Scottish Hospitals Inquiry
Witness Statement of
Dr Jairam Sastry

PERSONAL DETAILS

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

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

PROFESSIONAL HISTORY

3. I am a medical graduate from India. I completed my MBBS (Bachelor of Medicine and Bachelor of Surgery) at Bangalore Medical College. I then went on to study for the MD (Doctor of Medicine) in Paediatrics at Sir Sunderlal Hospital, Institute of Medical Science, Banaras Hindu University, Varanasi, which I completed in 1993. Thereafter I spent three years in different Paediatric posts as faculty at St. John's Medical College Hospital, Bangalore, before arriving in the UK in July 1996.

4. In the UK I completed a number of training posts in Paediatrics and neo-natology between 1996 and 1998. I completed by MRCP and MRCPCH in Paediatrics in 1998. I joined the Specialist Registrar ("SPR") training

programme under the Wales Deanery in February 1998. I chose Paediatric Oncology for subspecialty training.

5. I moved in February 2002 to Sydney, Australia, to work in Westmead Children's Hospital as a Clinical Fellow in Paediatric Oncology for two years. I completed my Fellowship in Paediatric Oncology and Bone Marrow Transplantation and returned to the UK in 2004. This was part of my specialist training programme for overseas experience allowed by the Wales Deanery.

6. I returned to the UK in 2004 to finish my SPR training.

7. In 2004, I obtained my Certificate of Completion of Specialist Training (CCST) in Paediatrics, with a separate accreditation in Paediatric Oncology. This allows me to practice in that particular specialty.

8. I have been working as a Consultant Paediatric Oncologist in the UK since 2004, initially in locum posts and since 2006, in a substantive post in Glasgow.

9. When I first came to Glasgow, I worked in the Royal Hospital for Sick Children at Yorkhill which has now become the RHC at the QEUH site.

10. As I have an interest in teaching and academics, I took up a position as Honorary Clinical Senior Lecturer at Glasgow University in 2011. Later I became an Associate Professor in Paediatrics there.

11. I am interested in research connected with my clinical work. I am a principal investigator and co-investigator for many national and international trials for children with cancer. I am also part of several national groups such as the Children's Cancer Leukaemia Group. I am a member of the International Society of Paediatric Oncology Group and several working groups within this organisation. I contribute to guidelines and the development of clinical trials for children’s cancer.

CLINICAL GOVERNANCE AND THE DATIX SYSTEM

12. I chair the clinical governance meetings for the Schiehallion Unit. These meetings cover not just Wards 2A or 2B, but also any other place within the hospital our patients have been through. The meetings are attended by medical and nursing teams, AHS (Allied Health Specialties), management, the Infection Control Team ("IPC") and the blood transfusion team. The meetings take place on Friday mornings every two months.

13. At the clinical governance meeting we discuss as a department all the issues that we need to monitor in terms of governance. This includes any complaints, the outcomes of investigations into complaints, any adverse events, and all the DATIX reports put through since the previous meeting. We also review SOPs (Standard Operating Procedures) or guidelines, making sure they are all up to date.

14. The clinical governance meeting also looks at staffing levels, risk factors (clinical or administration), with a risk register being maintained by the nurse in charge of the day care and the ward (Wards 2A/B), which will be fed back to us. The minutes from the meeting are fed into the Clinical Directorate's clinical governance meeting. We circulate the minutes to the department, management and the Clinical Directorate.

15. The scope for the clinical governance meeting I chair is for the Schiehallion Unit, however if any incident involves our patients out with the unit, it gets reported on the DATIX system. If the incident is something which happened in another ward and is not related to the unit at all, such as an incident involving anaesthetics, theatre recovery etc., it would be investigated by their own DATIX team and the results would get discussed at our clinical governance group for the Schiehallion Unit.

16. DATIX is a platform which the hospital staff use to record all the adverse events that happen in the hospital. The system is used throughout the GGC Health Board area.

17. The DATIX system can be used to report anything. For example, it could be a drug-related incident, a prescription error, an administration error, the wrong blood products being used or a device like an infusion pump malfunctioning. Even if a patient or staff member slips on the floor, there are any falls, aggressions, verbal aggressions or any action by patients' family or staff, it will be recorded. Anyone can report an incident using the system.

18. When a DATIX incident is reported and it requires further investigation, I am alerted by an automated email from the DATIX system to let me know an incident has been reported. If I am named as the investigator, I review and report back on what went wrong and any learning points to be gained from the incident.

DESCRIPTION OF THE FACILITIES WITHIN THE SCHIEHALLION UNIT

19. Our Unit has an in-patient ward (Ward 2A) in which there are individual rooms for children and a day care unit (Ward 2B) in which we provide care for those who do not need admission to the Ward but require review or supportive care.

20. The unit has a play room, a classroom, and a social space for teenagers and young adults. The unit also has space/rooms for doctors, nurses, and pharmacists. There are also storage rooms and treatment rooms.

21. Elsewhere in the children's hospital, there are rooms for the research team, Bone Marrow Transplant ("BMT") team, pharmacy and outreach nurses. Consultants have shared pods as office accommodation in a separate building away from the ward, but within the hospital area.

22. My clinical work is based in the Schiehallion Unit. Our patients may also go through the Accident and Emergency Unit ("A&E"), the Clinical Decision Unit

("CDU"), the Paediatric Intensive Care Unit ("PICU"), theatres, radiology, the day surgery unit and other medical and surgical wards during their cancer treatment. If any of my patients are admitted to another specialist area/ward, then I will attend those patients in those areas to provide and maintain continuity of care.

SPECIAL FEATURES OF WARDS 2A AND 2B

23. Our patients are unique in a way, as they are immunocompromised because of cancer and the consequent treatment. They are much more prone to infections than other children in the hospital. Any infection for these children can be life threatening or seriously damaging, so they need to be in a specialised unit with specialised wards, separate to the other wards, and have their own entry doors.

24. We offer two types of isolation in the care of our patients: one is protective isolation and the other is source isolation.

25. Protective isolation means that the patient is protected from infection; unit staff, other health care workers who visit the unit, other patients and indeed, from patients' extended family members.

26. Source isolation is for patients who have an infection such as gastro-enteritis or a respiratory infection that could be passed onto other patients, either directly or through staff unless great care is taken.

27. There are strict protocols to determine which rooms should be used for each group of patients. There are rooms with either positive or negative air pressure.

28. Our patients are immunocompromised and require to be cared for in a positive-pressure ward with airflow regulation in individual rooms. Some of the rooms are source isolation rooms with negative pressures in them.

29. Other rooms have positive pressure, where the airflow is regulated to minimise the risk of any infections reaching the children cared for in those rooms. Air particles in these rooms/corridors of the unit should be HEPA filtered at source because the particulate air should be as clean as possible.

PROTOCOLS AND SOPS FOR SPECIFIC PATIENT GROUPS

30. We have Standard Operating Procedures ("SOP"s) for infection control, such as patient hygiene and care, which is not restricted to but includes hand hygiene. It is most important that we have a SOP for that.

31. We have protocols for wearing aprons when seeing a patient in source isolation and protocols for using hand gels in addition to hand washing. We have regular training for these.

32. There are protocols for aseptic precautions for handling lines, line care, and, for example, how to take care of a nasogastric tube/gastrostomy tube. There are separate protocols which set out how to clean and care for those children with feeding tubes in their stomach.

33. Some SOPs such as hand washing are universal throughout the hospital. All staff require to follow good hygiene practices but because we are in a unit caring for immunocompromised patients, we require to take extra precautions and ensure we use hygiene measures before entering a patient's room as well as upon leaving it. We use additional hand gels to clean our hands.

34. We do not take anything at all into the patient's room with us. Patients have individual stethoscopes in their rooms which we use for them only, and we leave it there. The stethoscopes and any other instruments are cleaned before and after use on that child. These extra precautions are taken to prevent our patients developing infections or passing their infections to others.

HOSPITAL ACQUIRED INFECTIONS AND HEALTHCARE ASSOCIATED INFECTIONS

35. Hospital acquired infections, also known as healthcare associated infections, are infections which a patient experiences as a result of their hospital treatment. These infections can come about due to the environment or the treatment and interventions which the patient requires.

36. Healthcare-Associated Infections (HAI) are nosocomially acquired infections which are typically not present or might possibly be incubating at the time of admission. These infections are usually acquired after hospitalisation, and manifest more than 48 hours after admission to the hospital.

37. Our Haematology and Oncology patients are vulnerable to serious and life threatening infection due to the nature of their illnesses and sometimes very radical treatment they require. Our patients experience profound neutropenia, lymphopenia and reduced immune reaction. They also experience the breakdown of physical barriers in their skin and of the mucous membranes of the mouth and gut. They often have plastic devices in place such as VP (Ventriculo Peritoneal) shunts or Central Venous Access Devices ("CVADs") and gastronomy tubes etc.

38. Our patients need a safe environment and good hand hygiene and aseptic techniques for procedures to minimise the risk of infections. A clean environment, safe water, positive pressures of air within the rooms and the unit, adequate air exchanges in rooms and HEPA filtration of high risk rooms are all essentials for preventing infections in the first place, and preventing the spread of any infections which occur.

39. We commonly see two infections. One is caused by bacteria that may be present in or on the child themselves that then enter the bloodstream and cause infection. Usually the bacteria is in the nose, the mouth, the intestine, or the urinary system of the child. Those are "endogenous" infections.

40. The second is a "nosocomially acquired infection ("HCAI")". Nosocomially acquired infections are those which arise from the hospital environment, or as

a consequence of the treatment procedures and interventions done by the staff. Our patients often have breaches to their own systems, such as mucous membranes breaking down and plastic accesses through their skin. Any contact with the environment which is unclean may harbour a germ and as a result, may cause infection.

41. We may also see community acquired infections from time to time. These infections are acquired from the community/their home environment.

42. The infections which arise from the hospital environment or the patient's treatment related procedures would inevitably increase in the face of poor hygiene techniques or a problem with the built environment.

43. Despite all of our efforts, it is not uncommon for us to see infections in our patients, most of whom are severely immunocompromised, just by the nature of their illnesses and the treatment required.

CENTRAL LINES AND PATIENT ACCESS POINTS

44. Our patients often need to have intravenous drugs, such as antibiotics or chemotherapy. To administer such intravenous drugs, we require to apply a CVAD. In addition, CVAD guarantees quick and easy access to intravenous treatment for patients in case of acute deterioration requiring interventions such as fluids, drugs etc.

45. CVL (Central Venous Line) is a long, flexible plastic tube which goes under the skin from the chest area, all the way to the neck and then into the vein and stays there. The plastic tube can be seen coming out from the side of the chest and hanging by their side. It is usually kept strapped to the chest to prevent seeping out. This type of line is called the central line or the Hickman line.

46. The central line is in the chest area which is covered, so the central line will not become contaminated unless it is handled or exposed. The patient will be

wearing a vest and a top so the central line will always be covered. It is not exposed to the environment unless there is something that contaminates that, for example, showering in contaminated water. The patients would not touch their central lines as they are covered. The only people who handle the lines directly are trained nurses or phlebotomists. As doctors and clinicians, we don't go touching the central lines.

47. Another access point we use is a Port-a-cath, which is also a device with a disc under the skin connected by a long, flexible, plastic cannula which goes under the skin into the neck vein. The metallic or plastic disc sits under the skin in the chest. Nothing is seen from the outside, so we need to access that by a needle introduced into the disc. We use that line when required and then the needle can be taken out before the child goes home. The device and line are entirely under the skin.

48. We also use PICC lines. This is a long, flexible, plastic cannula which is again inserted through the skin. It is usually put in the arms or sometimes the legs. It goes into the vein and travels a long way into the chest. We prefer not to use that method because it does not last too long, it can get blocked quickly and is not that useful. All these methods are prone to infection.

49. The least preferred option is the PICC line because it does not last for too long. In two or three weeks it usually needs to be replaced again, which is a shame for children to have to go through that. We prefer Port-a-cath, which is entirely under the skin, because then only people who are trained to use it will use it in the hospital. Nobody else can use it.

50. The Port-a-cath needs to be flushed once a month. This is only done by our trained nurses who know how to clean the skin around it, access it, flush it, make sure that it is working and then remove the needle. That is the most preferred method, but it does require a bigger surgical operation.

51. When the Port-a-cath is removed it leaves a slightly bigger scar than a central line. Sometimes we only need access for a short duration, so we don't need to

use a Port-a-cath. Also for some protocols, we can't give treatment through the Port-a-cath, it has to be given through a central access line. There are various reasons for choosing one or the other.

52. We give the choice to the parent as some children are extremely needle-phobic, so we cannot use a Port-a-cath for them because then we have to introduce a needle into the disc to access that, and some children can get panicked at the sight of the needle. That can be psychologically quite traumatic. We have to look into all those factors before we decide which kind of CVAD we are going to use for each child.

53. There are some children who do not have a choice, they have to have a central line as opposed to a port. There is also an issue of how many people are able to look after a port in terms of staff handling.

54. Accessing a Port-a-cath is something that requires more people to be trained in; you need surgeons who are trained and happy to put in a Port-a-cath as opposed to a central line.

55. When I started in Scotland in 2006, we hardly had any children who had Port-a-caths, probably because surgeons were not comfortable putting them in, or maybe it was the case that the number of staff trained to handle a Port-a-cath were limited.

56. However, since I started in Scotland, we have had more Port-a-caths put in. This has probably been due to increasing education about their benefits.

57. It is a bigger surgical procedure to insert a Port-a-cath. It leaves more of a scar, although it's not actually a cosmetically disfiguring scar or anything like that. A central line goes in through a small hole and the hole closes leaving a small scar, but if we put in a Port-a-cath, there will be a slightly bigger linear scar on the chest, which some patients do not want.

58. Certainly of late, since the incidents of infections happened, more Port-a-caths are now being put in as opposed to central lines. We do this wherever we can. The infection rate does reduce as we use more Port-a-caths. That's generally seen in the literature and there's evidence for that. It is not suitable for everybody, but it does reduce the infections rate.

59. There are specific things we can do in terms of trying to prevent infection with CVADs. There is a CVAD care pack and guidelines and policies for how it is done. It is cleaned by people who know how to clean it, and after cleaning, it is covered completely by dressings so that nobody goes near it.

60. Parents are taught how to dress it and how to clean it when they are at home. Some parents do it themselves, some parents prefer our staff to do it. When parents are happy do it, they need to be signed off as competent by the nurses on the unit.

OUR PATIENTS' SPECIALIST REQUIREMENTS

61. Children with cancers are vulnerable to infection due to multiple factors. They need specialised care in a safe environment to provide optimum care, minimising the risks to them wherever possible. I am part of a team of specialists who provide care to these vulnerable patients 24 hours per day, 7 days a week.

62. On the occasions when patients are admitted to other wards in other areas of the hospital, we insist that they should be in single rooms, not mixed with other patients, and that all visitors to their rooms adhere to the same principles of hand hygiene and care before and after they have any patient contact. The main difference is the environment on the general wards. The general wards are not HEPA-filtered or do not have positive pressure ventilation.

63. We use the same SOPs and protocols to prevent and/or treat infections while patients are in other wards both during normal working hours and out of

hours. A patient might be on a ward out with our unit, for example, there is no bed availability within the Schiehallion Unit, or where it was a post-surgery or source infection patient. It is our unit's clinicians that attend to patients in these areas. We don't rely upon on other unit doctors. Nursing care is provided by the general ward nurses, but junior and senior doctors and AHS staff are all from our unit.

64. Whilst we are as vigilant as possible, from time to time these children do develop infections, which, unfortunately, is part of their journey. Many of these infections arise from germs they may already have on their skin, their mucous membranes or in the gut, which is something they harbour themselves. That is difficult to control because it can happen at any time.

65. We do our best to ensure we do not give the patient an infection either from environmental factors or from the healthcare professionals involved in their care. We need to minimise this risk to zero, if possible.

66. The out of hours team also follow the same strict procedures that we do and receive regular training.

67. Doctors from our unit cover the patients in the unit until 10pm. After 10pm. the hospital at night team looks after all patients in the hospital.

68. The hospital at night team report to us directly after 10 pm. The consultant on call for our unit takes the calls from the hospital at night team to advise them or to go in if we need to see a patient.

69. When the hospital at night team are called to review a patient, they will be directed to the appropriate room. If there is a patient in source or protective isolation, nursing staff instruct the hospital at night team what is required of them in terms of the stringent protocols we use.

HOW INFECTION IS MONITORED, INVESTIGATED AND TREATED

70. When a child in our care becomes unwell with an infection, we have a responsibility to discover what that infection is, what the root cause of the infection is and what treatment is required. The patient is treated promptly to remove the infection.

71. Once the virus, bacteria or fungus that is causing the infection is isolated, there is interaction between the clinicians and the clinical microbiologists to discuss the best treatment.

72. We may accept that the infection is endogenous and could have happened anyway, and we treat that appropriately. If it is thought that the infection is unusual, or that the infection is a rare organism not often seen, this will be highlighted to the IPC. Any such rare infection is likely to lead to the formation of a Problem Assessment Group ("PAG").

73. Ideally, every gram-negative infection we see should lead to a PAG. On assessment, if it is agreed the infection is not an endogenous organism, it will lead to an Incident Management Team ("IMT") meeting. An IMT meeting involves management, Estates, clinicians, the IPC team and clinical microbiologists. The purpose of that is to identify a reason for that infection to be present in that child. Clinical interventions are informed by the discussions at the IMT.

74. If the incident is related to an ongoing issue, then obviously the management has a responsibility to report the incident to the wider GGC management. If we are not happy with the IMT outcome or the assessment or interventions, then clinicians have a responsibility to write directly to the Medical Director to tell them this. There have been occasions in the past where we have done this, but I cannot remember the specifics of this.

THE BUILT HOSPITAL ENVIRONMENT AT RHC – THE PLANS

75. I was not involved in the design, build, or specification for the QEUH. As a group of consultants, we were shown a blue print of our ward before we moved in and we identified a few issues which we noted.

76. We considered the allocated space too small for our unit and felt it would not be possible to accommodate all the facilities we needed and which we had at the Yorkhill site.

77. At Yorkhill, the ward space was rectangular, with the staff base (both medical and nursing) in the middle of the ward. This provided an easy view of the whole ward. The consultant offices were adjacent to the ward. There was space and rooms for other members of the MDT such as social workers, Paediatric Oncology outreach nurses, the clinical trial team and clinical nurse specialists.

78. When we were shown the plans for the new hospital, it was apparent that the area of the second floor allocated to us was oval shaped. The curving shape of the new proposed unit with the very small staff base area was not helpful. There were not enough spaces and rooms for the multi-disciplinary staff in the ward. Consultant offices were replaced with pods in the office block in a different and distant building.

79. We felt this was impractical and inefficient. We had a large team which needed to be accommodated, and we were clear that the space was too small for all of us. These issues were highlighted to the management team, but we were told that we had to work with the space already allocated and that no changes were possible.

80. As a consultant body, we refused to sign off on the proposed plan given our reservations. We refused to sign off the plan after meeting as a consultant group to discuss our concerns. My recollection is that Professor Gibson was asked to sign off on the plan but emailed to set out our concerns formally. Despite this, management went ahead with the plans as shown to us without any modifications being made in light of our comments and concerns.

81. Once we moved, after a lot of negotiation with the management, the research team, BMT team and Pharmacy got some space close to the ward but, again, the spaces were quite small.

82. My own office is currently located in a building which is distant from the wards which makes me concerned about the possible impact or compromise this may have on my ability to provide immediate care and treatment for my patients.

83. We were all very concerned about the office accommodation being distant from the wards because in Yorkhill, we were very closely located to the patients. We were within the unit, so it took a matter of seconds to reach a patient if we needed to. Now I am in a separate building behind the teaching and learning centre, adjacent to the Queen Elizabeth main adult hospital. It is on the other side of the road from the RHC and takes about eight minutes of brisk walking from the office block to the ward.

84. Other issues we raised for example were, we said we wanted an interview room to talk to parents about confidential things, breaking bad news and that kind of stuff. There was no interview room before, so we had to compromise one area for that, which meant that office space available to staff was taken out and converted to an interview room. There was no playroom or schoolroom for children on the ward either, so another staff area was therefore converted for that too.

THE PROXIMITY TO THE SEWAGE WORKS

85. Another concern we raised in advance of the building work starting was the place in which the RHC was located. We were concerned that the unit was being built near a sewage treatment plant. We were concerned that when sewage treatment was being carried out the whole area may smell of faeces. We had a concern that the sewage treatment would contaminate the air with bacteria and/or fungi.

86. These concerns were voiced but I do not recall any effort being made to address them. We, as clinicians, raised these concerns to our general manager, Jamie Redfern, and with the team in charge of developing the hospital. That team was made up of GGC employees who met with us to go over the plans. We did ask whether the proximity to the sewage treatment works ought to be of concern and whether there was an increased risk of infection.

87. We were told our concerns would be investigated but as far as I recall, we received no response.

THE BUILT HOSPITAL ENVIRONMENT – AFTER THE MOVE TO WARDS 2A/2B

CONTINUED ISSUES WITH THE SMELL OF SEWAGE

88. We moved from Yorkhill Hospital to RHC in June 2015. It became apparent quite soon after the move that there were a number of problems with the new Unit.

89. Prior to the move, we had flagged the proximity to the Sewage treatment works as a potential issue. Once we were in Wards 2A/2B, any time when the sewage treatment processes were taking place, our wards smelled of faeces. Patients and parents used to complain about this, it was intrusive and unpleasant. I do remember some patients being so unhappy that they wanted to leave the ward and be discharged as they did not want to spend one more night there. We had to talk them into staying, telling them it was not safe to go home at that point in their treatment and to stay where they were.

90. The impact was wider than just our wards, the smell was throughout the hospital and the outside area. Our patients needed to walk through the hospital to get to the ward. Some of our patients and parents were located in Marion House (a charity accommodation) at close proximity to the hospital, so they had to walk through the smell from the hospital to get there.

91. We talked to clinical microbiology and the IPC's nurse about the air quality concerns. Whilst they appeared to listen to our concerns, we felt as if nothing was done about it as nothing changed. I'm not clear if anything could have been done, but some reaction or information would have been helpful.

92. The most we had by way of feedback was being told that the air in Ward 2A was filtered which meant the air was pure, and that there was no bacteria getting in, just a smell. That was not helpful in terms of dealing with our patients.

ISSUES WITH WIFI AND PHONE SIGNALS

93. When we moved into Wards 2A/2B I became aware of a number of peripheral issues. Wi-Fi and telephone signals caused us problems. The hospital had provided us with mobile phones to use for on-call purposes. We are on call for lengthy periods. We had a small area in the ward where there was a hot desk for senior consultants to work,but unfortunately, there was no signal for the mobile/dect phones in that room (our internal hands-free phone system). We highlighted this issue many times to management. Jamie Redfern did pass it on to the telecommunications department and we were told that they would put a signal booster in. This was reported to have been done but the issue in these areas was never resolved.

94. Patients and parents also had an issue with the Wi-Fi and mobile phone signal. In addition, there were some rooms where children were staying for lengthy periods of time without working televisions. This resulted in complaints, as did the lack of power points for them to use.

95. These issues were addressed through the DATIX system to make sure that the issues were reported, making management aware that parents were raising these concerns to the ward staff. The DATIX reports ensured the issues were escalated to the Nursing Chief, the medical managers and Estates. Ward nurses in charge are very good in reporting these issues.

WARD ENTRY SYSTEMS

96. Originally the ward entry system consisted of two sets of double doors that could open simultaneously which was not ideal. Each set of doors ought to have opened when the other had closed. There were many times when they were broken. This issue was resolved after we moved back to 2A from 6A after refurbishment. Now as someone enters the ward, one door opens then it closes before the second door opens. However, within a few months the system had gone faulty and both doors now open simultaneously. This has been reported but remains unresolved.

CLADDING WORK

97. At some point after we had moved to the new unit, work was taking place to replace the cladding on the outside of the hospital. At these times, our Haematology and Oncology patients were asked to come though the adult discharge lounge entrance by the IPC team, to reduce the risk of fungal infection which could be caused by the dust and other impurities sent into the air due to the cladding works.

98. This work impacted on our patients and families. The adult discharge lounge entrance was a distance from our ward. It was a busy area and there was a lot of traffic in that area due to the collection of adult patients being discharged by the carers/family members.

99. Although the hospital is a non-smoking zone, many people used to smoke in that area too. There is signage there prohibiting smoking but still people ignore that. Children had to come through that entrance with the high flow of traffic and smoke. We were concerned about whether it would increase the risk of them being exposed to more infections or bacteria in the air.

100. During the cladding works, IPC told us that the children should have anti-fungal prophylaxis because there was likely to be mold and fungus in the air.

The microbiology team and IPC discussed the issue and advised on what anti-fungal prophylaxis should be prescribed. As clinicians, we were responsible for prescribing that. Communication regarding the prophylaxis was provided by IPC in conjunction with the management team.

ISSUES RELATING TO THE WATER SYSTEMS

101. I was not aware of any specific problems with the water system in 2A/B. As clinicians, we noticed an increase in the number of gram-negative infections in our patients in 2017 and 2018, which we felt was unusual and high in numbers. We alerted the microbiology team and IPC as we were concerned about both the number and type of infections. The type of microbial germs that were grown were rare ones that we were not used to seeing. There were a number of hypotheses about the source of these infections. IPC tested the water and found bacterial contamination which caused them to take a number of measures. There was a higher number of stenotrophomonas than we would have expected. We had occasionally seen stenotrophomonas in Yorkhill, perhaps once or maybe twice in a year. There was an increasing number of patients who were in-patients, or had gone through the in-patient ward system, who were developing these infections.

102. Prior to moving to the RHC, the clinical microbiologists used to attend our daily handover meetings at midday, which was very valuable to us. The clinical microbiologists were located adjacent to the Children's Hospital in the lab building, a few minutes' walk away. They also called us several times during the day, as soon as they had information on blood cultures, to give us valuable advice.

103. These meetings ceased after we moved to the RHC. My recollection is that when we asked our microbiology colleagues why, we were told they had been asked by management to re-organise their working. I felt that we had benefited from having dedicated Paediatric microbiologists who knew our patients and protocols very well. Once we arrived at the RHC, the

microbiologists did not necessarily know all of our patients as well as they used to.

104. Following the increasing number of infections seen in our patients in 2017, we requested that our clinical microbiology team resume meeting with us regularly, either physically or virtually, during the daily handover meeting at midday to review infections seen in our patients. They agreed to do so.

105. We then began to meet physically once a week and discuss matters by phone the other days. We continue to discuss matters with the clinical microbiology team in a similar fashion, except the once a week physical meeting has now changed to a Microsoft Teams meeting due to Covid restrictions.

106. It was during these meetings with clinical microbiologists that we began to raise our concerns. IPC were involved and this led to the PAG (Problem Assessment Group) and the establishment of IMT meetings to address the issues. The IMT meetings that I attended were the conduit to any information we received.

107. Although the IMT suggested a number of actions to address the issues, it did not make any impact on the number of unusual infections we were seeing in patients.

108. In 2017, the main hypotheses were that the standard of hygiene practice in the ward had gone down, and that doctors and nurses were not washing their hands properly, or perhaps not prepping the patients correctly. There were also suggestions that we may not be handling the central line correctly.

109. The focus was all about enhanced hand hygiene, enhanced hand washing, a care package for central lines starting from the surgeon and how to put a central line in. I think it was very stressful for the whole staff and the morale was low. The staff hadn't done anything different from what they were doing before. They were all trained very well for what they were supposed to do. It was a lot of pressure on staff and quite demoralising for them. We were

puzzled why we were seeing these kind of infections because it was a new build and a new hospital. We were never thinking, “Oh, there may be something wrong with the water or the drainage.” It never occurred to us in 2017.

110. It was only during the IMT meetings in 2018 that we were told, for example, to limit the source of water and not to use wash basins. We were given temporary wash basins to use with the distilled water.

111. It is difficult to say whether these measures impacted upon the clinical or day to day care of the patients. I do think it was the right thing to do; to carry out more enhanced hygiene, enhanced handwashing and other hygiene measures, although we are always vigilant about these things anyway. However, it did introduce a further step and made it more difficult in terms of accessing a patient urgently. I had to go through these extra steps to get into the room which would cause delay attending to the patient. I do not think I can quantify any effect on the clinical care from that, there was probably none, but it was just frustrating at times.

112. I think it was very frustrating and difficult for parents and patients. They knew we were doing the correct thing when we were seeing the patients, but even then, there was concern of infection. I do not think it was an issue of trust between the patients/parents and the clinicians because we had built very good trust and rapport with the patients/parents throughout. They knew we were doing everything we could to keep them safe and treat them to the standard they expected. It was more about communication from IPC and management to the patients and carers as to what was actually happening in the ward environment. They were quite unhappy that they were not given the information and felt it was withheld from them. Certainly, communication could have been better with regards to that from the IPC and management team. The communication that went to the patients and parents didn’t say exactly what was decided at the IMT meetings. We felt that to some extent, the environmental situation was underplayed to the patients and parents.

ISSUES RELATING TO VENTILATION

113. I was not aware of any problems with the ventilation system in 2A or 2B. We have to have a separate unit controlled by double doors, which open one by one rather than two together to keep positive pressure within the ward, even in the corridors and in the room. Some rooms have to be in negative pressure for source isolation because nothing should escape from the room, but the air still has to be filtered. We need to have HEPA filtered air with regular air changes maintained within the ward. There should be no draughts from the corridor doors, the lifts or from the outside. I do not know the exact standards for ventilation and HEPA filtration, but there are guidelines for the Haemato-oncology units. In terms of spores, they should be reduced to a minimum or zero so that there is no risk of fungal infection for patients. Those air circulations are really important for us to maintain.

114. When the Schiehallion Unit opened in 2015, there were double doors, but whether they were operating in the correct way, I can't remember now. The Ward 2B day care entrance did not have a double door, but the Ward 2A in-patient facility had double doors. I am not aware of any occasions when air sampling showed poor results for Wards 2A and 2B. In Ward 6A, there were occasions in early 2019 when some poor air sampling was reported to us.

115. I'm not an expert but I was told that because of the sewage treatment plant adjacent to the hospital, they wanted to avoid any possible contamination or smell by having a closed system of sealed windows, so they could control the air in the hospital. It is difficult to control the air that way, I believe IPC told us at IMT meetings that it is the least preferred system for hospitals to work with.

AWARENESS AND UNDERSTANDING OF OTHER ISSUES

116. When we moved into Ward 2A/B in the new Children's Hospital in 2015, it looked new and clean. However, in 2018, after some remedial work on the water system, we were made aware of problems with the water, drains and internal walls. I became aware that drainage was a problem in several rooms

on the ward. Problems reported included dampness and mold on the internal walls, blockages, leakages and the pooling of dirty water in toilets and shower rooms, sometimes flowing into adjacent bed areas. Leakage from the roof was also noticed from time to time.

117. A number of interventions were suggested and carried out by the IMT/IPC to address these problems. These included limiting the source of water, temporary wash basin use, hand disinfectants, chlorine treatment of water works, hydrogen peroxide treatment for the internal environment and enhanced cleaning. These made little or no change to the number of unusual organisms we were seeing in our patients' blood stream.

118. I do not have exact dates and times for these issues although the Estates department might have them. These issues were noted in 2018 on Ward 2A/B and on Ward 6A in 2019. Nursing staff used to report these issues to Estates and highlight these at the IMT meetings. I am aware that Estates used to send their team to clean and repair the involved rooms or areas, only to find new areas or rooms with the same problems.

119. This was hugely frustrating for staff as well as patients. The patients had single rooms with attached bathrooms. After patients had showered, instead of seeing the water draining through the shower tray into the drain, they saw it building up and coming out into the shower room. I have seen this in some of the rooms. The shower rooms are like wet rooms so there are no trays under the showers, meaning water can rise up and flow outside the room into the bedding area.

120. Sometimes the excess water was black in colour, which was really worrying and frustrating. At some of the IMT meetings in 2018 and 2019, they told us the water from the showerheads or the swabs from the showerheads were growing all the organisms we were seeing in our children.

121. I also saw the mould in some of the rooms; the black-coloured dampness. Sometimes patients came to offer to show me the mould. Estates and IPC might have pictures but I don't have any.

122. These issues went beyond recording them on DATIX. There were regular IMT meetings going on and Estates and nursing staff were raising the issues at these meetings. IMT were picking things up directly from there. Nurses directly reported to Estates as and when they noticed these issues for action. That would usually be done by the nurse in charge of the ward or the day care.

123. Rooms had to be emptied and closed until remedial work was done in them by Estates. Staff were moving the patients out of one room and into another, closing off that room for Estates to come and address the issues. Until the issues were fixed, the room was closed. When Estates said the room was open and okay to use again, they would be released.

124. Again, the closure of rooms was frustrating for the patients in terms of moving from one room to another, only to find that two days later, that new room was leaking or had mold, and then be moved from that room to another again. Some children were moved rooms two or three times a day and then suddenly, another leak would be found. We did not know at that time if the issues were due to the chilled beams, condensation, leaks or something else.

CLOSURE AND MOVEMENT OF WARDS

125. I recall two times when we moved out of Ward 2A to another area/ward.

126. Haematology and Oncology patients were moved to Ward 6A in the adult hospital on 26 September 2018. Bone marrow transplant patients were moved to Ward 4B in the adult hospital on the same date. Our patients from Ward 6A were moved again in January 2019 to CDU in order for portable HEPA filters to be placed in Ward 6A due to cryptococcal concerns.

127. Ward admissions were also restricted at times, though I can't remember the exact dates. For a while, new patients were being directed to other Scottish centres like Edinburgh or Aberdeen. Some elective chemotherapy patients were also sent to other centres in Scotland and Newcastle. Some patients were directed to other district general hospitals local to the patients for supportive care for febrile episodes etc.

128. Decisions to move wards, close wards and direct patients away from our unit to other hospitals were made by the IMT and IPC along with management. Our role was limited to expressing severe concerns about caring for patients in Ward 2A and Ward 2B due to rising infections caused by unusual organisms. These concerns were mainly expressed by the consultant group through departmental meetings. We were discussing it in that group with a combined voice to say, "We are not happy to continue treatment here in Ward 2A and Ward 2B." Despite all the changes they had made, nothing was getting better, so we couldn't expose our children to that environment again. Those concerns were then taken to the IMT and management by consultants who were representing the unit. For example, in some IMTs that I attended, I expressed our opinion. Professor Gibson and Dermot Murphy, who were the main contacts from within the unit, would go to the IMT and say, "We need to have a meeting with management now. We don't want to treat here. The whole consultant body agrees that we can't continue to treat here."

129. It was our decision, as clinicians, that we shouldn't continue treating in this ward, but we were not the best people to say where these patients should be treated. That responsibility was for management. We wanted to be provided with a safe environment for our patients where we could treat them. It was at this time (August 2018) that management finally agreed that the ward was not a safe place to treat our patients. Until that time, management were telling us that things were fine, that they were addressing the issues based on the hypotheses through actions like hydrogen peroxide treatment, water drainage, chlorine treatment and the provision of temporary wash hand basins. That is when the clinicians got fed up.

130. I am aware of some the options considered by the IMT and IPC alongside management with regard to closing Wards 2A and 2B and moving patients as they came and discussed these with the clinical leads in the unit. I understand the following options were considered:

a. Moving to another ward in RHC
b. Moving to a ward in the adult hospital, QEUH
c. Moving to a ward in the Beatson Oncology unit facility at the Gartnavel site
d. Building a temporary portable type hospital adjacent to RHC.

131. The IMT, IPC and management discussed these options and afterwards, we were told we were moving to Wards 6A and 4B at the QEUH. We were not happy with moving to another ward in the RHC, because if the water system in the whole Children's Hospital was contaminated then it did not matter which ward we were moved to, the issue would be the same. According to the IMT and IPC, the drainage system was contaminated, so going to another ward in the Children's Hospital was probably not a good option, and we agreed with that.

132. We were concerned that Ward 6A was not built for treating immunocompromised patients, but we were told that was the best option and that we had to move. The Ward didn't have things such as HEPA filtration or positive pressure ventilation. It was quite small for us as well as we had to run the day care unit and the in-patient unit in Ward 6A. There were not enough facilities for the staff. For example, there were not enough rooms for clinicians to work, such as the junior doctors, the consultant body, and the nursing staff. It was less than ideal to move there because it wasn't built for our needs and the space was too small. That's why we were concerned. We said to management, "If it is the best option, we will move, but this is what the concerns are." Ward 4B was okay. Ward 4B was built for immunocompromised patients but Ward 6A was not. We were not aware of any water problems in the Adults' Hospital at this point but we unhappy that it

was not a positive pressure ventilated, HEPA-filtered unit. We were told, “It’s a clean unit. It’s the best they can offer.”

133. At the time of the move some new patients were directed to other Scottish centres on a case by case basis, weighing the risks and benefits. This was because we, as clinicians, were not comfortable bringing in new patients to a unit which potentially had issues with infection. The management made the decision regarding this but left the clinicians to decide on a case by case basis who would be sent elsewhere.

134. Moving to the Beatson was not a good option either because the children would be moved away into an adult hospital with no intensive care facility and away from other medical specialties/facilities.

135. In my view, completely closing down the unit and moving all the patients to another centre would have been the best option, but that meant the whole of western Scotland’s children would have to go to another centre for treatment. Issues with capacity and resource at other Scottish centres were considered. It would also mean patients travelling several hundreds of miles for all treatments, putting them at higher risk, so that was really not a practical solution and, from a service point of view, and for management and GGC, it was the least preferred option.

136. We accepted that this was a difficult decision. As a consultant group we said what we would like to have was a portable style hospital adjacent to the RHC in the same ground, completely built with HEPA filtration etc. And if possible, with a link corridor to the Children's Hospital for using the theatres and all the other facilities.

137. However, building a portable style hospital would have taken about three to six months. It would require the military to build it and we were told we were only being moved for 12 weeks, so there was no point in doing this. Ultimately we were told to move to Ward 6A. We were not happy with this, but we had to

move because we were thinking that staying in Ward 2A was more dangerous than moving out.

138. I believe Professor Gibson and Dermot Murphy were more heavily involved in the move but I did not have any involvement in the decision to move. This was supposed to be a temporary move for 12 weeks. Those were the words that were used, “This is a temporary move for 12 weeks. Within 12 weeks, we will address the issues on 2A and 2B, and we will move you back.”

139. One of the main impacts the move to Ward 6A had on patients, families and staff, was that it was very small. In Ward 6A, we had to move the day care and Ward together into a single unit. We did not have any playroom, school for the children or even places for the staff. We had even less space than what we had in Ward 2A. We were very limited to what we could do.

140. I think for parents, but especially for patients, to go into those rooms and have no playroom was not good. It was emotionally and physically draining for children to stay in the one room all the time.

141. Ward 6A was probably about half the size of Wards 2A and 2B together and we had to move everything into the Ward. We needed to reorganise the way we worked and use all the district general hospitals for supportive care, even though many of them were not recognised as shared car hospitals.

142. There was no physical space to accommodate everything and everybody, so we were told that we should move some patients away to other centres. We had to go and speak to the clinical directors and managers in those hospitals to tell them that our patients would be going to them for treatment.

143. We had to move some patients out of the unit for chemotherapy and other treatments because it was not safe to go at times. It was a compromise we had to make for not closing the unit completely and keeping the service going for our west of Scotland’s patients.

144. In January 2019 we had to move out temporarily to CDU due to concerns with cryptococcus infection on the Ward, they had to get portable HEPA filters for all the room and corridors.

INFECTION WITHIN THE HOSPITAL WARDS

145. We moved from Yorkhill Hospital to the RHC in June 2015. The first Cupriavidus was identified in the blood stream of a patient with a fever in February 2016. We were then told by the IMT that an aseptic unit tap in the pharmacy had grown this organism. We were also told by the IMT that the typing of the strains revealed that they were the same organisms. IMT told us that a second case in a patient was identified in September 2017, which was linked to a hand hygiene sink.

146. A third case of Cupriavidus was identified in January 2018. Testing the water revealed this environmental gram-negative bacteria, which was very rarely identified in patients. I don't think they had identified any source in the third case.

147. A number of blood stream infections with different gram-negative and gram-positive organisms were identified in 2017. IPC assumed this to be due to a poor standard of hygiene and care by the staff. A quality improvement project ("QIP") was instituted to alleviate this problem. The project included enhanced hand hygiene, CVAD care packages and staff training for handling CVAD etc.

148. A number of blood stream infections with different gram-negative organisms were noted in the blood stream of patients with a fever in 2018. Eleven different organisms were identified. This information was provided to us at IMTs. Several of these organisms had been identified in the water in the drains. The names of the organisms (numbers of which are shown in brackets) were:

    a. Cupriavidus pauculus (1)
    b. Pseudomonas fluorescens (1)

c. Pseudomonas aeruginosa (3)
d. Stenotrophomonas maltophilia (12)
e. Acinetobacter ursingii (2)
f. Enterobacter cloacae (7)
g. Klebsiella oxytoca (1)
h. Serratia marcescens (1)
i. Pseudomonas putida (1)
j. Pantoea sp (1)
k. Klebsiella pneumonia (1)
l. Chryseomonas indologenes (1)

149. The clinicians felt this was very unusual and high in number despite the QIP in place. Clinical microbiology and IPC were made aware of this by the clinicians as the issues began and evolved.

150. A PAG and IMT were then established by IPC.

151. After an initial period of a decrease in the infections in our patients in Wards 6A and 4B, a rise in the number of gram-negative infections were noted again in the blood stream of children, with fever on Wards 6A and 4B in 2019. Again, clinicians felt this was unusual and high in numbers and these were discussed with clinical microbiologists, IPC and IMC.

152. Over a period of time in 2018 and 2019 there were a large number of hypotheses made by the IMT and they were carrying out interventions: limiting source of water, portable washbasins, hydrogen peroxide vapours, drain cleaning, water chlorination and other actions.

153. Despite these actions, every week we would see two or three more patients getting the new infections. We had heard of all these particular organisms before, but we never used to see them this often in our patients.

154. In the last 25 years of my practice, I would have seen at the most one or two of these organisms in a year.

155. We did appreciate that Estates were doing everything they could and that the IMT and IPC were countering whatever was in their hypotheses, but we were still seeing patients with the infections, which was not right. That is when we asked the IMT to arrange for an external body to come in and investigate, to see if there was something fundamental that we were missing.

156. It was around this time that we started asking ourselves whether the building was fit for purpose, whether the unit was fit for purpose for treating patients and whether the water systems and drains were okay. We wanted that reassurance.

157. IMT said they did not want to go external, they wanted to use someone internal to Scotland. They told us that HPS was an independent body and that they were going to ask them to investigate this.

158. I think we should have asked Health Protection England, as an external body outside of Scotland, to come and inspect the facility and the unit, because they may have had a completely different vision of hospital design and function and they may have been able to identify what was wrong. I don't think that the report done by HPS in 2019 was particularly helpful in addressing the problems or rectifying the problem. It was more like a summary of events and what was done, as opposed to coming up with more hypotheses or suggestions about what we should be doing.

159. We gave some names to management that they could approach. I can't remember the names now, but somebody from Newcastle, Bristol or London from Public Health and Health Protection England to see whether they could approach and invite them to come and investigate.

INFECTION CONTROL MANAGEMENT WITHIN THE HOSPITAL WARD

160. Clinicians, the clinical microbiology team, Estates team, IPC and management were all working together to address the concerns of increasing blood stream

infections in our patients with unusual environmental gram-negative bacteria problems.

161. PAG, Root Cause Analysis and IMT meetings were held regularly to address and initiate measures to mitigate the problem. Root Cause Analysis was something the IPC suggested in the IMT meetings; every case of an infection should be investigated more thoroughly as an individual case. It is basically to find out in an individual case how the patient moved between different wards; which ward were they staying in, where their line was accessed, and to find out whether the infection could have been introduced to the patient in the hospital environment. This was to find out if there was a common link. There were probably one or two cases where environment in the patient journey might have contributed to the infection, but most of the time, it didn't contribute to anything.

162. Clinical microbiologists were very concerned, like clinicians, about the rise of infections with unusual environmental organisms. I think clinical microbiologists were in complete agreement with us that it should not be happening and that it was just not right.

163. IPC were slightly different. There was a difference of opinion between IPC and microbiology in terms of what constitutes an environmental bacteria or an endogenous bacteria. The IPC were always trying to say that there is no such distinction between the two.

164. IPC's main intention seemed to be to tell us that the infections were nothing to do with the environment and that we were just seeing a change in pattern of gram-negative infections. The numbers were not high, they were not unusual, they were the same and that we were just seeing them more. The clinical microbiologists agreed with us that these were unusual infections in children, and we should not be seeing this many.

INVOLVEMENT IN THE INVESTIGATIVE PROCESS

165. In terms of developing a hypothesis, the clinicians had no input. The hypothesis was done by the IPC with the clinical microbiologists based on what they had seen and what organisms they had grown. They would suggest a remedy based on the hypothesis. We were not actually experienced or qualified enough to comment on whether it would work or not.

166. There was always a lag behind finding something and taking action to rectify it.

167. I was not aware of any views from the IPC that there may have been a link between infections and the hospital environment, which was frustrating to us as clinicians. We were very clear to them that we did not see these types or number of infections in patients. In general, clinicians' feeling in 2018 and 2019 during the IMT meetings was that they were telling us, "There's absolutely no link between the environment and the infection that you are seeing in the patients." That was frustrating because nothing else had changed. The patient population and the treating team were the same. The protocols were actually more enhanced, there were more safety nets and vigilance, but still we were seeing these infections. We were told that the environment had changed from Yorkhill to RHC with time.

168. There was a change in the Chair of the IMT in 2019. Teresa Inkster had been the previous Chair, she was a clinical microbiologist and was also leading infection control. The last few IMTs were chaired by Emilia Crighton from Public Health.

169. Teresa Inkster was very good in terms of listening to clinicians and trying to see what she could do to help with hypotheses. Although it really did not make much change in the number of infections we were seeing, I do think she was listening to us.

170. During the last few meetings that were chaired by Emilia Crighton, clinicians felt that they were not listened to.

171. It seemed as though the main purpose of the meetings was to disprove any link between the hospital environment and the infections and reassure us so that we should get back to business and work in the same ward. These were really disheartening and difficult times for us as clinicians.

172. I cannot speak on behalf of the other clinicians, but at times I felt that my expert view and clinical input was not fully taken into consideration and was disregarded.

173. It was frustrating to go and sit in a meeting, and at the end of the meeting to feel that whatever was said, was disregarded or not listened to. It impacted on the patient care. It resulted in more antibiotics, hospital stays, extra procedures, removal of lines or putting in new lines. It was demoralising and frustrating for clinicians to go and say at every meeting that there is a problem and to be told there is "No problem." If they had listened to us and acknowledged that there were increased infections and unusual organisms, even if they were not able to make the hypothesis or prove it, perhaps they would have sought external opinions earlier.

174. Professor Gibson was at some of these meetings and as far as I am aware, she was of the same view as the other clinicians. We called a meeting with the Medical Director, Dr Jennifer Armstrong, and also Catherine Calderwood, Chief Medical Officer for Scotland, to express our dissatisfaction at the IMT meetings. The Cabinet Secretary sent somebody to the IMT meeting to represent them. There was a psychologist and a person from the Cabinet Secretary's office present to sit in the last two IMTs, just to witness what happened. There was an uncomfortable atmosphere in meetings and they felt IMT were intimidating to clinicians

175. Towards the end of the last two meetings, the IMT Chair was saying, "There's nothing wrong with the environment, you're all doing a grand job, get on with it, back to business."

176. What I understood was that the Cabinet Secretary's team and the Department of Health had been made aware that there was an intimidating atmosphere at the IMT meetings; that clinicians were not able to express themselves properly and that communications between IPC and clinical microbiology were not good.

177. Professor Gibson actually met with Jeanne Freeman, the Health Secretary, at that time to express our dissatisfaction with the IMT. I think Dermot Murphy, Jamie Redfern and Jen Rodgers (Nursing Chief) were at that meeting too.

178. When the IMT were trying to re-open Ward 2A, they had some meetings with us to discuss what work had been done on 2A. They had arranged a tour for us when the building work was still going on, to show the amount of work that they had done with the ventilation etc. An enhanced ventilation system was put in to meet a higher standard than what is currently recommended. We saw that and we were reassured that they had done everything that needed to be done. We were as happy as we could be that they had done all the work there. We then had to take a decision, weighing the risks and benefits, of staying in Ward 6A, away from the Paediatric environment, having known that they had done all the work, or moving back to Ward 2A close to the Paediatric environment. We were reasonably happy that they had done extensive work on Ward 2A so as to move back. We were cautious that we needed to monitor things when we moved back and that we had to have some kind of enhanced vigilance for this. We all agreed to move back in March/April 2020.

179. Often we felt that the IMT was reactive rather than proactive in identifying or addressing issues. By this I mean problems used to crop up on the ward, every week or day, and we, as clinicians, used to highlight that to the IPC. They would try and fix that, but then something else would crop up the next day in the wards. We thought that they should have systematically approached the issue looking through everything, to assess and fix the environment.

IMPACT OF INFECTION WITHIN THE WARDS

180. The risk of infections in our patient population is well recognised. Sometimes these can be severe and life threatening. These infections can result in hospitalisation, prolongation of in-patient stays, delays in chemotherapy, extra procedures and interventions, and admission to ICU.

181. Clinicians were concerned with the increasing number of infections with unusual gram-negative bacteria on the ward. Patients with infection needed admission to the ward, intravenous antibiotics and sometimes admission to ICU. Many of these patients had to get their CVAD removed to clear the infection. A new CVAD needed to be put back after clearing the infection to continue cancer treatment.

182. It is difficult to measure the impact on the outcomes of cancer due to the delays in treatment of cancer induced by interruptions as a result of infections. However, it did have an enormous impact on the physical, emotional, and psychological wellbeing of patients and carers.

USE OF PROPHYLACTIC MEDICATION

183. Antibiotics and antifungal prophylaxis use is a standard practice in our patient population to prevent life threatening infections. Examples are Cotrimoxazole for PCP (Pneumocystic Carini Pneumonia) prevention and antifungal prophylaxis for high risk patients at risk of developing fungal infections. These are followed as per national and international guidelines. The medications are explained to patients and carers when they are given to the patient.

184. The national and international guidelines specify where a patient is at risk of specific bacterial or fungal infections and if this is the case then we use antibiotic or antifungal prophylaxis as per the guidelines. Some of these drugs have to be stopped temporarily for 48 hours or 72 hours before the chemotherapy is given as they may interact with chemotherapy.

185. If someone develops a fungal infection, then we have to clear the fungal infection before actually giving continuing chemotherapy. That is because we would be making them more immunosuppressed, and we would be increasing the severity of infection if we continued the chemo.

186. We need to be careful with prophylactic antibiotic/anti-fungal medications as they have complications and side effects themselves, so we don't use them unless we have to.

187. If it is an international or national guideline or policy, then we have to use that because there is a risk of severe infection. However, if it is because of environmental safety concerns that we have to use antibiotics and antifungals, then that is not a good environment to be treating patients in. We need to improve the environment in that case. That was our view; that we should not be giving antifungal/antibiotic prophylaxis just because we have to continue to treat patients in an environment that is not suitable.

188. Chemotherapy would always take priority over prophylaxis unless there was a known infection being treated, in which case the antibiotic would take priority.

COMMUNICATION BETWEEN THE GGC, CLINICAL STAFF AND PATIENTS ON THE USE OF PROPHYLACTIC MEDICATION

189. At times, the IMT and IPC team advised the clinicians to use additional prophylactic antibiotics or antifungal medicines on children. Information about the need for prophylaxis was communicated to patients and carers by members of the IMT/IPC.

190. Those patients and parents who were not on the ward were not necessarily captured. As clinicians, our responsibility was to prescribe these medications and explain to the patients and carers when we did it.

191. Prescriptions are given by the clinicians but the communication surrounding that was decided by the IMT.

192. When we see the patient, we explain to them that the IMT have told us to prescribe antibiotic prophylaxis or antifungal prophylaxis to some children who are at risk of developing infections. We tell them what we have been advised, what the side effects are and how we should be monitoring this. After that we would put them on that medication. We tell them verbally, like any other prescription – written consent is only taken for chemotherapy as per the national and international standards. In day-to-day practice of prescribing individual drugs, we do not take written consent from patients. For example, if we were going to start someone on antibiotics/omeprazole, we would not take written consent from them. We explain at the ward round or after the ward round what we are prescribing and why. That forms part of our duty of candour.

COMMUNICATION BETWEEN GGC HEALTH BOARD, CLINICAL STAFF AND PATIENTS ON INFECTIONS IN THE WARDS

193. As clinicians, we recognise the importance of the duty of candour. We were communicating directly with the patients under our care with whatever information we understood from the IMT.

194. Members of the IPC and management were making efforts to go around the wards after the IMT meetings from time to time to communicate with the in-patients. Most of the time it was Jamie Redfern and Jen Rodgers who met the parents on the ward. Sometimes Pamela Joannidis, Infection Control Nurse, was also present. However, those patients who were not in the hospital at the time may not have received the same levels of communication from the IPC and management. I think management were trying to establish a Facebook page, but I don't have access to those pages. I'm not sure what the patients and families were told through the Facebook page.

195. I was not aware of or involved in any meetings with families in relation to water concerns in 2017. Also in the beginning of 2018, there was not much direct interaction between management or IPC and the patients. It started sometime in the middle of 2018, I don't remember exactly when.

196. I did accompany some members of the management team to meet with families in 2019. I was there with Jamie Redfern, Jen Rodgers and sometimes Pamela Joannidis.

197. When one of my patients was specifically found to have an infection, after the IMT meeting, we would go to the ward and find those patients/parents. We would then speak to them to tell them the infection is being treated, and that we were still continuing to try to find out the reason for this infection. Management would explain to them that they couldn't identify a direct link from the water or the environment, but that they were taking some remedial action.

198. Sometimes as clinicians we felt that the patients were more aware of the issues with the build and the environment than ourselves.

199. I wasn't directly involved in creating any communication or information which was to go out to families, either relating to the water concerns or the moving between wards.

200. Following the IMT meeting, somebody from the Communications Team would compose a statement, a very basic statement, and that would be communicated to the parents. They would decide at the IMT meetings what they would tell parents.

201. Many of the IMT members probably still believe that there is no connection between the environment and the infections, which we clinicians do not agree with.

CONTEXT OF IMT MEETINGS

202. IMT meetings were held regularly to discuss the infections identified, assess the cause of the infection, impact on the patient, control/remedial measures

implemented and the effect of these measures on further incidence of infection.

203. IMT meetings were mainly attended by Professor Gibson and Dr Murphy. I attended some of the meetings that I was invited to, especially if one of my patients was being discussed. At the meetings, we were given information about the hypothesis they were putting forward and what measures they were taking to mitigate the issue.

204. My role was just to tell the IMT how the patient was, what they were being treated with, whether they were unwell, if any extra procedures had been carried out with that patient and what the clinical severity of the impact was on the patient.

MINUTES OF SPECIFIC IMT MEETINGS

IMT MEETING 25 JUNE 2019
(A36591622 -IMT Gram Negative Blood Ward 6A – Bundle 1 – Page 325)

205. One of my patients had developed a mycobacterium chelonae infection in the blood in 2018. It was the first time I had actually seen this organism in a blood culture, it was very unusual. I had not seen any mycobacterium chelonae infection at all in a patient in 25 years, although GGC might have seen some patients with this infection before.

206. [redacted]

207. I firmly believed that this infection must have come from the environment in the hospital rather than from their house. I asked if we could check the water in the hospital.

208. Mycobacterium chelonae is a very difficult organism to clear and it can affect any organ in the body – the skin, mucous membranes, internal organs, anything. In immunocompromised children especially, it requires multiple treatments, multiple drugs and antibiotics. Given it is so difficult to clear, I was very concerned about this patient's outcome.

209. At that time, the IPC in the IMT meeting told me it was not standard practice to check for that organism in the water, which I found hard to believe. I told them we had an infection in a child and asked them why they could not test the water. They told me it wasn't standard practice and that they never checked for mycobacterium chelonae.

210. I suggested that if they thought the infection had come from water at home, we should go and get the water from the house, and the water coming into the hospital from the mains source from Scottish Water and test both samples.

211. They said they would check to see whether they could do that and get back to me, but they never acknowledged or agreed that this could potentially be coming from the hospital water and they never tested it.

212. I treated this patient which was difficult because nobody knew how to treat the mycobacterium infection as it was so rare. There are very few reports of clinical infections. There is a reference laboratory in Edinburgh with a Clinical Director, so we got his suggestion on how to treat it. The clinical microbiologists and myself then treated this patient based on their advice.

213. I had to interrupt chemotherapy for that patient because this was a life-threatening infection. I gave [redacted] the advised treatment until I was told by the clinical microbiology consultants that the course of treatment I had given was adequate, and I could restart the chemotherapy. I then restarted the chemotherapy but unfortunately, in October 2018, [redacted] had the same infection again. It was very clear that we had not cleared the infection and it was still there.

214. I asked again for the water to be tested and I was told that it was not standard practice. This time, my patient needed prolonged treatment. After a brief interruption I had to continue the chemotherapy with the antibiotics [redacted]

215. The above incident occurred in 2018. Around 14 May 2019 they identified this same infection, mycobacterium chelonae, in another patient. In the last 25 years of my practice I had not seen a patient with this infection, then within a year, I had seen the same organism three times in two individual patients. That is why it became important to me to understand where the source of the infection was.

216. Whilst the water was not tested for mycobacterium chelonae in May 2018, in 2019, the water tested positive for this organism in some of the showers. I was told that the biofilm must have developed in the water system allowing growth of this organism in the system and that patients were having showers with unfiltered water. I was told by the IMT that the incubation period varies for this organism from between 15 days to 8 weeks.

217. The same organism had also been identified in a different child. Professor Gibson and Teresa Inkster were going to meet the parents of this child after the IMT meeting to tell them about this. However, I urged the IMT and the management lead, Jamie Redfern, to phone and let the parents of the first child (who grew this organism in May 2018) know about this. They agreed to do so.

218. However, they did not phone the patient or the parents of the first child. I met the first patient and [redacted] parents on the same day and told them that the hospital water had grown mycobacterium chelonae. They had been asking the IMT and management about the possibility of their child having caught the infection from hospital water ever since it was first detected in their child. I was disappointed that the IMT and management lead had not phoned the

parents as agreed at the IMT. The parents were very upset, understandably, that they had not been given this information by the IMT nor management.

219. On page four of these minutes it says, “This case has been classed as a HCAI as not an in-patient at the time of the sample.” I think that must be a typo (not classified as HCAI) as that is not what they were saying in the meeting. The patient was an in-patient at the time so that is the opposite of what they were saying. It must have been a HCAI.

220. Initially, they were not agreeing that it was a healthcare-associated infection. They always held that this patient got it from outside the hospital but then they agreed at the IMT that this must be from the hospital i.e. a healthcare-associated infection.

221. In the minutes somewhere, it says they had actually grown mycobacterium chelonae from the water from the shower heads (multiple shower heads). So this comes back to the fact that we were asking if these patients were showering with the contaminated shower heads.

222. I think one of the things they were saying was that the water from the taps in the washbasins, if they were opened up too much, flowed too quickly and it rebounded, splashed back, and then affected the surrounding environment.

223. They were also saying that we were touching the taps while we were washing our hands. We actually wash our hands and use our elbows to close the water tap. This technique is part of our clinical training. We never use our hands for turning the tap off.

224. We did not agree with that, it was probably more likely to be due to the fact that the patients were showering with the same shower head or maybe using the same water to wash their hands or brush their teeth and rinse the mouth.

225. It was also difficult to make sure that the people visiting the patient (like relatives or friends) used the same hand hygiene technique that we as clinicians used.

IMT 14 AUGUST 2019
(A36591626 – IMT Gram Negative Blood Ward 6A – Bundle 1 – Page 343)

LEAKS FROM CHILLED BEAMS

226. In the IMT Minute dated 4 August 2019, it is mentioned that one member of staff is recorded as having witnessed leaks from the chilled beams. I did not see that myself, but I know the patients were moved from room to room because of the leaks from the chilled beams.

227. When I went in in the mornings to do the ward rounds, I saw that some rooms were already cordoned or closed off with plastic curtains. We were told that in that room the chilled beam was leaking, and that was why they had closed it off. They were cleaning and they were monitoring.

228. Reports from Estates in the IMT along with the clinical microbiologists and IPC were that there was water condensation on the chilled beams, leaking from the chilled beams onto the floor.

229. I have never worked in a unit where chilled beams were in use in the hospital. Chilled beam technology was all new to us. We couldn't understand what the technology was in the first place. Estates did explain to us how it all worked but it was very technical.

230. It was said in IMT meetings that there should not be any chilled beams in the Haemato-oncology unit because they are not a safe system to have for controlling the air quality. I am not expert on this though. I believe they were used because they wanted to control the temperature within the wards as they couldn't open the windows due to the hospital being designed with a closed, sealed-window.

IMT 6 SEPTEMBER 2019

(A36591637 – IMT Gram Negative Blood Ward A – Bundle 1 – Page 354)

231. [redacted]

232. [redacted]

233. [redacted]
l.

234. [redacted]

235. [redacted]

236. On page 17, it is recorded I had agreed to do a briefing paper to be given to the families. I don't know exactly what context this was in. I had asked the IMT to give adequate and correct information to parents and patients. I thought that information which patients and parents were giving us was sometimes more than what we were given at the IMT.

237. The press actually used to put up stories about these things and it was not necessarily what the IMT was telling us. I said at the IMT, “Instead of the press telling the patients and parents what the problem is, we should actually be proactive and tell the story from our side, that we recognise that there is an increased incidence of infection here and we're trying to do something about it, that we're trying to find a hypothesis and deal with it.” I think that was taken okay, and they were going to compose something to share with the patients and parents to say whatever was agreed in the IMT that they wanted to share.

238. I recall Jen Rodgers agreed we should do that rather than the press telling the patients directly. I was not involved in preparing the paper around what they should say to the parents. We agreed that we should do a briefing paper to the press to update them on the current situation and be honest with the public and the parents. If we did not know what the reason for the infections was, we should tell them that and also tell them what we are going to do about it rather than denying that there were any problems at all in the hospital.

239. For them to agree to this felt like an acknowledgement. I was asking them to accept that there was a problem and to get on with it. My feeling is that this was when Teresa Inkster was still the Chair of the IMT meetings. I think when Teresa Inkster was the Chair of the meeting communication was better with the clinicians.

240. I think there was a feeling from the clinicians that patients/parents were not aware of exactly what was happening, and that they were getting information from the press rather than from management. I wanted that to change. I wanted us to give the information to the parents and the public, rather than have them hearing things from elsewhere which might not have been correct.

IMT 8 OCTOBER 2019

(A36591643 – IMT Gram Negative Blood Ward 6A – Bundle 1 – Page 373)

DELFTIA ACIDOVORANS

241. On page 21 of the IMT document, it describes a patient's condition and that defltia acidovorans had been identified. [redacted]

242. According to the IMT, this did not fit the criteria they used for the definition of a case. They said it 'possibly' could be a case. [redacted] Again, delftia acidovorans was something we would not see before. I had never heard of delftia acidovorans before. We learnt of a lot of new organisms from these infection episodes. I could not understand why they were discarding that case as a possible case because this was an environmental organism that we do not see.

243. The hospital could not be ruled out as a source. If there is an organism sitting in a line for a week, for example, just proliferating in the line but not going into the bloodstream, it will only go into the bloodstream when the line is used. If we use a syringe and the organism is then pushed into the line, that is when the patient becomes unwell. A patient might have been released from the hospital one week ago after having been in for some time as an in-patient, and then come back in and get their CVL flushed, so the germ gets released into their system at that point. The IMT were not acknowledging that.

HEPA FILTERS

244. On page 23 of the IMT document, it is recorded that I asked about high counts in air samples taken around the nurses' stations. This was in January 2019 when we moved back to CDU, temporarily, so that they could put HEPA filters in Ward 6A.

245. They put HEPA filters on the corridors of the Ward and inside the patient rooms. These were portable ones, not as effective as the central ones, but there were none in the patient bathrooms at that time. At this time, they were sometimes carrying out air sampling.

246. Of course, with the way the HEPA filters are, if samples are taken around that area where the filters are, you might actually get a better sample. I think when the air sampling results were shown to us from around the nurses' stations where people were sitting, those samples had a higher spore content than the rest of the corridors. Also, the patient bathrooms had more air spores than the rest of the Ward, because there was no HEPA filtration in them.

247. This was more interesting to me because the noise produced by the portable HEPA filter was very high. If sitting near the nurses' stations where there is supposed to be a portable HEPA filter, and the HEPA filter is switched on, the noise is so high that you can't actually hear anything. You can't hear a phone conversation so often you would find when you got here that they had switched it off because they couldn't work with the amount of noise it was emitting. That might be the reason that the air sampling showed higher content near that area.

248. They agreed to put HEPA filters in the bathrooms after this meeting.

249. I honestly don't remember what communication went to the families during this time. I hadn't seen written communication myself in terms of what was said to parents. We were definitely asked to prescribe antifungal prophylaxis for high-risk patients at that time, and I do remember Jen Rogers and Jamie Redfern sometimes going around with either Dermot Murphy or Brenda Gibson. When one of my patients was involved, they had gone with me to explain what was happening, and explained that, as a precaution, we were prescribing antifungal prophylaxis as advised by the IMT and IPC.

LEAKING TAPS IN THE PARENTS' KITCHEN

250. On page 24 of the IMT minute, there is a long list of risk management and control measures and it is recorded that I mentioned there had been numerous incidents every week since moving to Ward 6A. The first particular incident was in the kitchen. There was water on the floor in the kitchen I think, and they moved the kitchen fridge out to see where it was leaking from only to

find mold at the back of the fridge. Angela Howat, our Day Care Nurse, reported the stain appearing on the floor of the kitchen. Nurses used to notice more issues than the Estates people going around the wards because they were more vigilant. I think they were more worried about this infection, which made them more vigilant.

251. That was the kitchen the parents used, children usually don't go to into that kitchen. There was a leak there and they had to close the kitchen after that to carry out repairs. Leading up to that, every few days they would say there was mold found in the bathroom or internal wall of this particular patient's room or of mold at the chilled beam area where it leaked, so there were numerous times that we were told about these things.

252. It was hard to actually have confidence in the rooms with these things happening one after the other, and it was as if everything was reactive rather than proactive.

253. I felt sorry for the patients; [redacted]

254. I do not have the details of the time or dates of the incidents, but the Estates team will have that and there may also be photos.

VIEWS ON IMPACT UPON PATIENTS AND FAMILIES

255. This has had a huge impact on the patients and families. Parents were scared, worried and anxious about bringing their children to the ward for treatment. Parents were concerned about whether their child would be the next one to be infected and what impact it would have on the child. Some families have expressed anger, distrust, and lack of faith in the hospital.

256. It has also had a huge impact on the physical, psychological and emotional wellbeing of patients and carers. I would like to express my deepest sympathy to the patients and carers who had to undergo this enormous stress and pain in addition to the suffering they were already undergoing because of cancer diagnosis and treatment.

VIEWS ON THE IMPACT UPON CLINICAL STAFF

257. It has been a very difficult few years for myself and the whole team. I think trust in the hospital had been lost by the patients and carers. Although we were communicating what we knew to the patient and carers, I think they felt the truth was possibly being hidden from them.

258. Personally, I think it has put a lot of pressure on the physical and psychological wellbeing of staff. Staff morale was very low despite them trying their best to care for the patients.

IMPACT OF MEDIA REPORTS

259. Obviously there were press and media articles about the hospital infections, water contamination and fungal infections. I cannot talk on behalf of the other clinicians but I used to feel that parents and patients were sometimes more aware of issues with the building and environment than we were.

260. Some of the parents were asking, “Do you know that the drainage system is inadequate? The size of the pipes are too small.” I think some parents were possibly involved in the construction of the hospital, providing the drainage services, for example.

VIEWS ON THE IMPACTS OF THE INVESTIGATIONS

261. These have been emotionally draining and tiring. I have had the feeling of not being listened to properly or taken seriously. Even whilst taking part in the investigations we still have to continue to care for patients and families with

the emotional burden. These investigations have also affected morale. It was physically tiring and demoralising too. As the issues went on for years, we had to continue treating patients in the environment which we felt was concerning. It was a fight to keep up the strength and emotional wellbeing each day seeing no improvement in the situation.

SUPPORT FROM MANAGEMENT

262. Immediate management staff were in good communication with the clinical staff. We were able to request meetings with higher officials of the GGC health board at times to address our concerns.

263. Specifically, Jamie Redfern and Jen Rodgers were good at trying to talk to us and find out what our concerns were, and in facilitating meetings with them. In that respect, I think we felt that the immediate management was supporting us.

264. Whether this was necessarily addressing the problems at hand is an entirely different question. Being proactive in addressing the problems and identifying the issues would have helped but I do not think at any time that Jen Rodgers or Jamie Redfern made us feel that they didn't want to listen to us. Whenever we asked for meetings, they used to come and sit down with us. They were trying their best to be helpful.

265. I think we have felt that, at times, when difficult decisions had to be taken, management used to leave it on us. For example, when the IMT decided to partially close down the unit at times, we, as clinicians, were left to make the decisions as to which patient would go and which patients would stay in the ward.

266. The responsibility of decision-making to relocate patients was hard because we were telling some patients they had to go to Edinburgh/Aberdeen for chemotherapy and telling some others that they could have chemotherapy in Glasgow. I thought to myself, “How can I actually tell parents this? How can I

decide? How do I decide which patient is at more risk and which patient is at less risk?" Because it is the same environment, it is not necessarily a wise/rational decision at any time to keep some patients and send others away.

267. We were not given any criteria. They left the decision-making to us, as clinicians. We did not want to treat anybody in the unit because it was difficult to substantiate or support anybody coming into the unit when there were infection concerns present.

268. Patients or families would say, "You're just saying that because the management and IMTs told you to say that." These were difficult times for clinicians to make decisions on a case-by-case basis about where to send them. I think we would have been better off with management providing us with guidance, and with criteria for making these decisions for relocating patients.

VIEWS ON THE QEUH IN GENERAL

269. I think the problem with the design of the hospital is the oval shape with curving corridors. I don't think that's clinically helpful at all. Lack of space and lay out of the unit were problematic too.

270. However, maybe the concept of the new children's hospital, located at the SGH site near the sewage works, and closing down the children's ward in the Paisley Hospital, were all actually difficult decisions for the management.

271. The clinicians were never involved in deciding to close the children's ward at Paisley Hospital. The Royal Alexandra Hospital in Paisley had a children's ward and the children's A&E, so the children and adolescents used to go there for treatment. Paisley is only six or seven miles from there. There was no point in having another children's A&E in there so, for whatever reason, they decided to close the Paisley Children's Hospital and move everything to the RHC. That meant there was an increasing number of patients who were

going to come to the children's A&E, and to us. They also raised the age limit from 13 to 16, so those patients who were above 13 years of age who were previously going to the adult hospital A&E, now come to the Children's Hospital. It poses capacity issues for us.

272. I am not qualified to comment on the design of the building, but I think we felt that the whole shape of the building and the amount of space allocated to us was not clinically adequate. Locating our offices outside the ward into an area eight minutes away by walk wasn't helpful either.

REFURBISHMENT IN WARDS 2A AND 2B

273. It is probably too early to comment on how effective the refurbishment has been, but management showed us what they intended to do and took us through a lot of technical details of what they were changing on the Ward, which is all fascinating. Hopefully it will work.

WHAT COULD STILL BE DONE TO BENEFIT THE QEUH OR ABILITY TO PROVIDE CARE TO PATIENT GROUP

274. We do not like the curving corridor of the wards at all. You may wonder why that makes a difference, but it is impractical. If we stand in any position on the ward, we cannot see the rest of the ward. It is difficult to seek help immediately when needed as the whole ward is not in vision. We have to walk around to get help.

275. The alerts we have are all reliant upon technology and on a red light going off somewhere, but these things can falter at times.

276. Nurses have also had to reorganise themselves into teams, to suit the curving corridor, which only gives access to limited rooms at any given point on the corridor.

277. We still do not like the whole design concept, but we have to work in that environment. We have to get used to that now because it is not going to change

278. I think we would have preferred a rectangular kind of design. Ward 6A was better in that respect because there were two parallel corridors in rectangular shape. It was easy to walk around and have a good view and control of the Ward, but it was too small for us to work properly.

279. I think that what we have to work in at the moment is not perfect, but I do not think it is going to change hugely in terms of physical space or design. I think it is unlikely we could ever get office accommodation nearer to the wards in the Children's Hospital.

280. 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.