Loudon a few times.

(iii) What do you recall about how matters were managed?

A I don't recall.

(iv) How were costs managed?

A It wasn't my responsibility.

(v) Who carried out the work?

A I don't know.

(vi) How was this reported and managed?

A I don't know.

(xii) How involved were you in the decision to use bottled water for handwashing and drinking? Discuss your knowledge and involvement surrounding this matter.

A I was aware of it but had no involvement.

d) Refer to IMT bundle, document 18:

(i) As above, what was the outcome of this IMT, your involvement, actions and how you followed it up.

A I had no involvement.

(ii) What concerns, if any, did you have about Stenotrophomonas impacting patient safety at this point?

A I wasn't aware of this.

(iii) Refer to Estates Communication Bundle, document 121; how does this link to the IMT? Was this as a result of what was being discussed? What happened following this email?

A I had no involvement in this.

e) Refer to IMT bundle, document 19:

(i) As above - the fitting of water filter – discuss – why were these filters not on the taps initially? What are the possible consequences of water filter not having been fitted earlier?

A I had no involvement as I was in my last week of employment.

(ii) What knowledge do you have of dosing the system with silver nitrate? How did this discussion come about?

A I don't have any knowledge of dosing the water system with silver nitrate.

f) Refer to IMT bundle, document 20:

(i) This was scored HAIIT red – why?

A I was not involved as I was in my last week of employment.

(ii) What were the concerns?

A N/A.

(iii) To what extent do you recall any request for historical water results during the commissioning of QEUH/RHC? If so, what did you find out as a result? What concerns, if any, did the historical water results raise?

A I don't recall any request for historical water results during commissioning of QEUH/RHC.

128. Refer to Estates Communication Bundle, documents 125 and 133 what was the relevance of these document to the water incident?

A I had no involvement as I was in my last week before retirement.

129. Tell me about any other issues or matters arising from the water incident:

A N/A.

Taps

130. The use of Horne Taps was discussed in the IMTs relative to the water incident. IMT Bundle.

Please confirm:

a) Your understanding of use of Horne taps.

A For me a tap is a tap, however Horne make and supply mixer taps for hospital installations.

b) Who authorised the use of Horne taps?

A I don't know.

c) Why were Horne taps selected?

A I don't know.

d) How involved were you in the decision to use Horne Taps - SBAR Bundle, document 1 - please discuss your involvement and understanding.

A I wasn't involved.

e) What is your recollection of the use of Horne taps.

A They are mixer taps widely used in NHS properties.

f) At the time, how aware were you of the incidents in Northern Ireland concerning Horne Taps?

A I was not aware of the incidents in Northern Ireland concerning Horne Taps.

g) If so, why did you decided to proceed with the installation of these throughout QEUH/RCH? What was the deciding factor?

A It was not my decision to proceed with the installation as I was not involved in the decision.

h) Discuss Estates Communication Bundle, document 121 explain the situation and your involvement.

A I wasn't aware of the situation as I was in my last week before retirement.

i) Refer to Estates Communication Bundle, documents 127 and 128 explain the situation and your involvement.

A I had no involvement as I had retired on 30th March 2018.

j) Flow straighteners – when did you become aware that they were non-compliant with SHTM 2027 and SHTM 04-01 guidance? To what extent were they noncompliant at handover? IMT Bundle, document 27.

A I don't recall anyone informing me that they were non-compliant.

k) How involved were you with testing in high risk areas?

A I wasn't involved.

l) What if any, new taps were replaced in January 2019? If so, why were they replaced? To what extent was the replacement related to the use of chlorine dioxide? IMT Bundle, documents 29 & 30.

A I don't know as I had left the NHS in March 2018.

131. What was your involvement in the cleaning and maintenance of taps; what was the cleaning regime, how was it recorded, who was responsible; any issues or concerns, if any, you had around the cleaning of taps?

A I had no direct involvement This task was carried out by a Technician under the direction of their supervisor. I didn't have any concerns.

Board Water Group

132. Refer to the Water Safety Group Bundle:

a) What is the purpose of WSG?

A The purpose of the WSG is to commission and develop a water safety policy and water safety plan which includes a risk assessment.

b) Why was the WSG set up?

A To oversee all water related issues that may arise and report them to the Board Water Group.

c) What was your involvement with the WSG?

A I had no involvement with the WSG.

d) Who was in the WSG, what were their names and their roles within WSG?

A Mary Anne Kane, Deputy Director of Facilities. Billy Hunter, General Manager Facilities, Alan Gallagher Sector Estates Manager, Microbiologist, Dr Inkster. Sector Estates Manager, Ian Powrie. Lead Infection Control Nurse, Pamela Joannidis. John Green Health and Safety Manager.

e) What qualifications were required in order to be in the WSG?

A Senior management and Senior clinical positions.

f) Look through the Water Safety Group Bundle – explain any issues discussed, your involvement and any action taken by you, and why, in response to issues raised at the WSG meeting.

A From my time at the QEUH/RHC I noted discussions around water safety plans, written schemes and audits. Legionella sampling Ward 7b bacteria within the shower heads and 2 patients with blood stream infections in RHC Ward 2a. There were discussions around the selection and training of Ap's and Cp's.

g) To what extent, if any was this within your remit within estates?

A It wasn't within my remit within estates however I became aware through discussions with Ian Powrie, Sector Estates Manager. I do recall meeting with Veolla along with Ian regarding a new water plant for Renal Dialysis and also meeting a representative from one of the shower head companies. I believe we did purchase a batch of disposable shower heads.

h) How did clinical staff and estates get along at these meetings?

A I don't know as I never attended a water safety group meeting.

Review of Issues Relating to Hospital Water Systems' Risk Assessment 26th September 2018

Refer to Estates Communication Bundle, document 134.

133. Who commissioned/ordered the report? What issues prompted the instruction of this report?

A I had no involvement as I was retired at this point.

134. What interviews, if any, were in connection with the report?

A N/A.

135. What views, if any, did you express to the author of the report?

A I don't have any knowledge of the review of issues relating to hospital water systems risk assessment 26th September 2018 as I had left the NHS in March 2018.

Tap Water – Ward 3C - 2019

136. What were the issues in relation to tap water?

A I don't have any knowledge of Tap Water - Ward 3C - 2019 as I had left the NHS in March 2018.

A What was your level of knowledge and involvement with these issues?
N/A.

138. What action was taken?

A N/A.

139. How were matters resolved?

A N/A.

Other Water Incidents

140. What other specific events do you recall in relation to water? For example do you have any recollection of debris in the water tanks and the cleaning of water tanks, 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) Were any external organisations approached to support and advise;
f) Detail role and function of HPS and HFS, advise if they were involved and any reports prepared by them;
g) 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?;
h) Was there opposing advice and by whom;
i) What remedial action was decided on and who made the decision;

j) How was the issue resolved? – consider any ongoing aftercare/support/ monitoring;

k) Detail any ongoing concerns you had, or which you were made aware of;

l) 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.

m) Did anyone sign off to say the work had been completed and issue resolved/area safe? If so, who?

A I don't recall any other specific incident in relation to water.

141. What were the NHS procedures for raising concerns about water issues or water infections.

a) How were these dealt with by you?

A Water issues would be raised through supervisors to duty managers then to me. I would raise them with my line manager. Water infections would be raised with the microbiology team as soon as it was confirmed.

b) How was it confirmed they had been dealt with.

A Work would be set up straight away to rectify the water issue and sampling carried out/sanitising the water system to eradicate contaminates from the system. We would liase with microbiology to let them know.

c) What water issues or water infections were you concerned about?

A I was concerned about the number of taps and shower heads that required to be maintained.

Ventilation - Guidance and Obligations

142. What was your understanding at handover in January 2015 of water guidance and regulations specifically SHTM guidance?

a) What is the purpose of the guidance?

A The purpose of the guidance was to make sure the installation complied with it.

b) What are the possible consequences of non-compliance with the guidance?

A Possible infections resulting from non-compliant systems.

c) To what extent was the ventilation system in compliance with the guidance at handover/ when you started at QEUH/RHC?

A I don't know. I would have thought it have been in total compliance as it was a brand new installation.

d) How satisfied were you of the compliance?

A I didn't know at that time how compliant it was.

e) What documentation did you see that satisfied you? Where was that documentation stored? How often were you able to access the stored documentation?

A I didn't see any documentation.

f) How was this matter escalated? If so, to whom? To what extent, if any, was the ventilation systems non-compliance discussed with any colleagues? What further action, if any, was taken to ensure that the ventilation system complied with the guidance? Who was responsible to regulate compliance, if so, please explain your knowledge, understanding and role within that team:

A I don't know.

150. Describe the role of Authorised Person for ventilation, who held the position, responsibilities, consequence of not having an Authorised Person.

A The role of the Authorised Person for ventilation is to ensure that the system operates safely and efficiently in accordance with the statutory requirements of SHTM 03-01. I don't know who held the position.

151. What is your general view of NHS GGC's compliance in respect of ventilation at QEUH/ RHC:

A My view is that NHS GGC's compliance in respect of ventilation at QEUH/RHC was good. The PPM was being done at the correct intervals, Verification on critical systems being carried out. Filters being changed as and when required. Records kept and service contracts in place and records kept.

Ventilation - Commissioning and Validation

152. Describe the commissioning and validation process in respect of the ventilation system in the QEUH/RHC.

A I don't know what the commissioning and validation process was in respect of the ventilation system in the QEUH/RHC.

a) Who was this carried out by?

A I think it was H &V.

b) Who signed off?

A I don't know.

c) To what extent, if any, did infection control have input prior to sign off? Refer to Estates Communication Bundle, document 22. For reference in this email Christine Peter's states that Craig (Williams) has not seen anything in writing about the ventilation.

A I don't know to what extent, if any, did infection control have input prior to sign off. I don't know.

(i) If so, who did have input?

A N/A.

(ii) When should this have been done?
I would think prior to handover/ patient migration. (iii) Were you involved?

A No.

d) How aware were you of any concerns raised at any point about the ventilation system and its commissioning?

A I was not aware of any concerns raised at any point about the ventilation system and its commissioning.

e) What commissioning and validation documentation did you have sight of that related to the period before handover in 2015?

A I didn't have sight of any validation documentation related to the period before handover in 2015.

(i) If not, who would have seen commissioning and validation documentation?

A I don't know, maybe the Project Director or the Director of Facilities or Sector Estates Manager.

f) How does commissioning differ to validation?

A Commissioning is a rigorous, systematic and documented process to ensure a new system complies with the design. Validation is a meticulous process designed to assess whether the ventilation system meet the standards laid down by SHTM 03-01 Guidance.

153. Have you seen the validation documentation for the ventilation system as at handover (Jan 2015)?

A No.

a) If yes – who carried this out, who signed off, who authorised?

A N/A.

b) If no – should you not have sought this? Who is responsible for ensuring it is in place? Who should have chased this up?

A The Project Director.

154. Where would the paperwork have been stored/ Who would have been responsible for it?

A On file within the Estates Office and NHS GG&C shared drive.

155. If validation was not in place at handover, how did the hospital open? Who would have had the authority to allow the hospital to open without validation in place?

A I don't know.

156. What concerns, if any, would you have if there were no C&V of the ventilation system?

A Is it fit for purpose, will it run efficiently, are the correct filters installed.

157. Why would no C&V of the ventilation system give rise to these specific concerns?

A I would not be confident in its ability to provide the right standards of ventilation.

158. Was the ventilation system verified or not prior to handover? If not, should this have been done? What are the consequences of the ventilation system not having been verified? What obligations, if any, did you hae to seek verification in respect of the ventilation system?

A I don't know.

Verification - Ventilation System

159. What is verification?

Verification is a physical assessment of the existing heating, ventilation and air conditioning (HVAC) infrastructure.

160. What is the purpose of verification?

A The purpose of verification is to ensure that the system achieves minimum standards specific to the application and is operating to an acceptable performance level and remains fit for purpose.

161. How often should verification be carried out? Who was responsible for carrying out verification?

A Annually, I was responsible for carrying out verification.

162. Described the wards and areas of the hospital that required verification?

A Adult and Children's Theatres and Isolation Rooms.

163. What issues or concerns, if any, did you have in respect of verification at QEUH/RHC?

A Hepa Filters in the Ultra Clean Theatres were dirty after 1 year of use. These filters had a life span of 5 years but had to be replaced after year 1. These filters had to be ordered and couriered up to Glasgow. This did not happen overnight and meant the theatre could not go back into service at the agreed time. This put pressure on the theatre staff now that a theatre is out of service for longer than planned.

164. What would the consequences of verification not being carried out have been?

A You would not know if the plant was working as effectively as that of commissioning.

165. If verification was not being carried out, who else in your team would have been aware? What action, if any, was taken?

A Verification was being carried out.

Testing - Ventilation

165. What testing and maintenance protocols and regimes were in place?

A A PPM schedule was in place for the correct frequency of inspection and testing.

166. Refer to Estates Communication Bundle, document 47 page 5/18 of document: This states that air permeability tests were not carried out to 36 isolation rooms:

a) Were you aware of this? If you were not aware, who would have been aware?

A No. The Project Director.

b) What was the consequence of this?

A The rooms would be deemed not fit for use by the type of patient that would be cared for in these rooms.

c) Why did handover take place in these circumstances?

A I don't know.

d) What happened following this report?

A I don't know.

e) What concerns, if any, did the contents of the report give you? Why did the report give rise to these specific concerns?

A N/A.

Have regard to the following emails when considering your answers to the above Estates Communication Bundle, documents 64, 67 and 68.

167. What concerns, if any, did you have about the ventilation system at the point of patient migration to QEUH?

A I only had just taken up my post, so didn't have any concerns.

168. What concerns, if any, did you have relating to the ventilation? What concerns, if any, did you have relating to the water temperature? What concerns, if any, did you have relating to the movement within the water system? Refer to Estates Bundle, document 123.

A I didn't have any concerns.

169. How achievable was it to incorporate a comprehensive ventilation system into the QEUH/RHC?

A I don't know.

170. Describe any ward/area specific ventilation systems used?

A AHU's and Thermal Wheels.

171. What comments, if any, do you wish to make about the ventilation systems that were used?

A Thermal Wheels to be used only in non-critical areas.

172. Refer to Estates Communication Bundle, document 48. Explain your concerns and actions taken.

A I had no involvement in this area as it was more design and installation.

173. Explain your involvement, if any, with a review of specialised ventilation areas.

A I had no involvement.

174. Dr Teresa Inkster tells us that there was little progress with this matter. To what extent, if any, is this statement accurate?

A I had no involvement with this.

Specific events in relation to ventilation system

175. Can you recall any specific events in relation to ventilation? For example:

a) In 2015 prior to patient migration there were checks to the ventilation in Ward 2A in particular, with there being issues in relation to breaches around the trunking, ceiling lights etc with the extract grills not being compliant with SHPN

A I don't recall any specific events.

b) Lack of HEPA filters and general concerns ward 2A/B refer to Estates Bundle, documents 35 and 37. Detail how the issues managed, what was your responsibility, outcome. Highlight any concerns you had with regards to work/ testing being carried out.

A I'm not included of any of these e-mails and have no knowledge of this.

c) Dr Brenda Gibson raises there concerns refer to Estates Communication Bundle, documents 17 & 18. Describe your involvement and any actions taken in respect of this matter.

A N/A.

d) Air permeability tests not carried out refer to Estates Communication Bundle, document 47 Capita NEC3 Supervisor's Report (No 53) - dated September 2015.

A I had no involvement in this.

e) Issues with rooms 18 & 19 Ward 2A Estates Communication Bundle, documents 46, 67 and 68.

A It was a faulty controller and required to be replaced. AHU fans to be run on hand and room pressures to be monitored every 2 hours.

f) Refer to Estates Communications Bundle, documents 53 and 54 describe the issues which lead to the smoke testing being required – what was the purpose? Why was this necessary/ what were the issues which lead to this? Page 419 – did you meet with Jackie Barmanroy – what was the purpose of this meeting. What was the actions taken in response – describe the working relationship between you and infection control colleagues with this matter – where was the work required recorded?

A I attended Schiehallion with a Brookfield Representative to witness the smoke testing in these rooms. This was to ensure the rooms were sealed and fit for purpose. I may have but don't recall this meeting.

g) Dr Christine Peters raised issues with the air change rates in Ward 2A.

A I don't recall Dr Christine Peters raising this issue with me. If she had I would have investigated and reported back to her.

h) In December 2015 you emailed David Wilson, Brookfield Multiplex stating that the '*pressure in the isolation rooms presenting an unacceptable risk to the vulnerable patients present within these protective environments.*'

i) How aware were you of these concerns

A I knew the room pressures required to be at a certain level. I'm not sure of the exact figures, but obviously the rooms were not maintaining these pressures.

ii) If so, detail the issues

A Low room pressures.

iii) Potential patient impact

A I'm not sure of exactly what the impact would be for the patient. iv) what was done to resolve matters and your involvement.

I contacted David Wilson who by this time I knew quite well and was always helpful. I'm sure he met with me on site to discuss. I don't remember exactly what was done to bring the pressures back to normal, but I'm sure the issue was resolved.

i) In February 2016 Ian Powrie prepared a report regarding the action plan for proposed increase of extract in the ensuite rooms in the Schiehallion ward refer to Estates Communication Bundle, document 93:

i) Explain your knowledge of the issues

A This was conducted by my line manager and so I have no knowledge of this.

ii) Detail the issues

A N/A.

iii) Potential patient impact

A I don’t know

.

iv) what was done to resolve matters and the extent of your involvement.

A I had no involvement.

j) Issues in respect of the safety of the PPVL rooms and adequacy for isolating infectious or immunosuppressed patients:

A I had no involvement.

k) Issues detailed in Estates Communication Bundle documents 94, 95 and 96.

A I had no involvement.

l) Issues detailed in Estates Communication Bundle, document 104.

A I had no involvement.

m) Fungal growths in a number of rooms in ward 2A.

A I had no involvement

n) Any other issues/ incidents not mentioned above.

A N/A.

In providing your answer please tell us:

a) What was the issue?

b) The impact on the hospital (include wards/areas) and its patients (if applicable)

c) Who was involved?

d) What was the escalation process?

e) Which external organisations, if any, were approached to support and advise?

f) What was the advice?

g) Was there opposing advice and by whom?

h) What remedial action was decided on and who made the decision?

i) How was the issue resolved – consider any ongoing aftercare/support/ monitoring?

j) Any ongoing concerns witness had herself or others advised her of?

k) What documentation referenced during or created after the event was there. For example an incident report?

l) Who, if anyone, signed off to confirm the work had been completed and issue resolved/area safe?

176. What level of awareness should an Estates Manager and Authorised Person for ventilation have of the ventilation issues?

A Estates Managers and Authorised Persons will have a good awareness for ventilation issues as they arise be able to direct staff in the appropriate course of action to repair.

Isolation Rooms

177. In the Stage 3 Sectional Completion Certificate Estates Communication Bundle, document 3 on 29th January 2015, HEPA filters in isolation rooms were listed as incomplete Estates Communication Bundle, document 3, page 25:

a) What was missing?

A I don’t know as I wasn’t in post at that time.

b) Why was the completion certificate signed when there were incomplete works to the isolation rooms?

A I don't know.

c) How was this discussed with other members of staff? If so, who?

A I don't know.

d) How was this issue escalated to Board level? If so, to whom and who escalated matters?

A I don't as this was above the position I held.

e) Explain what works were carried out to resolve this matter, your involvement and when matters were resolved

A I don't know.

178. What was the issued referred to in the email at Estates Communication Bundle, document 34? How did this happen?

A Ward 4B. Commissioning data.

179. Discuss the air permeability testing carried out in respect of the isolation rooms Estates Communication Bundle, documents 37 & 41:

a) why was this work carried out?

A I had no involvement with this.

b) What was the result of this work?

A N/A.

c) What was your involvement in the work?

A N/A.

d) What if any issues arose?

A N/A.

e) Refer to Estates Communication Bundle, document 47 Capita NEC3 Supervisor's Report (No 53) - dated September 2015. Estates Communication Bundle, documents 51 & 55.1. to assist with your answer.

A I don't recall this.

i) Were patients in these isolation rooms at this time?

A I don't know.

ii) Potential impact on patients?

A I don't know.

iii) Your involvement with the HAI Scribe

A I had no involvement.

180. Refer to Estates Communication Bundle, document 26 Christine Peters states that Ian Powrie was dealing with sealing light fittings:

a) What was the issue?

A The light fittings were not sealed which they should have been.

b) What was the potential impact on patients?

A Possibility of contaminated air being brought into the room.

c) What did you do to resolve this matter?

A Ian Powrie dealt with this issue.

181. There were issues in August 2015 with isolation rooms refer to Estates Communication Bundle, documents 44 & 45:

a) Detail your understanding of the issues.

A I understand the issues with regards to the rooms, e.g. breaches around the ceiling spaces and impact on achieving the correct level of ventilation, however I was not involved in this.

b) To what extent were the affected wards/ areas complaint with the relevant guidance at the time?

A If this was the case they would not be compliant. To be compliant the room must be completely sealed to reach the required level.

c) Your understanding of whether the affected areas/ wards had been built to contractual specification at the time.

A I don't know. I was not involved on the design and construction.

d) Your involvement in carrying out/ instructing work to remedy any issues.

A I was not involved with this.

e) Whether there were patients in the affected wards/ areas at the time

A I don't know.

f) Your understanding of the potential impact on patients

A If room is not then sealed it would have a detrimental affect in patient health as air from the ceiling void can be contaminated and enter the room.

182. There remained issues regarding testing in September 2015 refer Estates Communication Bundle, document 61:

a) Explain the issues.

A Some rooms had still to be sealed and air permeability tests carried out.

b) Your involvement

A I wasn't involved.

c) Work carried out to resolve any issues.

A I wasn't involved.

d) Potential patient impact

A If the room was not sealed it would have a detrimental affect on patient health and air from the ceiling void can be contaminated and enter the room.

183. Refer to Estates Communications Bundle, document 67 right to page 523:

a) Explain the issues.

A There was a faulty controller.

b) Your involvement

A I was part of the group to monitor room pressures and report back to Ian Powrie of any issues.

c) Work carried out to resolve any issues

A A new controller was fitted.

d) Potential patient impact

A No impact on patient if pressures stayed within the acceptable range which was monitored every 2 hours.

184. Discuss the issue with the manual controller in isolation rooms in ward 2A Estates Communication Bundle, document 83:

a) Your understanding and involvement

A Ward 2a ventilation control failure with loss of positive pressure.

b) work carried out

A I wasn't involved in this but was aware that Schneider were dealing with this issue.

c) Potential patient impact

A If agreed control measures are in place there should be no impact on patient health.

Ward 4B

185. What was the intended purpose of Ward 4B?

A I don't know what the intended purpose of Ward 4B was.

186. How did this change, if at all, prior to January 2015? If so, what changes were made?

A I don't know how it changed.

187. What, if any, changes were required to the ventilation system? Why were they made?

A I don't know if any changes were required to the ventilation system.

188. How involved were you with the changes?

A I wasn't involved.

189. There were issues with Ward 4B though almost straight away with an SBAR being prepared on around 7th June 2015:

a) Discuss the concerns about Ward 4B. Refer Estate Communication Bundle, document 30 - What was the purpose of the SBAR? Refer to Estates Communications Bundle documents 30, 31, 32 to assist with your answer,

A Ward 4B accommodation was not fit for purpose.

190. In her statement Dr Teresa Inkster discusses concerns regarding Ward 4B:

a) What commissioning and validation data did you have in June and July 2015?

A I don't know that I received any validation data.

b) What commissioning and validation data, if any, did you provide to Dr Teresa Inkster?

A I don't recall Dr Inkster asking me for C&V data in relation to Ward 4B. if she had and I had it, I would have given it to her.

c) What commissioning and validation data, if any, did you provide to Dr Teresa Inkster?

A See answer above.

191. How long after migration to ward 4B were patients decanted back to the Beatson?

A I don't know.

192. To what extent were issues raised in the SBAR from June 2015 present at the point of NHS GGC taking occupation in January 2015, and when Ward 4B was handed over to NHSGCC?

A I don't know.

193. How could these issues arise immediately between handover and patient migration when the Ward was signed off and handover accepted?

A I don't know.

194. Refer to Estates Communication Bundle document 62:

a) what is this document?

A H &V ventilation report.

b) Have you seen it before? If so, when?

A I haven't seen it before.

c) What was the purpose of carrying out a ventilation report in October 2015?

A The ventilation report would have been commissioned to establish compliance and any issues that would need rectified.

d) What issues, if any, arose from this report?

A No issues were reported.

e) How involved were you?

A I wasn't involved.

f) What matters, if any, did you escalate arising from this report? If so, to whom and why?

A I had no involvement in the report.

195. In respect of Ward 4B describe the works carried out, why, your involvement and when. Use the below to assist and detail issues you were aware of in respect of Ward 4B, your involvement and any remedial works – works done and why.

A I wasn't involved at this stage.

Refer to the following when answering, if relevant to your involvement:

a) Estates Communication Bundle, document 71

b) Estates Communication Bundle, document 72

c) Estates Communication Bundle, document 97

d) Estates Communication Bundle, document 115 - why was there 'pre-start' meeting – what was the issue with this?

196. Involvement and knowledge to HAISCRIBE – what was this and what was the issue – refer Estates Communication Bundle, documents 117 and 118 and 119.

A I knew the importance of preparing the HAISCRIBE document for this project. I had prepared a number of these scribes previously. the Ward was split into 2 sections. 1 for patients and the other for the work area. ceiling tiles in single rooms were to be changed to solid ceiling with hatches for access to heating controls. work was carried out over 5-6 weeks as far the contract required. It was then validated by H&V Ventilation. patients were in the separated section of the Ward. The HAI SCRIBE was completed and submitted to Infection Control before any work started.

a) You were tasked with carrying out works in respect of ceiling tiles

b) Describe situation

c) Action taken

d) Whether this issue was resolved

e) Was this linked to the overall works being carried out in 4B – was there patients in at the time, what happened in response to the HAI Scribe.

197. Ward 4B:

a) When were Ward 4B patients decanted from Ward 4B back to the Beatson?

A I don't know, I had no involvement with the decantment of patients.

b) Why did this happen?

A I don't know.

c) When patients initially transferred from the Beatson to Ward 4B was the specification of Ward 4B the same spec as the Beatson?

A I don't know.

d) If not, then why were patients transferred from the Beatson initially if the specification?

A I don't know.

e) What works were carried out to Ward 4B during this time? Why, Was it an issue when the ward initially started taking patients? who signed off on the works? how did it become known that the works were required.

A I don't know.

Decision to close wards 2A/B and move to 6A and 4B

198. 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 Estates Communication Bundle, document 133.

A I was not involved as I had left the NHS in March 2018.

b) What was your involvement.

A N/A.

c) What risk assessment and additional measures were put in place to ensure patient safety?

A N/A.

d) What concerns, if any, did you have about where the patient cohort was being moved to?, If so, why did you have these concerns?

A N/A.

e) 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.

A N/A.

f) Any other relevant information, for example mould behind the IPS panels in Ward 2A, the plasterboard used in the en-suites in 2A/B.

A N/A.

199. 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;

A I don’t know.

b) Gram Negative Bacteraemia

A I don't know.

c) Water filters

A I don't know.

d) Ventilation, including HEPA filters

A I don't know.

e) Issues/ testing/ escalation/ response/ IMTs/SBARs impact on patients

A I don't know.

f) Patient communication

A I don't know.

g) Internal escalation - HAIIT scoring

A I don't know.

h) External escalation

A I don't know.

Reports prepared by Innovated Design Solutions October 2018

200. Refer to Bundle 6 – Miscellaneous Documents – Documents 33 and 34. These documents are feasibility studies regarding increasing ventilation air change rates within Wards 2A and 2B by Innovated Design Solutions.

a) Were you ever contacted in connection with these reports?

A I was not involved as I had left the NHS in March 2018.

b) What was your involvement, if any?

A I wasn't involved as I had left the NHS in March 2018.

Cryptococcus

201. Recall your understanding of the Cryptococcus infections in 2018:

a) What is Cryptococcus?

A Cryptococcus is a fungi that is found in soil and is usually associated with bird droppings.

b) What issues, is any, do you recall in respect of pigeons either nesting, leaving droppings or otherwise at QEUH/RHC? If you recall any such issues, what action did you take, or what action was taken? Did the action taken resolve the issue(s)?

A Pigeons were nesting and leaving droppings all over the site including roof top plant rooms and the loading bay of the Laboratory Building. This was ongoing a daily occurrence. I arranged for Pest Protection to clean the plant rooms, catch and remove the pigeons. A week later it was as bad as ever, so it became a routine task for the company.

c) What were the issues with Cryptococcus at QEUH? When did you first become aware of these issues? What happened in response to these issues? Who, if anyone, did you report these issues to?

A I think the issue came to light after I had left the NHS in March 2018.

d) Describe any visits you made to the plant rooms? When did you go, why did you go at that time, what did you see? What cleaning, if any, took place before the visit – if so why – what was evidence prior to the cleaning?

A I was in the plant rooms almost every day. I saw pigeons flying about. They knew how to get in but not how to get out. There was evidence of droppings on equipment and the floor. Some pigeons would end up dead and they would be removed by Pest Protection and the plant room would be cleaned.

e) Do you recall seeing photos relating to pigeons at QEUH/RHC, if so, what did they show?

A I don’t recall seeing photos relating to pigeons at QEUH/RHC. Everybody on site knew they were there.

Staffing and Working Environment

202. What were the staffing levels like in estates at the point of handover? Where did the staff come from – were they mainly transferred from old site?

A The staffing levels in Estates at handover consisted of The Sector Estates Manager, A Senior Estates Manager, 5 Duty Managers on a rotating shift basis, 1 Manager on Day Duty, 4 Supervisors and approximately 40 - 50 Technicians, Trades staff and Maintenance Assistants. They came from The Victoria Infirmary, The hospital for sick children at Yorkhill and The Southern General.

203. Concerns if any about staffing following handover – to what extent did the staffing levels manage the workload? Refer to Bundle 8, document 40.

A I wasn't in post at handover.

204. Was appropriate training in place for new and existing staff on using new systems and working within the QEUH? How did you ensure that new and current staff were appropriately trained? Refer to Estates Communication Bundle, document 5 - what was this and what was the training like? How did this assist you and staff with working at QEUH – was it equipment focus, asset focused please describe.

A I was not in post at this time however I can see from the document that training was given and signed off.

205. Who was responsible for providing staffing? Who was responsible for ensuring staffing was maintained at sufficient levels?

A Initially Human Resource Management, Estates General Manager and Sector Estates Manager were responsible for providing staffing.

206. What concerns did you have regarding staffing levels?

A I didn't have any concerns at the outset. I thought the complement of staff would be sufficient to manage the workload.

207. What was the working environment like when QEUH opened – work life balance/ workplace culture? What issues, if any, did you have? If so, what concerns did you raise? Who did you raise these concerns with?

A It was full on and as time progressed it became hectic. I regularly found that I was working long hours and aware others were doing the same.

208. Who was on site to manage and assist with carrying out works relating to equipment? How did this assist your workload in estates? To what extent, if any, was there a reliance on commercial third parties such as Multiplex when it came to staffing levels?

A Specialised contractors relating to equipment. It didn't really help as it was their equipment and they had the knowledge to repair, test etc. In my view there was no reliance on commercial third parties such as Multiplex when it came to staffing levels.

209. Generally – discuss the workplace environment and culture – What concerns, if any, did you have?

A The workplace environment was good. All managers, Supervisors and most of the Technicians, Trade Staff worked well together. The culture was good also, everybody keen to do a good job maintaining this wonderful new facility. I didn't have any concerns at the outset.

210. Describe the handover process – did it run smoothly or not? What concerns, if any, did you have in the run up to handover? What matters did you feel went to plan and what, if any, matters, had not gone to plan?

A I was not involved in the handover process.

211. GGC took handover from Multiplex earlier than initially contracted for – what did you think about this? Why did it happen? What was the rationale for the early handover?

A I didn't know that was the case and why it happened. I've no idea of the rationale of an early handover.

212. What concerns, if any, were raised by infection control colleagues regarding the general build of QEUH/RHC taken seriously? What action, if any, did you take in response to these concerns, not already mentioned in your answers?

A I was not aware of this issue.

213. Dr Teresa Inkster tells us in her statement that she raised concerns regarding the cleaning in NICU, PICU and haematology wards in 2016 and again raised concerns to you and Mary Anne Kane in 2018 raising concerns in relation to level 4 QEUH, Ward 2A, RHCG, PICU and Ward 3C, with further issues in relation to Ward 4C cleaning being raised in 2018:
What were the concerns raised and what action did you take?

A I don't recall Dr Inkster raising these concerns with me. That said her concerns were likely to be that she could see that the ventilation grills were dirty and that they required to be cleaned. I would have taken this issue up with my duty manager and supervisor to check when these areas were due to be cleaned and to see if we could bring forward the programme. I would have gone back to Dr Inkster with an update.

214. To what extent is Dr Inkster's statement that the *'response was reactive rather than proactive'* an accurate statement?

A Dr Inkster may have thought that. However cleaning of high risk areas was a challenge for estates. The staff needed to know when we are due to come to the area to clean so that they can clear the area, vacate rooms etc to allow us access. I think estates is generally proactive, but if the programme slips for whatever reason, then it could be seen as being reactive.

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

A I have nothing further to add.

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

A43255563 – Bundle 1 - Incident Management Team Meeting Minutes (IMT Minutes)
A43299519 – Bundle 4 - NHS Greater Glasgow and Clyde: BAR Documentation
A43955371 – Bundle 8 - Supplementary Documents
A43293438 – Bundle 6 - Miscellaneous Documents
A47175206 – Bundle 9 - QEUH Cryptococcus Sub-Group Minutes
A47395429 – Bundle 10 - Water Technical Group / Water Review Group Minutes
A47390519 – Bundle 11 - Water Safety Group
A47069198 – Bundle 12 - Estates Communications

SCOTTISH HOSPITALS INQUIRY
Witness Statement of
Lynn Pritchard

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.

Professional History

1. Please list your professional qualifications, with dates.

A. Registered General Nurse (RGN) – 1988
BSc in Health Care – 1998
BN with Specialist Practitioner Qualification in IPC - 2005

2. Please give your chronological professional history, roles held, where and when- please also provide an up-to-date CV

A. Student Nurse – South College of Nursing & Midwifery 1985 – 1988
Staff Nurse – Wd 56 Southern General Hospital NHSGGC - Orthopaedic / Care of Older People April 1988 – January 1992 (Grading for NHS staff was introduced during this time and I was appointed an E Grade)
Staff Nurse (E Grade) Ward 4 Knightswood Hospital NHSGGC January 1992 – December 1992
Staff Nurse (E Grade) Queen Elizabeth National Spinal Injuries Centre, Southern General Hospital NHSGGC December 1992 – December 1998
Senior Staff Nurse (F Grade) Queen Elizabeth National Spinal Injuries Centre, Southern General Hospital NHSGGC December 1998 – December 2003
IPCN / Senior Infection Control Nurse, NHSGGC IPC Mental Health and Community Team December 2003 – March 2010

Senior Infection Control Nurse, NHSGGC IPC South East Acute Sector - March

2010 – October 2012
SICPs Co-ordinator, NHSGGC IPC - October 2012 – September 2013
Lead Infection Control Nurse – South East Acute Sector – September 2013 – June 2015
Lead Infection Control Nurse – NHSGGC West Sector & Mental Health & Partnerships – June 2015 – October 2015
Lead Nurse NHSGGC NHSGGC South Sector IPCT – October 2015 – September 2022
Nurse Consultant IPCT – NHSGGC Infection Prevention & Control Team September 2022 – Present

3. What specialist interest / expertise / qualifications in any area of Infection control do you hold?

A. I have 20+ years' experience working in Infection Prevention & Control working initially in a team that covered Mental Health in-patient areas and Community Teams. I moved to the acute sector in 2010 but have over the years continued to cover other specialties. I have a BSc in Healthcare and this prompted me to undertake further study. Keen to move into IPC following the role of IPC Link Nurse I commenced a BN (with specialist practitioner qualification in IPC) in September 2003 which I self-funded prior to being appointed my first IPC post. Through my career within IPC I delivered training at Glasgow University School of Nursing delivering sessions to 1st, 2nd and 3rd year nursing students.

Infection Control Team QEUH – 2015 to 2019

4. Please discuss the arrangements for infection control within NHS GGC (south sector) between 2015 and 2019:

a) Please describe the structure of the department / team

A. Within NHS GGC IPC there was an Infection Control Manager, Associate Director of Infection Control, Nurse Consultant, Lead Nurses within each sector and Infection Control Nurses. There was also Infection Control Doctors who covered each Sector team.

b) Please describe the relationship between members of the team, were there tensions in the team? If so, please explain

A. I was not aware of any tension within the local teams or the teams with any of the Senior Management Nursing Team. Some tension developed between myself and 1 of the Infection Control Doctors (ICD). I believe that this was due to a discussion that occurred at a team meeting when the ICD asked that we change PPE practice for a specific organism. I had advised that we could not change practice of PPE use which would result in us not following guidance within the national manual but that I would discuss at the Lead Nurse Meeting which the Associate Director of IPC attended that was taking place that afternoon. It is my belief that this was the start of the tension between us but I was never one hundred percent sure. We continued to work together and I felt that we were both able to act professionally and we did meet to try to resolve the issue but I didn't feel that that improved anything. My manager approached me to advise that 3 other members of the IPCT were arranging a meeting with RCN union to discuss issues that they had with this ICD and I agreed to be part of this.

c) Was there a lack of clarity around roles and decision making?

A. I was aware of my role and was clear on both my role was and that of my team. In relation to the discussion above I felt that at that point the ICD was asking me to do something which went against national guidance and would have been different from the practice in other sectors in NHSGGC.

d) Record keeping - did you take part in this? If so, please describe your role

A. Yes I was involved in record keeping. My role was the same as any other IPCN in respect of record keeping. I used ICNet for recording patient notes and also recorded in patient medical notes if required. There were some paper records kept of organism numbers throughout the month prior to being recorded electronically and submitted to the IC Data Team.

e) Culture and bullying

A. I was not aware of a culture of bullying.

f) Attitude of senior management and board to infection control issues?

A. I did not ever think that the senior management did not take any issues of IPC seriously but I was only working and liaising at a local level. In my role as lead nurse I would have reported at the South Sector Clinical Governance meeting and the Area Infection Control Committee but did not report at any board meetings. If I reported issues to IPC management I always felt that I was listened to and supported and that all issues I raised were taken seriously. I would have been unaware if this was felt at board level.

ICNet – Clinical Surveillance Software

5. In relation to ICNet:-

a) Please explain what ICNet is and what it is used for.

A. ICNet is an electronic patient case note for IPCT. It is used for recording patient IPC notes, recording ward / department outbreaks and reviewing alert organism imports.

b) When was ICNet introduced?

A. ICNet was fully introduced in 2015

c) What is recorded on ICNet and by whom. For how long are records kept on the system?

A. Patient infection control specific notes are recorded which includes advice given. If a patient has an alert organism imported there is an XP section that is also completed as a dropdown option. This includes if HAI or not and if patient is isolated. Also any notes from outbreaks can be recorded on the outbreak utility. ICNs can also record notes in the ward case note. I understand that records remain for as long as ICNet is functioning.

d) Who has access to ICNet?

A. All Infection Control Nurses have access to ICNet and in addition the ICData team and Surveillance team. Senior management have access and ICDs can also request access. I am not sure if they all requested or used ICNet.

e) Does ICNet maintain a record of Healthcare Acquired Infections and/or Heathcare Associated Infections?

A. ICNet will “import” the organism from Microbiology and Virology laboratory results but only organisms that are “selected” as per appendix 13 of the national infection prevention and control manual will be on the “latest alert organisms” tab and these are the ones that the IPCN manages. On the patient’s case note page these show under a tab “results” and there are fields that the ICN should complete, one of which includes HAI/HCAI. This is the responsibility of the IPCN to complete this section, this is not automatically completed. This will remain for the duration that ICNet is active.

f) Does ICNet record the location of a specific organism? i.e. within a patient or ward group?

A. When a member of staff obtains a specimen from a patient they record where the specimen was taken from and the ward / department that obtained the specimen. ICNet will have a record of this information as this will have been added to the lab system. ICNet also records patient placement within the hospital. This feeds from a different system called Trakcare and if this is not accurate then the patient placement will not be accurate.

g) To what extent do you think ICNet is/has been effective?

A. I have found ICNet very effective for IPC Teams. Prior to ICNet all IPC notes were recorded on paper documents and this would have been held at a local site. Pre ICNet the IPCNs did not have a record of all movements of the patient within the sites. ICNet also has a “micro” tab which records all Microbiology and Virology samples taken from a patient, therefore it is easy to find information without logging onto several different electronic systems. ICNet has a “contact tracing” function which has made outbreak management easier and more effective.

HAI SCRIBE

6. Please explain what HAI Scribe is, what it's aims are, and how those aims are

achieved.

A. Healthcare Associated Infection Systems for Controlling Risk in the Built Environment (HAI Scribe) is a risk management tool that allows the person who is completing it to describe the work that is being undertaken and through a question set can identify risks and describe the actions that will be taken to mitigate or manage these risks. It also records the key staff and roles involved in this process. It is also a record of the risks and mitigations within the built environment.

7. Who has overall responsibility for the HAI SCRIBE?

A. The Estates team have overall responsibility.

8. Please discuss your role as Lead Infection and Prevention Control Nurse in relation to the Estates and Capital Planning Teams and HAI SCRIBE.

A. As an IPCN I would be asked to review a HAI Scribe by a member of the Estates Team. Depending on the area where the work is being undertaken and the type of work being completed this would also be reviewed by an ICD. Members of the team who have had supported learning and informal education on reviewing Scribes could review a Scribe so not all Scribes were reviewed by myself.

9. Please see - **A47648572 SMT Meeting - Minutes - 28 April 2016 – Bundle 13, Document 73**

a) What were the issues with HAI SCRIBE at this time?

A. I do not recall but from reading the minutes I would assume that it was the number of Scribes that the IPCT were asked to review.

b) Were the issues isolated to one area of the hospital or did they relate to more than one area of the hospital?

A. As per the minutes I have only raised this as being an issue within the Institute of Neurological Sciences.

c) What action, if any, was taken to resolve the issues, and to what extent was the action effective?

A. I don’t recall any actions being completed by myself from this.

Issues relating to Wards 4B and 4C

Please see:

A40241424 - Minutes - AICC Meeting - 05 September 2016 – Bundle 13 – Document 6
A47648655 - SMT Meeting - Minutes - 28 September 2017 – Bundle 13 - Document 85

10. What was the nature of Wards 4B and 4C, and the nature of the patient group, between 2015 to 2019?

A. Ward 4b is a 24 bedded ward with 100% single side rooms. Ward 4c is divided into 10 haematology beds and 15 renal beds. When I moved to the QEUH site in October 2015 I don't recall if the ward was in use, although for a period it was used by Older Peoples services. Older Peoples services used the ward until approx. July 2017 then the haematology patients from ward 4c haematology moved in to ward 4b and work undertaken to replace ceilings in patient's rooms and reconfigure ventilation. BMT moved back to Wd 4b in June 2016.

11. What impact did the nature of the wards and patients have on infection control measures within Wards 4B and 4B? e.g. on ventilation?

A. In relation to the Infection Prevention and Control advice that the nursing team give is the same for all patients. I am not an expert in ventilation so I cannot comment on that specifically.

12. Were you aware of any issues arising in relation to Ward 4B, which led to the decant of the ward to the Beatson in July 2015? If so, what was your understanding of the issues?

A. I did not move to the QEUH until October 2015 and I was not aware what was discussed at the time.

Please refer to:

A32221235 – Minutes – AICC Meeting – 03 July 2017 – Bundle 13 – Document 11

A38244908 – 24.08.2017 Ward 4b Ensuite HAI SCRIBE revised Ian Powrie / Alan Gallacher - Bundle 27 – Volume 6 – Document 1, page 5

13. Were you aware of issues in Ward 4B relating to a leaking pipe, slow to drain sinks, water ingress, flooding from floor drains, and issues with chilled beams? If so, please give details,

A. I do not currently recall specifics of all these issues but I would have been made aware of these at the time if the IPCT had been notified. I reviewed my notes and it was noted that there was a report of water leak from the ceiling on the corridor outside one of the rooms in Wd 4b. Estates investigated in the ceiling space and there was a corroded pipe, damp insulation material and mouldy ceiling tiles. This room was previously positive for fungi on air sampling. The room had already been taken out of use along with the adjacent rooms. I noted that there was a further 2 rooms out of use due to water damage. There had been a report of water dripping from a chilled beam but I do not recall which area / ward this was. I was told at the time that there can be condensation on a chilled beam and if the beam is dusty then if the chilled beam drips the water drip will be dirty. There were reports of "leaking valves" on water pipes that burst causing water to drip onto the ceiling tile and cause a potential leak through a damp tile. I recall this happening several times in Ward 4b. I do not recall specifically slow to drain sinks in Wd 4b, however during my time at QEUH this issue was reported by several areas so this may have been reported in Wd 4b.

a) What was your understanding of the issues?

A. As above.

b) What was the nature of the risk posed to patient safety and care?

A. Air sampling in the room next to the water leak in the corridor showed high fungal counts and the ceiling space showed signs of mouldy ceiling tiles and damp insulation material. Patients within this ward are immunocompromised and at higher risk of disease. Patients can get fungal infection from exposure to fungi.

c) What action, if any, was taken?

A. Rectification work was undertaken in the ward by the Estates team. When the

valves leaked this was often repaired as emergency works and there was a Scribe written for the cleaning of the chilled beams to allow regular cleaning. Latterly I do not recall any reports of leaking from chilled beams.

d) Was any action taken sufficient to address the concern?

A. I am unable to answer this question.

e) What was your involvement / role in relation to the 24.08.2017 HAI SCRIBE?

A. I attended the meetings to review the HAI scribe following some issues being raised by the ICD. I attended as the local IPCN rep.

f) What was your view of the works contained in the HAI SCRIBE?

A. The role of the IPCN is to review the actions taken to mitigate the IPC risks, not to review the works undertaken. This is the role of Estates.

g) Were you aware of issues concerning the final HAI SCRIBE sign off? If so, what was your understanding of the issues? Who raised the issues?

A. From review of notes the issue was raised by [redacted] The issues raised included: commissioning, risk level of patients for the scribe and issues regarding sampling and decision processes leading to patients being allowed back into the ward.

h) Was the HAI SCRIBE signed off? If not, why not?

A. [redacted] confirmed agreement with Scribe and in addition the IPCN comments. When the work was starting the work was stopped by Dr Peters. It was agreed that the Scribe would be reviewed prior to work commencing.

i) Were you aware of any issues with Wards 4C? If so, what was your understanding of the issues?

A. I don't recall any specific issues with Wd 4c.

j) When did you first become aware that the ventilation in Wards 4B and 4C was not to the standard laid down in STHM 03-01? How did you become aware?

A. I am not aware of when I was informed of this. I had been aware that the BMT ward had moved on site when the hospital opened but that they had relocated back the Beatson Oncology Centre at Gartnavel General Hospital Campus. I would have been advised that there was work being undertaken to improve the ventilation but I worked at a sector level and not at board level so would not have been included in board level meetings or discussions.

k) Would you have expected the design of the ventilation system to comply with SHTM 03-01, the national guidance?

A. I am not qualified to answer this.

l) Would you have expected to be told if the ventilation system did not comply with SHTM 03-01?

A. As an IPCN Lead at sector level I would not expect to be told of the specifics of ventilation compliance but would have been made aware of this and advised if work was to be undertaken in a specific area. As I am not an expert in ventilation I would not have been aware of what the specification of the ventilation system should have been.

F. <u>Emerging issues with the water system from 2015 to 2018</u>

Please see:
A47648552 SMT Meeting - Minutes - 27 October 2016 – Bundle 13 – Document 77
A47648678 - SMT Meeting - Minutes - 30 March 2017 – Bundle 13 – Document 80
A40562713 - SBAR - control of toilet plume by fitting toilet seats 22 October 2018 – Bundle 13 – Document 133

14. What can you tell us about emerging issues with the water system?

a) When did the concerns arise?

A. I was aware of possible water issues following an increase of infections in the RHC which was reported at the Lead Nurse meeting and the same organisms being found in the water from sampling. This was around spring / summer 2017.

b) What was the nature of the concerns – specifically what was thought to be wrong with the building system in question?

A. I understood the nature of the concerns to be that there was possibly contamination in the water or water pipes.

c) Were you involved, in your role as Lead ICN?

A. I was not involved in any of the work within the RHC. Neither myself nor my team had been involved in a water incident before and therefore I was taking my guidance from the ICD at the time in relation to actions for the team and guidance given to wards and departments.

d) What was the nature of the risk posed to patient safety and care?

A. I was not aware of specific risks but it had been reported that there were patients within RHC who had organisms isolated that were also identified in water samples from RHC.

e) What action, if any, was taken?

A. As I did not cover RHC I was not involved in any actions.

f) Was any action taken sufficient to address the concern?

A. I cannot answer this question.

15. Were you aware of issues with Flow straighteners / regulators / tap type? If so, please give details.

A. I was aware that there was discussion between ICDs and members of the estates /facilities teams in relation to these but I was not involved in these discussion or decision making.

a) What was the nature of the risk posed to patient safety and care?

A. I cannot answer this question.

b) What action, if any, was taken?

A. I think that following these discussions there was filters placed on taps and shower heads changed to disposable in some area within QEUH.

c) Was any action taken sufficient to address the concern?

A. I am not qualified to answer this question.

16. Please see **A47648613 – SMT Meeting – Minutes - 25 February 2016, Bundle 13 – Document 71**

a) Please expand on the sewage leak in neurology at QEUH and flood in theatre recovery – e.g. please describe where in the hospital these were, the Ward numbers, and nature of issues.

A. The Institute of Neurological Sciences (INS) is a retained site on the QEUH campus. This is not a new building but is linked to the main QEUH via a link bridge. The ingress of water was from the ward above and from reviewing my notes it was suggested that this was from a blocked toilet in Ward 62 Level 2, which caused foul waste to come through the ceiling in Level 1 theatre recovery. This occurred twice in February.

b) What was the nature of the risk posed to patient safety and care?

A. If there is sewage leaking in an area this will contain faecal flora which will land in droplets. This would not aerosolise and travel. However if the area is not cleaned sufficiently or equipment and/or sundries are contaminated and then taken to be used on a patient this may inadvertently infect the patient.

c) What action, if any, was taken?

A. A full terminal clean was undertaken. There was a meeting arranged and initial discussions and actions agreed and the clinical team updated their risk register. Patient cases were relocated to another theatre and the area was closed off. Over the month Estates reviewed the ceiling space and drain survey was to be arranged by estates. There was air sampling undertaken prior to patient surgery being undertaken. At the time of the ingress any exposed sundries were discarded.

d) Was any action taken sufficient to address the concern?

A. This would need to be answered by Estates.

Healthcare Acquired Infections 2015 to 2017

Please see Bundles 1, 2, and 13:

Bundle 13

A32221973 – Minutes - AICC Meeting - 11 Jan 2016 – Bundle 13 – Document 4
A32188434 – Minutes - AICC Meeting - 6 March 2017 – Bundle 13 – Document 9
A32221511 - Minutes – AICC Meeting - 4 September 2017 – Bundle 13 – Document 12
A36356927 - Minutes – AICC Meeting - 06 November 2017 – Bundle 13 – Document 13

Bundle 1 – Hearing Commencing 12 June 2023
A41890305 – 22.09.2017 – IMT Minutes Exophiala in CF – Bundle 1 - Document 12

Bundle 2 – Hearing Commencing 12 June 2023
A41890324 - PAG Minute dated 23 May 2016 - Increased number in Abscessus cases within adult Cystic Fibrosis patients – QEUH— Bundle 2 - Document 1
A41889883 - PAG Minute dated 22 June 2017 - Enterobacter – Neurological Institute – Bundle 2 - Document 16
A41890126 - PAG Minute dated 20 September 2017 - Acinetobacter - Ward 61 QEUH - Bundle 2 – Document 20
A41890276 - PAG Minute dated 27 October 2017 - Pseudomonas - Ward 10D QEUH -Bundle 2 – Document 26

17. IN BROAD TERMS Please tell us about HAI issues in QEUH between 2015 to 2017, including an increase in Exophiala cases in Wards 7A and 7D in August and September 2017. What action, if any, was taken? To what extent was the action effective?

A. All alert organisms reported via “ICNet imports” are reviewed by an IPCN and this includes HAI and non HAI. In relation to exophiala an increase was highlighted by ICD in September 2017 within adult and paediatric patients some of which were cystic fibrosis patients. This was not an organism that the IPCN would have been alerted to via ICNet and this was reported by the ICD when there was an increase of cases over a period of time. The actions following an IMT included dishwashers in the wards being swabbed and tested positive for the same organism and the

dishwashers were taken out of use, the patients were given bottled water for drinking as the patient water jugs were historically washed in the dishwasher. The dishwashers remained out of use. There were some use and maintenance issues with the dishwashers and these would be reviewed. Once these were actioned, the dishwashers would be swabbed again and a decision would be made following results. The dishwashers remained out of use and it was decided the following year that the dishwashers would be removed from use in Level 7 wards QEUH. In May 2016 there was a review of abscessus cases in the adult Cystic Fibrosis patients under the care of the QEUH CF team. There were 3 abscessus cases within a 3 month period (February – April) and 6 cases since the patient group moved to the QEUH site. There was no obvious link found with the 3 recent cases. Typing requested and discussion with CF Nurse re attendance at outpatient clinics to confirm or nullify crossover and cross transmission of patients. The team were moving to water repellent gowns for aerosol generating procedures and direct patient care and review of equipment in use and cleaning of this equipment. Enterobacter (Institute of Neurological Sciences) – I do not recall this incident but I have reviewed the PAG document provided. Three cases reported with crossover of 2 cases in ward and theatre. Typing reported as unique (not the same) and there was no further follow up.

Acinetobacter Ward 61 (Institute of Neurological Sciences) – I do not recall this incident but I have reviewed the PAG document. There was a report of 2 patients in Ward 61 (Neuro ITU) isolated Acinetobacter baumannii complex from sputum samples. These were both identified by Microbiology as having the same antibiogram and typing was requested for the samples. There was a link to time and place for the 2 patients.

Pseudomonas Ward 10D – I do not recall specifics of this incident but I have reviewed the PAG documents. There were initially 2 cases of pseudomonas in Wd 10d which was reviewed by IPCT and actions undertaken and then 2 further cases identified from lookback exercise.

18. Was a link to the built environment suspected in respect of any of the issues. If so, in what respect? Was a link confirmed?

A. I was not aware that any of these were linked to the build environment.

The Water Incident - 2018

Please see Bundle 1:
A36690544 – 23.03.2018 – 9.IMT Minutes Water Incident Ward 2A RHC – Bundle 1 – Hearing commencing 12 June 2023 – Document 20
A36690556 – 27.03.2018 10. IMT Minutes Water Incident Ward 2A RHC – Bundle 1 – Hearing commencing 12 June 2023 – Document 21

19. There were a series of infections in Wards 2A and 2B between March and November 2018, known as the Water Incident:

a) How did you become aware of the issues, what did you understand to be the issues?

A. I did not cover the RHC but I had been made aware by the ICD as water sampling had been undertaken in BMT ward within the adult site. I was asked to take some actions forward for the adult site.

b) What were the infection control measures in place?

A. I can only comment on the measures in place for adult wards. For BMT patients, they were advised not to use the showers; wipes and bottled water could be used for washing. Sterile water was to be used for, drinking, and teeth brushing. If any of the BMT patients were to transfer to a critical care ward, the same guidance should be followed. Information was shared advising staff of this. Point of use filters were fitted to sinks within Level 4, Level 7 (A&D priority), 8C, 9D, 10A and 11C.

c) Was prophylaxis was administered?

A. I would be unable to answer this.

d) Were the actions taken sufficient to respond to the incident?

A. I am unable to answer this.

20. On 23 March 2018, specific infection control measures were in place in the adult wards:

e) Which adult wards were affected?

A. These measures were in place in Wd 4b and if the BMT patient moved to critical care the precautions would be followed in that ward.

f) What were the infection control measures in place?

A. For BMT patients, they were advised not to use the showers, and wipes and bottled water could be used for washing. Sterile water was to be used for drinking and teeth brushing. If any of the BMT patients were to transfer to a critical care ward, the same guidance should be followed. Information was shared advising staff of this. Point of use filters were fitted to sinks within Level 4, Level 7 (A&D priority), 8C, 9D, 10A and 11C.

g) Was prophylaxis was administered?

A. This is not something that I can answer.

h) Were the actions taken sufficient to respond to the incident?

A. This is not something that I can answer.

21. Were you aware of issues with wash hand basins and/or filters? If so, please give details.

A. Some of the basins where the filters were applied were fitted with automatic taps. The filter meant that the sensor was blocked and the tap did not automatically turn on to allow staff to undertake hand hygiene. In addition to this the sinks were small and meant that staff could not undertake hand washing effectively.

a) What was the nature of the risk posed to patient safety and care?

A. These were in non-clinical areas. The ones in the adult hospital that I was aware of were in the kitchen areas. Staff also have access to alcohol based hand wash and could if required access a nearby sink.

b) What action, if any, was taken?

A. I cannot recall but I know initially I advised the use of alcohol based hand gel and if hand washing was required staff could access a sink in another room. I think that the filters were eventually removed from these sinks but I cannot be sure.

c) Was any action taken sufficient to address the concern?

A. As I cannot recall fully I do not feel that I can answer this.

22. What is your opinion on the effectiveness of the Water Incident IMT?

A. I felt at the time that this was triggered by an incident within the paediatric hospital and that there was many long term actions that resulted in this. However as there was positive results in water within the adult wards I think that these actions may have been required to mitigate risks to patients. Other than the point of use filters the precautions were only in place for a very short time.

Healthcare Acquired Infections 2018 to 2019

Please see Bundle 1, Bundle 2, and Bundle 13:

A41890251 - PAG Minute dated 6 February 2018 - VRE - Renal Wards QEUH – Bundle 2 – Hearings Commencing 12 June 2023 – Document 32
A41890240 - PAG Minute dated 21 August 2019 - VRE - Ward 4C QEUH – Bundle 2 – Hearings Commencing 12 June 2023 – Document 51

A36591626 - 14.08.2019 IMT Gram Negative Blood Ward 6A – Bundle 1 – Hearings Commencing 12 Juen 2023 – Document 77

A32221533 - Minutes - AICC Meeting – 16 July 2019, Bundle 13 – Document 22

23. Please tell us about HAI issues in QEUH between 2018 and 2019. What action, if any, was taken? To what extent was the action effective?

A. The incident in Wd 6a IMT Gram negative blood was relating to paediatric patients who were cared for in Ward 6a during that time. In January 2018 there was an increased incident on Vancomycin-resistant enterococci (VRE) within 2 of the renal wards on Level 4, QEUH. In total there was 13 cases which were all HAIs (9 attributed to Wd 4a and 4 attributed to 4d). Actions included; terminal clean of both wards and typing of isolates requested. Dr Inkster was following up the typing results, but agreed that if typing did not indicate cross transmission then there would be no further actions. IPCNs agreed to undertake several hand hygiene audits in each of the 2 wards and review practice. IPC audit was undertaken and action plan provided to SCN for area. In relation to whether the actions were

effective it is difficult to say as the VRE numbers returned to within the normal limits as per SPC charts. All actions whether it is audit or education focusses staff to their own areas for improvement, so these interventions would never be a negative addition. A look back at the previous year showed that there had been previous increases in VRE numbers within this patient group and the numbers would returned to within normal limits. From discussions with the SCNs, they also said that when these patients were nursed at the Western Infirmary, Glasgow there were often increases in VRE cases in this patient group and no specific reason was identified. Within my time at QEUH, there have been occasions where the number of VRE cases within the renal patients has increased to above normal levels (as per statistical process chart). All increases are investigated and managed.

VRE Wd 4c - 4 VRE identified within a 12 day period within haematology beds in Wd 4c. 3 x blood cultures and 1 wound swab. IPC reviewed patient and noted that all had IV lines in situ and 3 had skin breaks of varying severities. Actions include: observation of practice – enhanced supervision of practice undertaken on 2 occasions and the findings were fed back to the SCN for actioning. Hand hygiene audit undertaken and results 100% therefore no improvement required. Typing of the samples undertaken but 2 were confirmed different. There were 2 further patients reviewed by IPCT with VRE positive blood cultures in September and October. As the patients had skin breaks, the tissue viability team was contacted to review any wound care that they may have undertaken or any significant issues in wound care that they may have observed. The tissue viability team do not undertake wound dressings and were unable to offer any significant information. I don't recall the actions from Friends of the Beatson. There were no other clusters of VRE in this ward following this.

24. Was a link to the built environment suspected and if so, in what respect? Was a link confirmed?

A. There was no suggestion that these incidents were linked to the built environment.

Whistleblowers

25. Throughout 2018 there were ongoing Whistleblowing procedures involving several Microbiologists. Were you aware of this at the time? What was your perception of it?

A. I was aware of this. I was surprised but as I was not informed of the details at the time I cannot comment on my perception.

Cryptococcus

Please see Bundle 1, Bundle 2, and Bundle 6:

A36690657 - PAG Minute dated 18 December 2018 - Cryptococcus neoformans Ward 6A QEUH – Bundle 2 – Problem Solving Assessment Group Meeting Minutes – Document 45

A36690569 - 21.01.2019 IMT Cryptococcus – Bundle 1 – Incident Management Meeting Minutes (IMT) – Document 62
A36690579 - 24.01.2019 IMT Cryptococcus – Bundle 1 – Incidence Management Meeting Minutes (IMT Minutes) – Document 64
A36690577 - 25.01 2019 IMT Cryptococcus – Bundle 1 – Incident Management Meeting Minutes (IMT Minutes) – Document 65

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

A. It had been reported that there was a paediatric patient who tested positive prior to the adult patient. I had not seen this organism in patients prior to the paediatric case and then the adult case. This was an unusual organism where 2 patient cases were reported within approximately a 2 week period of each other. I was advised that this is mostly found in soil and pigeon excrement. The common link was that both patients were nursed in QEUH – Level 4 and Level 6 and it was not suspected that the patients would have had exposure to soil. Initially there was a discussion with the aseptic pharmacy to advise if both patients had received medication from there – I was aware that the adult patient had.

27. 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. There were 2 cases within RHC and QEUH which I was initially aware of when the paediatric case was reported. The adult case was reported to IPCT in December 2018, the sample obtained from a blood culture taken 4 weeks earlier. The paediatric patient had spent time in a ward that was decanted to the adult hospital (Wd 6a). The common link was that both patients were nursed in QEUH – Level 4 and Level 6. Initially following the PAG there was a discussion with the aseptic pharmacy to advise if both patients had received medication from there – I was aware that the adult patient had. There was evidence of pigeon droppings on external window ledges and courtyards and this was reported to Facilities to ensure that these areas were cleaned. There are no opening windows in the wards and patients do not have access to the courtyard. The courtyards are locked and only accessed by facilities and estates staff for maintenance and cleaning. Air sampling of wards 6a and 4c will be carried out. Over a period of 2 months there was regular IMTs with investigations and actions completed. There was a report that there was evidence of pigeon droppings in some of the plant rooms and live pigeons in 1 plant room and evidence of nesting. Estates would review all plant rooms, clean them and ensure that access is sealed.

The adult patient was commenced on treatment but died [redacted] January 2019 – Cryptococcus was not cited on death certificate. Over the period of 2 months there were regular IMTs with a number of actions that included: bird dropping samples sent to Ayr for testing, review of aseptic pharmacy, regular inspection and maintenance of plant rooms and hospital external areas, air sampling of plant rooms and wards 4c & 6a. Air sampling was later extended or other wards. There were several discussions in relation to reducing pigeon population on the site. Portable hepa filters were placed in wards. Adult wards were asked re stock being delivered to wards and a couple of wards reported that there had been external package boxes noted to have bird droppings visible. High risk patients nursed in Wd 6a would be moved into Wd 4b.

These patients would be managed by paediatric nurses and by the Paediatric IPCT. Shower rooms in Wd 4c were reviewed and several rooms noted to require work to seal or replace vinyl flooring or wall to floor joints, this work was undertaken. Air sampling in Level 7 QEUH fortnightly as an indicator ward. Discussions around

the helipad ramp being a source of pigeon faeces via trolley wheels when the trolley is transported into the wards but this was discounted as the route of arrival if the patient group in question would not be via helicopter. There were no further cases and an additional group was being set up to look at multiple hypotheses for this incident but I was not part of that group.

B. During this period there was communication to patients and staff providing reassurance. Since this incident in 2018/2019 I have not been made aware of any other cases of Cryptococcus neoformans.

Please see **A39235063 – Report prepared by Cryptococcus Expert Advisory Sub-Group dated 5 April 2022 – Bundle 6 - Miscellaneous from Hearings 12 June 2023 – Document 39**

28. Did you read Dr John Hood's report? If so, when did you read the report? What is your opinion of the report? To what extent do you agree/ disagree with its findings?

A. I didn't read this report.

29. What actions were taken following the John Hood report? Did you consider those actions to have been sufficient? If not, why not?

A. I was not aware of the actions following this report.

30. What else could have been done? How could matters have been handled differently?

A. I was not aware of the actions so cannot answer this.

31. Did you have concerns about how matters were dealt with? Did you share those concerns with anyone? If so, to whom and when were your concerns shared? What action, if any, was taken as a result?

A. I was not aware of the actions so cannot comment on this.

HAI Incidents 2019 – 2020

Please see Bundle 2 from the Oral Hearings commencing 12 June 2023:

A41890240 PAG Minute dated 21 August 2019 - VRE - Ward 4C QEUH – Bundle 2 – Document 51
A41890213 PAG Minute dated 17 April 2020 - Enterobacter - Critical Care Unit – Bundle 2, Document 57
A41890214 PAG Minute dated 10 June 2020 - Burkholderia stabilis – Ward 11B/11D QEUH – Bundle 2, Document 58
A41890211 PAG Minute dated 7 September 2020 - Burkholderia stabilis – Ward 10B QEUH – Bundle 2, Document 65

32. Please tell us about HAI issues in QEUH between 2019 and 2020. What action, if any, was taken? To what extent was the action effective?

A. VRE Wd 4c - 4 VRE identified within a 12 day period within haematology beds in Wd 4c. 3 x blood cultures and 1 wound swab. IPC reviewed patient and noted that all had IV lines in situ and 3 had skin breaks of varying severities. Actions include; observation of practice – enhanced supervision of practice undertaken on 2 occasions and the findings were fed back to the SCN for actioning. Hand hygiene audit undertaken and results 100% therefore no improvement required. Typing of the samples undertaken but 2 were confirmed different. There were 2 further patients reviewed by IPCT with VRE positive blood cultures in September and October. Tissue viability contacted but there was nothing of significance from the team as they do not undertake wound dressing but only advise on dressing types. I don't recall the actions from Friends of the Beatson. There were no other clusters of VRE in this ward following this.

Enterobacter aerogenes Critical Care Unit 6 – 2 patients' isolated Enterobacter aerogenes from blood cultures and both linked to time and place. This was a period when COVID activity on the site was high and this ward was a covid hub. Staff ratio to patients was not as it would have normally been and this was thought to be a contributory factor. The hypothesis was patient to patient or staff to patient transmission. IPC increased visits to the ward to observe practice and in particular donning and doffing of PPE and there were no issues noted at the times of the visit. There was no hand hygiene or IPC Audit undertaken due to nature of the ward at the time. Typing for these 2 patients returned the same type. IPCT monitored for further cases and 2 new cases 10 and 12 days following the last

case. An IMT was planned and hypothesis discussed which included the length of time that staff were working while continually wearing PPE for duration of time in the clinical area was challenging and in addition there were staff working in the unit that would not normally work in this setting. Typing for the 3rd case returned the same as cases 1 and 2.

Burkholderia stabilis – Ward 11B/11D – 2 patients with Burkholderia stabilis in blood cultures within 2 days but with no direct crossover. Third case isolated Burkholderia stabilis in September 2020 and then 4th case in January 2021. Over this period PAG/IMT held and discussed possible environment and equipment sources both of which were included in previous outbreaks in Europe. Initially gloves and alcohol gel (level 11) was tested which returned negative. Following 3rd case water testing was also included with approximately 50 samples taken from 3 wards and all returned negative. In addition following identification of 3rd case ultrasound gel and blood bottles were also tested and again all results were negative. An ICD made enquiries as to whether there was any other boards reporting cases but this was negative. Discussions with hospital at night and imaging but both reviews showed no links. All 4 patients returned with the same typing and on typing result for Pt 4 it was noted that this matched 2 patients hospitals in England. Following further discussion the ICD was informed of Public Health England investigating 2 clusters of Burkholderia stabilis (6 cases) which following meeting with PHE with link to “Skintact” Ultrasound Gel which procurement reported that there was sporadic orders for this gel. Discussion with ARHAI Scotland, NHSGGC recalled this gel and sourced an alternative manufacturer. Samples of ‘Skintact’ ultrasound gel used within QEUH site were sent to PHE lab for further testing and PHE confirmed Burkholderia stabilis was not found in any of the ultrasound gels sent. No further cases noted and incident closed.

33. Was a link to the built environment suspected and if so, in what respect? Was a link confirmed?

A. From the hypothesis the built environment was not suspected as contributing to these incidents.

Observations

34. Do you have any reflections on what went wrong and why at the QEUH?

A. I am unable to comment on what went wrong in the QEUH. I was a lead nurse working in the South East Sector at the time and therefore working at sector level on not involved in the design, commissioning etc. I did think that there would be no estates issues within the new building on the site but that was not the case. Many of the issues raised in the media I was unaware of and only covered the adult wards and was not involved with the paediatric patients. As a sector lead nurse I was not always aware of specific issues unless they affected my site or team directly.

Declaration

35. 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.

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

Appendix A

A48807918 - Bundle 1 – Incident Management Team Meeting Minutes (IMT Minutes)

A43144419 - Bundle 2 – Problem Assessment Group Meeting minutes (PAG Minutes)

A48890718 - Bundle 13 – Additional Minutes Bundle (AICC – BICC etc)

A43293438 **-** Bundle 6 – Miscellaneous

A38244908 - Bundle 27 – Volume 6

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 16 September 2024 – Volume 5

A49950380