SCOTTISH HOSPITALS INQUIRY

Hearings Commencing
19 August 2024

Day 23
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Ms Kathleen Harvey-Wood

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10:03

THE CHAIR: Good morning. Now, Mr Connal, we have Ms Harvey-Wood.

MR CONNAL: Yes, indeed. Kathleen Harvey-Wood.

THE CHAIR: Good morning, Ms Harvey-Wood. As you understand, you're about to be asked questions by Mr Connal, who's sitting opposite to you, but before that, I understand you're willing to make an affirmation.

THE WITNESS: Yes, I am.

Ms KATHLEEN HARVEY-WOOD
Affirmed

THE CHAIR: Thank you very much----

THE WITNESS: Thank you.

THE CHAIR: -- Ms Harvey-Wood. Now, I would anticipate that your evidence will probably take much of, if not all of, the morning. We will take a break about half past eleven for coffee, but if you want to take a break at any other point, just give me an indication and we'll do that. Now, Mr Connal.

Questioned by Mr Connal

MR CONNAL: Obliged, my Lord. Now, Ms Harvey-Wood, first of all, you've produced a witness statement. I take it you're content to adopt that statement as your evidence in this Inquiry?

A Yes, I am.

Q Thank you. I just want to ask you one or two general things before we turn to that witness statement because what I will do is use it as a sort of guide to walk us through where we've reached. The witness statement was contributed to at various points in time, and that doesn't matter for our purposes, but probably the most significant point is that you've actually now retired, is that correct?

A That's correct, yes. I gave the witness statement in August 2022, and it was via Teams because of COVID, and then I retired at the end of May 2023. So I've been retired for just over a year.

Q Thank you. So, although the witness statement talks about, "We do this and we do that," that's what you were doing----

A Yes.

Q -- up until the point when you retired?

A That's why I added the sentence that the statement was given in August ’22 because I was talking about what we were doing while I was working, and because the statement was given while I was still at work.

Q Thank you, and when you retired, you were a principal clinical

scientist in the microbiology department at the Queen Elizabeth Hospital.

A Yes, that's correct.

Q I just use "Queen Elizabeth" as the short version of the full title, and in fact, as I understand it, you joined what is now the Board way back in 1983----

A Yes, that's correct.

Q -- having set out in your statement what your history was before then. So that's some 40 years all involved in microbiology, is that correct?

A That's correct. I had 40 years' service in the NHS, yes.

Q Thank you, and am I right in understanding from your statement that much of your time in that service was focused on – and I'm using this not in a technical sense – identifying samples that had been given to the lab for investigation and then reporting back on what the lab found?

A Yes.

Q Is that correct?

A It involved processing samples in the laboratory.

Q I just want to ask you two general questions, then: given your experience and the length of that experience, do you feel you were well placed to determine whether either an infection or a pattern of infections were unusual?

A Yes, I would say so over my years' experience because-- it was the changes that I saw from being in the hospital at Yorkhill in the laboratory there and then when we moved to the QH RHC site. So there was a change and, from my experience and my work at Yorkhill, I could look at the difference, what I was seeing in the infections.

Q Again, if we just take this generally at the moment, your line manager at the time you retired, I think, would be Dr Peters, is that correct?

A When I actually retired, it was Dr Bal, Abhijit Bal. He became clinical lead of the microbiology department. I'm not sure what year, but he took over the lead from Christine Peters. So, at the time of writing my statement, August '22, Christine Peters was my line manager.

Q Again, just taking it generally, I think you're probably aware that the views Christine Peters formed on whether patterns were unusual and infections were unusual have been subject to some criticism and challenge by others. Can I just ask you a general question: do you think this criticism of her is justified?

A No, I don't think so.

Q Thank you. Now, if we could just go to your witness statement----

A Okay.

Q -- as a convenient way of working through events. Now, I don't know whether you're following it on

screen or you're following it from your own copy.

A I can do both, yes. I have it on the screen. Thank you.

Q Thank you. Thank you very much. You'll notice the screen has page numbers which are electronic, so if I refer to a number, I'll refer to either a paragraph number or the electronic page number. So, in the early part, you set out, obviously, your professional background. In paragraph 9 on page 77, you introduce the acronym-- beloved are acronyms of those working in this field, but this one's "PCR."

A Yes.

Q This is a form of identification method to try to ascertain what the organism is that's being examined, is that correct?

A Yes, it's using DNA extraction to extract the DNA from the bacteria or the virus or the fungi from the patient sample.

Q In sequence, originally, most identification was done by growing bacteria on a medium of one kind or another and in conditions of one kind or another, and then examining the results.

A That's correct. That's still the case. Both of these methods are used, sort of, in parallel with each other for different organs and different tests, so we use both assay types.

Q Thank you. I'm right in thinking that you spent a lot of your time at Yorkhill before you moved to----

A That's correct, yes.

Q -- the Queen Elizabeth hospital, is that correct?

A Yes.

Q And when you were at Queen Elizabeth, you were working mainly in paediatric microbiology, is that right?

A Yes, I've always worked in paediatric microbiology. I was trained as a paediatric clinical scientist in microbiology, and the lab at Yorkhill was specifically examining paediatric samples from the hospital. When we moved to the site at QH RHC, the microbiology departments throughout Glasgow were centralised in the big laboratory block in the hospital grounds, and the paediatric microbiology department from Yorkhill moved to the laboratory at QH. I retained my paediatric responsibilities because of my experience, and I did not take on any adult work. I wanted to remain within my specialty and with my experience, so it was my remit to continue in paediatrics.

Q Apart from simply working in the laboratory – and, again, I'm just asking this in general terms – I understand – and leave the COVID pandemic aside for the moment and the particular circumstances that pertained then – you would also go and speak to

clinicians and discuss results with clinicians, is that correct?

A Yes, that's correct.

Q And then occasionally attend IMTs or specific meetings when asked to do so?

A Yes. When asked to do so, yes, I would attend.

Q And the point of you attending would usually, as I understand from your statement, be to pass on results or discuss and explain results?

A That's correct.

Q Thank you, and no doubt also to give advice when issues cropped up that people thought you could help with?

A Yes.

Q Is that something that happened quite a lot?

A Yes, it did. Yes. I would also receive phone calls from the clinicians or from the junior doctors asking for advice on a result. Also, I would give advice on what other tests they could do, to do further investigations to try and diagnose the infection. So, you gave an interpretation of your results and then advice on what that result meant, and then you would advise on further investigations to give more clear diagnostic information for the clinician.

Q Thank you. Can I ask you to just look at electronic 79, paragraph 20? In that paragraph, you discuss something called a paediatric samples queue.

A Yes.

Q Just in a couple of-- what are we talking about there?

A Well, in our laboratory system, we have a computer system called Telepath, and the reports are electronically put onto the computer system from the work done on the bench level, looking and examining the sample. When the results are available, the report is put onto an electronic queue, where it can be checked and reviewed and then authorised by the clinical team who are doing the authorising.

Because the paediatric laboratory moved to the hospital at QH, we wanted to retain some of our paediatric speciality, and at one point we wanted to have a separate section of the lab for paediatrics, but it was felt that the due process-- that they wanted to put everything together and centralise the whole microbiology service, but we were able to retain our paediatric reporting system and paediatric queue.

So, when samples are analysed, results available, the report goes to what we call our reporting queues. There's different queues with different numbers for different types of samples and different levels of authorisation. So, the laboratory Telepath system could serve out all reports from paediatric patients

from the children's hospital to go on to a certain queue. There was another queue for urine samples, another queue for blood culture results, a queue for adult sample results. So, the paediatric samples were put on a queue called the paediatric queue.

Q So, somebody examines a sample, records what's found, it's then put into this queue. What happens to it because, presumably, it then moves?

A Well, some of the sample results are authorised at what we call at the bench level. People work-- the biomedical scientist working on the sample at a certain level can put the report together and just press, sort of, like, "Go," if you want-- if you know what I mean, and then the report then goes electronically into the patient notes in the clinical portal electronic reporting system where you see all the patient's results.

Other level of results will then electronically go to this queue, and you log in and you see all the lab numbers and all the results, and you go into the screen and you check it. And then, if you're happy with the result, then you press “Authorise” and that is electronically sent to the clinical portal.

Your name is on that report, so it's very important if you check a report or-- and you examine it, the results-- you're happy with them, your name is on the clinical portal. I don't know-- have you seen access to clinical portal results?

Q I don't believe we have, but if you-- Am I understanding correctly that, essentially, what's in the queue are things that need authorised----

A Yes.

Q -- and then the person who checks them and authorises them records that that's been done and puts their name on it, in effect?

A Yes. Yes, exactly, because when you log in----

Q And is then sent----

A Yes, you have your name-- you log in with your name and your password. The system knows it's you, so when you press, "Yes, accept, authorise," your name then goes electronically with the date and the time of authorisation onto the patient's electronic records in what we call our clinical reporting system. And it's very fast; the minute you press “Accept” and it goes through the system, it's available electronically for the clinician to see.

Q And they then know who has looked at it?

A Yes, exactly.

Q Because the name appears on it?

A They know the name, so they can-- if they have a question, they know who reported it. Then they can contact

the microbiology (sic) and ask to speak to that person, depending on the level of the enquiry. I did say that there's different levels of queuing later in my statement, depending on the level of authorisation.

Q Thank you.

A So it's your responsibility, if you authorise the report, to make sure you're happy with it and the report is correct.

Q Thank you. Now, in your statement you talk about the changing staffing levels with the move and so on, and then you go on to talk about some of the practical issues that arose when you were moving from Yorkhill to the new laboratory, some comment about spending half your time in a car going from one place to another.

A Indeed, I was for three years. Yes, absolutely.

Q Just trying to do your job?

A Yes, my mobile phone went off in the Clyde tunnel a few times.

Q I think you told me a minute or two ago, when you got into the new hospital, you still retained this paediatric specialty that you'd been with for a long time?

A Yes.

Q We heard, I think, from a witness yesterday that the paediatric microbiology issues can be different in children because they can get slightly different infections or they can affect them in different ways. Is that your experience?

A Yes, that's correct.

Q Thank you. Now, if we go to 83, electronic paragraph 43, just to try and follow this through, in the clinical role that you had, you record here you had responsibility for 2A and 2B, which we know from other evidence moved to 6A and 4B. You also helped with the renal team in 3C at the children's hospital, and also for the paediatric intensive care unit and the neonatal intensive care unit and also, on top of that, the burns team. They were the areas that you were particularly concerned with. You mention in that paragraph the relationship you built up with clinicians. I think you say on page-- at the top of page 84 that you thought you had a good relationship with clinicians, is that right?

A Yes. I think I did, yes. I'm sure they would support that comment, yes. We did work very well, and some of them, because I'd been working for so long within the microbiology department, some of the medical staff were junior medical staff at some point and, as they advanced in their career to become consultants, I had known them throughout their career and their training.

And sometimes, some of the doctors would come to the laboratory and

ask to see around and have a visit, or would have an ID, junior doctor or a trainee for the specialist exams-- would come to the lab and spend time in the lab. So we had a very good relationship with the clinicians, and this happened at Yorkhill as well as we continued that when we moved to RHC.

Q Thank you. You go on to talk about working with the infection control team, but you're not an control doctor as such.

A That's correct.

Q That wasn't your function, is that right?

A Yes.

Q You provided information to the team. Was that your role?

A Yes, that's my role.

Q But do you also get involved in issues over, for instance, antibiotic recommendations, you know, what treatment should be given for a particular infection?

A Yes, I do.

Q And you also, I think you set out in your statement, liaise with what are called reference laboratories, which we've heard a little bit about, which are essentially specialist locations where particular types of testing tend to be done, is that correct?

A That's correct, yes.

Q That's another thing that you did. Thank you. So, in Yorkhill, we've heard already that there was a paediatric lab just doing paediatric work, but you managed to retain a specialism in paediatrics when you moved to the new hospital, although the lab itself became more general. Is that the way it worked?

A That's correct, yes.

Q If we go to page 88, paragraph 60, reading this paragraph short-- have you got that one?

A Yes. Yes.

Q I suppose the question that I want to ask you is that, when you talk about what you saw as a reduction in available staff to deal with the things you had to deal with, did this give rise to any concerns about the ability to do your job properly?

A Yes, I think it was difficult because there was a reduction in the clinical scientists and the role that we have in microbiology. So I found it difficult, eventually, when my colleague retired in 2016, that I was really the only person of my grade working in the laboratory. We had a consultant microbiologist who was on the rota that week for the paediatric patients in the children's hospital, whereas before, we had a much larger clinical team looking after the hospital at Yorkhill.

Q Did this have any practical impact? Did this mean you had to work

longer hours or did it cause delays or were there any issues?

A I had to work longer hours actually, yes, I did. And there was more pressure on me because I wasn't sharing the workload that I would have done before.

Q Now, you were asked in your witness statement about any involvement you'd had at the time when the new hospital was being designed, and you explain in paragraph 63 and onwards that you had no general involvement in the new hospital, although you were involved in discussions about the design of the laboratory within----

A Yes.

Q -- the new hospital, and you explain a number of the steps that were taken to deal with that. Can I just, so we can get another acronym out the way-- you mention MMT meetings. What's an MMT meeting?

A That's the management, so that's the microbiology management team.

Q And who's the microbiology management team?

A That is the microbiology labs throughout the city. So, before the move, there was laboratories in each hospital within Glasgow. Now there's only two – Glasgow Royal and the QH labs – but they were sort of the management team running the laboratories throughout the city.

So they would come together and have regular meetings so that-- it would be the senior consultants, it would be the lab managers. It would be laboratory managers and clinical directors. There would be some of the biomedical scientists, the clinical scientist.

We had an IT system. I was talking about our Telepath systems. We had a person who was involved in IT within the laboratories. Then there would be virology as well because that was all part of the microbiology management team.

So it was a big sort of group of people, and it was to run the laboratories within Glasgow to standardise what we were doing to make sure that the work that was being done across the city was being done appropriately and fairly: any new advancements in the technology, any changes to our procedures or SOPs, any changes to documentation that we would need to know about, changes in staff, appointing staff, changes in advancement of our technology, introducing new assays, new machinery. So that was, generally, at that sort of management team approach.

Q You explain at paragraph 70 of your witness statement, which is on electronic 92, that the way the new building is structured means that the

Estates department were on the ground floor and you were on another floor of the same building, is that right?

A Yes, that's right.

Q So if there was any need for communication between Estates and microbiology, it would be pretty easy to do, presumably?

A Yes, you would have thought so because we were in the same building, but there was a method of reporting problems to Estates. So, I actually never really went down to speak to someone face to face from Estates. They had to electronically-- FM First. You would log a problem with Estates through their electronic system, so-- and then they would deal with whatever issue it was. But from a kind of day-to-day working, we rarely actually-- well, I rarely spoke to Estates directly within the building.

Q Another point you mentioned just shortly thereafter is that there used to be – and we had some evidence from this yesterday – a virology part and a mycology part of the laboratory system, but these were both moved elsewhere when the move happened to the new hospital. Is that correct?

A That's correct.

Q And did this cause any impact on doing the kind of job you were doing?

A Yes, I would say so, because it was paediatric virology, so specialist tests we were doing for the children's hospital before the move, and quite a lot of the assays were for screening for haematology oncology patients and it was on site. The turnaround time was, you know, a good 24, 48 hours. We had good liaison with the clinicians, and we would take the results to the ward every day.

The mycology lab was also useful for investigating fungal infections, and we had a consultant clinical scientist who was well experienced in mycology. So it was good to have these on site, but they decided to move them to Glasgow Royal, so it meant that samples had to be transferred to the Glasgow Royal.

So they came to the lab here at QH and then they were transferred by van to Glasgow Royal. Also, the expertise and clinical advice was then given by Glasgow Royal staff as opposed to the staff at QH, so we lost a bit of that clinical liaison with these assays.

A Thank you. You also mention in your statement, and we've heard a little bit about that elsewhere, this thing called the pneumatic tube system that was introduced when the new hospital was built, and you make some comments on it which you clearly weren't a great fan of it, at least for a while.

A No, I wasn't, no.

Q Did the problems get fixed eventually? Because we heard there were some problems at the start, but you mention it generally.

A It was improved and they had to purchase more of the, as I call them, the container pods to go in the system and they were-- for microbiology, they were more expensive and different because they were leak-proof. So they had to use a different pod for microbiology samples so they were-- so there was no leakage, and we seemed to run out of them.

Brenda Gibson was always looking for pods, and at one point she ordered them herself. The samples would end up going to the wrong laboratory. They would end up in the wrong part of the system, and sometimes the samples never arrived.

So there was a delay and it would break down, but it seemed to be intermittent. It would work for a while and then it would break down. It generally did get better, but when I left work, there still were some problems with it, and the Estates department were having to work with the contractors who installed the pneumatic tube system because they were responsible for the maintenance of it and doing any repairs to it.

Q Presumably, and I think you do set this out in your statement, the issue is that you're trying to get a sample from the clinician to the lab as quickly as possible, and therefore if there's some problem and that doesn't happen, that simply causes a delay in them getting a result.

A That's correct, yes.

Q Now, if we can move now forward towards the opening of the new hospital, we can understand that there would be a period during which construction was going on, and that caused various practical issues, and you've talked about the integration of paediatrics and general microbiology.

Then, if we go to 96 of your witness statement, I see at the very foot of that page, in paragraph 83, you're talking about starting to notice infections not long after patients were into the new hospital. So this was July 25, a small outbreak of something called Serratia – I'm probably not saying this correctly – marcescens.

A Serratia marcescens.

Q Serratia marcescens. Thank you, and I see on the next paragraph you explain what that is. Now, is that one of the first things that cropped up once patients were in?

A Yes, that was the first gram-negative environmental (inaudible) that we saw in the new hospital. The neonatal unit is a separate building from the children's hospital. It's a neonatal and maternity unit at the Queen Elizabeth

University Hospital, and it was refurbished and renovated to allow the neonatal unit from the children's hospital at Yorkhill to be transferred. That moved over before the children's hospital in 2015, and the antenatal service at what used to be called the Queen Elizabeth Maternity Hospital moved earlier to join the maternity patients at the Southern General, and then the neonatal unit moved later.

Q You then go on, from paragraph 85 on, to explain how things happen, and one can understand that samples were taken and sent to microbiology for testing. You explain in paragraph 85 that also, in some cases, testing is done on admission in some instances to check to see whether there are any infections or the like when people arrive in the hospital. Then you talk in paragraph 86 about something called daily macros. What are you doing there?

A These are gathering results of the day's reports that have been authorised, and also the samples that have been received. So it's an Excel spreadsheet which gives you the type of sample, the date of sample, the patient's CHI and name, and then the result for that sample. It also gathers samples we've just received, and there's a blank column for the results so we know that the sample has been received. So, on the spreadsheet it gives you the date and time of the sample.

Q You say in your statement this, therefore, gives you a-- Rather than looking at an individual sample result, it gives you a wider picture of what's happening.

A Yes, indeed, it does.

Q And you say that you used them to discuss results with ward clinicians. Did you tend to go to the ward, or did you tend to stay in your building?

A We did both. We did both. We would have a look at the macros. We would phone out results and some wards, we had a daily visit. Sometimes I would go myself, or sometimes I would go with a consultant microbiologist who was on for paediatrics that day.

Before the move, there was my colleague clinical scientists, and we would have different areas of responsibility and different wards that we would visit. And, again, the consultant would sometimes accompany us if there was important issues to be discussed.

Q Now, moving on to paragraph 89, which is on the next electronic page, 98, you're then explaining more information gathering that you do beyond the daily macros and the spreadsheet you just mentioned. You did something monthly as well.

A Yes. This was for the acute

wards to have a look at the blood culture results, to look for trends of infections and the data for the number of patients that in their ward had had a blood culture result.

Q That's something you started at Yorkhill and you carried on doing in the new hospital?

A That's correct. It was started at Yorkhill and my colleagues would gather results for their ward that they were responsible for on a daily basis, so the work was split amongst at least three of us at that point.

Q I think you just note at the foot of that page, in paragraph 90, that one of the points of all this is if you keep all this material, you don't miss anything.

A That's correct, yes.

Q Okay. Now, can we just move on to paragraph 93 on electronic page 99? You set out there a number of guidelines that exist for reporting: an Infection Prevention and Control guidelines manual, an NSS guideline and an HPS guideline. Are these things that you followed in your work?

A Yes.

Q Now, can we move on now to paragraph 95? Because we start to come to parts of your statement where you're dealing with actual patient events, if I can call them that. You say "they" had two patients. Now, who were "they"? Paediatric haemato-oncology?

A Sorry, it's badly worded. It's when I gave the statement. It was a verbal statement on Teams. But "they" meant Ward 2A. I should have said Ward 2A to clarify that.

Q You express the view there that there were two patients with the same infection, September 2016, December 2016, and you thought they should have been looked at earlier.

A It does indicate that if you have two infections of the same organism, in the guidelines, that it should be looked at further. However, the infection control team would have looked at it and thought the separation in time and space-- They maybe didn't see a link because they were three months apart. So they look at the patient placement and where the patient was, and was there any connection between the patients at that time? Because it was the same infection in two patients.

Q But, as I understand it, the particular infection, Elizabethkingia miricola, you describe as very unusual.

A Yes.

Q Now, that's based on your experience of what you've seen over your career. In fact, you say it was originally identified in the International Space Station.

A Yes, that's correct. It's an environmental gram-negative found in

condensation in water, yes. That's where it was-- So, bacterial organisms, they give them nomenclature and they give them names and then-- They discover different bacteria and they give them different names, so, over time, with modern technology and DNA typing, they can identify organisms that maybe years ago we wouldn't be able to put a name to. So that's been research from the space station that identified different organisms.

Q But you describe this at the foot of that page as unusual, rarely encountered environmental organism associated with water and moist environments, and you say, going on to page 101, this could have been an early warning sign because there were so few cases.

A Yes. Because it was so unusual, it does suggest that there was something in the environment, or these patients who are immunocompromised and more susceptible to line infections have acquired this infection.

Q I think you've obviously been asked in paragraph 97 if you've ever come across this before, and you said, well, there were two patients in Yorkhill where you saw this particular infection and then one further patient, but this wasn't new because it was one of the same people that had earlier been identified. So why is it significant to spot this organism? Why does it kind of ring a little warning bell to you?

A I just think it's-- I do remember it being Yorkhill, and we did look at that more carefully. That's why I remember the name. It's such an unusual name and it's named after the person that discovered it. Her name was Elizabeth King. So, in microbiology, you learn about different organisms and where they come from and what they mean in terms of infection processes, so this was an organism, just from my experience, that I knew was very unusual and would not be expected to be found in a patient.

Q Thank you.

THE CHAIR: I wonder if we could tease this out a little bit. Just for my understanding, am I right in thinking that Elizabethkingia, as a genus----

A That's correct, yes.

THE CHAIR: -- has been known before anything that was discovered in the space station? Is that right? But it's the miricola----

A Yes.

THE CHAIR: -- which is the-- Am I right in thinking that that's the species?

A Yes, that's correct.

THE CHAIR: Right, so it's not something-- Well, the species was first identified in the space station, is that right?

A Yes.

THE CHAIR: Now, moving from that, could we just tease out what you mean by the finding as being a warning sign? I mean, what do you infer from that finding?

A I just felt, from my own experience – it's a personal view that I put in my statement – that it was-- I keep saying the word unusual, but it was different, do you know? We did see very occasionally organisms at Yorkhill, but it's like a wee alarm bell. You sort of thought, "That doesn't fit right. That shouldn't be there."

It's just, with experience, you just feel that unusual organisms are a sign that something maybe isn't quite right. It's just like a hunch you get when you've done microbiology for all these years. You get a feeling when there's a trend or there's an organism that is not part of the normal microbiology flora or reporting results. You know, it's not in the guidelines, it's not something that you would expect to find.

THE CHAIR: It's just difficult for a layman----

A Maybe it was a bit of a statement for me to----

THE CHAIR: -- I think, to grasp this notion because unusual events may occur unusually, but, at least to a layman, they do occur. You had experience of finding Elizabethkingia miricola in

Yorkhill, so it wasn't as if you'd never come across it before. It's my fault for not being able to focus the question, but you come across it in the new hospital and, as I say, what do you infer from that?

A I just-- I think I was inferring-- because I'm making this statement retrospectively, looking back at what happened, you know, prior to making the statements. I'm looking back historically at what happened, and when I was asked about this particular organism in the questions that they presented to me, and then I thought about it and I thought, "Yes, when I look back, that was sort of like the beginning of seeing what I know happened through the years."

But that was really the first thing that was like a trigger to me that something maybe wasn't quite right. It could have been there was just a couple of cases of Elizabethkingia miricola, and then that was fine because that's what happened at Yorkhill. But then we began to see other unusual gram-negatives going forward, and that made me think back to, when did we first start seeing this happening? When did we first, like, have an indication that maybe there was environmental problems?

THE CHAIR: Right, so you're interpreting it with knowledge that you've acquired-- your experience----

A Yes.

THE CHAIR: -- of coming across other organisms? Right, I think I have a better understanding now.

A Yes, so I'm writing this in respect of knowing where we were in 2022 when I gave my statement----

THE CHAIR: Right.

A -- and they asked me to look back in time when the hospital opened and when we started to see the infections, and that was one of the organisms that was actually given to me to discuss by the Public Inquiry, so that was one of the questions that I was asked. That's why I use the word-- where I encountered it.

They asked me, what did I think about the infections? Do I remember the infections with Elizabethkingia? Because it's an unusual name, it's not something that you would forget. So that's where that part of my statement was relevant to now, because it's what happened then, if you know what I mean.

THE CHAIR: Thank you. Sorry, sorry, Mr Connal.

MR CONNAL: So, what you had was this very unusual organism cropping up, you say, in September 2016 and then again in December 2016 and then again in February 2017.

A Mm-hmm.

Q So you had three Elizabethkingia miricola----

A Yes.

Q -- incidents that you were looking back at.

A Yes, I think there's three. Yes, three. Yes, so 2016 to '17 there was three cases.

Q Just on a point of detail, if we go to 103, please, in paragraph 106, we're back to Serratia marcescens in July 2015. You were covering somebody else's work and you became aware of these results, and there were some meetings which you were not involved in, and this is paragraph 106.

Now, you say in your statement that HPS were aware of that. I've been asked to suggest you that HPS wasn't aware of the Serratia marcescens until later in 2015, probably December. Can you help us at all on that?

A Right, so I was covering for a colleague who was on annual leave, and the three babies were found to have Serratia marcescens in their samples and then there was a positive blood culture. So, I informed infection control team and they had some meetings, and I wasn't attending any of these meetings.

When my colleague returned, then she took over and continued with the investigation because her remit was the Neonatal Unit. So, I didn't contact Health Protection Scotland, but I was aware-- I've used the word "aware" because I was

aware they were contacted at some point, but I wasn't sure when. I didn't contact them. I contacted infection control and they were aware of the cases, and I think there may have been further cases that were dealt with by my colleague and Professor Williams.

Q Thank you. So you can't be sure when they were contacted----

A No.

Q -- because it wasn't something you did?

A No, but I wanted to document that they were informed.

Q They were informed?

A Yes.

Q Yes, and I think you go on, in paragraph 107, to explain to us laypeople what colonisation means, which is that, essentially, you've found a particular organism but it's not invaded the bloodstream or tissue of the person, is that correct?

A That's correct.

Q I think what you're explaining there is that you find it, you don't always do anything about it, but you tell the relevant doctors about it because it's quite possible that the organism that's colonised will later get into the bloodstream and then they know what it might well be.

A That's correct, yes.

Q Is that the essence of it?

A Yes.

Q Now, on page 104, the heading in your statement is, "Infection concerns 2015 onwards," and you start then to tell us about things that you found. Now, I know some of this is contained in a PowerPoint, which we'll look at later on, but if we can just go through this. In paragraph 110, you say:

> "In 2016 there was an increase in the number of positive blood cultures."

Was this something that was of interest, of concern? What was your thought process?

A I would say both. It was of interest and of concern that when the hospital first opened, the hospital, you know, should have been a clean environment, and you find that – it's in the literature – when a ward is opened or a new hospital is opened, there is a much lower level of infection because of colonisation and bacteria in the environment. It's clean, you know, it's new, all the equipment's new, and then you start to see infections, perhaps, post opening of a new hospital.

So we did have a year where there was fewer infections, but then, in 2016--and that takes me back to the Elizabethkingia miricola story. It was 2016 we started to see an increase, like a

trend, in the number of blood cultures that were becoming positive in haematology/oncology patients.

Q What you've done, I think, is tried to put together some analysis of what you had found to try and understand what was going on, essentially. Is that right?

A Yes.

Q Because we find, in paragraph 111 on electronic 105, you talk about 2014-15. Now, that was before you moved, and then 2015-16, 9 per cent----

A Mm-hmm.

Q -- percentage of positive blood cultures, which was the same as you'd had at Yorkhill----

A That's correct.

Q -- which you thought was still higher than it should be.

A Yes.

Q Then 2016 jumped to 15.5 per cent. For a layperson, it's difficult to know whether 9 per cent to 15.5 per cent is significant or insignificant. What should you----

A I would say yes, it's an increase. It's a jump. I use the word "jump" because that actually describes-- you've got a jump from 9 per cent over, like, two years at a (inaudible) and it's up to 15. So that is quite an increase, but, moving forward, it was the next year-- it was like a trend. So, you sometimes get an increase in your blood cultures for whatever reason and then it might fall down again if there's better practice or intervention, but what we were seeing was an increase year on year, and that's when I first saw the jump from the 9 per cent to the 15.5 per cent.

THE CHAIR: When you talk about positive blood cultures, in this context, that means the presence of any microorganism in the blood?

A Yes.

THE CHAIR: Right, thank you.

A So, it's a percentage-- it's the number of blood cultures taken from that patient group, and then the number that were positive and grew an organism. So it's a percentage of these two figures.

THE CHAIR: Mm-hmm, because one does not expect to find microorganisms in the bloodstream?

A That's right. Your blood culture sample, which is put into special bottles to grow bacteria if they're there-- your blood should be negative. You shouldn't have bacteria in your blood.

THE CHAIR: Thank you.

A If you have bacteria in your bloodstream, it's considered a bacteraemia or a sepsis, so it's an infection within the blood. So it's systemic throughout the patient's bloodstream.

MR CONNAL: What you deal with

in paragraph 112 is not just numbers, because you talk about starting to peak in 2017. You say:

> "The other interesting thing from my perspective was the mixed blood cultures."

Now, just so his Lordship understands the point you want to make about mixed cultures, can you just take us through this quite carefully, please?

A Yes. So, I think someone may have referred to it in the past, but when you have a blood culture and it's positive with a bacteria, it's usually one organism, like from a urinary tract infection, like an E.coli, or from a wound, a Staph aureus, one specific organism related to the patient's clinical history, and what the patient has been admitted to hospital for and what reasons they may have a sepsis. Other things, like meningitis, can, you know-- Meningococcal infection, Group A Strep, we'll see a lot about that, they'll cause known clinical infections when the patient's blood has got an organism in it.

What was happening here was it wasn't just one organism. So, we were growing, from our blood culture bottle, two or three, sometimes four, different organisms which we had to culture and identify, and the report would be sent out to the commission listing the organisms that we had isolated from this blood culture.

Now, that in itself is unusual, but can happen with a line, when you have a line, when the bacteria can be introduced from the line, the patient's line, whereas other bacteria that cause bloodstream infections are from the patient's infection – like I said, from a urinary tract infection or from a wound. So, you don't expect to have what we call a "mixed infection."

THE CHAIR: I think there was just a little bit of that I didn't pick up. Multiple organisms in the blood are unusual?

A Yes.

THE CHAIR: One explanation of that is that the source has been the line – in other words, I take it an intravenous line connected with the bloodstream in order to provide chemotherapy----

A That's correct.

THE CHAIR: -- or antibiotics. Now, you said something else that I missed. You identified that a line was a possible source.

A Mm-hmm.

THE CHAIR: Now, you said something else, which I just didn't hear, after that.

A I'm not sure----

THE CHAIR: Or maybe you didn't.

A I just compared the mixed infection with a single organism----

THE CHAIR: All right.

A -- infection, which is what you're asking me, so----

THE CHAIR: Right, okay.

A -- the difference between having one organism in your blood culture result, from your blood, compared to having more than one organism, yes.

THE CHAIR: Right, okay. Thank you.

MR CONNAL: Is this something that bothered you, seeing these mixed things?

A Yes. Yes.

Q You set out in your statement some of the statistics, as it were, that you were able to find that, in the year after the move, you had 11 samples with mixed organisms. Then, June '16 to June '17, 36, and I think, in fact, you go on in paragraph 113 to say in June '17 to '18, 40. That was something that was bothering you?

A Yes. Again, it was something that, you know-- again, using all my experience in microbiology, you do get the occasional, as I say, mixed culture where there's been a contamination or there's been line use where you would see an occasional blood culture with maybe skin organisms, but this was a larger number – 40 blood cultures from that patient group with more than one organism – and not only just the organisms themselves but the type of organisms that we were seeing.

Q And why is that significant?

A Because we were seeing a mixture of different gram-negative organisms in the blood culture.

THE CHAIR: Sorry, did you say, "Of different gram-negatives"?

A Yes, different gram-negatives.

THE CHAIR: Right. Thank you.

MR CONNAL: You describe gram-negatives in your statement as "environmental organisms." Just explain to us why you label them that way.

A Right, well, there's gram-negatives that are what we call not environmental. So, they're from the patient's-- they could be from the patient's own body, like from the gastrointestinal tract, from a urine-- so they are from----

Q The patient----

A -- the organs of the body or, like, a renal problem-- from the patient, that had become like a sort of a colonisation, for example, as well – we were talking about it earlier – that can then become an infection. But the organisms we were seeing in these mixed infections were not what you would expect, so they weren't like an E. coli or a Klebsiella or an Entrobacter. In some of them, there were three or four different organisms that we would describe as environmental.

Q So that means they come not

from within the patient but from somewhere external?

A Yes, it does suggest that, yes.

THE CHAIR: Is it the case that bacteria necessarily fall into a classification of environmental or non-environmental in their source?

A Yes.

THE CHAIR: Would you expect those with the appropriate expertise to be agreed as to whether you can classify a bacteria as environmental or non-environmental----

A Yes.

THE CHAIR: -- in its source? Thank you.

MR CONNAL: What you go on to say in your statement, at page 106 onwards, is that you pulled a lot of this together and you did a presentation at the request of the clinicians in the Schiehallion Unit on what you were finding. You also explain the existence of something called a CLABSI, Central Line Associated Bloodstream Infections Group, which was looking specifically at improving the precautions around lines. Is that correct?

A Yes.

Q And you were very positive about the efforts that they made. So can we go on to page 107, paragraph 118? We've talked about numbers. We've talked about environmental organisations. In paragraph 118, you then say another point was diversity of organisation (sic). Paragraph 118 of your statement. Do you have that?

A Yes.

Q So you're saying that diversity was also an issue?

A Yes, so the type of species that we were seeing was wide-ranging, so it's not like if you have a single-point infection where you have one organism infecting people. So it's a common source, and it's the one organism that's been found in various patients within a ward, so it's a concern that there's an organism in the unit or in the ward that's been infecting the patients, for example, like a Staphylococcus infection within a ward.

But this was very different organisms, and the diversity means that they were very different, and the names are names that our staff hadn't heard before. As I said in my statement, we would have to-- they were looking them up because they would see them in the results here working on the benches and they'd say, "Oh, it's come back as this organism." They were looking them up and finding out.

So they were interested in this type of organisms that we were seeing. So diversity means that the wide range of-- it wasn't just, like, one gram-negative

environmental organism we were seeing; we were seeing a wide range of them.

Q Did I understand you to say that these were so unusual, people having to look up to see what on earth they were?

A Yes.

Q So, presumably, very unusual?

A Yes, some of them I hadn't heard of before. In all my experience in microbiology, it was the first time I'd come across these gram-negatives. There was a few of them that even I had to look in the literature and do some research on.

Q Just to continue the story, because you've explained how some of the technology works, but can we go on to paragraph 121? It's electronic page 108. You say there:

> "We identified a couple of unusual organisms first and then the diversity... Then we saw the same organisms ... reappearing, then disappearing and coming back again, and then ... mixed infections."

So, they seem to be coming and going, is that right?

A That's correct.

Q You use one organism, I think, to try to explain your point, Stenotrophomonas maltophilia. You see in the middle of paragraph 121, you said, "It was a new find ... first isolate ... April 27(sic)," and then you explain that it was one in April, May and June, then two patients in July, one patient in September. So it seemed to come and go, is that right?

A Yes, it did. I did plot a graph of the Stenotrophomonas infections over a number of years, and it was like a space of two or three or four months when there wasn't any infections, then it would come back and, as I described, it was small clusters. You wouldn't just see one in its own, you would see two or three patients with it, and then it would-- well, go away, is the best word, probably, to use. Then you would see it again.

I don't know whether there were interventions or something happened-- why we didn't see it for a few months and then it came back again. So I kind of used it like an indicator organism. That's why I think I've described it as that because it just gave me the feeling that things weren't quite right.

Because when Stenotrophomonas appeared, they also appeared at the same time that we saw an increase in the number-- the total number of blood cultures that were positive. So, at the time when we saw an increase – like a couple of months, you would see a trend increase in your number of blood cultures that were positive in these patients – you would also see some of them with

Stenotrophomonas.

Also, some of the patients with Stenotrophomonas maltophilia weren't single-organism blood cultures. They were mixed with other environmental gram-negatives as well, so they had more than one organism.

THE CHAIR: I think I'm just saying back to you what you've just said to me: this was something you were noticing at the time?

A Yes.

THE CHAIR: And I apologise, Mr Connal, we'll sort of shut down the question if this is something you're coming to, but were you talking to colleagues about what you were seeing in the lab results?

A Yes.

THE CHAIR: I mean, were you discussing this with clinicians?

A Absolutely, both. Speaking to the clinicians-- The clinicians, if you spoke to them, they would confirm that I would speak to them. They saw the trends. A couple of them, particularly, were interested and asked me to send them some results. So, there were definitely consultant haematology-oncologists who were interested in these organisms and the mixed blood cultures in particular. One of the consultants was very interested in that.

I also was informing infection control and my line manager – whoever was working with paediatrics at that time with me – because, at that time, I was working as a clinical scientist on my own because my colleague had retired. So, 2017, it was just me putting these results out, so I would, every time-- and they would go to the authorisation queue, so we would see that one. But, no, I was communicating the results of the Stenotrophomonas, yes.

THE CHAIR: And these clinicians would include Professor Gibson?

A Yes. I mean-- and, for example, Dermot Murphy was very interested in it as well.

THE CHAIR: Thank you.

MR CONNAL: The point that you make, I think, in paragraph 123, which I wanted to just ask you about, is that you find them-- you discuss them with clinicians, you discuss them with your line manager, and you report them to infection control, but, unless you're actually at an IMT or something, you don't actually know what action is then taken to deal with whatever the infection is you've identified, is that right?

A That's correct, yes.

Q You say you "don’t have feedback on what corrective actions were put in place." Just thinking back, would it have been helpful for someone to have come back to you and said, "You've reported on this mixed infection. We've

done X or we've done Y"?

A Yes. It was maybe a bit out context, but I did know that, in June 2018, they used HPV in the ward to help reduce the level of infection. So I did know about that, and that was in June 2018, and then the blood culture rate positivity in July literally went down to below 5 per cent. So I did know sometimes that there was an intervention, and I could see that the corrective action or whatever was having a positive effect, but I didn't always know. If you see my graphs later, they go up and down and up and down, but there's a-- a moving average changes, you know, month to month, but the trend was upward.

Q Yes, so whatever was being done wasn't stopping this trend? It might have made the graph go down for a bit, but it was going back up again?

A Yes. That's correct, yes.

Q If I can oversimplify it.

A Yes, that's correct.

Q I wonder if we could look at bundle 27, volume 6, 107, please. Now, this is a 2018 production by Dr Peters and Kathleen Harvey-Wood. Is this something you put together together? Is that right?

A Yes.

Q Is this in the form of a presentation that you made that you've told us about to the clinicians?

A Yes, it was a PowerPoint presentation, and we gave it to the haematology-oncology clinicians at a-- They have -- A lot of wards have, like, educational lunchtime meetings for training and, quite often, microbiology was invited to go to the ward to discuss a particular case or an unusual infection or a change in our technology.

We would be invited to the ward to their academic sessions, which are usually held weekly, to do presentations, and I did quite a lot of presentations during my career. So this was one that was prompted, really, by the haematology-oncology consultants because, by 2018, they were aware of this trend and increase of our cultures being positive.

So, Christine and I put together this PowerPoint presentation and gave it to the clinicians and staff, and I think some of the CLABSI Group were present as well at the meeting.

Q That's the group that were working on improving the rate of line infection?

A Yes.

Q Perhaps we could just look briefly at this presentation. Could we just scroll on to the next page, please? Now, that's simply numbers.

A Yes.

Q Numbers of cultures taken.

A Yes.

Q So does that graph tell us anything particularly significant?

A Yes, actually, it does, because what-- they were trying to say that the blood culture percentage positivity rate had increased because they were taking more blood cultures because the children-- if the children were unwell-- one of the things you do when a child becomes unwell or has a fever is you take a blood culture.

So, the question was asked that maybe they're taking more blood cultures and that's why more are positive. So I looked at the number taken each year and compared it with 2014 and ’15, which is the year before the move, and as you can see-- that actually it's not an increase in number of blood cultures that were taken for these patients.

Q The 2014/15 would be in Yorkhill?

A That's correct, yes.

THE CHAIR: Sorry, again, it's just maybe I didn't pick up what you said. Did you say that somebody suggested that, well, the reason that there's more positives is you're taking more samples?

A Yes.

THE CHAIR: I mean, was it somebody who suggested that?

A Yes.

THE CHAIR: Who suggested that?

A I honestly can't remember.

THE CHAIR: Right, okay.

MR CONNAL: Can we just move on to the next page, please, 109? What are we seeing here? So we've got numbers taken, which is taken from the previous graph.

A That's correct, yes.

Q And then number of patients positive is in the reddy brown colour, and then a percentage. So what are you explaining with this graph?

A So I've superimposed the number of blood cultures taken as a reference point to show that the number of blood cultures taken in total hadn't changed. What this blood culture shows, if you compare with the results 2014 to ’15 prior to the move, you can see the first year we were in the new hospital site that the number of patients with a positive blood culture and the percentage had fallen, even compared with our previous results at Yorkhill.

Q So that's June ’15 to ’16?

A ’16, correct, and then, if we move forward to June ’16 to ’17 and ’17 to ’18, you can start to see the increase in the number of patients that had a positive blood culture and the percentage positivity rate was starting to increase. So that goes back, again, to-- we're seeing this change in 2016 to ’17.

THE CHAIR: And although you've

described it as percentage of patients with positive blood cultures, that means percentage of samples which produce a positive result?

A Yes.

THE CHAIR: Right, yes.

MR CONNAL: If we go on to page 110. Now, I'm assuming that the red line is intended to indicate a general upwards trend. Am I right?

A Yes, that's a trend line. So that's what we call a trend line, so that shows the trend in the positive blood culture. So you can see, in June 2014, it was below 10 per cent. It was about 8 per cent, and that's what I spoke about earlier, that the rate at Yorkhill was about 9 per cent. So if you're wanting to use that as a comparator, that's where it was prior to the move. When we moved to the new site, it was 10 per cent. So it was sitting, like I said-- that's the figure that was 9.9 per cent. So that's the same as it was prior to the move.

In moving forward in time, you can see that the trend is an upward trend in the number of positive blood cultures-- the percentage of positive blood cultures, and you can see the two peaks, which is March (inaudible) April ’17 and March ’18----

Q Yes.

A -- when it was about 27 per cent of the blood cultures were positive, so that's over a quarter.

Q That's quite a striking difference to what you had in Yorkhill.

A It is, yes. So the red line, as I said, it's a trend line. The black line which goes back up and down, up and down, it's what we call a moving average. So that's what I was referring to in that some months, the blood culture rate would be higher than others. For example, February ’16 is well below 5 per cent.

So there was this variation in-- month to month, but overall, the trend is an upward trend, going from less than 10 per cent – about 8/9 per cent – in 2014 to about 17 per cent, 16/17 per cent, in June/July of 2018.

The reason I put the HPV – which is hydrogen peroxide vapor – in was because that was quite a remarkable change in the number of positive blood cultures. It was done twice in the ward and the next month the blood culture rate went down to 3 per cent. So I annotated that on the graph because, was that the reason?

You know, I don't have enough information to back that comment up, but it looked for me, just from a graphical point of view, just looking at the graph – and that's why I put it in a different colour – it does stand out as what happened then to improve the number of positive

blood cultures.

Q Thank you. Can we go to the next page, please? I don't want to go into each and every item you had on the presentation, but am I right in thinking this is another representation which you say shows something similar?

A Yes, so this is one of Christine Peter's graphs. But, just to kind of briefly go over it, because it's quite complicated, the red arrow shows the move to the new hospital at the QH site. The different colours are the different types of organisms that were isolated from the blood cultures.

So, if you look at the peak, which was April '17 to June '17, which I've already mentioned in the previous graph, you can see by the colour charts the different type of organisms that we were seeing. I think what Christine's trying to show here is, if you look at the dark blue colour and the purple band, you can see comparing that--

Now, the dark blue and the purple are environmental organisms – it's ENV – and the purple's ENT and ENV. These are enteric bacteria and environmental bacteria. These are bacteria that can be both, they can be-- come from the environment, they also come from the patient, whereas the green line-- the green square is enteric. These are bacteria that you would find in blood cultures from the patient's GI system, for example.

But what this graph shows is that, if you look at the purple and the blue, you can see that at the beginning of the hospital move in June '15 to, for example, March '16 – that's that first year I've already discussed – there was very little-- in fact, there wasn't any. If you look at the graph, there was no enteric environmental organisms.

And if you look towards April '17, you can see that band of blue and purple is much bigger. It's increasing in size. If you go on to April '18, which – again, I referred to it earlier – was the other peak in the earlier graph, you can see, again, that the band of purple and dark blue is larger in size.

Q So you're essentially seeing more environmental or possibly environmental organisations-- organisms appearing?

A Yes.

Q Yes, okay. Let's just see what else is on this presentation, briefly. 112, I take it that's just another way of presenting the ----

THE CHAIR: Just before we leave the previous slide----

MR CONNAL: Go back to 111.

THE CHAIR: Yes. I mean, one thing that's striking about that-- this is the contribution of what you've identified as

enteric. In other words, infections which derive from the patient himself, is that right?

A Yes, the enteric is green, yes.

THE CHAIR: I'm looking at the green.

A Yes. Yes, I can see that. Yes, the green. Yes, the green is increased as well, yes. So generally-- in general, all the blood cultures had increased. There was an increase in blood cultures. But along with that, there was an increase in the environmentals, because if you look then at April to June 2018, the very last column----

THE CHAIR: Yes.

A -- you can see that the green has become much less and the environmental has become larger. So what happened was we saw a change of our displacement from the enteric organisms to the environmental organisms.

THE CHAIR: And the Y-axis is numbers of samples, is it?

A Yes, yes.

THE CHAIR: It has been suggested that the-- Take a step back. What you're presenting are the blood samples taken from patients in the Schiehallion unit. I mean, it's the same description of patients either before 2015, when the Schiehallion unit was located in Yorkhill, or after 2015, when the Schiehallion unit was located in the new Royal Hospital for Children.

Now, I think it has been suggested that the experience in Yorkhill, or the experience after the move in 2015 and therefore in the Royal Hospital for Children, was not different from the experience in Yorkhill. I think it's fairly obvious from the presentation that that is not what is apparent from the PowerPoint presentation.

A I would agree. This PowerPoint presentation suggests that there definitely was an increase, and I know I've not been asked, but if I could just include Sid Mookerjee's independent expert report, which I've had a look at. His results----

THE CHAIR: Well, I think we're talking about a report which was tendered by GDC. I think we'll leave that----

A No, that's fine. It's just that I am aware of it.

THE CHAIR: I think we'll leave that for the moment-- at least for the moment.

A Thank you.

THE CHAIR: Right, okay. Mr Connal.

MR CONNAL: I think we're getting the message fairly clearly that you were trying to portray with this, which is increase and comparison to Yorkhill, so I think we can probably just glance at the other slides while we have it up. 112,

please. Are we seeing-- this is just a different way of representing something similar?

A Yes, it's just showing the blood cultures with the different organisms. So it's separated them into gram-negative, that's GN----

Q Yes.

A -- gram-positive, GP, and other organisms, and that might include the yeast and the fungi and other types of bacteria. So what really, again, I think, is to look at the part of the graph once the hospital had moved in July ’15 to September ’15, and you can see the drop in all three of these different graphs.

Q That's your experience that you-- in fact, I think you mentioned it was covered in the literature that, usually, when you open a new hospital, you see an immediate----

A Yes.

Q -- an instant drop?

A Yes, that's recognised in the literature. So that's what you would expect in a new, clean hospital, but I think what-- this, again, is one of Christine's graphs, but I think what-- Again, if you look, again, to the end of the graph, the last column, this is where we're trying to show a change and a switch in the type of organisms that we were seeing. So, you can see that the gram-positive organisms has fallen, but the gram-negative organisms is increasing. Thank you.

Q Thank you. If we look at 113, this is, again, a similar colour-banded chart. Just tell us in a couple of sentences what this is telling us.

A So, this is showing the gram-positive organisms, sort of to compare it with the gram-negatives. The most common gram-positive organism that you see in a blood culture is a coagulase-negative staph. It's in as “CNS,” which is the sort of dark red.

Q So this plots the gram-positive?

A Yes, so that's a skin organism and that is found in blood cultures.

Q Yes.

A And when a child is septic, it can be a contaminant from the skin. It doesn't always cause a serious, deep-seated sepsis. However, if the child is immunocompromised and has a line, then coagulase-negative staph can be an infection that would need to be treated, and the line is colonised.

The other organisms, just to give a comparison-- For example, MRSA and MSSA are Staph aureus, so these are things that-- these are organisms that you would find in a blood culture, and infection control keep a close eye on Staph aureus and MRSA.

But the striking thing for me is that

there wasn't a lot of these common – if you call the word “common” – infections that are part of our HIAT, and infection control would want to monitor what we call SABs, staph aureus blood cultures.

THE CHAIR: Could I just have that again? What was striking to you was there was not a high number of?

A SABs, so that's S-A-B. It's staph aureus bacteraemias, and that is shown in the two-- in the blue square and the purple square. So, the blue square is MSSA – that's methicillin-sensitive Staph aureus – and the purple square is MRSA. These two organisms are used in hospitals to monitor bacteraemias, and you can see with a paediatric population that it would be very different from the adult population. And coagulase-negative staph, which is a skin organism, there's a predominance of them.

So it's just really to give an oversight of the gram-positive organisms because we've already shown the gram-negatives. So it's to show, in the context of that graph that we just looked at with the gram-positives and the gram-negatives-- that's put into a different presentation there, a different format.

MR CONNAL: Thank you. 114, and you've done the same for gram-negatives.

A Yes, so this is teasing out from that really big graph with lots of bands in it, so this actually in more detail shows you the organisms we're talking about. So they've got the "environmental" and "environmental enteric," and the same colour scheme is being used throughout the whole presentation.

So you can see that the dark blue and the purple in the columns from April '17, which was a kind of peak month, and then again in April '18. These are the two times in the timeline that there was a definite increase, and these columns show the breakdown of the type of organisms that we were seeing. So you can see that, amongst the gram-negative organisms, the trend was a definite increase in these environmental organisms in the dark blue part of the column.

Q Thank you.

A And you can look back and compare it with the move, so you can see that there was very few in the first quarter or first part of 2015 into-- You see the column there with the little orange square? That's (inaudible). There was no environmental at the beginning when we had the move to the new site, and then the next column is enteric organisms, which you would expect, so October to December.

Also, look at the numbers. Not only the different organisms that we're seeing, but look at the trends, look at the

numbers, the height of the columns. So, if you compare that with pre-move as opposed to post-move, you can see the difference in the numbers as well as the type of organisms.

Q Are there any other graphs on that presentation, or have we seen them all? Can we look at 115? Does that tell us anything new, or is it simply----

A It's just teasing out the graph. It's the same as the previous graph, only we've taken out of it all----

Q Environmental gram-positive, environmental gram-negative.

A Yes, so you can see that they've taken the other organisms out and just left the environmental and enteric environmental, so you can see that space in June '15 to January '16. You can see there wasn't any at all.

Q Yes. Thank you.

A That's quite, you know-- The presentation of that graph does give you an indication of what I was talking about earlier. In April '16, I began to see things in the blood cultures. You were talking earlier, Lord Brodie, about a trigger or a sign or a signal, so you can see from this graph that, going back and taking a look back to when I saw this happening, the graph shows that there was a trend, and looking back at that time, there was a change, if you can see what I mean, between having no environmental organisms to starting to see them.

Q Thank you. I don't know whether there are any more. 116, and that's your-- we start to get into listing of organisms rather than graph representations, is that correct?

A Yes. Yes, so, just to kind of summarise what's here, this is a list of the organisms, and that actually refers to what I was talking about, the diversity of the organisms. I mean, they're scientific names and some of them are difficult to pronounce, but these are the type of organisms that are not what you would usually find in a blood culture.

Q Thank you.

A And, obviously, as we've already discussed, the Serratia marcescens and the Stenotrophomonas maltophilia are in this table here.

Q Thank you. I think we can leave that PowerPoint now, if we could, and I think just at the moment I just want to ask you a couple of questions just to finish a section of your statement. You've explained to the Inquiry earlier how it came to be that you were sometimes at IMT meetings, and you were asked – and we find this at electronic 111 of your statement, paragraph 131 – that-- I think you were basically asked, "How did you find these meetings when you were there?" And you said, "Well, basically, when it's the clinicians and the infection

control people and people from microbiology, it's all fine, but then sometimes, when there are people from outside that group, you get differences of view." Is that right?

A Yes.

Q Then you say, in 132, you can't tell us which one it was, but you do have in your head a meeting at which you were told that what you were seeing was normal, that someone was saying that 40 positive blood cultures a month was normal, and you had a view about that.

A Yes, so, going forward in my statement, once I was given my witness statement bundle of IMTs and minutes to go through in preparation of later parts of my statement, then, at that time when I was writing this part of the statement, I didn't have the memory, but then I was given the minutes in which this situation occurred, so I do now know who it was and I think I do refer to that later in my statement at the IMT on 14 August 2019.

Q Is this Dr Kennedy from the Board public health team?

A It's Dr Kennedy and Chris Deighan, yes.

Q And you got the impression that they were saying, "Well, this is just normal," and you didn't agree?

A Yes.

THE CHAIR: Sorry, just to clarify that, looking at paragraph 132, you say they were trying to play it down. They were someone in Public Health Scotland. So, although in the statement you refer to someone in Public Health Scotland, it was in fact Dr Kennedy?

A Yes.

THE CHAIR: Right, okay. Thank you.

MR CONNAL: I think this might be an appropriate time, my Lord, to pause.

THE CHAIR: Ms Harvey-Wood, we usually, as I said, take a coffee break. Could I ask you to be back for twelve o'clock?

A Thank you.

THE CHAIR: All right. You'll be taken to the witness room.

A Thank you.

(Short break)

THE CHAIR: Mr Connal.

MR CONNAL: Thank you, my Lord. I'm going to divert just in a moment from your statement to ask you about a particular organism, but before I do that, can I ask you this: did you maintain some kind of data set of the testing and identification of organisms in the paediatric wards at the new hospital?

A Yes, I did.

Q Did that cover all of the wards that fell within that paediatric section?

A Not all the wards, just the

acute wards.

Q The acute wards. Thank you.

Now, I want to ask you about an organism called Mycobacterium chelonae, or chelonae, whatever the correct pronunciation is. I'm told that on the list that was on the PowerPoint that we've just looked at a short time ago, we don't find Mycobacterium chelonae mentioned anywhere. Do you know why that is?

A I think, at that time when the PowerPoint presentation was produced, we-- It's a gram-positive organism, so it's not an environmental gram-negative, and at that time it wasn't in our list of alert organisms, so it wasn't included in the presentation.

Q Had you encountered that organism when you were in Yorkhill?

A Not that I can remember.

Q Did you encounter it in the new hospital?

A Yes.

Q Can you remember anything about how that occurred?

A I think we had two cases. One was from a blood culture, and one was from a skin infection.

Q So you remember discovering this particular organism?

A Yes, yes.

Q Was that an unusual organism?

A Yes. It is, indeed, yes.

Q Is it listed on something called the National Infection Prevention and Control Manual, do you know?

A That's a very interesting question, actually, because if I refer to Appendix 13 in 2021, which I have a printed copy of----

Q That's Appendix 13 of this manual?

A Yes. This document has changed in time in respect that the organisms that had been isolated in the QEUH RHC hospital, the children's hospital particularly, have now been included into this appendix, so it's been updated on various occasions.

The most recent version in March 2024 includes a lot of organisms which weren't in the appendix in 2021, which I refer to in my statement. And prior to that, in 2017, there was no gram-negative environmental organisms in the appendix of the-- it's a national document for Scotland.

Q What's the significance of an organism being in the appendix? Why does that matter?

A It highlights to the laboratories that these organisms need to be reported to the infection control team and, in some instances, to Health Protection Scotland. They're called what we call "alert organisms," and laboratory staff should

be aware.

THE CHAIR: I think I got that: alert organisms----

A Alert. Yes, alert. That's on the-- I think it's on the heading of the appendix. I do have a copy here and I think it says "alert" on it.

MR CONNAL: Yes, so you were explaining to us how this has developed, and a lot of organisms located at the new hospital are now on----

A Yes.

Q -- the alert list.

A So, for example, 2017, they actually added for the first time environmental gram-negative table, and that included four gram-negatives, and it's four that we saw in the Children's Hospital. Pseudomonas aeruginosa, I think, was added because of the infections in Belfast. Then we had Serratia marcescens, Stenotrophomonas maltophilia and Acinetobacter. These four organisms were added to the appendix around 2017, if I remember correctly. In my copy in 2021, they are listed, the gram-negative organisms.

Q Can I come back to the question of Mycobacterium chelonae? Do you know when-- or does it appear and, if so, when did it appear?

A That's why-- I can't look back because, on the website, it won't let you look at previous versions, but the version on the website now, which was updated in 2024, does include Mycobacterium chelonae, along with other organisms that we have discussed. I mean, I can list them if you want----

Q No, no.

A -- but you can look at it online. Some of the fungal organisms have been included, including Cryptococcus species. So this is a manual that is updated with regard to infections and organisms that have been seen in Scotland and, in particular, from the hospital for children. So, if you go back in time when we're looking at this appendix, these organisms weren't there as alert organisms.

THE CHAIR: There's quite a lot of detail in that and I don't think it's dealt with in your written statement. I'm just wondering if I could ask you maybe just to review what-- or, well, let's see if I can just take it at dictation speed. Now, you were asked about Mycobacterium chelonae, and you began by saying that, in 2018, this gram-positive organism was not in, I think you said, "our list of alert organisms"?

A No, sorry, I should say the Appendix 13. I'm just----

THE CHAIR: So is that a reference to----

A The reference that I used on my statement-- the manual date in my statement that I referenced to----

THE CHAIR: Do you want to give me the paragraph in your statement?

A Appendix 13-- I do refer to it. I'm not sure where it is. I do refer to this Appendix 13.

THE CHAIR: Okay. Anyway, in relation to 2018, when you're talking about a list of alert organisms, is that a reference to Appendix 13 of the National Infection Prevention and Control Manual?

A It's a reference to the appendix, yes, because we use it as a reference point for alert organisms, and it says that on the first line of the document, but this is changed and updated versions as different organisms are found in hospital settings that are found to be infection control and of a public health interest.

THE CHAIR: You've explained that we can find the manual online, but we will only find a current version online.

A That's what I was able to find myself. I was looking back to find the document that I'd referred to in my statement. I do have a paper copy, but I was only-- when you click on Appendix 13, you get the current version.

THE CHAIR: Right.

A And that was updated in March '24.

THE CHAIR: Right. Now, you took us back to 2017, when there was an update of Appendix----

A I think there was. I can't be certain, but I have written in my notes that there was an update in 2017, and that was to include the environmental bacteria.

THE CHAIR: Which had previously not been alert organisms?

A That's correct. I'm not sure on the time it was put onto the manual appendix, but I think it was around about 2017. I can't go back to verify that because I----

THE CHAIR: Now, again, if I've noted you correctly, four gram-negative organisms were added to the alert risk in 2017. Now, you listed them----

A Yes.

THE CHAIR: -- and too quickly for me.

A Yes, I'll give them again, sorry: Pseudomonas aeruginosa.

THE CHAIR: Pseudomonas?

A Do you want me to spell it? Do you want me to spell it?

THE CHAIR: Yes, please.

A Okay.

THE CHAIR: I've got the Pseudomonas bit.

A Okay, so it's A-E-R----

THE CHAIR: Right.

A -- U-G-I-N-O-S-A.

THE CHAIR: Right, and next one?

A Acinetobacter species, and that's, again, in my statement. It's A-C-I-

N-E-T-O-B-A-C-T-E-R.

THE CHAIR: Right.

A The next one is Stenotrophomonas maltophilia.

THE CHAIR: Right, I think I've got that one.

A The fourth one is Serratia marcescens. Serratia----

THE CHAIR: Serratia, right.

A We've spoken about two of these already. It then says that-- so they also put on the manual the setting where these organisms would be in alert, so some-- On the table it'll say, "All hospital care settings," "All clinical settings." For example, the Staph aureus that I spoke about earlier is "all clinical settings."

In this respect, for the environmental bacteria column, it says, "High-risk units, PICU, ICU, NICU, oncology-haematology." These were the areas that we were actually seeing these organisms in the Children's Hospital. The ICU refers to the adults, which I'm unable to comment about.

THE CHAIR: Right. I think I've finally got enough. Sorry, Mr Connal.

MR CONNAL: I think you were asked to refer to your statement. Am I right in thinking that in paragraph 93 of your statement you refer to the manual as one of the things that you have follow?

A Yes, yes.

Q You'll have referred to whatever version of the manual you had available to you at the time----

A Yes, exactly.

Q -- you were preparing the statement?

A Yes, indeed, so it has been changed since I made my statement.

Q Thank you very much. Can I ask you some more questions, I'm afraid, about Mycobacterium chelonae? On the two occasions when you say it was found, was there any particular action you took that you can remember?

A Yes. I would have informed the ward and the clinician and also the consultant who was on for paediatrics at that time, and the clinical lead. Christine Peters would have been informed as the clinical lead at that time.

Q Did you ever report it to ARHAI?

A I don't know if that would be my responsibility to report it to ARHAI. I think that would go through the infection control team.

Q Did you ever report it to the National Reference Laboratory in Edinburgh?

A The Reference Laboratory in Edinburgh – it's the TB Reference Laboratory – also can confirm and speciate non-tuberculosis, which are called N, non-tuberculosis bacteria. So, they would have had both of these

organisms. They should have been setting in for confirmation and typing, and they would have been informed and then they would email us back or inform us of confirmation of the result because our laboratory would need to have that confirmed in a second reference laboratory.

Q Thank you. Can you remember, were you involved in the identification of antibiotics to treat any patient with Mycobacterium chelonae?

A I didn't give advice on the Mycobacterium chelonae infections. That would be a consultant microbiologist. So, at that level of infection, for example, like for tuberculosis as well, that would be something that I would inform the consultant who would then deal-- So with more serious infections, the remit for that advice would come from the consultant microbiologist.

Q Yes. You explained to us about what you call the Telepath system, basically a recording system on which you've carefully noted everything. Can you remember ever recording information about Mycobacterium chelonae from the paediatric wards in 2015, ’16, ’17, ’18? Can you remember at all?

A No, I can't remember. If I'd reported out a result, I would have had my name on the report, so it would be in Clinical Portal. Then that person would

then authorise the report and then deal with the reference lab results. I'm not sure if I had any dealings, but I would have recorded anything I had done in Telepath. So I can't look back and check, but everything I've spoken about today, if I had dealt with anything, I would have recorded it, so----

Q Yes. So, I'm really being asked-- or you're really being asked, rather, if you can ever recall getting information about this particular organism – not the two patient identifications, but from anywhere else in the hospital.

A No. I can't remember, no.

Q Do you know anything about when water would be tested for the presence of Mycobacterium chelonae?

A No.

Q Can you tell us whether there was anything in your reporting SOP or quality management SOP about that particular organism?

A We do have a reporting SOP and an alert organism SOP. When I say "alert," it's similar to the one-- the national guideline. We have our own laboratory SOPs for guidance on when to report an organism to infection control, when to report it to Health Protection Scotland. At that time, I can't remember if Mycobacterium chelonae was in it.

TB, tuberculosis, was definitely in it. I didn't really deal with these cases

because of them being under the umbrella of tuberculosis, although it was an atypical-- So, at my level, I didn't always deal with these infections, so I'm not sure if it was in the SOP, but you could access it from the department.

THE CHAIR: Just a question of detail: I mean, I think you've explained it. I think we've maybe noticed this before, that Mycobacterium chelonae is described as an atypical.

A That's right, yes.

THE CHAIR: Could you just maybe tease it out? I mean, what is meant by "atypical"?

A Well, the tuberculosis bacterium, known as TB, causes a lung infection and it's very infectious, difficult to treat and, even with the WHO, it's recognised as a severe infection-- as a communicable disease. They call it a communicable-- it's very easily transmitted.

The atypical or the non-tuberculosis bacterium are different in that they are not as infectious and they have different disease processes in that they cause a different type of infection. The word – again, sorry, I'm using it again – common: they're not common. In normal, fully well and fit people, it may not be a problem.

The reason they are of interest here is because of the immunocompromised patients. Patients that are immunocompromised have a very weak immune system, and they're more susceptible to these type of infections, so it's in that setting that it would be causing more of a disease than it would in a normal person with a competent immune system.

THE CHAIR: I think my question was perhaps more focused on why Mycobacterium chelonae comes within what I take to be – and I may be wrong about this – a larger group of pathogens which are described is atypical. I mean, I think I understand it has a different disease process from tuberculosis----

A Tuberculosis, yes.

THE CHAIR: -- but why does it come to be referred to as "atypical"? There may not be any obvious reason.

A I don't know if I can actually answer that question to explain from a scientific point of view what it means.

THE CHAIR: It may be enough that I know----

A I think it's a different disease----

THE CHAIR: -- that when I see a reference to atypical organisms, it includes Mycobacterium chelonae.

A And obsessive-- Basically, it's the non-tuberculosis-- that's why it was called non-tuberculosis. It's all the different types of Mycobacterium because it's a big genus of organisms with lots of

subspecies. Now, the tuberculosis, if you want to call it the true TB, is a disease process in its own and world-recognised as a concern for WHO, whereas the atypicals are a different group. So bacteria are in, like-- they can be subspecies, can be different groups, although it's the same genus. So the atypicals are not, as a concerning disease process, a public health concern, and that's why the TB is separate because it's more for a public health concern, whereas the non-tuberculosis mycobacteria are not generally of public health concern.

THE CHAIR: Right.

MR CONNAL: In terms of its prevalence, i.e. how often you see it, would you put it in the box of normal or unusual?

A Oh, unusual.

Q Thank you. Now, I probably have asked you this question in a slightly different way already, but just bear with me: if you get a sample from a patient, it comes with a unique identification number related to that patient. If you get a sample from somewhere-- it's not a sample from a patient, it's a sample from somewhere in the environment, it comes, I'm told, with something called a ZM number. Can you ever remember getting Mycobacterium chelonae associated with a ZM number?

A I personally didn't work with any of the environmental samples as part of my remit, so I didn't look at or authorise any environmental samples. I was aware, just through discussion with my consultant, that there was water samples and they were looking for Mycobacterium chelonae, but I had no input into the processing of the samples.

Q I'm going to move on now to deal with a number of meetings that you attended for the reasons that you've explained to us earlier. Could we go to page 116 of your witness statement? Now, this is an IMT. I'm not going to dig out the minutes at the moment, but I see in your witness statement you pick up the fact that-- you said that the Aspergillus was attributed to Ward 2A.

Then, in paragraph 149, you're dealing with, I think, a subtlety which may easily elude the laypeople in the room that you've got a positive test for Aspergillus-- aspergillosis, I think. Then, you say, well, if you want to go from probable, which is what one test gives you to proven, you need a second test. Am I picking that up correctly?

A Not really. What the criteria for the EORTC guidelines for fungal disease – so it's invasive fungal disease, IFD-- is that the definition of a possible infection, it requires-- the guidelines require two positive Aspergillus PCRs, two

consecutive samples, so that's what I'm referring to there. They would need a second Aspergillus PCR.

There is other tests that are included in the definition of a probable infection, but the second Aspergillus PCR would still make it probable. It needs the second one to make it probable, yes.

Q Thank you. I think the other point that you pick up from this meeting is the prescribing of prophylaxis, not for ordinary clinical reasons but because there was a risk of fungal infection. Is that the point that you're trying to make here?

A Yes. They are wanting to look at prophylaxis for the patients to prevent fungal infection. So, some antifungal drugs are used for both prophylaxis and treatment, given at a different dose. So you can use the same agent or the same antifungal but prescribe it differently. It is recognised that some antifungals can be used as prophylactic agents to prevent the fungal infection. Then, it can be used at a different dose as a treatment option.

Q Thank you. Well, let's move on to the next meeting in the sequence, which appears on page 118. Again, the topic seems to be Aspergillus, and you explain a number of the ways in which you can diagnose Aspergillus, is that right?

A Yes.

Q But you weren't really providing any guidance at this stage in that meeting?

A No. My remit there was just the results and the test results of the patients who had been discussed at the IMT who had Aspergillus, so I was just there to go over the test results. I didn't give any advice on treatment or prophylaxis.

Q Just so we pick up one or two of the phrases used, in paragraph 156, you talk about the IMT raising it with Public Health Scotland. Could that be HPS we're referring to there?

A Yes.

Q Then, in 159, we're talking about public health offering a view. Would I be right in thinking that was the Board's public health team that were commenting there?

A Yes. It's sort of-- Just trying to read it. Yes, it was to do with what we really discussed earlier about what we perceive, as I said, from microbiology, and what we're seeing in our results, and what public health see from the results.

Q Yes.

A Because they may just have one patient being discussed or two patients at the IMT, but we are seeing more patients.

Q So you've got this sort of overview of all the testing?

A Yes.

Q Thank you. On page 120 we pick up another meeting. We're in December '17, and you say you can recall this one because there was a problem in PICU with Acinetobacter.

A Yes.

Q Is that right? And you introduce another acronym here, PFGE, and I understand that that's a form of test associated with DNA?

A That's correct, yes.

Q And it's different from whole-genome sequencing, is it?

A Yes. So, would you like me to explain?

Q Just briefly, please.

A Yes. Okay, so, again, just to refer to this Acinetobacter, again, it's because it was an alert organism now. As you can see, it's December 2017, so this is one of the organisms that now we have to investigate if there's an increased number of cases.

So, to try and show that there was a cluster or there was movement of the organism between patient to patient, you need to show that it's the same strain. Now, we're talking about genus and species, so we can say it's an Acinetobacter, we can say it's baumannii, but within each species and genus, down to species level, there's subvariance of that species.

Q Yes.

A So, to show if it's the same subvariant of a species, we have different technology. We in microbiology at QH don't have this technology, so we rely on the reference labs to do this for us. In this situation, it was Health Protection England, which has now, as you know, has been renamed as UK HSA. The isolates were sent for the pulse-field gel electrophoresis, so that is when the organism is put on a gel, a matrix with an electric current, and it pulls out the bands of the DNA, so you get a pattern of banding which looks at the DNA.

Whole-gene sequencing, which has now been introduced into the reference labs to allow us to look at outbreaks of organisms-- For example, like, if you have an E. coli O157 outbreak or a salmonella outbreak, they can go detailed level of the DNA of the organism.

So it's looking at the whole-- the genome or the DNA of the bacteria to find out that it's the same and then maybe find the source or the common source of the organism. So what we're seeing here was that the whole-gene sequencing was finding a match. They were finding that they were the same at level. Sorry, at the-- sorry----

Q PFGE.

A -- the pulse-field gel electrophoresis was showing that they

were the same. Professor Leanord said that he wanted more detailed testing to even further investigate the organisms to see if it was similar by the DNA.

Q A sample had gone away to a reference lab, the reference lab used the test it used----

A Mm--hmm.

Q -- and, I think you say elsewhere in your statement, which was the test which was usually accepted by infection control teams?

A Yes. Yes.

Q But Professor Leanord wasn't happy with that and wanted whole-genome sequencing done?

A Yes.

Q Now, one other issue that crops up in that meeting is covered by you in paragraph 168. Now, what you say here is that Professor Leanord says the background rate of Acinetobacter has not changed when compared to previous years. Your comment is, "Well, it shouldn't be there at all."

A Yes.

Q I mean, is that what I'm picking up from that statement?

A Yes. I mean, there may have been, you know, cases from time to time, but I don't think it's acceptable to have a background rate of an organism. And, again, referring to Appendix 13, it's one of the organisms that's now an alert organism, so even, you know, two cases should be an alert.

So if you're having an IMT, which is correct, we should be doing that-- But what I'm trying to say is, while we're having an IMT, that we think there's a cluster, there has been some isolates found to be the same, but then they're saying that there's a background rate.

Q I think you say in 169 there were seven cases being discussed, is that right?

A Yes, and then on the next minutes, there's another-- I can't find my notes-- there's another six cases, I think. I think there's 13 altogether, so there's a further IMT because the cases are continuing where we're seeing more of them. So there's a further IMT with more cases later, I think six months later.

Q The other that runs through these minutes, and it may not matter for our purposes, is some sinks that were supposed to be taken out----

A Yes.

Q -- and were still there months later, is that right?

A Yes, because I visited PICU most days, nearly every day, and these big trough sinks were sitting in the middle of the ward and they were being inappropriately used. They were putting (inaudible) the sluice stream, they were putting, like, waste down and, I think, and

they shouldn't really-- I don't know why they were there.

The consultants in PICU were also wanting them moved, and it was minuted in two or three minutes that that would be a corrective action to move the sinks, and it hadn't been done, and then a further minute, which is in my bundle, it said that they couldn't do it at that time.

So they were thought to be a possible source. So the hypothesis at the end of an IMT is where your source is from, what the corrective actions are, and this was a possible corrective action to remove the sinks because they could have been a source of the Acinetobacter infection.

Q I think the point you made about more cases, I think that emerges on the next page of your statement when you pick up an IMT of 6 June 2018 relating to an increase in this organism and you point out here there are another six, so something is still going on somewhere.

A Yes.

Q Yes, and then we pick up the point about sinks. I just want to pick up the next meeting. Can we have bundle 1, 343, please? Now, I have a couple of reasons for going here. Firstly, because this is 14 August 2019 meeting that, when you originally wrote your statement, you couldn't remember the date of and have subsequently remembered.

A That's correct.

Q The first thing perhaps notable about this meeting is there's a cast of thousands at this one. It's a very large number of people.

A Yes.

Q Do you know why there were so many people there, this huge gathering?

A I think the fact that there was the number of patients, so there was 11 of these patients, and this was after the-- this is with the move to-- the patients were in 6A. They had been moved out of the Schiehallion Ward at this time and the infections were still happening. So there was concern that even though the CLABSI group were doing really well with line care and management of lines and procedures, the infections were still happening. So there was a lot of people involved from infection control, from the clinicians to management, clinical directors, and I was asked to come.

Q This is one I think you were at because Teresa Inkster had asked you to go.

A Yes, that's correct.

Q And you had a particular interest in the paediatric intensive care unit, which was part of it.

A This particular minute is the paediatric haematology-oncology unit.

Q Right.

A The previous ones, the Acinetobacter, they were-- yes, I was involved, but also there were-- some of these children were in PICU, so that's also-- so I crossed over from-- The previous minutes were Acinetobacter and PICU. These were haematology-oncology patients, but they were also in PICU because they were very unwell and that was another concern, that they were-- their condition was a concern because of the sepsis with the environmental gram-negatives in their lines. So some of them had to require intensive care and also line removal, so I think I kind of covered, sort of, both areas in that respect with this minute.

Q Can we go on to the next page of the minute, please? You reference in your witness statement – the comment about halfway down the page after the section of redaction – Chris Deighan. Now, that's someone you hadn't really had much contact with, as I understand from your statement, is that correct?

A Yes.

Q Pointed out numbers of bacteria have not increased and reference an epidemiology report by Dr Kennedy, which you haven't seen, is that right?

A Yes.

Q This was in response to a comment from one of the consultants. That's presumably a clinical consultant who said there'd been an increase in infections, and it notes here:

> "Dr Inkster and Dr Peters stated the nature of the bacteria was a concern. Dr Inkster stated, 'We're not seeing typical pathogens for these patient groups [then gives some examples].' It's likely that the good work of the line team has driven that down. Organisms we're seeing are environmental in nature and associated with water and soil."

Now, when that's recorded as what Dr Inkster says, do you agree with that?

A Yes.

Q And the Dr Kennedy that's mentioned, he's the individual from the Board's public health team. Although, I think in your statement you sometimes call them Public Health Scotland?

A Yes, the-- sorry, the terminology changed.

Q Yes, thank you.

THE CHAIR: You say the terminology has changed, and you're right about that, but I am right in thinking that Dr Kennedy is a GGC public health consultant?

A Yes.

THE CHAIR: Yes.

MR CONNAL: I'm just jumping between the minute, but let's leave the

minute on the screen for the moment. In your witness statement at paragraph 179, you record that Drs Inkster and Peters said there was a concern that the organisms were environmental. You record this as one of the meetings where corporate management – and it probably won't be HPS, it'll be Dr Kennedy – were saying that "what we were seeing was normal." Can I just pause there and ask, did you agree that what you were seeing was normal?

A No.

Q And this goes back to the presentation----

A Yes.

Q -- that you say you've referenced again. So, when Drs Inkster and Peters are raising these concerns in the course of this meeting, are you agreeing with them or are you disagreeing with them?

A I'm agreeing with both Christine and Teresa.

Q Thank you. Well, we can leave that minute. Thank you. I've just a slightly technical question to ask you. If we go back to the witness statement, 127, please. In paragraph 183, you record a request by HPS for data, which you seem to be a little taken aback by and had to refer up to Christine Peters, is that right?

A Yes.

Q When HPS were in touch, did they not make it clear that they knew you'd need to get some kind of consent before you released data?

A No, I was emailed asking for my results and there was no CC into my line manager, my clinical lead. It was directly to me, and I wasn't going to give patient information outside the organisation or outside of the laboratory without going through my line manager. So we would never give results out or data out without having it cleared or agreed with a senior member of our management staff. So the first thing I did was forward the email to Christine Peters, her information and her comments, and she responded to that email.

Q Okay, thank you. We'll move on to the next meeting, if we may, which was a meeting, an IMT, on 6 September 2019 about gram-negative bacteria. Now, if I just take it generally, first of all, I think one of the points you're making about this meeting is that you didn't think the minutes recorded accurately everything that you noted as having happened, is that right?

A That's correct.

Q So we see this, for instance, at paragraph 185, where about two-thirds of the way down, Tom Steele is saying, "No, there's no leaking. If there's a leak, it would have been hot water and it would

evaporate." Dr Crichton says something about chilled beams being acceptable in the hospital, and then you say you had notes taken at the meeting and you-- When did you make these notes? Actually at the time?

A Yes, I had a pen and paper with me and I took all the notes down because at this meeting, as you can see, Christine Peters and Teresa Inkster were not invited, so Teresa asked me to go on her behalf and to represent microbiology along with Dr Valyraki, Pepi. She came, too, as infection control representation from microbiology. She was the consultant for microbiology and infection control. So her and myself went along to this meeting and I was asked to take notes, and after the meeting I typed up the notes – a brief summary of the notes – and I emailed it to all the microbiology consultants in the department.

Q So the point you're making near the foot of page 128 is that your note says that at the meeting it was said that two times in the same month the boilers were down, temperature trends were monitored, boiler pressure was lost, and this caused increased condensation leaks from chilled beams associated with the duration of boiler failure. That's what you recollect having been discussed?

A Yes. I wrote it down and I've got it typed in my debrief notes from the minutes-- of my minutes, but it wasn't included in the actual minutes of the meeting by the minute-taker.

Q Then you record Pepi Valyraki saying to Mr Steele, "Well, Christine Peters has got pictures of them leaking."

A Yes.

Q Then you quote a comment about chilled beams, which I don't think we need worry about at the moment. In fact, you make a comment that you've had water dripping from a chilled beam onto your head.

A Yes, I have.

Q We've heard from other witnesses that there was an issue with the dew point control for condensation.

A Yes.

Q Just bear with me a second. So, at this point, were you comfortable that the minutes were recording everything that was said?

A No, and further to that, at the next IMT, some of the minutes were removed, so they're not actually in the minutes.

Q Right. If we could carry on onto page 130 of your witness statement, you've discussed the relationship between Yorkhill and Great Ormond Street. I think you said Yorkhill was the Great Ormond Street of the North, which is an interesting title, and that's why you ask about them, and I think you asked

about whether Great Ormond Street had chilled beams, to which the answer is apparently no.

There's a reference I wasn't sure I fully understood. At page 130, paragraph 188, you say that from your notes, not recorded in the minutes, a review by Dr Hartley from GOSH, who is a consultant microbiologist and director of infection control, to visit the hospital was planned. So that was something that cropped up at the meeting but wasn't in the minutes, is that right?

A Yes, because I wrote it down, and I do know Dr Hartley. She has been in microbiology at Yorkhill. So we did really-- Before the move, when we were a paediatric standalone hospital and a standalone NHS trust, Yorkhill Trust, we didn't really-- we did work closely with Great Ormond Street and we would phone them for advice because, being a paediatric hospital and a paediatric microbiology department, Great Ormond Street also have their own microbiology department which is specifically paediatrics. It's a standalone paediatric hospital.

So we would refer to them some of the assays that they used. I got information. I've been down to Great Ormond Street during my career and I know the clinical scientists that work in Great Ormond Street, so they were a useful kind of comparator for us.

Q Can I just ask, though, what is this review by Dr Hartley that you've made a note about? Can you remember what it was meant to be?

A Well, I think they wanted, just as I've said, a paediatric microbiologist infection control doctor from another hospital, paediatric hospital, to visit and compare the issues that we were having and give advice. The minutes and the discussion around Dr Hartley coming did not discuss the reason for her visit but just said it would be a review and a visit to the hospital.

Q Did it happen, as far as you know?

A As far as I'm aware, it did not happen, no.

Q In 189, you pick up a point where Drs Kennedy and Deighan are saying something about not recognising an increase, and apparently you said something that's not in the minutes about what you had found, is that right?

A Yes.

Q You said that the blood cultures are mixed polymicrobial and the diversity of the bacteria was different from Yorkhill.

A Yes, I did say that.

Q Did you think you were being listened to?

A I don't think they agreed with

what I was saying.

Q So this is well on in the narrative now. We're now in 2019 and you're still concerned.

A Exactly, yes.

Q Is that correct?

A Yes, and that's since 2016.

Q Thank you. Well, that's the only other document I wanted to put to you. In the remainder of your statement, you've picked up what you say are some of the impacts that you felt from this situation. If I can summarise it as I understand it, what you're saying is one of the challenges of doing the job you did was that you saw the samples, you spoke to the clinicians, you were sometimes on the ward speaking to the clinicians, but you didn't have any direct contact with a patient, but nevertheless you knew what was happening to them. Is that fair?

A Yes. From a clinical point of view, from speaking to the clinicians, I knew what their patient history was, what type of haematological disease they had, what their condition was relative to their treatment, where they were in their treatment, what the risks were of infection, how immunosuppressed they were, what antibiotics they were on, were they on the right antibiotics, what was the treatment plan. So I knew about the patient but had no direct patient care in that respect.

Q But you still knew what was happening?

A Yes.

Q I think you indicate that that concerned you, upset you, whatever phrase you want to pick.

A Yes, it did, because these children were having to have their lines removed, and that meant general anaesthetic. They had to fast before that, and then the line had to be taken out and a new line put in, and with the increase in the infections, they were having more lines removed. And also some of them became quite unwell and had to go to PICU for care, supportive care, in the intensive care unit, and that was upsetting for the children and for the families as well.

Q Did you get the impression before you retired that the role of paediatric clinical microbiologist was a role that the Board were valuing?

A No, I don't think so, because they were not replacing the clinical scientists who'd retired and they weren't replacing or appointing a consultant microbiologist with specific paediatric experience. We did appoint a consultant from Alder Hey, but he was only with us for six months – at least six months, maybe nine months – and he was really very, very informative. You know, I worked with him. Our offices were next

door. But going forward after that, we don't have a consultant who has paediatric experience in their training.

There was two consultant paediatric microbiologists. As you know, Professor Williams was clinical lead and microbiology consultant, and he moved on to another job and he wasn't replaced. The other part-time clinical-- sorry, clinician, or consultant microbiologist, should I say, she's now retired as well. So the consultant in our microbiology department-- I mean, they do paediatrics, they're on the rota, they are well equipped to do paediatrics, but they don't have specifically trained paediatric microbiologists.

Q I think, just as a tailpiece, in your witness statement, you say you did think about going onto the whistleblowing process, but you decided not to do so.

A Yes. I do know there was people in my department who were whistleblowers, and we were aware, the department, that that had happened. At the time, I wasn't sure what to do because-- and I didn't want to affect my career, and so really why I'm here today is because I was asked to be a witness in the Public Inquiry and to provide a statement, so I thought, well, that's my way of letting people know how I felt and what was happening in the hospital rather than whistleblowing. It's my opportunity

to tell you how I felt about what was happening rather than doing the whistleblowing.

Q I have no further questions for this witness, my Lord.

THE CHAIR: Well, Ms Harvey-Wood, what I need to do is discover whether there are any other questions in the room, and so what we'll do is we'll take a break of about 10 minutes or so and we'll find out if there are any other questions. I would hope to be able to call you back then and we'll find out what the situation is, but can I ask you to go back to the witness room, if you could?

A Thank you.

(<u>Short break</u>)

THE CHAIR: Now, Mr Connal?

MR CONNAL: Yes. I'm obliged, my Lord. I have one question I've been asked to put to the witness. Just before I ask for her to be brought back, I've just been asked to clarify that, of course, the only Mookerjee report prepared that has any relevance to this Inquiry was, of course, a report instructed by this Inquiry and is not a Board document in any way, and I think some confusion may have arisen as to how we touched on that, but I've been asked to clarify that.

THE CHAIR: Well, I mean, it may be something that's arisen from my

intervention because what I thought the witness was referring to, or about to refer to, was something which is not in the Inquiry bundle. Now, Mr Mookerjee's report is in the Inquiry bundle and, as you correctly say, Mr Mookerjee's report was instructed on behalf of the Inquiry. Now, do you feel that that----

MR CONNAL: That's, I'm sure, is satisfactory. I wouldn't seek to ask this witness questions about Mr Mookerjee's report in any event.

THE CHAIR: No.

MR CONNAL: So I have only a single question for the witness.

THE CHAIR: Now, does that-- I'm just wondering if I'm picking up the body language in the room correctly. Mr Love, does that----

MR LOVE: I'm satisfied with that.

THE CHAIR: All right, thank you. Yes.

(<u>The witness re-entered the room</u>)

THE CHAIR: Perhaps just one matter, Ms Harvey-Wood.

A Okay.

MR CONNAL: Just a question that arises from something you said right at the end of your evidence that I've been asked to clarify with you. When I asked you about the fact that you thought about whistleblowing but decided not to and decided to take this opportunity of telling your story, you made a comment about it possibly affecting your career. What did you mean by that?

A I just meant that I didn't want to have any kind of – how do I put this? – effect on me personally from my ability to do my job, and it was towards the end of my career and I wanted to continue in my job. I didn't want to have any – this is very difficult for me – kind of negative feedback or anything because I think whistleblowing is quite a complex and quite an onerous thing to do, and you really have to put a lot of time and effort into your whistleblowing statement and have enough evidence to support whistleblowing.

So, at my level of-- as a clinical scientist – I'm not a clinician – you know, I wouldn't have the GMC support and I felt that because my line manager was whistleblowing, in that respect, then maybe it wasn't necessary for me to do it as well.

Q Thank you very much. I have no further questions, my Lord.

THE CHAIR: Thank you very much, Ms Harvey-Wood. Thank you for your attendance today and answering Mr Connell's questions, but thank you also for the work you've done in preparing your witness statement. I think, as you referred earlier in your evidence, you've

maybe had to go back over that work on more than one occasion. I appreciate that that will have been quite onerous, so thank you not only for your attendance today and your evidence today, but also the important part of the evidence of the Inquiry, which is represented by your statement. So, thank you for both, but you're now free to go.

A Thank you. Thank you, my Lord.

(The witness withdrew)

THE CHAIR: Now, my understanding, Mr Connal, is that we have not been able to schedule a witness for this afternoon.

MR CONNAL: That is correct, my Lord. A witness who was scheduled for today wasn't going to be available today for a variety of reasons.

THE CHAIR: We will be able to resume tomorrow at ten. Very well. Can I wish you a good afternoon and, all being well, we'll see each other tomorrow at ten.

(Session ends)

13:11