SCOTTISH HOSPITALS INQUIRY

Hearings Commencing
26 February 2024

Day 5
Friday, 1 March 2024
Lindsay Guthrie

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10:02

THE CHAIR: Good morning. Mr MacGregor, we are ready to begin, I think?

MR MACGREGOR: Yes, my Lord. The next witness is Mrs Lindsay Guthrie.

THE CHAIR: Good morning, Mrs Guthrie. Now, as you know, you are about to be asked questions by Mr MacGregor who is sitting opposite, but, first, I understand you are happy to affirm?

THE WITNESS: Yes.

Mrs Lindsay Guthrie
Affirmed

THE CHAIR: Thank you, Mrs Guthrie. Now, we were planned to sit between now and our lunch break at one o'clock, but we will take a break probably about half past eleven, opportunity for coffee, 15-minute break. However, if at any stage you want to take a break for whatever reason, just give me an indication and we can take a break. So, you know, please feel that you are in control of this situation.

A Okay.

Q Now, Mr MacGregor?

Questioned by Mr MacGregor

MR MACGREGOR: Thank you, my Lord. You are Lindsay Guthrie. Is that correct?

A That's correct.

Q You have provided a witness statement to the Inquiry?

A Yes, I have.

Q For the benefit of core participants, that can be found at pages 68 to 161 of bundle 2 of the witness statements. The content of your witness statement is going to form part of your evidence to the Inquiry, but you are also going to be asked some questions by me today. If at any point you want to refer to your witness statement, please just do let me know and a copy can be made available. Equally, in terms of any documents that I want you to look at, they should come up in front of the big screen in front of you. If, for any reason, you cannot see the document, please just do let me know.

A Okay.

Q I would just like to begin with your background and qualifications. Those are set put from paragraph 3 onwards of your statement. So you tell us that you qualified as a nurse in 1995. Is that

correct?

A That's correct.

Q Then, eventually, you went on to obtain a post-graduate qualification in infection prevention and control?

A Yes, I did.

Q We will come on to discuss a bit more about training for individuals working in infection prevention and control, but in terms of the post-graduate qualification you undertook before you started working within infection prevention and control, did that include any training in relation to technical issues concerning building services? By that, I mean water systems, ventilation systems, those types of issues.

A Not explicitly, no, in terms of technical content.

Q Again, just a matter of generality. You are moving in to work in infection prevention and control. Do you think the lack of training that you had before you took up that role was problematic in any way?

A So, I think as an Infection Control nurse, we do have an understanding of the built environment as a component of patient infection and risk. We're not specifically trained, or weren't specifically trained,

in aspects of design or technical compliance. Those are quite separate, and I don't think that that was ever-- I've ever perceived that to be a barrier in terms of my clinical infection prevention and control practice.

Q Would that really relate to the day-to-day jobs of an infection prevention and control nurse?

A Correct.

Q You tell us within your statement that the building of a new hospital within a health board, that can either be a never in a career or potentially a once in a career event. Is that correct?

A That's correct.

Q So, in terms of that type of event, there is presumably going to be more of a focus from an infection prevention and control angle in relation to the built environment – water systems, ventilation, that type of issue. Would that be correct?

A So, I think in terms of the overall design, yes, but, again, I think it's been clear, our understanding what our role in relation to those particular aspects would be in a construction project, because that's very different to our role in the context of the clinical delivery of care.

Q That is really what I was

looking for, your views on-- I understand that the evidence you have given in relation to the day-to-day activities, helpful to have a general knowledge of these systems, but you do not really need any detailed knowledge. Is it then realistic to ask someone who is working in infection prevention and control and only has a very basic understanding, does not get any specific training, to then work on one of these massive construction projects for a brand-new hospital?

A I think it's reasonable to expect input from an infection prevention control nurse or doctor in relation to aspects of clinical risk or infection control risk associated with the design. I think if the expectation is that infection control staff can advise on the actual design or construction elements of critical systems, that's not part of our-- it doesn't align with our training or expertise and certainly, would be very challenging.

Q Mm-hmm. Again, we will come on and discuss this perhaps in more detail later on, but would it be effectively requiring a nurse to step outwith the bounds of their professional qualifications and what they agree to do in terms of the registration with the Nursing and Midwifery Council?

A That would be my assessment, yes.

Q Again, just for those of us-- Obviously you work in that space. Can you just explain what you mean by that, why you think that that would be problematic?

A So, as a registered nurse, my training has focused on patient care. So understanding disease and treatment and nursing care in its widest sense. Within the realms of infection control, my role is around understanding where, for example, water as it comes out of a tap, or the way that the hospital environment is configured or maintained can have an impact on patient care. So it's understanding-- So, if a patient had an infection, if that organism had a natural environmental reservoir, I would look to see in the context of the patient care environment whether there were any aspects of the built environment which might have provided a reservoir and contribute to that infection developing.

So, my role is around clinical risk and clinical infection control. Where we're-- The bit that becomes more challenging as a registered nurse is if you were then to ask me around the

component parts that constitute a plumbing system, or a ventilation system, or the materials that are used within those systems, or any particular engineering or design consideration of those technical systems, I have no training. I have no professional expertise, I think, really to be able to comment competently in regard to that. That then creates a bit of a challenge in terms of my--

My professional registration with the Nursing and Midwifery Council requires me to always work within the scope of my professional knowledge, skill and experience. Actually, as a registrant with the NMC, I would be found lacking actually if I were to then begin to advise on things that I cannot demonstrate or really don't have the skill, knowledge or expertise to participate in.

Q The Inquiry heard evidence from one of your colleagues, Sarah Jane Sutherland, yesterday, and one of the issues that she raised was a concern that infection prevention and control nurses were effectively being made quality control officers for the built environment, so being made to be a quality control officer for plumbing and ventilation, those types of issues. Is that a

concern that you have?

A Yes, it is.

Q And, again, can you just explain why you are concerned about that and the implications?

A So, I think in the time that I've worked in infection control, which is 20 years now, there's been a material shift, I think, in what's being asked of us or expected of us as infection control nurses, and I think increasingly, there are aspects of compliance and conformance, either in the design and the maintenance of systems or the performance of systems that we are being asked to comment on. And I think there has been perhaps a sense that we will sign off or provide assurance around some of those systems and I think there has been a gradual shift in that what we're being asked to comment on is not-- From our perspective, or from my perspective, I wouldn't perceive it as a clinical issue or necessarily something that I have the competence to comment on.

To some extent, I would suggest, or my interpretation of aspects of HAI-SCRIBE in terms of that Stage 4 sign-off, which I'm sure we'll come on to talk about, there are questions within that document that I think there's an

expectation as an infection control nurse we'll answer or we'll comment on, but, actually, we have no way of-- So we don't have the competence or the expertise to actually make a definitive statement on whether something is compliant or not, but that is now the expectation, and I think that expectation has increased and particularly within the last couple of years.

Q Thank you. If I just return to your experience and qualifications, am I right in thinking from June 2015 to January 2021, you were the lead nurse for Infection Prevention and Control at NHS Lothian?

A That's correct.

Q Can you just explain to the Inquiry, what did that role involve?

A So, as the lead nurse for infection prevention and control at that time, my role was primarily to provide the subject matter lead for infection control within the Board. There was a head of service infection control manager who had overall accountability in terms of what Scottish Government expect, but they were not an infection control qualified practitioner. So in terms of the subject matter, I provided that lead role in

advising the infection control manager and then, by default, the Board of any risks or issues. I provided professional leadership to the nursing team, and particularly around infection control content, and I had a significant element, I guess, of operational focus in being involved in incident and outbreak management, aspects of education and training, audit and surveillance. A part of my role included working with external stakeholders to develop national policy and develop expertise in the area of infection prevention control.

Q Thank you, and who was the infection control manager at NHS Lothian at that time?

A So, at that time it was Fiona Cameron.

Q Thank you, and you mentioned your role as the infection prevention and control nurse. The Inquiry is also going to hear from Dr Inverarity, who was the infection prevention and control doctor. Could you just explain to the Inquiry what is the difference between the infection prevention and control nurse, the IPCN, as opposed to the infection prevention and control doctor, the IPCD?

A So, one of the key

differences is that as an infection control nurse, my substantive role and the whole of my job is concerned with infection prevention control and the delivery of a work programme across all of those key components. Infection control doctors are usually, but not always, consultant microbiologists, so maybe consultant clinical scientists or virologists, who are employed, certainly in Lothian, through the Department of Laboratory Medicine, and a component of their role is to provide support for infection prevention control and that's captured within their job plan. So they're not full time in infection control. There is a component of their role, supports infection control practice.

There are some subtle differences, I guess, in that infection control doctors in their role as microbiologists and virologists are much more concerned with the diagnosis and treatment of clinical infection, so interpreting laboratory information, advising on appropriate antimicrobial treatment, and I guess what would be termed maybe the medical management of infection, and infection control nurses have a much broader remit looking at aspects of education and training for a wide range

of staff. We have a role around audit and monitoring. We work usually together around surveillance activity, so looking at incidents and rates of infection. So they're complementary roles, but there are some key differences. I think another component is that as an infection control nurse my postgraduate qualification is in infection control, whereas anybody being appointed into the role of an infection control doctor, the infection control component of their specialist medical training, it's quite a small component and it's not the whole part of it. So they are subtly different.

Q So, again, just so I am understanding things, complementary skills between the IPCN and the IPCD. Is that correct?

A Yes.

Q With the IPCD effectively being a resource that can be called upon as and when required?

A Yes, so there's an allocation made within job planning.

Q And the two roles effectively working together to try to identify and minimise clinical risk with a view to ensuring patient safety within a hospital?

A Yes.

Q Thank you. Now, just to

complete your qualifications and work history, between October 2019 and March 2020, you tell the Inquiry that you were acting head of service for Infection Prevention and Control. How did that appointment come about and what did it involve?

A So, the then head of service had a period of planned sickness absence and there was a requirement to cover that role. So part of my job description as the lead nurse was that I would deputise for the head of service, and it was agreed that I would cover her role for that period of her absence, but that was in conjunction with my existing role. So it was an additional role and point of contact for the period that she was off.

Q Thank you, and you tell us that from 2021 until now you are the associate director of Infection Prevention and Control. What does that involve, and how does it differ from your previous roles?

A So, that post was created-- So the job description of the head of service and infection control manager was reviewed at the point that the postholder was retiring and-- So my current job description, my post includes all of the elements of the infection control manager role in terms

of that board accountability and responsibility, but the fundamental difference is that I have retained an element of clinical responsibility, and as a subject matter lead in my current role that the previous postholder didn't and wasn't a requirement for infection control managers. So there's an element of my current role being an extension and a continuation of my lead nurse role and where I've absorbed and taken on the whole role of the infection control manager.

Q Thank you. I now just want to just ask you some questions about guidance that would be provided to IPCNs, but, again, I think I picked you up in your evidence and in your statement as saying that effectively the built environment – we're talking about ventilation systems, water systems – healthcare acquired infections arising from the built environment, was this an emerging area, effectively, through the 2000s?

A So, no, I think there's always been a recognition and there are a great many published case reports and outbreak reports in peer-reviewed professional literature where infections have arisen through exposure to pathogens in the built environment. So, for example,

Legionella in a water system or Aspergillus within aspects of brick or concrete. So I think it's not a new concept and the understanding of that isn't new. I think our understanding of some of the risks around how buildings are now constructed and maintained is continuing to evolve, but I think in terms of our understanding of microorganisms and their natural reservoirs, that's long established.

Q So, known risks arising from things like water and the air within a hospital. Is that fair?

A Yes.

Q But in terms of the science, the research, was there exhaustive research that had been carried out in relation to the exact clinical risks that are going to arise from specific water systems and specific ventilation things in, perhaps, the early 2000s?

A Not specifically in terms of the actual systems, to the best of my knowledge. I think that's again very much an evolving and emerging area of research.

Q And is that still an evolving and emerging area of research?

A Yes.

Q Thank you. If I could ask you to have in front of you, please, Scottish Health Facilities note 30. So that is in bundle 13, volume 3, page 464. Bundle 13, volume 3, page 464. So it is SHFN 30, Part B, HAI-SCRIBE Implementation Strategy and Assessment Process and it is the version from October 2014. Do you see that?

A Yes.

Q We will come on and look at some passages from this document but can you just explain in general terms, what is this document?

A So, this is a document that's issued by, well, previously, Health Facility Scotland, National Services Scotland, that's provided in three parts, parts A, B and C. It really sets out some high-level principles around infection control risks that might be identified within the built environment and high-level standards that we would look to achieve around fit and finish, for example, of different aspects of a hospital or healthcare premises. It's primarily concerned with risk assessment and management of risk. It's a document which has been mandatory in Scotland since 2007. Previous iterations, it was issued under CEL(2007)13, I think, and it remains mandatory in Scotland under

instruction from DL(2019)23, which is a Scottish Government letter.

The principal focus is around construction major refurbishment, but the principles contained within the document and the risk assessment process is expected for any built environment work in any kind of premises, so that the risks are identified and adequately mitigated.

Q Thank you. In simple terms, is this a tool for IPCNs to use?

A It's a tool for members of staff working in a health board to use. It's not a tool solely to be used by infection control teams.

Q So it would be used by IPCNs, but it is not solely directed at IPCNs?

A Correct.

Q Do you think that is generally well understood within the NHS, that this is not a document just for infection prevention and control, but it is really meant to be targeted much more widely than that?

A I think it's not consistently understood. I think our experience is that many professionals think that this-- as an infection control document, that we are the owner of the document, we're the owner of the process, and that we're the owner of

any actions arising from that. So I think it's inconsistent.

Q So, despite this guidance having been in place since at least 2007, even today, the understanding of that document and who it's aimed at is still, in your view, inconsistent?

A I would say that's accurate, yes.

Q Thank you. If I could ask you just to look within the document to bundle 13, volume 3, page 468, just below the bold text at the top, you see that it states:

> "Scrutiny of this guidance will highlight the frequent use of the word 'Partnership.' Successful use of HAI-SCRIBE requires participation and cooperation particularly between Estates & Facilities staff and Infection Prevention and Control Teams.
>
> To manage the risks through use of HAI-SCRIBE requires knowledge from many sources. However, it is not expected that any group will possess full knowledge or experience of another's discipline. It is expected, therefore, that there will be an ongoing liaison during each stage

of development where appropriate specialist knowledge from all sources of relevant expertise can be derived and incorporated into the project briefing, contract conditions, specification, and quality control of construction and maintenance."

Do you see that?

A Yes.

Q Again, is that just really setting out what you told us in general terms, that this is not just a document directed at IPCNs and IPC professionals in general?

A That's correct, yes.

Q Thank you. If I could ask you to look on, please, to page 470, towards-- the two paragraphs towards the bottom of page 470. Do you see, within paragraph 4, approximately four lines down, there's a sentence beginning, "For HAIs to be reduced…"? Do you see that?

A Yes.

Q So, it says:

"For HAIs to be reduced, it is imperative that Infection Prevention and Control (IPC) measures are 'designed-in' and IPC risks are 'designed-out' at the very outset of the planning and design stages of a healthcare facility and that input continues up to, into and beyond the final building stage."

Do you see that?

A Yes.

Q So, again, should the Inquiry understand that this is effectively an ongoing process? You would not just have this type of input at the beginning of a project, you have really got to follow it through right to hand over, and possibly thereafter?

A Yes.

Q Thank you, and again, just to flag again this concept of partnership, the final paragraph says:

"To achieve this, it is necessary that designers, architects, engineers, facilities managers and planners work in collaborative partnership with IPC teams, healthcare staff and the users to deliver facilities in which IPC needs have been anticipated, planned for and met."

Do you see that?

A Yes.

Q If we look over the page onto page 471, you talked about various stages at which this document might be relevant, and we see four stages there. Is that what you were

talking about in terms of the stages that this document would be relevant at?

A Yes, that's right.

Q So, we see that Stage 1 would be the proposed site development, Stage 2 would be design and planning, Stage 3 would be the construction and refurbishment, and then Development Stage 4 is described as, "Pre-handover check, ongoing maintenance and feedback." Do you see that?

A Yes.

Q We will come on and discuss what happened on the project for the Royal Hospital for Children & Young People, but in terms of your understanding, when should that development Stage 4, "Pre-handover check," when should that be done?

A So, my expectation around the Stage 4 part of the process would be that that's undertaken on completion of all the construction or any refurbishment work. It would usually be done after what we call a "builder's clean." So-- so really the-- the-- what we're looking at and looking to assure is the final product, if you like. So it's almost, like, akin to doing some snagging in a house, so we can't evaluate whether it's in a fit condition

to hand over if there's still work ongoing to-- you know, in terms of construction. So, Stage 4 is done on completion of work and on completion, usually, of the builder's clean, sometimes what's called a "terminal clean" or a "domestic clean," so that it brings it to a position that, effectively, you could be moving patients into it, but that has to happen in advance of patient occupation and handover.

Q So, if there was a new build hospital handed over by the entity that has built it through the health board, that should only happen after the Stage 4 HAI-SCRIBE process has been completed. Is that right?

A So, my expectation would be that the Stage 4 SCRIBE would be done before, I suppose, the contractors, if you like, were almost allowed to leave site, so on completion of the project, but before-- So that you've got an opportunity to remediate any issues that you pick up as part of that Stage 4 process, but it would be done at the point of completion of the project, yes.

Q Okay. So, if you had a scenario whereby a hospital is handed over, accepted by a health board without the Stage 4 HAI-SCRIBE being completed, what from an infection

prevention and control perspective would be some of the risks of that happening?

A So, I would be quite concerned about-- Because the purpose of the SCRIBE is, I think, gaining confidence and assurance that all of the things that we think are going to happen during that construction phase, and that the standards that are set out-- and the standard that we expect to see within the built environment as part-- to inform our ongoing use and maintenance of the department being met, and that there are no hazards within the environment that haven't been recognised, and-- I mean, ultimately, we're looking for assurance, particularly with relevance to things like water systems or ventilation systems, that those systems are performing to the standard that we expect to see, because that's not something that you can-- you can't visualise that when you walk round a hospital. You require some form of testing and assurance to inform that.

So, I think that there would be a number of risks for a board in accepting any sort of major refurbishment or construction that hadn't had that sort of level of

assurance or that level of scrutiny, if you like, to use that word, over the quality of what's been provided, and that we're confident that it's safe and appropriate to use.

Q So, if you skipped the Stage 4 HAI-SCRIBE before the building is handed over, in that scenario, could a health board be satisfied that the hospital was safe for patients?

A Yes.

Q It could be if you skipped Stage 4?

A Oh, if you skipped-- I beg your pardon. So, no, I think you wouldn't be able to evidence that or have assurance of that, because the whole point of this is almost like a kind of key gateway in the project that allows you to make a decision whether it is or isn't fit for patient occupation. So if you haven't completed the process, I'm not clear how you would say confidently that all risks had been mitigated and therefore it was safe.

Q Thank you. So, in terms of Stage 4 of the HAI-SCRIBE, if a health board was considering accepting a hospital before that Stage 4 HAI-SCRIBE was completed, is that a decision that would be made by Infection Prevention and Control, or is

that someone else that would make that decision?

A So, that wouldn't be a decision for infection control, that would be a decision of the project team, primarily, or the programme board that supports the project team, and the project sponsor, ultimately.

Q Okay, and if a project team came to you and said, "We have got a new hospital, we are going to accept that building, and we are not going to do the Stage 4 HAI-SCRIBE before we accept the hospital," is that a course of action you would recommend?

A Absolutely not.

Q Thank you. If I could ask you to look on, please, still within bundle 13, volume 3, but this time to page 553, this should be an earlier version of-- Bundle 13, volume 3, page 553, and if we could look down at page 554, do you see, in the bottom right-hand corner, that this is an earlier version of SHFN 30, but this time from June 2007. Do you see that?

A Yes.

Q So, we have been looking at the 2014 version; this is a previous iteration. Would you have had knowledge of this document when you were working within Infection

Prevention and Control?

A Yes.

Q Now, if I can ask you to look on to page 563, please. Paragraph 2.10, approximately five lines up from the bottom of that page, do you see a sentence beginning, "It is therefore intended…"?

A Yep.

Q It says:

> "It is therefore intended as a first point of reference on prevention and control of infection for healthcare estates and facilities managers, architects, builders, engineers, surveyors, health planners and Infection Control Teams working on healthcare estate new build and refurbishment projects."

Do you see that?

A Yes.

Q So, again, since at least 2007, the guidance has been saying this is not simply a document for Infection Prevention and Control professionals.

A That's correct.

Q Then, if we look over the page on to page 564-- it is 564, paragraph 2.15, just the final sentence, three lines up from the bottom, it states:

"Much of the solution to the existing HAI problem lies in the effective dissemination and implementation of existing knowledge to all involved, in a logical, accessible form."

Do you see that?

A Yes.

Q So, again, it is not just for Infection Prevention and Control, other disciplines need to be involved in those types of discussions if you are looking to manage healthcare acquired infections. Is that right?

A Absolutely, yes.

Q If I ask you to look on, please, to page 573. In fact, before we do that, if we could go to page 568, please. Page 568, and to paragraph 3.10, do you see paragraph 3.10 states:

"It is important to consider certain issues before construction work commences including… [and then if we look to the fourth bullet point there, it says] the airflow and pressure differentials in the area differentials may be varied by external wind strength and direction [and then the next bullet point] the susceptibility of the occupants to infection, e .g. through respiratory problems,

immunocompromised or intensive care patients."

Do you see that?

A Yes.

Q So, again, just as someone who was working in this space from at least 2007 onwards, was it a known issue that you had to get the air flows and pressure differentials right if you are designing a brand new hospital?

A Yes, in terms-- But I think that point also relates to risks associated during construction, and the adjacency and the impact of airflow and pressure differentials in areas adjacent to work. It's not just around the design.

Q Thank you, and again, you need to be considering the individual patients that are going to be put into particular spaces. Is that fair?

A Absolutely, yes.

Q Thank you. If we could look on to page 573, do you see there is a bold heading, "Identifying risk"?

A Yes.

Q Then, paragraph 5.3:

"To avoid mistakes and pitfalls the Project Team must consider issues including:

How will the product, equipment, room or clinic be

used?

[And then the second last bullet point] What are the standards and guidelines from architectural and engineering bodies, government departments and accrediting agencies?"

Do you see that?

A Yes.

Q So, again, as an IPCN, would you be expected to have a general knowledge of published guidance relating to the built environment, for example, SHTM 03-01?

A Yes, that would be my expectation as part of our general role.

Q In terms of the multidisciplinary team that we see set out within the SHFN guidance, who would have overall responsibility for insuring compliance with those published guidelines, particularly in specialist areas like engineering?

A So I think if-- in the context of construction-- design and construction, that would sit with the design engineers, the architects and the technical specialists. I think if you're describing-- or if we're describing the application of the SHTM in terms of ongoing maintenance, that would usually sit with an Estates team

who have the technical expertise to do that.

Q So, working knowledge on the part of IPC, but really in terms of the specifics, that would be for other members of the project team. You have mentioned designers, engineers, those types of individuals?

A Yes, because they have the specialist skills and knowledge in the areas that the SHTM covers.

Q Thank you. If we then look onto page 574, there is a bold heading at the top "Common Errors." So 5.5 states:

"Common errors in design and construction (adapted from Carter and Barr, 1997) due to inept or non-existent risk management include…"

And then if we look to the second bullet point, it states "incorrect air turnover and airflow patterns." Do you see that?

A Yes.

Q So, again, was it well known in 2007 that a common error on these major building projects could be incorrect air turnover and airflow patterns?

A Yes.

Q Now, if we think back to the 2014 version that we looked at

previously, these common errors, they do not appear in that updated guidance from 2014. So, your understanding working as an IPCN in this period 2007 to 2014, by 2014, had these common errors simply been eradicated? Did they not exist anymore?

A No, that's not the case.

Q And then if we look still within the SHFN 2007 to page 576, and to paragraph 5.19, there is a conclusion to this section which states:

> "The integration of prevention and control of infection risk management and construction is in its infancy."

Do you see that?

A Yes.

Q And, again, is that really consistent with what you told the Inquiry earlier in your evidence that, yes, the kind of microbiology in terms of risk was known, but the specifics, that was still really an emerging discipline from an infection prevention and control perspective?

A I think that's a reasonable statement, yes.

Q Thank you, and it continues:

> "It represents a significant change in the management of healthcare facilities design and planning which will take time to develop to a level at which the greatest benefits can be achieved. Just as important then is the need to carry out research in the area of risk management, prevention and control of infection and the built environment to produce sound, irrefutable evidence on which to base further risk management strategies."

Do you see that?

A Yes.

Q So, again, should the Inquiry understand that at this point in time, 2007, there was not irrefutable, robust evidence in terms of the specific risks that could arise from the built environment?

A Not in relation to all aspects of the built environment, no.

Q And in the period from 2007 onwards, are you aware of any specific research that has been undertaken to produce what is referred to here as sound, irrefutable evidence on which to base further risk management strategies?

A I think that's a very broad question. I think in that period there have been a range of publications.

There have been-- There are numerous articles that would be available in peer-reviewed, published professional literature, but I think in terms of the specific evidence base to underpin technical or planning guidance, I'm not aware that there's been a significant development in terms of the evidence base over that period of time. That's something that's currently being looked at.

Q Okay. So if we just take the example of ventilation, one of the things we will come on and talk about is pressure regimes and air changes per hour. Are you aware of any specific research that has been undertaken in relation to those particular issues?

A No, because I think the nature of that research would be very difficult. I think much of it is based on modelling, mathematical modelling, because in order to carry out research to provide the evidence base for, for example, whether four air changes or six air changes was more effective or safer, it carries with it inherent challenges in terms of research methodology and gaining ethical approval. So, much of the guidance or the planning or technical guidance is based on the combination of scientific

principles, understanding of, for example, fluid dynamics theory, engineering, experience, and learning from published case reports and outbreaks to provide a-- I suppose it's an expert view or an expert professional opinion which draws from many different sources, because actually in gathering the evidence to a standard that we would look for in healthcare, would be very challenging.

Q So, it would be very complicated to try and carry out that form of research. Is that fair?

A That would be my assessment, yes.

Q You would need lots of disciplines involved from what you have said. Is that fair?

A So, I think-- Yes, it would. I mean, you could carry out research from the point of view-- sort of laboratory, but not in a real-world healthcare scenario. That would be very difficult to achieve.

Q Because, again, the Inquiry has heard evidence previously that one of the issues would be-- If we just take air changes in Critical Care, for example, the consensus view is that the 10 air changes is safe. That is a generally recognised standard, but because you know that is safe, you

would not necessarily want to take individual patients and say, well, “We’ll try nine, eight, seven”, until you got to a point that was recognised it was unsafe. Is that what you mean when you are talking about “ethical issues”, in terms of that type of research?

A Yes, because you would always have a control group, usually in research, and so if you’re trying to demonstrate the efficacy or degrees of efficacy, you may have a number of different groups. And it would be unethical to run a research with patients in an environment where you weren’t going to provide any means of ventilation, because there would reasonably be a risk within that group, particularly if you were studying transmission of infection.

Q So, in terms of the research that is being done today, is your understanding that it is effectively based on modelling and scientific plausibility, as opposed to some form of detailed trial, for example?

A So, I don’t have-- I’m not an expert in the field of research in this area, but my understanding is that the research that’s been done is more laboratory-based, if that makes sense. So it’s done to simulate a healthcare environment and to look at the

engineering components and the measurable components of air quality and that sort of-- those sorts of measures.

Q And if we just think about that lack of research, robust research that has taken place, and the impact that could have on risk management strategies, if you are an IPCN working in an area, you have guidance. If you follow guidance, you can be reasonably satisfied that that would be recognised as being safe. How difficult is it then, practically, to step away from the guidance in terms of doing a risk assessment, a clinical risk assessment, if you are not complying with the guidance?

A So, it can be challenging because, I think, in order to undertake a risk assessment, I suppose you have to be clear why you would want to step away from the guidance, and there would need to be a really robust rationale for that, because, generally speaking, my expectation would be if this has come out in published guidance, and it’s national guidance, then that’s the standard we should be looking to achieve. In terms of risk assessment, it can be challenging and really what we’d be drawing on then to inform that risk assessment is back to

an understanding of microorganisms and their natural reservoirs, understanding factors around mechanisms for transmission, understanding host risk factors. So by that I mean, so what's the risk in this particular patient population? Are there intrinsic or extrinsic risks that they might want to consider?

So there are lots of different things that we would apply to that, that have a sound scientific basis, and there are other aspects of that risk assessment which would rely on professional opinion and experience, and sometimes, if I'm honest, a degree of pragmatism.

Q Thank you. I think you had mentioned that, and I am paraphrasing here, that there had not been this research done, but you thought there was perhaps research that might be ongoing at the minute. Did I pick you up correctly?

A Yes, uh-huh.

Q And, again, you said the research is not your area, but the Inquiry would be interested to know if there is kind of up-to-date research that is going on in relation to these types of issues we are looking at covered in paragraph 5.19. Just in general terms, what is your understanding of the current research that is ongoing?

A So I think the COVID pandemic has actually stimulated a lot of interest and, again, my understanding is that there are a number of professionals and experts in the field of fluid dynamics. Professor Cath Noakes at the University of Leeds. I know Professor Hoffman has maybe been involved in some conversations and research. So I think it's-- the COVID pandemic has generated a lot of interest in understanding-- and stimulating research to understand actually how ventilation impacts on the risk of transmission and what standards we should be aiming for in order to mitigate risk and provide a safe environment, but that's all fairly recent.

Q And is that published research or is that still ongoing and to be published?

A So there are papers that have been published over the last couple of years. I don't think it's fully completed research. Again, this is not my area of specific expertise, but there are, and there have been a number of articles published around ventilation, different technologies that might be used to enhance ventilation, air

change rates, and I believe that there is some research being commissioned through, I think, Glasgow Caledonian University by NHS Assure, but I couldn't comment on the detail of that.

Q No, that is very helpful. Thank you. Again, I would just be interested in your views, though, as an IPCN. Published guidance would say for critical care, 10 air changes per hour. The hospital that we will come on and look at in due course, it was only achieving four air changes an hour. Is it as simple as saying, "10 air changes, we know that is safe from the guidance, that is the consensus view"? If you do not have 10 air changes per hour in critical care, that is unsafe?

A No, that's not correct.

Q And, again, why not?

A So I think the concept of safety isn't binary. It's not a safe versus unsafe position. I think what we're describing is a hierarchy of safety. So I think considering 10 air changes as being optimal based on all of the evidence and the expertise and recognising then that we may have then the least optimal option, and ventilation in itself is not the only control that we would apply in terms of mitigation of risk of infection. We tend to talk about a hierarchy of control

which reflects a health and safety position. Where you can't eliminate a risk, you seek to mitigate the risk, and there are a number of factors that you'll consider, the environment being one of them, and environmental controls offered by, for example, ventilation, being another. So, 10 would be considered optimal because that's what the current guidance based on expert opinion says is optimal. Four would not be considered unsafe, but it would be considered less optimal than 10, and I think if you extrapolate that principle, we wouldn't say that having no air changes, mechanical air changes, and being wholly reliant on natural ventilation is necessarily unsafe. Certainly, you know, thinking about the Sick Children's hospital at Sciennes Road, the old building that we had, we didn't have mechanical ventilation, but we wouldn't have ever said that what was being provided in terms of care in the old building was unsafe, and there was no evidence to suggest that that was the case. That's borne out by surveillance data, for example.

Q Mm-hmm. Again, just so I am understanding this, Sciennes had no air changes per hour in Critical Care and that did not make it unsafe?

A So, it didn't have mechanical. So it had a natural air supply.

Q Yes. So, it did not have any mechanical. So, you could open a window, for example, and you could get some ventilation that way, but it did not have any mechanical ventilation?

A Yes.

Q Okay. So, if it was not a windy day, you might have either none or very few air changes per hour at Sciennes?

A Yes, so typically we would describe natural ventilation as achieving somewhere between zero and two air changes depending on the prevalent conditions.

Q Thank you, but, as you say, that in and of itself did not make the Critical Care department for children at Sciennes unsafe. Is that right?

A That's correct.

Q Then you have got 10 air changes per hour, which is the guidance, that would effectively be best practice as I understand you. Is that fair?

A That's correct, yes.

Q So, should the Inquiry understand then that if we are talking about a deviation from guidance, 4 air changes rather than 10, 10 is safer than 4, but just because you do not have 10 air changes an hour that does not mean that the 4 is unsafe?

A Yes, essentially.

Q You are talking about 10 being-- 4 being safer than zero, not as safe as 10, but we are talking in concepts here of safe air as opposed to a binary choice between safe and unsafe?

A That's correct, yes.

Q Thank you. In terms of those judgments you said you had to make, if you depart from guidance, it would be presumably an IPCN that would be involved in that discussion about how safe would a space be if you depart from the guidance. How difficult an assessment is that to make in practical terms?

A In reality, that's often quite difficult because it is based on being able to, I suppose, articulate the-- so, being able to articulate the rationale for your risk assessment or for what you're advising. Really, I think that's something that becomes easier with experience. So, you would absolutely need to look at all of the different factors and the situational assessments. What is it you're being asked to risk assess? Where are you

being asked to risk assess it? Then be able to articulate very clearly what you were advising and why you were advising it and recognising that some of that is based on individual professional opinion.

Q That is helpful, and perhaps just to put this in context, this is one email among many. I will come back to look at more in more detail, but if I can ask you to look to bundle 13, volume 8, page 2215. You will see towards the bottom of the page, there is an email there on 1 July 2019 from Tracey Gillies to a range of individuals – Brian Currie, Iain Graham, Donald Inverarity, etc.

You are not copied into this email, so it is really just for your views. It is bundle 13, volume 8, and it is page 2215. What Ms Gillies says is, "Please correct or amend any misunderstandings..." You see the final bullet point on the page there, it says:

> "The required standard as per SHTM 03-01 Appendix 1 (version 2 February 2014) for Critical Care areas is 10 air changes and less than 10 air changes per hour may facilitate airborne spread of viruses more than if 10 was achieved."

Do you see that?

A Yes.

Q Again, should we understand effectively that is just what we covered a moment ago, which is saying, "10 is safe. So if you have any less than 10, you are going to have more clinical risk," but it is not this binary choice between safe or unsafe?

A That's correct, yes.

Q Thank you. Then if we look over the page, onto page 2216. If we look to the final two bullet points, you see one states:

> "If occupied now, there is risk to patients, visitors and staff of airborne virus transmission…"

Do you see that?

A Yes.

Q Then there is, it says, "…(?how much) and difficulties in correcting (would probably require a decant*)." Do you see that?

A Yes.

Q Again, it is really that sort of, "…(?how much)…" Again, is that one of the difficulties you would have working Infection Prevention and Control, that if you do not meet the guidance, it is really quite difficult to work out just exactly how much risk you are going to have when you step away from the agreed best practice

standard?

A Yes, it's very difficult to articulate how you quantify that risk and on what basis you would make that assessment.

Q If we look on, please, bundle 7, volume 1, to page 125. Bundle 7, volume 1, page 125. So, you see at the top, there is firstly an email from Donald Inverarity on 5 July 2019 with Tracey Gillies, Lindsay Guthrie and George Curley. Do you see that?

A Yes.

Q It states:

"Thanks. Looks measured and addresses the points we covered. One typo spotted and highlighted below in green.

All the best

Donald".

Then there is a further email below that. Do you see that?

A Yes.

Q This is an email from Tracey Gillies just to Donald Inverarity, Lindsay Guthrie and George Curley. Do you see that?

A Yes.

Q It states in the first paragraph:

"You are aware of the material concern we raised… on Tuesday 2nd July regarding the shortfall in the standard of air changes provided in paediatric critical care areas and that this was the reason why we did not believe we could provide safe patient care in this environment, even with an interim solution."

Do you see that?

A Yes.

Q Again, could you just explain to the Inquiry why was the view formed that the critical care spaces were not going to be an environment where safe patient care could be provided?

A So, I think, again, the aspect of safety is not just around the transmission of respiratory viruses. I think that that keeps coming back into the conversation. So, it was really about, I think-- I think the question of safety, in effect, actually was, at that point in time, more about the extent of the work that we were beginning to realise would be required to rectify or remediate the situation and bring it to a point of compliance. The complexity of trying to deliver that in an occupied building with a very vulnerable patient population, actually in itself would be a safety issue because that would be very high risk. It's very-- In terms of

HAI-SCRIBE, it's the highest classification of work. It's very invasive.

You would have to ensure really significant controls and sectioning off of aspects of the unit to achieve that work. There would be issues around dust, around noise, having to perhaps switch off the existing ventilation to allow cut-through. So I think part of that assessment is about the provision of safe patient care during a period of bringing it to compliance.

I think, as well, what was being alluded to here is that the safest environment, based on-- So, if the SHTM 03-01 is safest in terms of optimal design, that's not just around the air change rate, which is important from an infection control point of view, but also to do with pressure differentials, and some of that's around infection control and thinking about other aspects of care that are provided in that space. So, patients in critical care may require, for example, invasive procedures. So, there's a need to ensure sure that the environment we're providing care in is as safe as we can make it, and I think-- I'm just going to read the email again.

Q No, please do.

A (After a pause) So, I think it was really more around the safety of the patients if we had to achieve the work after the services had transferred across. I think the scale of the work was quite significant. I think we were keen to ensure that what we were providing was safest and perhaps-- maybe rather than safe. I think there's also a consideration and there was some discussion around understanding safety over a period of time.

So, it's accepting a system that hadn't been designed to the optimal standard. We would always expect that system to deteriorate naturally over time. So the performance and condition of that system would deteriorate. So, in terms of safety, if you provide something which is less than optimal at the point of occupation, over a time, the safety or the mitigation of risk that that system provides will continue to reduce.

So, typically, we would look, for example in annual verification, that a ventilation system would achieve 75 per cent of its original design specification. So, if your starting point is four, it's safe but it's not optimal, and over time the safety that that system offers will diminish. So I think there

were lots of things, but I think that was-- I think what was trying to be articulated, in that what we had was not optimal safe and that the solutions and the remediation would be complex.

Q Again, if I just take that in stages. From an IPC perspective, was there really a view that there should be compliance with the guidance for a new hospital because it is best practice?

A Yes.

Q That is entirely understandable, but, again, I am just interested in this view because the statement is made in quite bold terms, "…we [do] not believe we could provide safe patient care in this environment." Should that be understood that really what was meant by that was the safest patient care could not be provided against the guidance? But given that Sciennes did not have any mechanical ventilation and it was still deemed as safe, I would be interested in your views in terms of a mechanical system in Critical Care that achieves 4 air changes per hour as opposed to the 10. Could safe patient care have been provided in that environment?

A Yes, it could.

Q Again, so I am understanding, this may be relevant to what was effectively decided upon at later stages in the project. It would be wrong to assume at this stage in the project that non-compliance with the guidance ultimately always results in an unsafe space for patients. Really, what we are talking about is if there is non-compliance with guidance, it would not be as safe, but not necessarily unsafe?

A Yes.

Q Thank you. There is just one final document in this sort of chapter of evidence that I would like to look at. If we could look to bundle 3, please, page 142. Bundle 3, page 142, and this is just a minute from an Oversight Board meeting from 29 August 2019. It is not a meeting that you attended, but it is really just for your observations on a comment that is made. You see that there is a number of individuals present at this meeting, including Dr Calderwood, the Chief Medical Officer, Professor McMahon, Dr Gregory Smith, the Deputy Chief Medical Officer for the Scottish Government, Mr James, the Director of Facilities of Health Facilities Scotland and Professor Riley, the Lead Consultant for Infection

Prevention and Control for Health Protection Scotland. If I could just ask you to look on to page 144 of the minute, please, and it is paragraph 1.6. Do you see that?

A Yes.

Q So, just to try and obtain your understanding of summer 2019, what the position was, in terms of knowledge, the first point there says:

> "Literature review now complete demonstrated limited and sub-optimal evidence around air changes and clinical outcomes. Most evidence had been expert opinion modelling and outbreak reports."

Do you see that?

A Yes.

Q And is that really consistent with the evidence you have given this morning, that, yes, there might have been some papers that were floating around but there was not any detailed research that had been undertaken at that point in time?

A That's correct, yes.

Q Thank you. Then we see point 3, it says:

> "Risk assessments to be complete before any broader review or commissioning group work."

Do you see that?

A Sorry, which point?

Q So, it is point 3, where it says:

> "Risk assessments to be complete before any broader review or commissioning group work."

Do you see that?

A Yes.

Q Now, we will come on and see that there are risk assessments that are completed in relation to the change in critical care to positive pressure, 10 air changes per hour. Do you remember being involved in any specific risk assessments around about assessing the risk from an IPC perspective of four air changes per hour and balanced or negative pressure in critical care rooms?

A At which period in time?

Q So, really looking in the period around about 2019/2020.

A So, yes, in 2019, one of the actions from the NSS report was to undertake that risk assessment, and Dr Inverarity and I completed that to provide, I suppose, a view on what would be the level of risk from an infection control point of view associated with the ventilation

parameters and the accommodation provided. So, some wards had single rooms, some wards had single rooms and PPVL rooms and some wards had a combination of those with shared bedroom accommodation.

So, based on what we had, what might be a risk associated with that and how we might mitigate that risk, and I think there was a risk assessment done, from memory, very early on, I want to say around about the end of July maybe, possibly into August, and there was a risk assessment completed much later on before handover that really just provided assurance, that based on what had been provided and what had been measured, we were happy that any risks were adequately mitigated and we did ask for the authorising engineer for ventilation to comment on some of that.

Q We will come on and look at that because I think that is looking at, is positive pressure and 10 air changes per hour in critical care rooms, is that safe? I am really interested in terms of whether the converse was done, because I think for understandable reasons, you say quite early on your view would be really there had to be compliance with guidance because for all the reasons you have given, you would not want a system whereby it deteriorated over time. I am just interested, was there a specific risk assessment done in terms of what had been built and found to be in the hospital? So, four air changes per hour and balanced or negative pressure, was that done?

A In relation to critical care or----

Q Yes.

A From memory, no. I don't think there was a specific written risk assessment on the four and balanced.

Q Okay. Can you recall, why was that not done?

A So, I don't know if I can recall why it wasn't done. I think the overriding objective was or ambition was that we required a compliant facility in order to provide the optimal environment to provide care, and I think it would have been very difficult in the context of a Critical Care Unit for us to provide anything other than a fairly-- So, we could risk assess it but, again, it would be based on opinion and I think that's quite uncomfortable actually. For me, as an IPCN, I'm not sure that's something I would be-- I think given the context we were

working in and the scrutiny we were under, I don't ever recall being asked to do that, and I think we recognised that compliance was the best option.

There were other aspects of what had been provided that were considered non-compliant in terms of the design, ceiling construction, opening windows. So I think it was bigger than just air changes and pressure differentials.

Q Again, I entirely accept what you say about the difficulties, but, presumably, it was difficult at Sciennes where there was no mechanical ventilation to undertake a risk assessment, but it was possible from an IPC perspective to work out from a risk perspective that Sciennes was safe. So, presumably, that could have been done in relation to balanced and negative pressure and four changes per hour.

A So, in the context of an empty hospital, it's very difficult to do. In the context of an occupied hospital, where you have-- you're essentially monitoring patient outcomes through means of formal surveillance, you've got a way of, I suppose, quantifying or evaluating whether what you have is safe. It's much more difficult to do that in the context of a building that hasn't

yet been occupied or used by patients, if that makes sense.

Q And perhaps particularly difficult because there was not that robust bank of research that we talked about previously?

A I think so, and I think there was a kind of paucity of even expert advice or guidance potentially on that matter available to us as an infection control team at the time.

Q Thank you, and, again, if we could perhaps just return to the Oversight Board minute. We are at paragraph 1.6 on page 144. We see paragraph 4, it states:

> "Air changes is not a specific hurdle to get over but is the level generally found to be suitable in the majority of developed countries."

Do you see that?

A Yes.

Q Again, just so I am understanding things correctly, what we see, and I think what I have described as best practice in SHTM 03-01, was it your understanding that really the majority of developed countries, that is the standard that they are building new-build hospitals to as well?

A For critical care, yes, and

in some countries, actually, the specification is higher.

Q Thank you, and then paragraph 6, it says:

> "Air changes are covered by guidance, not standards. Guidance-based air changes can be a combination of mechanical and naturally ventilated, but there has to be an element of control about it."

And then paragraph 7:

> "NHSL did not make a decision to move to four air changes per hour, six air changes by multi-mode was accepted at the point of the Settlement Agreement."

Do you see that?

A Yes.

Q Now, I will come on again to look at that, but just in general terms, we are talking about this idea of derogations. At the point that you were involved in the project, were you aware of any specific agreement by NHS Lothian to derogate from the number of air changes set out for critical care in SHTM 03-01?

A Not in relation to critical care, no.

Q So, had there been an approach in relation to other areas not relating to critical care?

A So, we'd been advised verbally that there had been an agreed derogation from six to four air changes in single room accommodation, and there was reference made to that in communications from, I think, 2018 onwards, but there wasn't an explicit communication, and I don't think we ever saw the risk assessment that supported that, but in relation to critical care, we were unaware of any derogation.

Q Okay, and if you had been approached by the project team and a conversation had taken place along the lines of, "SHTM 03-01 says 10 air changes per hour. We are thinking of derogating down from that to a lesser standard", what would your reaction have been?

A So, our advice would have been that that was not an appropriate derogation to seek.

Q Thank you. If I could move on, still looking at some guidance, and this time ask for your observations on SHTM 03-01. We will come on and look at the document. If we think to SHTM 03-01, the 2014 guidance, there is obviously the newer guidance in 2022. As an IPC professional, working with SHTM 03-

01, the 2014 version, how easy and user-friendly a document was that for an IPC professional to use?

A I don't think it's particularly user-friendly, because there are large sections of the document that don't really apply to the clinical aspect or the patient-facing aspect of infection control. I think the narrative-- So, I think many of the statements contained within the document are clear and easy to understand. It's a big document, and I think navigating your way around any sort of large document can be challenging, but from a nursing or clinical perspective, it's not a particularly user-friendly document, but I don't think it's designed to be, really, for clinical teams.

Q Again, is it really written for other professionals as opposed to clinicians or IPC professionals in your view?

A Yes, I think I would see it more as a technical manual rather than a clinical guidance document.

Q And, again, would you have had a working knowledge of, for example, Table A1 of SHTM 03-01?

A Yes, so that would have been one of the most common parts of the SHTM that we would refer to if

asked a question about ventilation.

Q Okay, and, again, how easy did you find Table A1 to use as an IPC professional?

A So, I think Table 1 is probably one of the most straightforward parts of the document. It's quite clear in terms of the categorisation of different spaces. I think the only ambiguity really was around the general ward environment as to what exactly that was describing.

Q And what did you think it was describing?

A So, my interpretation of a general ward environment would be the entire-- so the footprint of a ward. So a ward is a collection of patient sleeping accommodation, office space, support spaces like sluices and treatment rooms. So there are a number of different rooms with different functions within the general environment and there isn't a-- So there may be spaces within that overall footprint where there isn't a specific entry in Table A1, and so that would be my expectation of what the general ward entry is describing.

Q Okay. Thank you. If we could perhaps just look to SHTM 03-01, it is in bundle 1 at page 1035, and if we could look on to page 1041,

please, and you can see it is about Scottish Health Technical Memoranda:

> "Engineering Scottish Health Technical Memoranda give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare."

Do you see that?

A Yes.

Q If we just think back to what we were discussing a moment ago, some of the ambiguities that you mentioned arising from Table A1, did you understand it was comprehensive advice and guidance?

A To the best of my knowledge, yes.

Q Albeit there were some difficulties and ambiguities in terms of trying to actually apply that guidance?

A Yes, and I think in some circumstances the guidance will direct you out to other documents and sometimes you get caught in a loop of being referred to other technical guidance, which sometimes then refers you back to SHTM 03-01, but I think in terms of the core component of design installation and operation, I think it's really comprehensive.

Q And we see in the second paragraph it states:

> "The focus of Scottish Health Technical Memoranda guidance remains on healthcare specific elements of standards, policies and up to date established best practice."

Do you see that?

A Yes.

Q So, again, was that your understanding working in this space at the time that really the best practice guidance was from SHTM 03-01?

A Yes.

Q If we could look on to Table A1, which is on page 1058. Sorry, that's the first reference to it, but if we could look to the actual table itself which comes slightly later. If we look to page 1173, and you see that there is, "Appendix 1: Recommended air-change rates," and then there is various applications. So, you have got the application, "general ward." Do you see that?

A Yes.

Q Then, four or five down, we have got, "Ward Isolation room," "Infectious disease Iso room," "Neutropenic patient ward," and, "Critical Care Areas." Do you see that?

A Yes.

Q Now, there is specific ventilation arrangements stated there for critical care areas, positive pressure, and 10 air changes per hour. Was your understanding that that applied to every space within a critical care area, or only to certain spaces within a critical care area?

A So, my interpretation of that would be that it refers to any patient areas, because other spaces that would be contained within a Critical Care Unit, such as a clean utility or a dirty utility or an isolation room, have a separate entry and a defined parameter. So critical care areas is the entirety of the Critical Care Unit with regards to patient accommodation.

Q So, say for example you had a four-bed ward in critical care. What was your understanding of what parameters would apply? Is it the general ward entry, or the critical care area?

A So, it would be critical care.

Q Again, in terms of your involvement working as an IPCN, whenever SHTM 03-01, the 2014 version was in play, were you aware of any school of thought that, in relation

to critical care areas, the specialist ventilation parameters there, they would only apply to isolation rooms within critical care areas?

A No, and that would appear to be wholly illogical, because there's a specific provision within Table A1 for isolation rooms, and it links out to a supplement which describes in more detail en suite isolation rooms or PPVL isolation rooms.

Q So, certainly any school of thought that involved the references to critical care areas, just referring to isolation rooms within critical care areas, that was not something that you would be aware of at the time you were dealing with this guidance?

A No.

THE CHAIR: Could I just ask for a little clarification on your interpretation? As I have noted you, you said your interpretation of critical care areas would be the patient area. Therefore, the area in its entirety. I mean, I suppose critical care wards might be set out in a variety of ways, but were you thinking of simply bedroom area, or would it include adjacent corridors, nurses' stations?

A So, I would apply that-- or my understanding of this is that it

would apply to patient care areas and patient bedrooms, because other parts of the ward, and via the total footprint of the ward, so there's provision made for some spaces. Corridors, I wouldn't expect typically to be included, because corridors are not an area where care is delivered.

So, my understanding of this is around, this is where clinical care or services are provided. Corridors and other-- for example, office accommodation is not covered by this, and the parameters for ventilation, to the best of my understanding, from SHTM, references a different standard. So typically 10 to 12 litres per second per person, so that there is a source of fresh air supply or ventilation provided. Within clinical areas-- Or so where this applies, is sort of there's a specific designation for a space and the function of that space. That's what these parameters, in terms of air change rate and pressure differential, apply to.

Q No, no, I just want to understand, and part of my difficulty is that I probably do not have a very good notion of how wards typically are laid out, but the standard now is a single-bed bedroom for each patient. You have mentioned treatment areas,

which suggests to me that a ward may have a treatment area which is not a bedroom, and I am supposing a treatment area would be, on your interpretation, within a critical care area if there is treatment being provided there for critical care patients. I am supposing that that would be the case.

A Yes, so there's a provision made within Table A1 for treatment rooms. So if a treatment room was-- I think it's on the next page, and the parameters apply to that room, and that's partly based on the type of activity then that will be delivered in that room.

MR MACGREGOR: I think if we look onto page 1174, we will see that there is a specific entry for "treatment room."

A Yes.

THE CHAIR: Thank you.

MR MACGREGOR: The final issue that I would like to raise with you in terms of this iteration of SHTM 03-01 is on page 1159, and it is in relation to validation reports. Do you see that 8.64 states:

> "Following commissioning and/or validation a full report detailing the findings should be produced. The system will only

be acceptable to the client if at the time of validation, it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life. [8.65] The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:

- the user department;
- infection control (where required)
- estates and facilities."

Do you see that?

A Yes.

Q Now, what would you envisage in terms of that validation report? Is that something that is produced simply by a contractor, or would your view be that it should be an independent validation report?

A So, my view is that that would be provided independently, and I think there is, from memory, some reference to that elsewhere within the SHTM, and, again, I think that-- My understanding of that is that it lends a level of objectivity in terms of the functional assessment of what has been provided.

Q Again, just so I am understanding you, would Infection Prevention and Control be expecting a short report with a conclusion stating that the system is considered fit for purpose and it is only going to require routine maintenance? Is that that what you would expect to obtain?

A So, I think we would expect to see a summary of the vent engineer's assessment of the system in terms of its compliance, and we would want to see confirmation that the parameters set out in SHTM 03-01 had been met around both air change rates and pressure differentials, but there would also be, I guess, a level of detail provided about the other aspects-- or other parts of the system had been designed and installed in compliance with the guidance. We need to see that and we need that expertise and that report in order to adequately answer the question that's asked of us in HAI-SCRIBE Stage 4, which asks if the system has been designed and constructed and validated in line with 03-01. So we can only answer that if we've been provided with confirmation from somebody with the right expertise that that is indeed the case.

Q Thank you. So, whenever we see reference in 8.65 to "achieving the required standard," should we understand that is the standard set out in SHTM 03-01, unless there was a specific agreed derogation in place?

A That's correct, yes.

Q Thank you. Lord Brodie, I am conscious that is just after half past eleven. I am going to move on to a new document, so now might be an appropriate moment to take a break.

THE CHAIR: It would seem to be a good moment to take a break. As I said, Mrs Guthrie, we usually take a coffee break about now, so I will try and sit again at ten to twelve. Thank you.

(Short break)

THE CHAIR: Mr MacGregor.

MR MACGREGOR: Thank you, Lord Brodie. Before the break we were looking at SHTM 03-01, the 2014 version. If I could ask you to have a look at the 2022 version, so that is bundle 1, at page 2263. Before we go on and look at the table, do you think this revised guidance is an improvement on what went before?

A I think there are aspects of it which are improved. If I'm honest, I haven't had the opportunity to read it cover to cover, so I think it-- I've only really dipped in for specific points. So I think it's a very qualified assessment of the changes.

Q In terms of when you say you think some bits have improved, from what you have looked at, what bits do you think are better?

A So, I think there's perhaps greater clarification around points which I understand to have been unclear for some parties around the definition of critical care areas and general ward environments, and I think there's wider provision for different scenarios or different types of clinical environments contained within the SHTM.

Q So, if we look to-- This time it is Appendix 2 that has the table of guidance. It is on page 2431. Bundle 1, page 2431. You see here, "Appendix 2: Summary of design conditions." Do you see that?

A Yes.

Q This time, in terms of the application on the left-hand side, we have got, "General ward (level 0 and 1 care)." Do you see that?

A Yes.

Q Then, if we look down

five or six entries, we have got, "Infectious diseases isolation room," "Neutropenic ward," and, "Critical care areas (Level 2 and 3 care)." Do you see that?

A Yes.

Q Is that what you meant by being more specific in terms of the guidance that is now provided?

A Yes, I think it provides a greater level of detail as to what that table alludes to.

Q If we perhaps just look on to the abbreviations that are used at page 2487 in Appendix 12, do you see, at the very bottom there, the last two entries are "Level 0 care," and, "Level 1 care"? Do you see that?

A Yeah.

Q So, "Level 0," is, "Patients whose needs can be met through normal ward care in an acute hospital." Do you see that?

A Yes.

Q And then level one:

> "Patients at risk of their condition deteriorating, or recently relocated from higher levels of care, whose needs can be met through normal ward care with additional advice and support from the critical care team."

Do you see that?

A Yes.

Q So, again, anyone receiving level zero care or level one care, would they ever be within the Critical Care Department?

A So, that would not be my expectation, no.

Q Okay, and then if we look on over the page to page 2488, you see the definitions of level 2 care and level 3 care. So level 2:

> "Patients requiring more detailed observation or intervention, including support for a single failing organ system or post-operative care and those 'stepping down' from higher levels of care."

And then level 3:

> "Patients requiring advanced respiratory support alone or monitoring and support for two or more organ systems. This level includes all complex patients requiring support for multi-organ failure."

Do you see that?

A Yes.

Q So, although we see more prescription around about the level two and level three care, should the Inquiry understand that from your

perspective as someone who works in IPC, there has not really been a change from simply the general catch-all critical care, because anyone who is receiving level zero care or level one care, they would not be receiving that treatment within the Critical Care Department?

A Sorry, could you just repeat that?

Q I just wanted to check-- And it might be easier just to look back to the table. If we look back to the table on page 2431, and there is the general ward with level 0 and 1, and then there is the Critical Care areas which now have level 2 and 3 care.

A Yes.

Q Although that is clarified for anyone that does not work within a clinical environment, would your understanding be that although we now have level two and level three care, if a patient was being treated, cared for, or residing within Critical Care, they would not be receiving the level zero or level one care anyway?

A That's correct, yeah.

Q So although it has been clarified, there is not actually any massive innovation or change from your perspective in terms of what we see in Appendix 2 as opposed to the old Table A1?

A That's correct. It's just a further level of detail.

Q Having looked at that guidance, I would now like to ask you some questions about your role within the project, and by that I mean the Royal Hospital for Children & Young People and the Department of Clinical Neurosciences.

You tell us within your statement-- I will not bring up the references, but at page 77 you describe your involvement effectively being as "at arms' length" until you tell us at page 80, December 2018. So perhaps, just in very general terms, tell us in the period up to December 2018 what involvement, if any, you would have within the project.

A So, between my return to NHS Lothian in June of 2015 to really the latter part of 2018, I didn't have any direct day-to-day involvement in supporting the project. That wasn't my-- My role was lead nurse. Infection Prevention Control support to the project was provided by, at that time, a dedicated member of staff in Janette Richards, and my role was very much in terms of professional supervision and line-- not line management, professional support

and supervision of Janette in her role as her lead nurse, and that would include and did include aspects of support that she might be looking for, or for-- It's almost like a second opinion, so really discussing issues that perhaps she wanted to just clarify, or sense check that her interpretation was right, or where she was seeking support, because there may be an issue that was not necessarily agreed or had become a point of disagreement within the project.

So, to that extent, that's what I mean by my involvement was somewhat at arm's length and I wasn't attending meetings, I wasn't in direct receipt of documents from the project team; that my involvement was with Janette and supporting her in her role and commenting as the lead nurse and the Infection Control lead at that time.

Q So, that is the period up to December 2018. You tell us on page 81 that really from mid-June 2019, you are full time in the project from that point?

A So, yes, and I think in the earlier part of 2019, again, so I wasn't-- I hadn't replaced Janette's role in as much that I wasn't supporting the project full time, but from June onwards, because of the emerging

issues, I was asked to essentially provide full-time support and prioritise support towards that as part of my role.

Q Okay, so up to December 2018, relatively limited involvement, full time from June 2019. The Inquiry has heard that Janette Richards retires towards the end of 2018. Is that correct?

A That's correct, yes.

Q So, can you just explain in general terms, what is your involvement from late December 2018 up to summer of 2019?

A So, from the latter part of 2018, we had instructed or requested that the project team use me as the principal point of contact for a lot of-- for any correspondence or points. We had successfully appointed Sarah Jane Sutherland into Janette's post as her successor, and in the period really from December 2018 until June, I had an active role in that I was supporting Sarah in her newly promoted role and taking a more active interest, a more direct role in communicating, I think, with the project team.

Q Thank you. If I could ask you to have your witness statement in front of you, please. It is in bundle 2 of the witness statements and if we could

look to page 80, please, and paragraph 16? Going to page 80. Page 80. Page 80, please. Paragraph 16, you say, "My involvement in the project increased significantly from December 2018." You see that?

A Yes.

Q Now, if we could look just four lines up from the bottom of that paragraph, you say:

> "The leadership and senior decision-making component of my role was also increasingly important over this period in light of the scrutiny being placed on the Queen Elizabeth University Hospital (QEUH) building project and emerging information about water, ventilation and design issues."

Do you see that?

A Yes.

Q Can you just explain what issues you understood were happening at the QEUH and how that was impacting on your role in the project, please?

A So, I think as an Infection Control team, certainly as a senior team, we had been aware for some time that there were concerns around the QEUH building and aspects of both ventilation and water components in

the building, and there-- there was concern that that had-- was translating into patient harm, into patient cases and we understood there to be, I guess, a series of kind of IMTs, incident management teams, looking at that. So I think we were very thoughtful as a senior team that our understanding is that the QEUH project and the Sick Children's project in Edinburgh were being supported by the same design and construction team.

So the contractors were largely the same, and I think we were quite thoughtful that we needed to, I think-- looking to understand if there were any aspects or any learnings-- learning emerging from particularly the built environment that we could look for and seek assurance on in the Sick Children's building, and to understand, I guess, what those issues were, and I think over that period of time, there was really no information being provided to us as an Infection Control team from our national partners, so HPS and HFS, at that time. So I think we recognised that there was concern around what was happening in Glasgow and I think that was being played out in the media and certainly, I think, at Scottish Government.

And the other context for us in Lothian at that time is that we were also running incident management teams in relation to an issue with water quality at the Western General in DCN Neurosciences. Then in the March of 2019, we-- we were investigating an issue around cardiothoracic mould infections at the Royal Infirmary. So that gave us some thought around water systems, ventilation systems because those are reservoirs for the organisms that we were looking at and the infections that we were looking at. So I think we were just trying to understand what the issues were and feel alert to those; certainly as part of any conversations around HAI-SCRIBE or any involvement with the project team.

Q And, again, just so I am understanding you, from late 2018 into early 2019, these are effectively informal conversations with colleagues working at the Queen Elizabeth University Hospital? This is not centralised communications that are coming from Health Facilities Scotland, Health Protection Scotland, or any other centralised body within either the NHS or the Scottish Government. Is that correct?

A Yes, it's really using

existing professional networks that we have as senior nurses or as infection control doctors and that's quite common. I think we look to share expertise, share experiences, and look for pointers for good practice and solutions, and that's the way that we work in infection control, but there was no information or guidance being shared, and there wasn't even really any clear articulation around what those issues might be from the centre over that period.

I think the first time we were aware, certainly around ventilation, there was something issued actually in March of 2019 around pigeon droppings and risks around Cryptococcus and we became aware through the second-- or into-- towards June 2019, of a report that had been commissioned in Glasgow around the water systems which had been published, we think, in December 2018. But, again, that wasn't proactively shared with us as an infection control service, so there was a bit of a gulf-- a gap in terms of our understanding formally what was going on. So we made use of those professional networks to try and gain more insight and understanding.

Q So, in the absence of any

form of centralised communications, you effectively had to fall back on informal channels of communications with colleagues working in the Queen Elizabeth University Hospital to try to get what I think you referred to in your evidence there as "any learning points" that could be taken from the Queen Elizabeth University Hospital, to try and avoid any of those issues with the RHCYP?

A That's correct, yes.

Q And, again, just for completeness, we see that in your witness statement. If we look to page 85, please, paragraph 34. Approximately six lines up from the bottom of the page, do you see a sentence beginning, "Information about the emerging issues…"? Do you see that?

A Yes.

Q And you tell us:

"Information about the emerging issues in QEUH were shared in confidence directly between the Infection Control managers Fiona Cameron from NHSL and Tom Wolfe from NHS Greater Glasgow and Clyde, for example, SBAR report summarising the situation, background assessment and recommendations, which was shared with me on 14 December 2018, following discussion at this point at the IPCT Senior Management Meeting."

A Yes.

Q Thank you. Did those types of conversations between IPC professionals working on your project and individuals working in the Queen Elizabeth University Hospital, did they continue throughout 2019?

A Through 2019 to some extent, but I think by early 2019 we'd certainly had correspondence or instruction around ventilation and plant rooms and bird droppings, and I think in the period between probably February/March to June time, there was perhaps less correspondence, but I think as we got closer to June/July, and as information was emerging, certainly from the IOM reports towards the latter part of June, I know that there was some discussion directly, I think particularly from Donald Inverarity and his counterpart in Glasgow at the time, Dr Teresa Inkster, just again to get a further update in terms of what their experiences had been.

Q You mentioned correspondence between Dr Inverarity

and Dr Inkster. Was Dr Inverarity sharing with you what he was being told by Dr Inkster in relation to the Queen Elizabeth University Hospital?

A Yes.

Q Just in general terms about the ventilation system, can you just give us a-- We will look at some of the detail in the emails, but, just generally, what was Dr Inkster telling Dr Inverarity at this time?

A So, we were aware that there were concerns around the air change rates that had been provided in some of the rooms and the pressure differentials. We understood there to be concerns around whether or not HEPA filters had been provided, I think, within Bone Marrow Transplant Unit. We also learned about some other things that were not something we'd thought about before. So the name's gone out-- So the-- It'll come back to me.

So, basically, where there's the heat recovery system, where you're extracting air and you're potentially mixing dirty and clean air thermal wheels. So issues around thermal wheels, and concerns that potentially there was entrainment of dirty, contaminated air in the extract, and concerns around things like heater

battery arrangements that would lead to standing water in roof voids, which then created a risk of waterborne organisms. So those were the types of things that we were being advised on that were issues in Glasgow. So I think that was something that we wanted to, I think, particularly focus on in Edinburgh.

Q That is an emerging picture from December 2018 into the early part of 2019. Is that right?

A Yes.

Q Okay. So, if we perhaps just look at one email, bundle 13, volume 3, at page 462. So bundle 13, volume 3, page 462. It is really the email just over halfway down the page. You see there is an email from Donald Inverarity on 27 March 2019 at 11.20?

A Yes.

Q You see there is Jane Sutherland, and you are copied into that. Do you see that?

A Yes.

Q If we just look to the final paragraph, Dr Inverarity states:

> "I had been speaking to some of the ID consultants at QEUH and the Glasgow children's hospital yesterday and they explained that all their isolation rooms were being

refitted as the original design didn't seem to provide appropriate pressures and air flows when the rooms were occupied."

Do you see that?

A Yes.

Q Again, is that characteristic of the types of discussions that Dr Inverarity was having with Dr Inkster and then discussing with you?

A Yes.

Q At this point, still no centralised communications from HFS, HPS or any other central body within the NHS, in relation to emerging issues at the Queen Elizabeth University Hospital being fed back to the project team working on the RHCYP?

A Other than the issue of pigeon droppings, no, not that I'm aware of or can find any record of.

Q Again, do you find that surprising that there is a major hospital, Dr Inkster, who is working there, is communicating what she considers to be issues around about pressures and air flows, and they are not being communicated to the Infection Prevention Control team working on the RHCYP?

A So, I think-- Yes, I think we did-- I think it was a little frustrating, if I'm honest, and I think probably compounded by the fact that we were in regular correspondence and had representation from the nurse consultant at HPS and the principal engineer from HFS as part of our ongoing incidents in relation to water and ventilation issues in Edinburgh, and we were asking questions around water systems, ventilation systems. So there was plenty of opportunity, I think, for information to be shared, and I think our experience was that we were asking questions even around guidance or gaps in guidance that weren't being answered.

I think, appreciate that there's potentially a risk in communicating information in a situation that's still emerging and being investigated, but I think in the context of, Glasgow had built a brand new children's hospital and Edinburgh were in the process of building and moving towards completion of a brand new children's hospital, our need and our risk, I think, was subtly different to that of other parts of Scotland at that time.

I think quite frustrating because, as the leads on the ground, we were already being asked questions around

ventilation, water safety. There were inquiries coming into the board, and we didn't really have, I think, any reference point or any guidance being provided on how to respond or what it is indeed we should be looking to investigate or mitigate against.

Q Thank you. I now just want to move on and deal with another issue. It is really dealing with issues around about four-bedded rooms and issues that emerged in relation to pressure and air change rates for those. So, if I could ask you just to perhaps pick that matter up, if we look to bundle 13, volume 7, on page 37. So, bundle 13, volume 7, on page 37. It is really the communication between Janette Richards and Ronnie Henderson on the 23 January 2017. Do you see that?

A Yes.

Q You address this within your statement, and you say you did not really know about this at the time, but it subsequently came onto your radar, these types of discussions. Could you just perhaps explain to the Inquiry, how did you become aware of this issue?

A So, I think really my awareness of this issue in any significant way came about in

preparing to provide a statement and evidence to this Inquiry through the risk assessment that was provided. This isn't something that I have any recollection of being consulted on, and I can find no record of that. I've looked at email archives. I've looked at our own records. In terms of this, what was being, I think, requested, I had no awareness of that.

Q Okay. So, this type of discussion back in 2017, this is not something that is being escalated to yourself for discussion or a decision to be taken on?

A No.

Q If we perhaps just pick up Mr Henderson's email of 20 January, approximately halfway down the page, which states:

> "Hi Janette,
>
> That's just it. There's some dubiety over a couple of things. One, can a four-bed bay be described as a general ward? If so, what is the pressure relationship to the corridor as there's just a dash in the box in the table you attach? I'm looking for Infection Control's take on a scenario such as if four patients with infection status unknown are in the room. What way do you

want air to go, to the room from the corridor or to the corridor from the room?"

Do you see that?

A Yeah.

Q Then, if we look up to Janette Richards' response, she says, "The four -bedded rooms are considered to be the general ward." Do you see that?

A Yes.

Q

"As you're aware, each four-bedded bay has an en-suite toilet, neg extract, and an en suite shower and neg extract."

Do you see that?

A Yes.

Q Again, just working in infection prevention and control, if there is reference to en suite toilets, does that have any significance relative to Critical Care?

A So, Critical Care departments don't typically have en-suite provision because it's not required because of the patient type and the acuity of care.

Q Okay. So, just, again, to draw on your knowledge and experience, when Janette Richards there is referring to four-bedded rooms and referring to them having en suites, is that effectively a shorthand, as you would understand it, saying those rooms are not in Critical Care?

A Yes, because in the way that that question's being asked, it's around a general ward environment. I can't imagine any circumstance where we would consider that to include a critical care environment because those are very distinct entities, and they're treated in very different ways.

Q Thank you. We spoke earlier in general terms about the HAI-SCRIBE for the project. Did you eventually come to be involved in the HAI-SCRIBE process, particularly the Stage 4 assessment for Critical Care?

A Yes.

Q Can you just explain, in general terms, how you become involved and what your involvement is?

A So, we were aware in February 2019 through an all-persons email that the project had been handed over. Now, that caused us some surprise because the HAI-SCRIBE Stage 4 was still outstanding at that point, and we hadn't been advised by the project team when that might be scheduled in. So there was quite a lot of discussion and dialogue within Lothian at the time with

particularly the HAI executive lead and others, just to articulate those concerns.

We had arranged then, subsequently, with the project team to carry out the Stage 4 SCRIBEs, and it was important, I think, given the situation we found ourselves in and, I think, given all of the concerns there were about Glasgow, I think a recognition of how complicated the project in Edinburgh had been and the number of, I think, challenges and setbacks it had. And given that Sarah was new into post, I was really keen that I was part of that SCRIBE and actually, in some ways, led some of that SCRIBE activity.

So, we arranged in the late part of April and into May to split the hospital effectively into three components. So we looked-- Because we couldn't physically or, from a logistical point of view, look at every single room in the hospital. That wasn't our plan, and there had already been a number of what are called room reviews in advance of the Stage 4 SCRIBE which would inform the Stage 4 SCRIBE. So, basically looking at the room physically in terms of fit and finish and wider aspects of infection control and looking for what I

guess you would term "snagging."

So, we arranged to look at-- I think from memory, we did outpatients as one component. We looked at theatres and diagnostics in another, and we looked at inpatient accommodation, but we specifically wanted to look at Lochranza, which is the haematology/oncology ward, Critical Care because those are-- So they're not representative of the rest of the hospital provision, and we looked at DCN Acute Care which is representative of what I would call "general ward provision", which I know is maybe not helpful in this context. So a ward that provides medical or surgical care for patients that doesn't have that additional classification as part of the review.

We wanted to do that, and I think we were aware that there was a desire to complete that and move the project essentially towards final completion and allow patients to safely move in.

Q If we just take that in stages. You say that you effectively discover that the hospital has been handed over without the Stage 4 HAI-SCRIBE taking place. Is that right?

A That's correct, yes.

Q Again, how did you find that out?

A So, we found that out-- (Inaudible) I found that out through an all-persons email that was issued in February of 2019 communicating that, as a positive step forward, the project had been handed over and the building had been accepted by NHS Lothian.

Q If we just looked at that email, it is in bundle 13, volume 7 at page 75. So, bundle 13, volume 7, page 75, and it is the email towards the bottom of the page from Carol Notman.

A Yeah.

Q Which says:

"I'm delighted to confirm that we have now taken ownership of the new building at Little France that will be home to the Royal Hospital for Children & Young People, the Department of Clinical Neurosciences and Child and Adolescent Mental Health Services."

Do you see that?

A Yes.

Q The Inquiry has heard evidence that before the handover, there was effectively an agreement called Settlement Agreement 1, and it was whenever Settlement Agreement 1 is signed in the February of 2019 that the hospital is effectively handed over to NHS Lothian. Did you have any involvement whatsoever in what became Settlement Agreement 1?

A No.

Q So, the Inquiry should understand that there is an agreement signed by NHS Lothian in relation to the project, and the process leading to that and the signature of the document is done without input from yourself as the lead infection prevention control nurse for NHS Lothian?

A Yes.

Q To an outsider looking in, that might seem surprising. What was your views on that?

A So, at the time, I was surprised and concerned. I've subsequently been advised, though, that that process was primarily a contractual and commercial agreement and typically Infection Control are not included in those types of discussions. It's not a clinical or an infection control issue but, at the time, I was very concerned.

Q Did you know what had been agreed within Settlement Agreement 1?

A No.

Q Okay. Again, the Inquiry has heard a lot of evidence about this,

but there was effectively a technical schedule included within that dealing with various issues concerning the ventilation system. Would you have expected Infection Prevention and Control to have been asked for their views on any technical issues relating to the ventilation system included within that type of settlement agreement?

A So, yes, I would, because I think that's reflective of the questions that are contained in the Stage 4 SCRIBE, which are of a technical nature, and it would allow us to advise the project team and indeed, the Board of any infection control risk that may be associated with those issues.

Q Thank you, and did you raise any concerns that you had whenever you got the email informing you that the building had been taken over by NHS Lothian?

A So, I certainly discussed that in some detail with Fiona Cameron, the head of service at the time, and I believe there was some discussion with Alex McMahon who was the HAI executive lead at the time. I discussed it with members of my own team and with Donald Inverarity because I think at this point in time-- I

think particularly around the transition of services from Department of Clinical Neurosciences, this gave us some real concern, because we were managing an ongoing incident around water quality, and one of the control measures that we were describing as part of that incident management team was, you know, when we might move these patients into the new building.

And so I think to be told that this was essential-- our understanding was that the building had been handed over and that this would now be happening, and we had no visibility of, particularly, water quality at that time, was really quite concerning to us. I think given what we understood from our conversations over 2018 from the Queen Elizabeth, I think we had a genuine concern that some of the issues which had been identified in Glasgow may subsequently be identified in Lothian, and having not been involved, it's very difficult then to be able to mitigate against that.

Q And in the period that followed, did you and your colleagues attempt to carry out the Stage 4 HAI-SCRIBE, albeit retrospectively?

A So, not in February and March. The SCRIBE had-- So, we agreed that that would be completed

before the transition of patients from Sick Kids and DCN, and that's why it was scheduled in for April and May, with a view that we understood patients to be moving in, in the early part of the summer in July.

Q And, again, we will come on and look at the documentation, but just in general terms, explain to the Inquiry, please, what happened whenever you tried to undertake the Stage 4 HAI-SCRIBE? Were you able to complete it and completely sign it off?

A So, no, because we had for some months been asking for information around water quality, particularly in the point I've just described around, we're moving services in. We had, I think, it's far back-- So, we as an infection control service had been flagging since, I think, around about 2016 our expectation of a validation of critical systems because obviously the project timeline for the completion of the project kept being pushed out. So we were having conversation in anticipation of completion, which was then pushed out. So there was-- there was quite a lot of correspondence setting out what we expected to see in terms of ventilation, and particularly

critical system validation, and also in relation to water quality, and that those are essential parts of being able to complete the Stage 4 SCRIBE.

So none of that information was available to us in April or May when the SCRIBES were undertaken, and in the intervening period between being advised in February 2019 that SA1, as I now understand it, had been concluded, we were advised in April of 2019 through our Infection Control Committee that there were a number of non-conformances which had been accepted by the Board as part of that Settlement Agreement and, at that point, we had no understanding of what those were or what-- if any risk might be associated with them. That information still wasn't available to us in the late part of April or early May when we were undertaking those planned HAI-SCRIBE walk-rounds.

Q Now, with everything you have talked about there, all the information you would want that you did not have at this point, how concerned are you at this point about the safety of this new hospital?

A So, I think I was very concerned because I suppose being aware that we as a service would be asked to essentially provide some

level of assurance or comfort that there was no-- there were no issues in that building and that we weren't going to find ourselves in a situation, I think, that Glasgow had found themselves in. So because there was an awareness that water ventilation and potential for patient safety was a real concern, and it was a live concern in Edinburgh anyway. So I think I was really quite anxious actually about it.

Q If we could perhaps look to bundle 13, volume 7 and to page 110. Bundle 13, volume 7, page 110. Is that an email from yourself to Donald Inverarity. Do you see that?

A Yes.

Q You say:

"Hi Donald,

Can we have a quick chat about this please? Sarah and I attended a site visit to complete Stage 4 of the SCRIBE on Friday.

I wasn't happy to sign off the ventilation or water given the recent discussions at PLICC or concerns raised without discussion with you first."

Do you see that?

A Yes.

Q And, again, is that the types of concerns that you have just addressed the Inquiry on at this time?

A Yes, so principally around water and ventilation and to understand whether Donald had been in receipt of any-- of the information that we'd been requesting because we'd been requesting it through-- So I had requested information, and I was aware that Donald was also requesting information.

Q And as far as you were aware, had Dr Inverarity received any of that information?

A No, at that time, we hadn't received any of the information we'd requested.

Q And did you articulate your concerns to Dr Inverarity?

A Did I communicate----

Q Did you articulate your concerns to Dr Inverarity?

A Yes.

Q And did he share those concerns?

A It's my understanding he did.

Q If I could ask you to look, please, to bundle 13, volume 7, page 102. 102, bundle 13, volume 7, page 102, and if we could look to the email from your colleague Sarah Jane Sutherland on 3 April to Donald Inverarity and a number of other people including yourself. Do you see

that?

A Yes.

Q It says:

"Hi Donald, Elham, and Lindsay,

I met with Janice MacKenzie (Clinical Director RHSC/DCN Reprovision) this afternoon to arrange a phasing plan to carry out a HAI-SCRIBE Stage 4 review and sign off.

As I was not involved in any of the formal room reviews and for assurance/governance purposes, I am keen to review some of the areas and not just tick a box."

Do you see that?

A Yes.

Q So, Ms Sutherland is saying that she is wanting to carry out a relatively intensive review for the purposes of the Stage 4 HAI-SCRIBE. Having been involved in that process, was that level of scrutiny welcomed by the project team?

A No. I think from their perspective, what they were communicating to us is that they felt that all of the room reviews had been completed and that all of the information and the points of assurance that we were seeking were

already available and had been addressed, and my impression from some of those conversations is that I think there was concern that we were, perhaps, delaying the project further and that that was not welcome.

Q Thank you. Now, if we could look to the actual HAI-SCRIBE form itself, please, that is within bundle 5 at page 95. Bundle 5, page 95. Can you see that there is reference to the HAI-SCRIBE review team which includes yourself? Can you see that?

A Yes.

Q Have you seen this document before?

A Yes.

Q And can you just explain to the Inquiry what is this document, what do we see here?

A So, this is the standard template that's provided in Scottish Health Facility Note 30 for the Stage 4 post-completion handover and review. It's provided as a Word-- Well, it's provided actually by HFS as a PDF version. So we tend to print it out in a paper copy to allow us to take notes as we do the physical walk-round and review of whichever area we're reviewing, and it contains the standard question sets and the points of assurance that SHFN 30 requires us to

answer.

Q And if we look on to page 98, please, and to question 4.26. So, to page 98, question 4.26:

"Is the ventilation system designed in accordance with the requirements of SHTM 03-01 'Ventilation in Healthcare Premises'?"

Do you see that?

A Yes.

Q Now, is that a judgment that you could make as an IPC professional or is that something that you would be asking someone else within the project team to answer?

A So, that's not a question that I can answer as an infection control nurse, and I would be looking for confirmation on that point from, for example, an authorising engineer or somebody with the relevant technical experience and knowledge to be able to advise.

Q Okay, and it is ticked with a star and then there is some text, "With derogation 4 ac/hr – single rm. risk assessed + approved." Do you see that?

A Yes.

Q Any recollection? What does that text mean?

A So, I was-- We were

verbally advised by Mr Henderson that the system had been designed in accordance with SHTM 03-01, and we asked about any specific derogations that we needed to be aware of because that's-- it's not explicit in the question, but it's something that we would ask, because we'd want to ensure that any derogation was supported by a risk assessment. So we were advised verbally that there had been some derogation on single bedrooms and that they were being provided at four air changes per hour, but that that position had been risk assessed and approved by the project or the Board, but that was verbal advice given by Mr Henderson at the time.

Q Was there any suggestion, at this point in time, that there was any form of derogations from the published guidance in relation to critical care areas?

A No.

Q No. Thank you. Then, if I can ask you to look on, please, bundle 13, volume 7, to page 96. So this is an email to from yourself to Janice MacKenzie and Sarah Jane Sutherland dated 13 May 2019. Do you see that?

A Yes.

Q If we look to the penultimate two paragraphs, you say:

"We are also awaiting for more information on approximately 86 issues/non-conformances ahead of a meeting with George Curley and others on 5 June? We've been advised that many of these issues have been resolved but currently have no detail in relation to this."

Do you see that?

A Yes.

Q What were you referring to there?

A So, that was referring to what we had been advised by George Curley at the Infection Control Committee in April of 2019, that as part of the handover and the agreement from NHS Lothian, there were a number of-- so, 86 non-compliances that had been accepted by the Board, and we had requested visibility of that to be able to provide a view on any infection control risk. At May 2019, we hadn't received that, and we didn't receive that until 5 June. That was the first time we'd had any visibility of that.

Q You go on within the email to say:

"I think, until we have more information and as discussed, the IPCT would not be able to provide sign-off and assurance for the board that the building is ready to be occupied by vulnerable patients."

Do you see that?

A Yes.

Q Should the Inquiry understand, that is because you do not have the information to sign off the Stage 4 HAI-SCRIBE?

A Yes, in relation to the non-conformances, but also in relation to commissioning and water sampling and validation of critical ventilation systems.

Q Okay. So, in relation to the validation of the ventilation system in particular, did you have the validation report that would be required in terms of SHTM 03-01 that we looked at previously, that pithy statement saying that there is no compliance with the published guidance?

A So, at the time of the HAI-SCRIBE review, no, that wasn't available.

Q Was that a matter of concern to you?

A Yes, it was.

Q Again, could you just explain why?

A So, I think, principally, because the question the SCRIBE is asking for, all part of the stakeholders to confirm that the system has been designed and is performing in accordance with SHTM 03-01, I-- professionally, I would not be prepared to sign a document to that effect without being provided with evidence that that was indeed the case, and that was my position and remains my position.

Q In terms of the project team, at this point in time, were they planning to get that independent validation report that you have just addressed?

A No. I think, from conversations, their understanding was that they had already received that information as part of the project, and there wasn't, at that point in time, a plan to arrange any further independent validation.

Q Okay. So, again, should the Inquiry understand that the project team, not including Infection Prevention and Control, they really just wanted to proceed with opening the hospital without obtaining the independent validation report?

A That's my understanding.

Q Thank you, and unless yourself and your colleagues had pushed back on that notion, do you think the hospital would have opened without this independent validation report being obtained?

A I think that's a very significant-- Yeah, I think that's likely.

Q Well, you pushed back on that notion, and if we could just look to bundle 13, volume 7, at page 115, it's an email from yourself to Ronnie Henderson on 17 May 2019. Do you see that?

A Yes.

Q If we just look to the final two paragraphs, you say:

> "I discussed with Donald the further ventilation validation program you've arranged for next Friday, 24 May. I understand this to be, one, for theaters [meaning all ducts], rebalancing and checking pressure cascades, and will not include further UCV testing, and two, for isolation rooms, repeat all commissioning and validation tests. We do think that it would be useful to have independent validation by an authorising engineer, recognising that there is a cost associated

with this."

Do you see that?

A Yes.

Q Wherever you say "useful" there, do you really mean "essential"?

A Yes.

Q So, in the period that follows, IOM Limited come in and do testing, and the Inquiry has heard evidence that non-compliances, in terms of the ventilation system with published guidance, are identified. Can you explain how you became aware of that?

A So, we became aware of that because, by that point in time, we were actively being included in meetings or asked to attend meetings to review the reports and the information as it became available.

Q What was your reaction whenever you were informed that there were non-compliances with the ventilation system, with published guidance?

A So, I think I was concerned that, I think in some ways, that our worst fears had potentially been realised, that there were some issues, and I think, as more information was available through each phase of those reports, I think

our-- well, my concern, I think, actually grew, because of the scale and the extent of the issues that were being described.

Q If I could ask you to have in front of you, please, bundle 13, volume 7, at page 35, is this a series of handwritten notes that you made at a meeting on 1 July 2019?

A That's correct, yes.

Q Can you just explain what was happening at this meeting that you attend on 1 July?

A So, this was, I think, at that point in time, one of twice-daily meetings that we were having to review this information, given the imminent occupation by patients, and we were in receipt of the IOM reports and reviewing the information that was available through those reports. So, the table, the template at the top is something that I had pulled together largely for my own purposes, where we were trying to understand, so which aspects or which defects were being identified, and what we knew and whether or not what was being described was fit for purpose and ultimately safe, but as time went on, more information was being provided, and by the 1 July, information was available in relation to critical care.

Q How close was NHS Lothian to opening the new hospital at this point in time, 1 July?

A So, I think, at this point in time, this was within a week of planned opening.

Q Okay, thank you. Now, if we look to the handwritten notes on page 36, top of the page in the middle, there is a box and an asterisk that refers to "Pamela," and then, "N of A/C? Critical Care, what are they retrofitting?" Do you see that?

A Yes.

Q What were you noting down there?

A So, Pamela Joannidis, at that time, was the nurse consultant for Infection Prevention and Control in NHSGGC, and so the box is my handwritten-- it's an action point for myself, and so I'd taken an action that I would try to speak to Pamela to understand the number of air changes, so that's the top line, "N of A/C," in Critical Care, and what they were-- "they" as in Glasgow, were retrofitting at that time. So I think it was to understand, again, what was Glasgow's experience, and was there anything that we could take and learn from Glasgow.

Q Okay, and then if we look

at, maybe approximately halfway down the page, there is an asterisk that says:

> "Critical Care? Derogation: none from original design. Positive to negative. Met environmental matrix for each was wrong."

Do you see that?

A Yep.

Q Can you just explain, what were you meaning by those notes that were made?

A So, my recollection of that conversation and from the note is that the issues around the-- the performance of the ventilation in Critical Care had been identified. There was some discussion at the meeting about whether there was derogation, and that's something that IOM had referred to in one of the reports, in that I think they had advised, or had been advised, there may be a derogation available, and then it was confirmed in the meeting that there was no derogation from the original design, and that the conditions were expected to be met.

With relation to the Environmental Matrix for each room, I think there perhaps was an understanding from memory that that

may be wrong, or that there was an error within the Environmental Matrix, and I think I've written, "Positive to negative." So, again, that-- I can't recall the exact detail of that point, but it's likely that that would relate to the four-bedded rooms issue that we now understand.

Q So, this has all been discovered around about a week before the hospital opens. Is that right?

A That's correct, yes.

Q If I could ask you to have your witness statement in front of you, please, it is within bundle 2, and if we look to page 124, at the top of paragraph 138, you again tell us just what you have told us in evidence today:

> "Nobody from IPCT was actively involved in the process of agreeing to Settlement Agreement 1."

If we jump perhaps five or six lines down, you will see a sentence beginning, "I would surmise…"

A Yes.

Q You say:

> "I would surmise that, had independent water and ventilation commissioning and validation reports, the environmental matrix, and details of the 81 non-conformances discussed as part of the SA1 process been made available to the IPCT in advance of the formal handover, it is highly likely that we would have highlighted the non-conformances and potential clinical infection risks associated with these."

Do you see that?

A Yes.

Q So, should the Inquiry understand, your position would be, if NHS Lothian had simply followed the guidance set out within HAI-SCRIBE, that they would not have been in a position where, one week before the hospital was due to open, that they found these non-conformance issues?

A Yes. I think, in simple terms, the information we were requesting in April and May, we would have been requesting in potentially January and February, and the defects that were subsequently identified would have been known about earlier.

Q Once these issues are identified, can you just explain, what is your involvement going forward from here?

A So, after the production of the IOM report, so really from

around about, I think, the middle of June onwards, that's when I had been asked to prioritise support into the project, as had Dr Inverarity, and we then-- we were core members of the Executive Steering Group, and we attended multiple meetings about every aspect of, I think, what then followed around water non-conformances, ventilation non-conformances. We were involved in discussions around fire systems. We were asked to provide a number of written reports and risk assessments. So a much more intensive involvement, and actually daily and weekly involvement in both the-- what I would class "the operational element" of the response, but also in terms of that Executive Steering Group and dialogue with Scottish Government through the Oversight Board.

Q And was there a continued dialogue between Dr Inverarity and Dr Inkster at the Queen Elizabeth University Hospital?

A From June/July onwards not to the best of my knowledge, but that's something that Dr Inverarity would be able to answer.

Q Well, just in case it jogs your memory, if I could ask you to look to bundle 13, please, volume 8, at

page 2226, and it is the email towards the bottom of the page from Donald Inverarity to Alex McMahon, Tracey Gillies, George Curley, Brian Currie, Iain Graham, and we see you copied into that. Do you see that?

A Yes.

Q Presumably this was one of many emails that you would be copied into, at this point in time, whenever the problems with the hospital had been identified?

A Yes, so I do remember this correspondence because this-- So, apologies, I think I was talking about the period from later on in July after the decision had been made not to occupy the hospital but, yes, I'm aware of this correspondence.

Q And we see there Dr Inverarity says:

> "Dear All, please see the reply I received this morning from my equivalent, Dr Teresa Inkster, in NHS GG&C based at QEUH and issues there she has had to deal with from an HAI risk which we need to be aware of. She's happy for this information to be shared with NHS Lothian."

Do you see that?

A Yes.

Q And then what seems to

follow is a paste of an email that Dr Inverarity had received from Dr Inkster, and it says:

"Hi Donald, SHTM 03-01 allows for thermal wheel technology provided they are fitted with a purge sector. However thermal wheels come with the risk of dirty extract air mixing with clean supply."

Do you see that?

A Yes.

Q And is that the issue you raised earlier in your evidence about possible issues round about thermal wheels?

A Yes.

Q It continues:

"In our paediatric haem-onc ward (non-BMT patients) we experienced a significant number of outbreaks over a 2 year period. These proved difficult to control despite aggressive IC measures. As part of the investigation we asked for an external review of the ventilation system. What we found was air changes of < 3 (due to chilled beams), rooms at slightly negative pressure to corridor, thermal wheel technology and ductwork configuration issues."

Do you see that?

A Yes.

Q So the situation in Glasgow that is possibly even slightly worse than at the RHCYP, that rather than the four air changes, they were only achieving three?

A Yes.

Q And Dr Inkster continues:

"All of this combined was felt to be a factor in these outbreaks as mixing of dirty and clean air was occurring. HPS were asked to investigate and the conclusion of their report was that our outbreaks were not due to practice or IC issues but to the environment. Difficult to prove that retrospectively but it makes sense."

You see that?

A Yes.

Q So, Dr Inkster raising issues in relation to the built environment at the QEUH, in her view, contributing to infection outbreaks. Just thinking to the timing when that comes in, how central are these issues that are being fed back by Dr Inkster? How central are they to your thinking and Dr Inverarity's thinking at this time?

A So, I think that the issues

that were being described in that email are the same types of issues that were identified as part of that IOM review. There's a-- I guess, a material difference in the patient populations between Edinburgh and Glasgow, which alters the risk associated with that, in that Edinburgh doesn't treat bone marrow transplant patients, we don't provide that service, and that patient population is recognised to be a particularly vulnerable-- probably the most vulnerable clinical patient population, but the fundamental issues with the ventilation system that are being described are the same issues that were being identified in NHS Lothian.

Q And, again, interested in your views, less than three air changes per hour linked to infection issues arising in the environment. How much of an alarm bell is that to yourself and Dr Inverarity?

A So, it's a massive alarm bell.

Q Thank you. I am conscious that that is just one minute before one. That might be an appropriate point to break for lunch.

THE CHAIR: We will take our lunch break, Mrs Guthrie, and if you could perhaps be back for two o'clock?

(Adjourned for a short time)

THE CHAIR: As some legal representatives will have gathered or, better still, have been told, we have had technical problems which have emerged over lunchtime. I am sorry we have lost half an hour, but there we are. Good afternoon, Mrs Guthrie. I am sorry you have been delayed, and I appreciate you have got other things to do today, but it is as a result of technical problems. Technical problems are sometimes not just solvable immediately, but my apologies. Mr MacGregor?

MR MACGREGOR: Thank you. I would like to go on now and pick up a matter that you address at paragraph 182 of your witness statement, and it is your attendance at the Falfield course between 7 July and 12 July 2019. Can you just explain in broad terms what was the Falfield course and why were you there?

A So, the Falfield course was a residential course into aspects of engineering and infection control in the healthcare-built environment. It's provided through the healthcare-- I want to say healthcare improvement. It's not healthcare. It's the Hospital

Infection Society and Public Health England.

It covers a range of topics from-- including ventilation, medical device decontamination, hospital laundries and other aspects of engineering that might relate to healthcare. It's provided by experts in the field, so Professor Peter Hoffman and Malcolm Thomas, who's one of the lead authors of SHTM 03-01.

It's delivered using a combination of classroom learning and practical experience. So, at Falfield, there are essentially ventilation systems and operating theatres that allow you to understand and see physically ventilation systems, and understand how to undertake tests and looking at performance and, similarly, aspects of decontamination.

Q So, yourself and some of your colleagues just happened to be at the Falfield course in July after the issues of non-compliance with SHTM 03-01 are identified at the RHCYP. Is that correct?

A Yes. So, we'd arranged to go to that course earlier in the year. It had been identified as something that would be beneficial, given the emerging issues and understanding that ventilation and infection control

was something that, as an infection control service, we might be asked more about.

Q While you were at the course, did you stay in touch with Dr Inverarity in particular?

A Yes.

Q Did you have discussions with him about the emerging issues at the RHCYP?

A So, we had some limited conversation either by text, email or possibly a couple of phone calls because the actual learning environment-- they were quite busy days that ran from nine in the morning till about half eight/nine at night, but we did correspond on a number of issues, yes.

Q Thank you, and if I could ask you to have in front of you, please, bundle 13, volume 8, page 591, please. 591, please. The context of this email chain is effectively there had been concerns raised by clinicians over the possibility of switching from balanced or negative pressure towards positive pressure. Do you recall that?

A Yes.

Q Can you just summarise in your own words, what was your understanding of the concerns being raised by clinicians?

A So, I understand that the four-bedded rooms had been provided to provide balanced or slightly negative pressure in response to concerns about cohorting patients with the same infection. As part of the conversation in early July about bringing the unit to a point of compliance with SHTM 03-01, which would require 10 air changes and 10 pascals of positive pressure between patient bedrooms and adjoining spaces, the clinicians, I think, had expressed some concern based on their understanding of the importance of the pressure differential between patient bedrooms and other spaces.

So, there had been a meeting arranged with Donald and other members of the Infection Control team to explore those concerns and to try and provide both a rationale and reassurance about why we considered a compliant design to the SHTM to be safe.

Q Again, the Inquiry will hear from Dr Inverarity next week, but in his witness statement he says, effectively, if you are cohorting infectious children, there is nothing inherently wrong about doing balanced or negative pressure, and there is nothing wrong about doing positive pressure. They are simply different ways of trying to achieve the same outcome. Is that your understanding?

A Yes. I think pressure is only one component-- The pressure differential is only one component of how you manage that risk and what it is the ventilation is actually designed to do in that context.

Q Okay, and if we look to bundle 13, volume 8, page 591, and we see that there is the text beginning, "Any views from Falfield, please?" Do you see that?

A Yes.

Q Then the final paragraph, approximately five lines up there is a sentence beginning, "The current design of balanced or slightly negative…" Do you see that?

A Yes.

Q It says:

> "The current design of balanced or slightly negative 4 bedded rooms (deviation from SHTM 03-01) seems to have arisen from clinical teams rightly wanting to [cohort] patients outwith a potential cohorted area and so much of this concern is to convince them that this is still possible with an SHTM 03-01 compliant design. Thanks. My

brain is fried!"

Do you see that?

A Yes.

Q So, was this quite a complex issue in terms of the discussions that you were having with Dr Inverarity at this time in relation to what should be done?

A So, I think it-- I'm not sure complex is maybe the right word. I think it was really just seeking a second opinion, perhaps, from Falfield that what was being presented and our interpretation of what's contained within the SHTM was correct, and the rationale we were providing to clinicians to explain why that would be safe. I think it was really just to seek an objective and independent expert view on that in the same way that we might seek a second opinion on complex matters of a medical nature.

Q Did you have any discussions while at Falfield with either Peter Hoffman or Malcolm Thomas about this issue?

A Yes, we did.

Q Could you just summarise, what did you discuss with them and what did they tell you?

A So, as part of the discussion around ventilation, we put forward as a situation where we had, in a critical care environment, a multi-bedded room. So exactly the scenario we had in Edinburgh, and really just seeking to understand why positive pressure would be considered appropriate and safe as opposed to balanced and negative, given that for single rooms and what the SHTM is asking for is six air changes in balanced or slightly negative. I think just seeking to understand whether-- so which would be preferable and the rationale for positive pressure being acceptable. So that led to a bit of discussion, and so Professor Hoffman, I think, really confirmed what Donald had been summarising.

I think principally, part of the-- So the issue in Edinburgh really had arisen because, I think, there was very much a focus on the pressure differential between the rooms. So from the bedroom out into a corridor area, rather than a consideration of the air change rate and the mitigation that would provide around airborne contamination, and I think a failure to recognise that-- So that provides dilution of room air. And I think perhaps a misconception that if air is moving from the bedroom out to the corridor, that the removal of that air is entirely dependent on that pathway

and that the air is removed in the corridor, where actually what's being provided within a compliant design, is that you have both supply and extract. So what you have is dilution of the room air by virtue of the air change rate. So it's being actively removed from the room within the room, and then anything that's contained in the air as it moves from one space to another will be at very low level.

I think the other consideration that really-- or the other aspects that hadn't been considered at that time, was the additional mitigation provided by virtue of a closed door. So you have physical segregation of patients, and we did discuss at Falfield the closed door adding – and Professor Hoffman advising – potentially up to 80 per cent of that airborne-- anything that remains in the air would be essentially stopped by the door.

The other consideration then is that the physical distance in itself between patient beds. In a scenario whereby patients with infection are in a four-bedded room, there is a considerable distance physically between those patients through a closed door, through a corridor and into another room where other patients might be protected. So I think it was

really just trying to-- So that was the scenario we discussed, and he confirmed that that was a safe and indeed appropriate provision.

Q Was there any discussion around about whether balanced and negative with four air changes per hour, whether that would be a safe way of cohorting patients?

A From memory, I don't recall having that precise conversation because I think by this point in July, the overall direction of travel in Lothian, as I recall, was towards a compliant design.

Q Thank you.

A So we weren't seeking to confirm whether four was or wasn't safe.

Q Thank you, and we see really just what you have told the Inquiry summarised there – bundle 13, volume 8 at page 159 from Jennifer Poyner. Who was Jennifer Poyner?

A So, Jennifer Poyner was one of the microbiology specialist registrar trainees. There were two microbiology registrars – myself and Sarah – from Lothian attending.

Q Thank you, and we see that she says in the email:

"Overall with this one we think it's not really an issue. The

fact that there is a door that can be closed on the 4 bed room will in itself reduce infection spread by 80%."

Is that what Peter Hoffman had told you at the course?

A Yes, and I did check my handwritten notes from the course. So that's what I've annotated in the notes of the discussion.

Q Thank you, and it continues:

"Changing to a negative [balanced] pressure facility in that room area will not necessarily add anything."

Do you see that?

A Yes.

Q Thank you. Did that come to be really the consensus view between clinicians, Estates, Infection Prevention and Control, that if you comply with the SHTM 03-01 guidance that that would be safe for the cohorting of infectious children within the Critical Care Department?

A Yes.

Q If we just look to bundle 7, volume 1, page 316. Bundle 7, volume 1, page 316. You see an email of 11 July 2019 from Janice MacKenzie to a range of individuals. You are copied into that email. Do you see that?

A Yes.

Q So bundle 7, volume 1, page 316, (inaudible) paragraph:

"Following much discussion and looking at a range of different scenarios related to the patient groups they will be caring for and the requirement for the ability to cohort patients with the same infection, the consensus is that the requirements of SHTM 03-01 in relation to ventilation within a Critical Care Unit will provide a safe ventilation design in conjunction with the design of the paediatric intensive care unit and good staff practice to achieve best outcomes for patients."

Do you see that?

A Yes.

Q And the Inquiry has heard evidence already that effectively what NHS Lothian did was to implement a high-value change notice which changed the ventilation parameters for critical care to positive pressure and 10 air changes per hour. Are you aware of that?

A Yes.

Q And were you involved in a series of risk assessments that were undertaken in relation to the clinical

spaces within the new hospital after that change notice was put in place?

A Yes, I was.

Q And can you just explain in your own terms, what were you and your colleagues doing after that agreement is put in place to make sure that the new hospital is going to be safe for patients when they enter it?

A So, specifically in relation to critical care or the wider hospital?

Q I think specifically in relation to critical care.

A So, I think in relation to critical care, our input was really-- so we were involved in the design workshops for High Value Change 107 and laterally in terms of the validation of that system. So I think, again, just taking it through, essentially, a SCRIBE process to a point of completion. I can't recall doing a specific risk assessment for critical care with regards to ventilation after that high value change work had been completed, but we did complete a risk assessment or a ventilation for other parts of the hospital prior to occupation.

Q Okay, and HAI-SCRIBE Stage 4, was that completed?

A Yes, so the HAI-SCRIBE 4s were completed for all areas of the

hospital prior to occupation.

Q Okay, and in terms of each space of the hospital, did you effectively sit down with the designers and go through a line-by-line review of the new design?

A Yes, so that was a bit further on, and we looked at the ventilation provision vision within the Environmental Matrix against the standard specified within SHTM 03-01, what had been measured or demonstrated as part of a validation exercise, and where either what had been designed or what was being provided deviated from SHTM 03-01 to give a view, from an infection control point of view, whether we felt that constituted a risk in any way, shape or form. So it was essentially a line-by-line review of every single room in the hospital, including office spaces and other non-clinical spaces.

Q And if I could ask you to look to bundle 13, volume 7, page 152, please. This is a document headed up, "NHS Lothian Infection Prevention Control Team Review of Suitability of the Performance of Redesigned Ventilation Systems in RHCYP DCN - March 2021." Do you see that?

A Yes.

Q What was this

document?

A So, this related to the Emergency Department.

Q And if we perhaps look on to page 153, you see the bold heading "Paediatric Intensive Care"?

A Uh-huh.

Q **"**Paediatric Design Changes relating to High Value Change (HCV) 107," and it says:

> "All clinical bedspace areas to have a minimum of 10 air changes per hour and be at 10 pascals positive pressure."
>
> Do you see that?

A Yes.

Q And then we see the IPCT assessment:

> "All bed spaces in multi-occupancy bays and single rooms now achieve SHTM 03-01 criteria for critical care of a pressurised environment of 10 pascals positive pressure with a minimum of 10 air changes per hour."
>
> Do you see that?

A Yes.

Q And then if we look on to page 154, you see that there is a bold heading "Paediatric Haematology/Oncology Ward (Lochranza)", and again, it is relating to High Value Change Notice 107:

> "All clinical bedspace areas to have a minimum of 10 air changes per hour and be at 10 Pascals positive pressure."
>
> And the IPCT assessment is:
>
> "All bed spaces in multi-occupancy bays and single rooms now achieve the SHTM 03-01 criteria for wards where neutropenic patients are managed over a pressurised environment of 10 pascals positive pressure with a minimum of 10 air changes per hour."
>
> Do you see that?

A Yes.

Q And if we look to the bottom of page 155, we see the assessment was completed by yourself and Dr Donald Inverarity. Do you see that?

A Yes.

Q After all of the reviews that you had undertaken, this review, Stage 4 HAI-SCRIBE, were you completely satisfied that the Critical Care wards in the new hospital provided a safe and effective environment for the treatment of patients?

A Yes, I was.

Q I would just like to take

one step back and ask you to look at a generalised risk assessment that was completed in July 2017 and then reviewed in January 2018. That is at bundle 6 and at page 14, please. My understanding is within your statement you say that at the time you were working on the project this was not a document that you had seen, but you have come to see it subsequently in terms of your involvement. Is that correct?

A That's right, yes.

Q Because would this be completed initially-- So, it is completed in the summer of 2017, refreshed in the January of 2018. That is at a point when, I think, you describe yourself as really being at arm's length of the project. It is Janette Richards that's really providing the IPC function for the project. Is that right?

A That's right, yes.

Q Now, we see that it begins, if you look just under "Subject of Assessment: Consider Task or Environment", it says:

> "Bedroom Ventilation design in 4 bedded rooms does not meet the recommendations of SHTM 03-01, as the current design has the 4 bedded rooms as being positive pressure."

Do you see that?

A Yes.

Q The Inquiry has heard evidence from Janice MacKenzie who was involved in completing the general risk assessment. She said that is not a judgment that clinicians could make because it was not really for the clinicians to work out how the technical ventilation parameters would or would not comply with SHTM 03-01. Should I understand from the evidence that you gave this morning that you would not see that judgment as being something that Janette Richards could make as the IPCN involved in the project?

A So, I think Janette would and could have provided a view about what the SHTM specified for general ward environments versus critical care environments. I think that's a reasonable expectation. That's not specifically related to aspects of design. That's at the point of compliance or not.

Q So, do you think Janette Richards would have been able to offer a view as to whether it should be balanced or negative as opposed to positive pressure for Critical Care rooms?

A So, obviously I wasn't

involved in this conversation but I would be confident, and from the correspondence and the contact that I had with Janette at the time around ventilation matters, Janette was very clear, any questions she was ever asked around ventilation, she referred the project team back to SHTM 03-01 and would have been aware of Table A1 and the parameters that are laid out in that.

Q Because it is just if we look to the bottom of that box, it says:

> "The risk assessments have been discussed with the Children's CMT and Infection Control & Prevention who have confirmed that not having the ability to cohort patients is not acceptable from a patient safety perspective."

So, it seems that there is input saying, "You need to be able to cohort patients, and the ventilation solution needs to be designed to accommodate that." Is that your understanding of what the IPC input would be?

A So, there's a statement in the risk assessment to say that it's been discussed and agreed, but the only record or the only reference to this discussion that I can find any evidence of is in the email correspondence between Ronnie Henderson and Janette in around, I think, the January of 2017 where this question was specifically asked. So I can't say with any confidence at this distance what question was specifically asked of Janette, or what she was being asked to agree or endorse, or how that was framed, because there is lots of reference to this, and I think infection control, having signed off or advised on this, in correspondence and in documents that, to the best of my knowledge, we weren't copied into and had no visibility of. So I don't know in terms of when it said infection control and prevention, whether that relates to Janette. My assumption would be, as the link for the project, that would be likely, but whether this alludes to conversation with anybody else in the team, but certainly, we as a kind of senior team, and I certainly had no awareness of this and can find no record of this ever having been shared.

Q Because you had not seen it and from what you tell us within your witness statement, if someone had come to you and said, "We want to cohort patients within critical care", and they had said, "We want to do that

using balanced or negative pressure," your response would be, "That's not right. The guidance says positive pressure." Is that correct?

A Yes, but I think there's a step before that, and I would want to understand from the point of view of infection control, why a cohort for infection control purposes was being requested because that wouldn't be the default position and it certainly wouldn't be the default position within a critical care environment.

Q Yes, and if we just look to the top of the document, bundle 6, page 14, we see the individuals completing this assessment. It is Janice MacKenzie, the clinical director, Dorothy Hanley, RHSC commissioning lead, Fiona Halcrow, the project manager. We do not see this risk assessment being signed off from anyone from IPC, do we?

A No.

Q Do you think that is potentially a flaw in the system that existed at least until the revised guidance within SHTM 03-01 2022 which creates the Ventilation Safety Group?

A So, I'm not sure if it's a particular flaw in the guidance rather than perhaps a weakness in the process to derogate from guidance and the process for evidencing the decision-making around that, I think would be probably my assessment.

Q Because, in fairness, as I understand you, what you are saying now is people are saying, "Well, IPC signed off on this," but you then look back through your records and it is very difficult to work out what they mean by "IPC signed off on this," and there is not any crisp record of what IPC either was or was not agreeing to.

A Correct, because I'm not clear what question or how the question was posed to infection control, and it's not uncommon for information or advice to be then either misinterpreted-- and I don't mean maliciously, but either misinterpreted or miscommunicated by people who don't have subject matter expertise. I don't think that's any different to any other technical or specialist area of practice. If you're a non-specialist in the area, I think sometimes communicating a conversation or a discussion, it can be easy for that to then be taken slightly out of context or misinterpreted in some way, and I have no evidence to say that's what's happened here, but that is my experience.

Q Thank you, and if we could just look to bundle 13, volume 7, please, at page 160. So, bundle 13, volume 7, page 160, and you see just about a third of the way down there is an email from Donald Inverarity to Tracy Gillies dated 9 July 2019. Do you see that?

A Yes.

Q And then if we look over the page onto page 161. I will not read out the body, but it is recording, I think, a discussion that you had had with Janette Richards that had been reported to Donald Inverarity, and if we look at the first full sentence on page 161, it says:

> "Additionally, she spoke with Lindsay last Friday and confirmed she had not been involved in any decision to reduce air changes per hour to below that outlined in SHTM 03-01."

Do you see that?

A Yes.

Q If you remember that discussion, could you just broadly explain to the Inquiry what discussions you were having with Janette Ray(?) at that time?

A So, Janette had retired by this point in time, and so the conversation was really to understand, given her involvement in the project, whether she could provide us with any more information around the decision-making, so the timing of the decision, who might have been involved in any decision, and where, if any, we might locate any risk assessment pertaining to those decisions, and I think just to confirm from my perspective as the lead nurse, I wasn't aware and hadn't been made aware, as part of Janette's handover as she moved into retirement, of any kind of significant issues around ventilation other than the ones that she had previously communicated around, for example, CT air-change conversations, and Janette was very diligent, usually, in providing an SBAR, a short summary report of the situation, and those were typically the types of things that she would refer on to myself and Donald for comment on. Janette also, typically, with a query about ventilation in particular, frequently then would ask a view from Health Facilities Scotland, or to confirm that her position was in accordance with an HFS view, because I think she absolutely recognised that she wasn't an expert and wasn't an engineer. So, it was really just, I suppose, to sense check

that from my point of view that I hadn't missed something and that we didn't indeed have a record, and my recollection of that conversation is that she had no awareness that this was the position, you know, and how we'd arrived at that position.

Q Thank you. Just for completeness, there is one more email I would ask you to look at in this chapter of your evidence, and it's in bundle 13, volume 8, page 449. It is the email towards the bottom, the email from Janice MacKenzie of 6 July 2017. Do you see that?

A Yes.

Q Again, this is not an email that you were copied into at the time, but I think it is one that, from your statement, you may have come to see after the events. It is really just for that observation in the penultimate paragraph that says, "Infection control have also confirmed they are happy with our risk assessment." We looked back at the risk assessment, and you say you had obviously discussed matters with Jeanette Ray Richards. Was her understanding that there was any departure from guidance, or any formal derogation for Critical Care areas?

A No.

Q So, again, should the Inquiry view that statement in its context, which is, "The author of this letter thinks Infection Control are happy with the risk assessment, but that is a risk assessment that is not actually formally signed by anyone from the Infection Prevention and Control team?"

A Yeah. My impression, in looking at this, is that perhaps that view was derived from the correspondence in January of 2017 with Ronnie Henderson, where this specific point is what Janette has confirmed back around cohorting and provision of a balanced or slightly negative arrangement.

Q Thank you. That is really all the detail I want to look at in terms of the project itself, and you will be pleased to know there are really just a couple of topics that I want to go on and ask you about this afternoon. One is, really-- So, you have obviously had a long time to think about the project. You worked on it until the hospital opened. Having had that time to reflect on matters, how do you think it got to that point? What went wrong so that the hospital did not open as planned?

A So, I think my impression

is that perhaps some of the processes within the project timeline perhaps lacked some robustness, and that's not a criticism of the people involved in the project, and I think it's perhaps reflective of the lack of clarity or a consistent, defined approach provided through various national documents, particularly around, I think, derogation from guidance. So where there is either a desired or identified deviation from guidance, really understanding, then, what risk assessment-- what should be documented and who should be involved in that, and a slightly more formal approach to that perhaps. Again, my impression, and it's with the benefit of hindsight, is that perhaps some of the decisions appear to be made on a much more-- based on informal or email communication or discussion, rather than actually generating a formalised risk assessment that all parties then had an opportunity to comment on.

I think, again, my impression is that Infection Prevention Control were a support, and it was a defined support rather than a dedicated support because Janette's role, for the period 2015 to 2018, didn't only include the Sick Children's project. So I think that was positive, and I think that was helpful to the project team, and I think they've reflected that, but my impression is that, to some extent, perhaps Infection Prevention Control as a component of the project team was perhaps slightly on the periphery. Certainly, that's my impression from a lot of the correspondence that I've now seen as part of this. So, where a position or a view of Infection Control is being offered, it's being offered up by a third party rather than an opportunity for somebody from the service to comment or confirm directly that that's indeed the case. So that feels inherently to me to be a bit of a weakness in the system.

I guess, from my own involvement from early 2019 onwards, I think the speed at which-- or the kind of availability of information in real time, and being cited in things in real time, improved significantly for Donald and I after the establishment of the VSG. I think we struggled – again, I don't believe for any reasons of any malice or particular ill intent – where we were asking for information, that didn't appear to be forthcoming, and so that for me creates an impression that perhaps we weren't seen as integral or a core component of the project and as a bit of a peripheral

advisory service. So I think perhaps opportunity had we been-- I think had we been actively involved in some of those key decision-making points in its fullest sense, that would have perhaps helped to avoid some of the confusion or misconceptions I think that then seemed to arise.

Q Would one of those key events be whenever Settlement Agreement 1 was agreed, that fixed the ventilation parameters?

A Yes. I think it would have been really helpful, perhaps from the Board's perspective, to have a view from us at that point because I think that would have been important in informing their understanding of risk and the risks that they were accepting, which I accept was for commercial and contractual reasons.

Q In terms of trying to resolve that issue, if I just put it broadly as Infection Prevention and Control being on the periphery, one of the innovations under SHTM 03-01 2022 is the creation of a Ventilation Safety Group. Are you familiar with that concept?

A I am, yes.

Q Do you think that Ventilation Safety Group, is that going to address some of the issues that you

have just alluded to in your evidence?

A I think it will go some way to address that. I think it's-- We established a Ventilation Safety Group in Lothian before the SHTM was published, and I think the scope and the remit and how that group actually functions is still developing, but, yes, I think it provides a formal governance mechanism within the Board, with a level of distance and objectivity with relevant stakeholders who have an adequate knowledge and understanding of the subject matter to provide an objective view. I think it's very easy, perhaps, when you're very close to the detail of something to allow confirmation bias to creep in, and you know what you think you know, and that what you think is right is right. I think the Ventilation Safety Group gives just that objectivity, and it allows people who are not intimately involved in a project or an issue at an operational level to perhaps interrogate the information that's being brought forward and to interrogate the thinking (inaudible).

Q Thank you. The Inquiry has heard evidence that, if there was to be a derogation from guidance, that is the type of decision that a Ventilation Safety Group would be

involved in. Is that your understanding?

A Yes.

Q But the Inquiry has also heard evidence that there is not actually a standard form issued by the central NHS that would tell an IPCN working on the project exactly what they had to do, what they had to fill in, what specific evidence they needed. Do you see that lack of standardisation as still potentially being a problem?

A Yes, I do, and I think particularly, given that we've now got other processes that are looking to assure each stage of a construction project, it feels counterintuitive to me that there would be a national approach to assurance without some consistency in how boards were being asked to present or consider information.

Q In simple terms, how could that be improved?

A Could you repeat the question?

Q How could that be improved? So, you effectively said there is a gap-- there is a national system, but health boards have been asked to simply make up their own derogations. How do you improve that?

A So, I think-- The way to improve that is, I think, for a-- it would be helpful to have a template or a defined methodology that all boards were expected to follow to reduce the variation and the margin for error, because I think there are key pieces of information and there are key stakeholders who need to be consulted in that process. I'm very wary of the term "signing-off," but I think there needs to be evidence of consultation, and that I think the rationale and a written rationale to actually set out what it is that you're looking to do, why you're looking to do it, what risks may be associated with that and how you aim to mitigate them, it's a fairly standard format, but that would appear to be a fairly logical thing to do, and certainly within the gift of national bodies.

Q Thank you. Other witnesses that have given evidence to the Inquiry have suggested that another improvement might be to have more standardization. So essentially to have standardised layouts and parameters for certain spaces within the hospital. Do you have any observations or views on that?

A Yeah. I would agree with that, because again, there feels-- So,

the example I think I would give is National Treatment Centres. Although the building work in Lothian has paused on that, there are National Treatment Centres being built across Scotland who will serve, essentially, the same type of patient population, in that they're an ambulant, day case, surgical population, with elective surgery, so the risks around that patient group are fairly standard.

I think the potential pitfalls and risks associated with getting design wrong, it feels like there's an opportunity, perhaps, for a standardised and approved design or set of criteria, or indeed suppliers or contractors, that could be worked up as almost a Once for Scotland approach, rather than asking individual board project teams, including Infection Control, who will have varying degrees of expertise or skill or experience in this area, to come up with a solution that then has to pass muster against an assurance framework. It just feels a bit back to front to me.

Q I think, within your statement, you say as well, "If we are going to have a centre of excellence," and I will come on to address NHS Scotland Assure in a moment, you think that having, effectively, a bank of what you think would be standard questions and standard responses, would be quite a helpful thing for the individuals on the ground tasked with trying to deliver these difficult complex projects?

A I think so. I mean, if nothing else, it's an aide-mémoire to ensure that that, inadvertently, people don't miss out a step or a question.

Q Thank you. Before I come on to ask you your views about NHS Scotland Assure, you tell us within your statement – I will just read it out to you, I will not bring it up, it is page 149, paragraph 239 – that you consider there are already insufficient numbers of qualified IPCN and IPCD to meet the demand of existing pre-pandemic clinical work and priorities. Could you just give the Inquiry a flavour of-- How difficult is it to try to recruit and staff an IPCN function in a big health board like NHS Lothian?

A So, it's incredibly difficult. So, in the team in Lothian**,** and not dissimilar to other teams, we are an aging workforce. So many of us who've worked in Infection Control have worked in the specialty for a long time and are already at, or rapidly approaching the age of retirement, and

there have been, for a variety of reasons, difficulty in recruiting into the specialty. Once you've recruited people in, and (inaudible) retaining staff and ensuring that their (inaudible) opportunities for career development can be a little bit limited, because it's quite a small specialty. So sometimes we bring people in, we train them up, and then they leave because they can get a promoted post in a ward. It's a difficult specialty. I think people underestimate the range and breadth of what we do and the challenges around what we do, and I think sometimes it's seen as an easy option, and it most definitely is not. So recruitment is a challenge, retention is a challenge, and increasingly succession planning is a challenge.

So, although we are now-- So, I'm nearly at my full establishment. The majority of my team are very new, so they're all experienced, qualified nurses, but they're very new to the field of infection prevention control. They're still undergoing an academic-- completing their academic qualification, so they're not yet qualified as infection control nurses and they haven't yet had time to consolidate and gain experience across the breadth of topics that we require to competently do our job.

So it's a real challenge and there have been incremental changes to the workload and the expectation on infection control teams for many years that have never then been matched with any investment in capacity or resource. So we've continued to absorb that workload, and really now we're beyond saturation point in terms of what we can deliver, but we're challenged in what we can deliver, because we have an imbalance in what we would probably refer to as skill mix, in that we've got a very small cohort of skilled and experienced and qualified ICNs, versus quite a large cohort of staff who are still developing in the area.

Q I will come on and talk about NHS Scotland Assure, in particular, but really should the Inquiry understand that any new system that is put in place, is it going to be very challenging to have sufficient IPC resource to implement that system, regardless of what it is, unless something is done about the recruitment?

A I think that's right. I mean, we've already had to-- So I've already had to absorb back into my clinical line, for want of a better word,

the post that Sarah Sutherland took up in 2019. So that post no longer exists in our service for that and for some other reasons, because we were unable to fill those team lead posts to deliver the core clinical component of what we do, and that has to be the priority. So we've had to absorb or take away the resource that was available specifically for the built environment, and based on my understanding of the current ask of infection control services, we are currently not in a position to deliver that, and we will not be in a position to deliver that in, reasonably, the next five years.

Q In relation to-- If you did just bring in brand new staff members, would it be realistic for someone who was completely new to infection prevention and control to be working on the IPCN role for a big new build hospital?

A Absolutely not.

Q And, again, I understood you saying at the start of your evidence that the individuals that come to work as an IPCN, they would need some form of training, but that mandatory training would not include any elements in relation to the built environment that might be relevant to

water systems or ventilation systems. Is that correct?

A Yes, so there's currently no mandatory requirement or component within the academic-- the core academic component of the infection control courses that are provided through the University of Dundee and the University of the Highlands and Islands. As yet there is no definition provided nationally as to what training, what skills, competence, expertise, would be required by infection control nurses to demonstrate expert-- competence in the area of particularly water ventilation, but the built environment in general.

Q And in relation to the new systems that have been brought in, Sarah Sutherland, one of your colleagues, gave evidence yesterday and she said that one of her main concerns is she does not want to be a quality control officer, she did not become an IPCN to sign off on plumbing. Is that the types of challenges that you have in terms of trying to recruit new individuals to come and work as IPCNs?

A So, I think it's one of the challenges. I think, certainly from the existing team that we have, it's not an attractive part of the role, because it

doesn't readily align with the skills and experience that nurses have coming into the field of infection control. They are nurses. Their skills and experience are around patient care and clinical issues, and there is a real, I think-- and there has been an increasing anxiety and a recognition that if they're being asked to comment on something that they're not confident and they can't necessarily demonstrate either training or competence in, the consequences of that for patient care could be catastrophic.

There are potentially significant issues for the Board, but I think increasingly concern about what that means in terms of their own professional accountability and how that might impact on that, for them as individuals. So it's-- I think to some extent the focus on the built environment has become one of the reasons we're finding it difficult to recruit and to retain and to promote into more senior posts.

Q Okay. Thank you. If I could just ask you some questions about NHS Scotland Assure. One of the things that has been brought in is the system of Key Stage Assurance Reviews. Are you familiar with that?

A I'm familiar with that, yes.

Q And do you have any practical experience of Key Stage Assurance Reviews?

A So, I have some experience. Wasn't actually involved directly in the conversation, but we had a Key Stage Assurance Review for a project in NHS Lothian, I think around the end of 2022, beginning of 2023, relating to an infrastructure project, which primarily focused on the provision of high-voltage electrical cabling and steam pipes. It's not a project that we had particularly much to do with. There was a Stage 3 HAI-SCRIBE produced with the project team, noting issues around adjacency to active clinical areas, but really a project that we have no particular skills or knowledge in relation to.

A Key Stage Assurance Review was completed with no input, interestingly, by an infection control specialist from NHS Assure, but the Key Stage Assurance report was very critical of the infection control service. It noted that we weren't fully embedded as a member of the project team, it noted criticism that we hadn't completed all stages of the HAI-SCRIBE process, even though from my perspective I can't find any

questions in the Stage 4 SCRIBE that would apply. We were criticised for not having evidence of implementing the National Infection Control Manual, which doesn't apply.

So it was very critical of the service, but I'm struggling to understand the relevance of having infection control embedded in a project around electricity and steam pipes.

THE CHAIR: Sorry, just that last comment I missed. You cannot see the relevance of having IPC embedded in a project which----

A -- which was primarily concerned with the provision of high-voltage electrical cabling and steam pipes.

THE CHAIR: Thank you.

MR MACGREGOR: The Inquiry in due course will hear from the former Cabinet Secretary, Jeane Freeman. Her idea behind the centre of excellence was that it was effectively going to perform a clerk of works role, so someone who would be coming in, doing inspections, physical testing. Is that what NHS Scotland Assure is in your experience?

A So, if I'm honest, I'm still not entirely sure I fully understand the role of NHS Assure in relation to some of these projects. It feels somewhat contradictory that there's an external scrutiny of the processes, which I think there is value in, but they don't have a scrutiny function. That's what we keep being told. So I think from a project perspective, yes, perhaps the role could be akin to a clerk of work's role, but at arm's length because, again, my understanding is that NHS Assure don't involve themselves in the detail or any decision-making around a project. It's really more about asking the project team to bring forward information for their review. From an IPC perspective, I think I'm still unclear what the role is or how that's anticipated to benefit infection control teams at Board level.

Q And, again, NHS Scotland Assure, its own documentation says that it is not going to be a decision-maker, it is not going to take on any liability, it is not going to be acting in a regulatory function. Do you think that is the right model for a centre of excellence?

A So, I think it depends on what the function or the purpose of the centre of excellence is. I think if the centre of excellence is primarily concerned with providing guidance and undertaking research and plugging some of the gaps around our

understanding or standardised documentation, I think there's a value in that. I-- But I think-- Can you repeat the question, sorry?

Q It was really just the idea that the liability in decision-making is still going to sit with the Health Board. As I understand it, NHS Scotland Assure in its own documentation says it is not going to be a joint decision-maker, it is not taking responsibility, and it is not going to have a regulatory enforcement function. I was just asking you if you thought that was the right model for a centre of excellence, that it does not take any of the responsibility for the project, does not sign it off, does not inspect it, and does not have a regulatory or enforcement function.

A So, I think if the centre of excellence holds the body of experts with the skill, knowledge, and competence to advise on what a compliant and safe design looks like, again, given that that expertise doesn't necessarily exist in every board, that feels like an area that any-- that the centre of excellence could actually provide a service towards. I understand that there's potentially a conflict in a body that provides independent assurance or some form of scrutiny function, at the same time as being one that provides advice and information. There's potentially a conflict in that they could be then essentially marking their own homework, but I think given the challenges we have around workforce and given the challenges we have around capability, it appears that if the expertise is there, the benefit for NHS Scotland as a whole might be to utilise that in ensuring that what we're designing and building is safe and compliant.

Q Thank you. If I could just ask you to have in front of you, please, bundle 13, volume 7, page 327, and it is the email towards the bottom from yourself to Iain Graham on 9 June 2022. Do you see that?

A Yes.

Q And it is just the last paragraph. You say:

> "At least one board is thinking of advising Assure they are pulling the IPCT out of project work because of the concerns about what level of professional, personal and organisational liability might be associated with IPCT giving advice if not 'competent' and having no definition of what that means, and

not being supported."

Can you just explain, what did you mean by those comments in that email?

A So, I think-- So, I can only talk from my own experience and the experience of my team in Lothian. I think there's a sense that we are simultaneously being told that we need to support projects and we need to be an integral and full-time part of that project, and we need to demonstrate competence. We've asked for a definition of, what would competence look like? So how can we-- So how can I as the associate director ensure that the workforce that I'm responsible for and the professional group I'm responsible for, how might I develop them and ensure that I can build those skills and we have that resilience, and that we can move easily through some kind of assurance process, and that's not been defined. I think the other point, I think, I'm alluding to is that where we have, as an infection control service in Lothian, asked questions of the IPC arm of Assure because there's a gap in the guidance or there's a lack of clarity.

So, an example around the Eye Pavilion project, we'd raised a question about ventilation into one part of that

project. We raised the question in the June, and we didn't get a response until the October, and then that was a very brief meeting with the nurse consultant who asked if myself and Donald had been consulted on the point which we had raised through the project team to Assure. Then that was going to be taken back into Assure for an expert view. Eventually, an email was sent with a not particularly helpful response in the December of that year, and the project director was already having to chase to say, "This is having an impact on project timelines." The resulting action on the back of that was a suggestion that a short-life working group be set up to provide the evidence and the expertise to inform that point, and Lothian were invited to chair that meeting. So additional workload as a consequence of a question we'd asked of the experts in relation to a gap in the evidence.

So, it comes full circle back to the Board IPCT being simultaneously told, "We're not necessarily competent. We need to demonstrate competence, but equally being held up as the experts to support and develop national guidance."

Q Again, in terms of a sort of question-and-answer function, a

layperson might assume that if you have a centre for excellence, an IPCN in your position on a project could simply send a short email or lift the phone and get access to specialist advice very quickly and get your questions answered. Is that how NHS Scotland Assure is operating in terms of your understanding?

A No.

Q That type of system whereby you could get ready access to expert advice in relation to the built environment, would that be a helpful addition to try and ease some of the workload pressures that you have alluded to?

A Absolutely.

Q If I could ask you to look to another email that you sent, please. This time bundle 13, volume 7, page 319. It is the email that you were copied into, apologies, this time from Tracey Gillies. You see it begins, "So my understanding from LG on this…"?

A Yes.

Q Then if we look to point four, what she says is:

> "The usual advice and support on offer to boards appears to have moved to a more 'mark your homework approach.'"
>
> Do you see that?

A Yeah, under point four, yeah.

Q Is that how you would view what NHS Scotland Assure is doing, it is effectively just doing a sort of marking of homework?

A That's our experience, I think, so far.

Q Then if we look to the final paragraph, Tracey Gilles says:

> "Given that we've already had to reduce HAI-SCRIBE attendance as there are simply not enough nurses in IPC to provide the essential service to clinical areas in the here and now, and not enough IPC nurses in Scotland with the requisite qualifications to do this more technical work, someone will need to feed back to SG Capital colleagues that their programme will be undeliverable."
>
> Do you see that?

A Yes.

Q Again, would you subscribe to that view that really what the IPC function of health boards are being asked to do in terms of the new system is simply, at a practical level, undeliverable?

A Yes.

Q Are you aware of any

proposed changes being made by the Scottish Government to the new centre for excellence, NHS Scotland Assure to try to address these types of concerns?

A Not to the best of my knowledge, no.

Q And if I could ask you just to have your witness statement, please. So it is in bundle 2. If we could look to page 156, firstly at paragraph 256. You state in paragraph 268:

> "I have been asked if [the] NHS Scotland Assure and corresponding Key Stage Assurance reviews will assist in involving IPC in new builds of healthcare environments. I think these new processes will provide limited benefit for Board level IPC teams based on the current approach."

Then you go on to say:

> "The KSAR review process has primarily added a layer of external scrutiny over projects although we [had] been advised NHS Scotland Assure do not have a formal scrutiny function."

Then, if we look over the page onto page 157, paragraph 273, you say:

> "I am concerned that these new processes have simply created an unrealistic workload demand on board IPCTs which is not matched with capacity or capability. In larger boards like NHS Lothian, where there may be multiple capital projects running in parallel, there is a risk that the NHS Scotland Assure processes are in effect setting boards up for failure..."

Do you see that?

A Yes.

Q Does that accurately reflect your views, albeit there has been the creation of a new centre for excellence, NHS Scotland Assure, in reality, these new procedures are simply setting health boards up for failure on major capital projects?

A That would be my view based on the current approach, yes.

Q Just one more document I would ask you to look at, please. It is within bundle 9 and it is page 268. Bundle 9, page 268. We will have to zoom in at various bits. This might not be the easiest document to look at, but it is a document called an "ENVIRONMENTAL MATRIX TEMPLATE." This is a document produced by NHS Scotland Assure. If

we just look along the top boxes, you see that there is “ITEM, ROOM NO., ROOM NAME”?

A Yes.

Q There is then a term, “ROOM FUNCTION.” Do you see that?

A Yes.

Q So, effectively what this document is, in relation to new hospital projects, there is going to be this document, the Environmental Matrix that would be populated. One of the items that has to be populated is this room function. Do you see that?

A Yes.

Q Then if we look two along to the right it also has, “CLINICAL RISK CATEGORY.” Do you see that?

A Yes.

Q As an IPCN working in this space, have you had any guidance from NHS Scotland Assure in terms of how the room function or the clinical risk category is going to be categorised? Is there going to be standard forms that can be filled in, or is this something that an individualised assessment is going to have to be made?

A So, to the best of my knowledge, we’ve received no advice on what or how to complete that. I

guess, my observation would be that in terms of clinical risk, there will be many clinical risks potentially, not all related to IPC. So, again, I’m not sure which-- or collectively which clinical risks that might reflect.

Q Thank you. Obviously, in your evidence today, you have set out a number of views in terms of how these types of projects might struggle in the future, how that could be improved. Please do not think that anything that I have not taken you to today within your witness statement would not be considered by the Inquiry, but you have obviously had time. You have worked on the project. You have reflected on the project. You have had some limited involvement with NHS Scotland Assure.

In addition to the issues that we have covered today and that you have set out within your witness statement, do you have any other further views in terms of how these large scale, new build hospital projects could be done better in the future to try to avoid some of the issues that cropped up in the RHCYP DCN project?

A So, I think from an infection control point of view, it would be really helpful to really pin down where the input of infection control

services add value to the process, rather than, I think, the overall direction of travel, which appears to provide just an arbitrary requirement. I think that would be really helpful, given the capacity issues we have.

I'm very thoughtful about the centre for excellence or NHS Assure in terms of the evidence base, and to what extent existing sources of information and known issues-- So, I think many of the things that have been described or uncovered as part of this have been described in other countries. So in England, in the US, in Canada, there are existing published case reports, guidance, which go through all of the same sort of things. So to what extent we are seeking to learn from and adapt rather than reinvent the wheel around some of this, because it all feels like it's quite new and in the genesis of a Scottish resource.

I do think there's a value in continuing to look at how the process becomes-- So I think more robust in terms of decision-making, I think we've discussed that. I think primarily it's about going back and understanding, from an IPC point of view, what is the role of infection control and where does it add value, because, at the

minute, it's not clear.

I'm also very thoughtful that we've had a lot of conversation this afternoon, and I've been asked to provide evidence around infection control education and training. I think there's been less conversation about what education and training is being expected of project teams, contractors, to actually provide some resilience and capability within those aspects of the workforce that support built environment projects, because at the minute it feels like (inaudible) control somehow are possibly part of the problem but seem to be a very large part of the solution. That's not sustainable.

So I would have thought it logical to explore where we can build capacity and capability, as I say, around infection control and understanding how some of the technical guidance from a technical perspective has a component of infection risk associated with it and how to mitigate that.

Q Thank you. Mrs Guthrie, thank you very much for answering my questions. I do not have any further questions. Lord Brodie may have some questions, or there may equally be an application from core participants but thank you.

THE CHAIR: There was one small matter of detail. You were answering questions this morning from Mr MacGregor in relation to the notion of safe – what is safe, what is unsafe. I think I noted you as giving an answer in relation to the old Sick Kids at Sciennes, and you made the point that no mechanical ventilation was available there. As I have noted your answer, you say, "That doesn't mean it was unsafe," and then you mentioned something about evaluated. Did I pick you up correctly?

A So, I think what I was referring to is that in terms of being able to confirm that there was no evidence that-- That's too many negatives. So, to evidence that the provision is safe, we can look at data through alert organism surveillance. So it's infection data and through other surveillance programmes offered by, for example, the Scottish Infection Intensive Care Group, SICSAG.

So there are patient outcomes which are measured. So things like ventilator associated pneumonia, bloodstream infections, where those data are collected locally. It allows you to understand what's happening within your own unit, but it also allows you to benchmark against other units to

identify whether you're an outlier in terms of your overall performance and safety. So from those measures, from those systems, there is no evidence that the sick children-- the Sciennes Road ITU wasn't safe from an infection control point of view, and it was not something that we had any particular concerns about.

Q Because it did not appear to be an outlier compared with other centres.

A Yes, and I think based on ongoing surveillance locally, there were no signals from that data that actually there was anything of concern. That was something that was specifically interrogated, I think, locally during the period where I think information was emerging from Glasgow. There was, I believe, one of the haematologists who had maintained over many years, actually, some surveillance around, I think, bloodstream infections.

We did look at that, I think, to sense check in Edinburgh whether we had missed a signal from our data, that there was something happening in terms of patient harm, and that we couldn't identify and we had no concern.

Q Thank you. Now, Mrs

Guthrie, I appreciate we have taken a lot of your time. I am going to ask for another 10 minutes just to allow Mr MacGregor to discuss with his colleagues whether there are any other questions that need to be asked, but I would hope we could get back to you in 10 minutes. So if you could wait in the witness room, please. Well, we will rise for 10 minutes to allow parties to consider whether there are any questions in addition. Mr MacGregor?

MR MACGREGOR: No additional issues, my Lord.

THE CHAIR: Thank you. Could you ask Mrs Guthrie to come back? No further questions, Mrs Guthrie, which means you are now free to go. Before you go, can I just emphasise my thanks for your attendance today in the midst of what I suspect is a busy day, and all the work that will have been involved in preparing what is a long and detailed statement. I appreciate that that will have taken a great deal of time and a great deal of effort and a great deal of research. I am very grateful to you for that. You provided important evidence for the Inquiry, so thank you very much. You are now free to go.

THE WITNESS: Thank you.

THE CHAIR: Now, we are not sitting on Monday, Mr MacGregor.

MR MACGREGOR: We are not sitting on Monday, my Lord.

THE CHAIR: But we hope to sit on Tuesday beginning at ten?

MR MACGREGOR: Yes, Tuesday at ten. It will be Dr Inverarity.

THE CHAIR: Sorry?

MR MACGREGOR: Tuesday at ten, and it will be Dr Inverarity.

THE CHAIR: Tuesday at ten, and Dr Inverarity. Well, I wish everyone a good weekend.

(Session ends)

16:13