Thursday, 29 November 2012

(10.00 am)

(Delay in proceedings)

(10.10 am)

THE CHAIRMAN: Ms Anyadike-Danes?

MS ANYADIKE-DANES: Good morning.

Mr Chairman, I wonder if I might call Dr Herron, please.

DR BRIAN HERRON (called)

Questions from MS ANYADIKE-DANES

MS ANYADIKE-DANES: Good morning, Dr Herron. Can I first ask if you have a copy of your CV there with you?

A. I have.

Q. You have prepared four statements for the inquiry; is that right?

A. That's correct.

Q. I think your first one -- which for reference purposes, the series is 224 -- is dated 19 December of last year, 2011. The second, 23 December 2011. A third, 16 May 2012. And the fourth, 14 September 2012. Is that right?

A. I can't be sure about the dates, but I did prepare four documents.

Q. Do you adopt those statements, subject to anything you may say now in the oral hearing as your evidence?

A. Yes.
Q. I wonder if I could first clarify with you the latter part of your fourth statement. If we can pull up 224/4, page 13. Can you see there that it really starts with regard to the consolidated report. And it says, "I would like to comment on some issues". Thereafter, it goes into a sort of third person. Do you see that, the second substantive paragraph after that?

"Dr Herron was the senior registrar [and so on.]"

And then if we go down, "With regard to the opinions of Dr Herron", "In addition, at the inquest, Dr Herron", and so forth. Can you explain why it might be written in that style?
A. I think the consolidated report referred to us in the third person. It said "Dr Herron", "Dr Mirakhur", and I suppose I was referring back to it in the way the evidence was given to me.
Q. But that's your evidence? Is there a common document that you and Dr Mirakhur worked on, which you've both used for the purposes of responding to that report?
A. We discussed the case, yes. We discussed the consolidated report and the issues in the consolidated report.
Q. So would it be fair to say that that part of your evidence reflects the combined thinking of the two of

you?
A. I don't know if it does entirely. It certainly -- to a large degree, it would reflect the combined thinking of both of us. There may be separate issues that Dr Mirakhur would take out of that --
Q. Yes, which might be more to do with things that she --
A. That she was involved in --
Q. -- specific reference to her.
Did you discuss with her -- or anybody else for that matter -- any part of any other witness statement that you have submitted to the inquiry?
A. I probably did. Not as a witness statement, but we certainly discussed many of the issues that had been raised along the way.
Q. Thank you. I wonder if I could ask you now to look at your CV. The reference for that is 311-003-001. You're currently a consultant in neuropathology and histopathology --
A. That's correct.
Q. -- at the Belfast Health and Social Care Trust. At the moment, you are also an honorary lecturer at Queen's.
A. That's correct.
Q. And you are head of the Regional Neuropathology Service for Northern Ireland.
A. That's correct.

Q. I think you also the lead for cardiac pathology and the lead for adult autopsy pathology for the Trust; is that right?
A. That is correct.
Q. And you became a consultant in 1998.
A. That's correct.
Q. And prior to that, the implication of that in terms of the work you did on Claire's autopsy is that you were a senior registrar at that time --
A. I was a senior registrar, yes.
Q. -- in 1996. If you became a consultant in 1998, was that also your position when you gave evidence at the inquest in 2006?
A. Yes.
Q. In terms of the other positions that I have referred to, the head of the regional neuropathology, just help me, were you that in 2006?
A. No. I became that when Dr Mirakhur retired in 2010 --
Q. Thank you.
A. -- in about December.
Q. To help us, are qualified pathologists regulated by the GMC?
A. Yes.
Q. What does that imply in terms of your duties, obligations and responsibilities?

A. It's a question I haven't really thought about before coming here. I'm sure there are a lot of regulations from the GMC about the duties of a doctor. I would have to go back.
Q. But you would appreciate that you are covered by all of those or subject to them?
A. I would imagine so, yes, of course, yes.
Q. Does that mean that, other than as a doctor, but as a pathologist carrying out your work on Claire's autopsy, that you were subject to that at that time?
A. I don't know the rules in 1996, but I would imagine I was subject to the GMC regulations.
THE CHAIRMAN: Whatever the rules were, you were subject to them?
A. I would imagine doctors were. I can't remember the rules in 1996.
THE CHAIRMAN: I understand.
MR FORTUNE: Sir, if I can assist, without giving evidence, here is Dr Herron, who is a registered medical practitioner. He must be on the register of the General Medical Council and would, of course, be bound by the terms of good medical practice.
THE CHAIRMAN: Yes, thank you.
MS ANYADIKE-DANES: In your witness statement, I think your fourth witness statement, you say you can't recall

whether you were aware of the Arieff paper in 1996. Did you know Dr Armour in 1996?

A. Dr Armour had been a registrar in histopathology, which was in the Royal. Then she became, I think, a registrar in forensic pathology, which was based in a number of different venues in the 90s: partly in the Royal and then, I think, they had their own building. I was aware of her and I knew her, not very well, but I knew her.

Q. She gave evidence in relation to an earlier case of Adam Strain because she carried out the autopsy in his case. I think her evidence was that the Royal's pathologists worked in fairly close proximity to the State Department pathologists.

A. In the 1990s, they were in the same building at one stage, but they were a separate department. But most of the doctors who became forensic pathologists had worked initially either in the Royal or the City histopathology departments.

Q. Did you know that she had published a paper in 1997 on dilutional hyponatraemia?

A. That Alison Armour had?

Q. Yes.

A. No.

Q. Just for the sake of reference, that's the paper she published in the Journal of Clinical Pathology in

May 1997 in relation to Adam's case. The reference is 050(5)/446-6. Were you aware of any involvement of Dr Mirakhur, who was your consultant at the time, in Adam's case?

A. Not as far as I remember, no.

Q. She never discussed it with you?

A. Not to my memory. It was 1996. I certainly have no memory of it being discussed with me then.

Q. In fairness, she might have, but you're saying you don't remember it?

A. I certainly don't remember her discussing it with me.

Q. And you don't remember any discussion about Adam's case at all amongst the pathologists in 1996?

A. No.

Q. Or any time up until when?

A. I got a letter, I think from the inquiry team, looking for information about Adam Strain. And I redirected them to the State Pathology Department. That was probably towards the end of last year. But I am pretty sure that in the years before 2011 his name had come up because he was part of the inquiry and I would have heard of him in those years.

Q. Thank you. Can I ask you, at the time you carried out the brain-only autopsy on Claire, what was your experience of paediatric neuropathology?

A. Paediatric neuropathology -- I think there had been -- I have it in one of my statements. I think I said 34, about 34, paediatric neuropathology cases in the years that I had been working in the Royal. I had been involved probably in the majority of those, either directly and possibly, for many of the rest of those, indirectly.

Q. You may not be able to remember this -- and I certainly couldn't blame you if you couldn't -- but what sort of cases were they?

A. Cases of cerebral palsy, who had died, and I don't really remember the specifics of many of the cases. We are talking more than 16 years ago.

Q. So they would cover a spectrum of paediatric conditions, if I can put it that way?

A. Paediatric neurological conditions, yes. That's right.

Q. Who was responsible for your training?

A. In neuropathology?

Q. Yes.

A. Professor Allen was the main person responsible for my training. Dr Mirakhur was the other consultant in the department, but I'd have said Professor Allen was the ...

Q. Were there two consultants in the department then?

A. Yes.

Q. So one was Professor Allen and the other was Dr Mirakhur?
A. Yes.
Q. And Professor Allen was more senior, presumably?
A. She was.
Q. And how closely did you work with Dr Mirakhur?
A. There were only three neuropathologists in the department and we saw each other every day that everyone was there and we worked closely.
Q. Who was responsible for your research?
A. Professor Allen.
Q. In your fourth witness statement, 224/4, page 8, you say that:

"Post-mortems would be discussed between the junior doctor and the consultant at all stages, including before the start of a post-mortem."

And you also say that:

"Trainees are closely supervised and all reports are subject to scrutiny by the consultant neuropathologist."

I take it that, in relation to Claire, that would be Dr Mirakhur?
A. Not necessarily, no. It may have been Professor Allen. At the start -- it really depended which consultant was there at the start of the post-mortem. Either of them could have given me advice at that stage. It may have

been Dr Mirakhur, but I couldn't say for sure that it was Dr Mirakhur.

Q. Can you recall whether you did have those sorts of discussions with a consultant before the start of Claire's autopsy?

A. I don't remember anything on the day of Claire's autopsy. My evidence would be that that is what we did for post-mortems.

Q. And what is it that you are supposed to be doing in those discussions, what are you hoping to learn or to receive guidance on?

A. I can answer that in two ways. One is by stating my own practice now, which would have reflected the practice then.

When a post-mortem comes into the department, a less experienced junior member of staff will be on a rota, for instance, and I will be aware of the case, he or she will be aware of the case, we'll discuss what needs to be done during the case before it starts and what actions to take in relation to the case with me, the consultant now. So in those days, what we got was probably notification that there was going to be a post-mortem, a clinical history related to the post-mortem, and we would have discussed what needed to be done in relation to the post-mortem and had been sent

in relation to the history that was provided.

Q. Ideally, would you have the charts?

A. Ideally, you would have the charts, but you don't always have the charts.

Q. No. It would appear from this autopsy request form that the charts were sent. If that should be the case -- and I appreciate you say you can't actually remember that day -- but if that's the case that the charts come with the autopsy request form and you, as the junior doctor or pathologist on the rota are going to be the person doing the work and so you're going to be discussing with the consultant, what is it you're trying to brief yourself on, if I can put it that way, so that you can have a meaningful discussion with your consultant?

A. We rely very heavily on the clinical summary that is given to us, and that has been provided to the inquiry. And there are several reasons for this. The autopsy or any autopsy that we do is part of one of the things that a neuropathologist does in a day. You can see from my CV, maybe on a further page, that we don't just do an autopsy on a day, we report on surgical biopsies, we do research and teaching, we do a vast number of things. Sometimes I report four PMs in one day, usually four in a week, 200 in a year. So that is -- it has to be appreciated what else is going on in the department when

you're trying to plan a PM.

So the other thing that I would say -- I mean, the inquiry has gone through the notes and has had several years with a number of international experts to spend a lot of time going through the notes to dissect them, and I'm not convinced that two experts have said the same things when they've gone through the notes, completely the same things. So we have to get a flavour of what is required in the PM from the anatomical summary, so we are very reliant on that.

If the notes are there and we can have a chance to have a good read of them, that helps, but I think you have to appreciate the time factors that are involved in making decisions, in performing a post-mortem in an appropriate time frame.

Q. We do, and we'll come back to that point and the detail of it. I'm trying to get an overview at the moment.

A. I think my answer to your question is we rely very heavily on the anatomical summary in order to plan the day's work.

THE CHAIRMAN: Because you have to?

A. Because we have to, yes.

MS ANYADIKE-DANES: Can I ask you then about the accreditation of the neuropathological service? You say that was accredited in February 1996. With whom is the

service accredited and what does that mean?

A. I was only a trainee at the time or a registrar, and I wouldn't have known too much about the ins and outs of accreditation. Laboratories, I think, started to become accredited in the 1990s by a group or an organisation called CPA, Clinical Pathological Accreditation, I think. They went round different laboratories to make sure that they had a structure that could provide a service, and I think that is the background to that.

Q. And what are the ongoing requirements in terms of accreditation?

A. There are thousands. Absolutely thousands.

Q. Let me give you an example. That was a bit of an open question. For example, do you have to carry out audits?

A. Yes.

Q. And what does that mean exactly?

A. I don't know what it meant in 1996. I don't know if audit was part of the CPA regulations in 1996, but it certainly is part of the regulations in 2012 and we've just passed a CPA regulation. Audits are a number of -- can combine any process that goes on in a laboratory where you look at a process, you see if you can make it better, you look at it the following year to see if you have made it better and you continue with that. It can be anything from reporting a biopsy --

Q. And who's responsible for that process? You're now head so you'll have some -- even though you wouldn't obviously have had that position in 1996 and things may have changed. But who is responsible for that?

A. For audit? That's actually a difficult question. First, I'm not sure that audit was part of CPA regulation in 1996. Secondly, audit was only becoming a factor in medicine in the mid-90s. Audit and governance were only emerging as factors, and the reason I remember that is my consultant interview in 1998 -- the papers were just starting to be published as far as I was aware. I may be wrong within a few years. So I don't think audit was really fashionable until the mid or late 1990s.

Who is responsible for audit? The hospital has audit coordinators that aren't necessarily attached to a department; they're attached to a trust or a hospital now.

Q. But presumably the department provides the statistics which will then be part of what forms the material that the --

A. I certainly personally do a lot of audits of my work and I think we all do.

Q. And in terms of the work you were doing for audit and autopsy, even in 1996, that was subject to guidance,

wasn't it?

A. Well, as I say, I don't know what work was done towards audit. But everything that I did towards autopsy was -- yeah, guided.

Q. For example, in 1991, a joint working party produced a document called "Autopsy and audit", and the reference for that is 236-007-064. Were you aware of that?

A. Yes. I have seen the document.

Q. You were aware of that in 1996?

A. I don't know if I was aware of it in 1996. I certainly have been aware of it at some stage in my career.

Q. One of the things it says that may be relevant to the investigation -- and it says that at 236-008-057. I'm not quite sure whether that's an incorrect ... I think that must be incorrect. We'll find it in a minute, I'll read what it says and we'll find the correct reference:

"Where cases are difficult or complex, it is wise for the requesting consultant to discuss the problem with the pathologist prior to the autopsy and not merely rely on a written request."

Would you accept that?

A. That is commonly done, yes. It's very commonly done.

Q. Would you have thought that Claire's case fell into that category, where it would have been a good case for the requesting consultant to have discussed with the

pathologists?

A. The requesting consultant may well have.

Q. I'm not saying they haven't. Would you have thought that Claire's case was the kind of case where that would have been helpful?

A. Yes.

Q. Thank you. Then there's the 1993 guidelines produced by the Royal College for post-mortem reports. The reference for that is 236-007-054. Were you aware of those?

A. Yes.

Q. In 1996?

A. I was aware of -- I certainly have been aware. I don't know when I became aware of it, but I think I was aware of it in 1996.

Q. There are some references in that that bear on the work done in Claire's case or her report. The first is at paragraph 2(a). 236-007-056:

"It is the pathologist's responsibility to be satisfied that a full account has been obtained."

So I can understand what you have said that, for many reasons, you have relied to a large extent on the summary that's provided to you in the autopsy request form. But it remains the pathologist's responsibility, doesn't it, to satisfy themselves that they do actually

have a full account of the relevant clinical details?
A. Yes, and in Claire's case we did that. Maybe this will come up in evidence. And I think one of the problems with looking at a single document like this -- some of your experts have not addressed how we deal with clinical information with post-mortems and how we've always dealt with clinical information with post-mortems. It may come up later, but once the post-mortem is complete or approaching completion, we meet with all the clinicians who have been involved in the case and they present the clinical history to all of us along with the pathology, the radiology, and further laboratory results at a combined meeting. And I'm convinced that was done in Claire's case.
Q. But that's after the event. This is ensuring that before you get started, in a way, that you have a full appreciation of relevant clinical details because it may be -- just may be -- that that will inform how you approach the autopsy and if you don't do it until after the event, the autopsy, to a certain extent, can be a destructive mechanism so you may have lost or no longer be able to retrieve evidence if you had known that that was a relevant thing to be preserving or looking for at the time.
A. I'll go back to my point that we have very strict

limitations on what we can do in a day. There was a good clinical history in Claire's that gave us an overview of the case. It gave us a direction where we could go. It was discussed with a consultant who was happy for the post-mortem to proceed along the lines it proceeded along.

Q. So you know it was discussed?

A. It would be routine for the case to be discussed. I see no reason why it would have been exceptional.

Q. Sorry, I asked you that because I thought earlier in your evidence you were saying that you didn't know whether there were discussions. But what you're saying is that that would have been typical for it to happen?

THE CHAIRMAN: Yes, and there's no reason for the doctor to think that anything different happened in Claire's case than happened in other cases.

MS ANYADIKE-DANES: Is that a discussion that's likely to be with you or would it have been with a consultant?

A. Probably with the consultant, yes.

Q. When you say that you had a good clinical history, is that because you either, at the time or after the event, compared it with the actual clinical notes to reach that view?

A. No, the clinical history that was provided was better than a lot that have been provided in other cases.

Q. But in terms of how it related to what had actually happened during her admission, do you know it's good because you have looked at the notes and have compared it?
A. No, it was good because it gave the pathologist enough information on how to proceed with the post-mortem.
Q. I suppose it's a difference between whether you have accuracy or detail. The two things don't necessarily have to be the same. And the accuracy is what's important for you, is it not?
A. I don't really understand the question.
Q. You could have details, but they may not be accurate or accurately reflect what is in the clinical records.
A. Well, I think we're getting a history from a consultant and an experienced consultant who knew the patient and who knew the history. So a pathologist is going to have no reason whatsoever to disbelieve that that -- to believe that it's anything other than accurate.
Q. You see, that might be part of the problem because the consultant who is providing it didn't actually seem to know the patient, in fact, and, until the patient's terminal collapse, had never actually seen the patient or written anything in the patient's notes or seen the notes. Would that make a difference to how you would receive or consider necessarily the accuracy of the

summary?

A. I have to go back to the point of what actually is the pragmatic approach to performing post-mortems in a day.

Q. I understand.

Then in paragraph 6, which is at 236-007-057, it refers to the fact that:

"A list of the major pathological lesions present ... and it is desirable to code these for future retrieval."

And SNOMED is one of them. That's the one you used; isn't that right?

A. We did use SNOMED codes in 1996.

Q. You're aware of the need to do that. And what is the purpose of that in your department?

A. I don't really regard SNOMED codes as very useful personally. Some people do, some people don't. SNOMED codes are a way of -- if you're doing a research project or if you're looking for -- say you want to do a research project on a type of brain tumour so you want to look for all those brain tumours, you can enter a SNOMED code into the computer and it will retrieve that data for you. On a day-to-day basis, it's actually of very little use in a pathology report. Most pathology reports who have SNOMED codes -- in fact we've taken them off our reports in general. They are not

even printed with the documents in the majority of our cases because they're of no practical use on a day-to-day basis.

Q. But in terms of how the report is retained, if I can put it that way, do you retain a version of the report with the codes?

A. Not now, no. I don't find it useful.

Q. If you wanted to or if somebody asked you the incidence of a particular condition -- I'm not saying necessarily the SNOMED code, any particular code -- would that not assist in retrieving that and seeing what the incidences of that condition might be?

A. It would. It would for a research project, yes.

Q. And that might be relevant?

A. To what, a research project?

Q. Not just a research project. If somebody was concerned to see the extent to which one had a particular condition that is now addressed, being addressed successfully by guidelines or not --

A. I am not saying it's not useful. And it is useful if you want to retrieve data, it is. But for an individual report, it's not particularly useful. We do still have SNOMED and I use SNOMED codes because I do a lot of brain tumour research. That's all I can say about the SNOMEDs.

Q. Okay. Then at 7(a), which is also on this page, it talks about that:

"A commentary should be written in the light of all the information available."

This is the commentary in the report because that's essentially what these guidelines are dealing with. When it says "all the information available", do you take that to mean also the clinical record?

A. I'm not -- I don't really understand the question.

Q. "A commentary should be written in the light of all the information available."

Do you understand that to also involve all the information being all of that that is also in the clinical notes and records?

A. I think the way the -- no, not necessarily, is the answer to that.

Q. Okay. What is the information you think that that is driving at?

A. Any results that have become available in conjunction with whatever history has been provided.

Q. So if we look at (b), which is the reconciliation, does that mean that what you interpret as the reconciliation to be a reconciliation between your results and the summary on the autopsy request form?

A. The document refers to "reconciled as far --

Q. I'm asking how --
A. I think that's what that refers to, yes.
Q. That's how you interpret that?
A. That's how I interpret that, yes.
Q. And then if we look at page 6, which is at 007-058, at (c), you see:

"Audit the time taken for reports to be issued and delivered."

So this is the 1993 guidance. You may have said that you weren't aware of it, but can you now recall whether that is something that was being done in the department in 1996?
A. It certainly is done regularly. Whether it was done in 1996, I don't know. I do it on a yearly basis now. I'm not sure it was done then.
Q. When you say that you're aware of one or other of these guidelines, is that because that's your own research, that's your own attempt to keep yourself abreast of things, or is that because your department was ensuring that guidance was brought to the attention of the pathologists?
A. I was aware of guidelines because they would be published and I would read them. 16 years on, I certainly don't remember when I was aware of each set of guidelines. There are probably hundreds of sets of

guidelines that relate to pathology, and I think it is very important to remember that they are guidelines. What is very important also to remember is that local practice is sometimes more important for some cases than guidelines. I think it's important also to remember that particularly -- Professor Allen, at the time in 1996, was or had just been or was to become the Vice President of the Royal College of Pathologists and the president of the British Neuropathological Society. So she was the person in the department who would be in charge of implementing any guidelines, but also she was most probably the most experienced neuropathologist in the country and would be applying her own local rules to all of these as well, based on her experience, which of course is a very important thing to consider.

Q. No, Dr Herron. I was approaching it from a slightly different way. What I was trying to find out was the mechanism of disseminating the guidance, whether that was something that individual pathologists did as part of keeping themselves up-to-date with their own discipline or whether that was something that the department itself took on board and disseminated such guidance as it wanted to operate --

A. I think both of those are true.

Q. Thank you. Then there's the service specification for

paediatric and perinatal histopathology. That's 1995. We can pull that up. 314-017-001. Were you aware of that?

A. I don't think so.

Q. That refers at page 5, which is to be found at 007, to audit. It says:

"Service specification should stipulate participation in audit, including that of turnaround times."

And then it goes on to discuss audit more generally. But you weren't aware of that?

A. That would not have been a document I'd have been particularly interested in, given it didn't relate --

Q. Didn't impact on what you were doing?

A. -- to my specialty, no.

Q. I understand.

Then more recently and after the time when you were carrying out the autopsy on Claire's case, there's "Guidelines on autopsy practice (2002)". The reference for that is 314-008-062. And although that post-dates her autopsy, some of what it says is presented as simply providing what was good practice and what should have been happening.

If we go to paragraph A8.2. It's to be found at 090. I think there's a different ... There you have it

anyway. I seem to have a different version. Can we go to section 8? At A8.2, you can see:

"Death from epilepsy. These deaths [sic] are almost always performed for a coroner."

Then at A8.2.2.b:

"Status epilepticus. This must be clinically documented. Status epilepticus is a specific clinical entity and cannot be assumed from a post-mortem examination in the absence of good clinical documentation."

Status epilepticus was one of the very things that was identified on the autopsy request form.

A. Yes. That's -- as far as I remember, yes.

Q. Were you aware of the fact that status epilepticus is something that has to be clinically documented, you can't just assume it?

A. This is a 2002 paper, isn't that right?

Q. Yes, I've accepted that.

A. No, and I don't really understand if it was written in the clinical summary -- I'm not sure ... I'll answer your point if I understand it better, but I don't know that I do.

Q. Were you aware how status epilepticus is to be established in 1996?

A. That's a clinical question. No, I don't know.

Q. You wouldn't know that?
A. No, I wouldn't know that.
Q. So you wouldn't have appreciated that that's something you require an EEG for to confirm?
A. No, that's a clinical question. It's outside my specialty.
Q. I understand. If we then go to the autopsy request form, which is at 302-070b-009. Can we pull up the next page as well? It's a two-page document. What in there do you think has provided you with a good history so that you understand what had happened during the course of Claire's last admission?
A. There is a clinical history. She was well until shortly after admission. It tells us about her cousin, it tells us Claire had loose stools and some vomiting. It does give a neurological history, it gives some of her medication, it tells us about her sodium. It suggests her inappropriate ADH secretion or respiratory arrest and that she died. It also lists the clinical importance -- the clinical problems that we were to investigate with the autopsy: cerebral oedema, status epilepticus, inappropriate ADH secretion, and viral encephalitis. That is a lot better than we have received in other cases, I must say.
Q. From what you said before, do I take it that you simply

accept what is written there in the history of the present illness as accurate?

A. Yes, I do.

Q. It says under the investigations that the charts were provided. In fact, Dr Steen's evidence was that the medical notes and records, the most recent ones, went with this.

A. I have no way of knowing if that's the case.

Q. And given that the guidance says that one should look at them, if you can, and the responsibility is yours within the time available to you, presumably, to make sure that you fully understand what the clinical presentation is before you start your work, if the charts are there, is there any good reason for not looking at them?

A. I've given that answer already. I would love to have the time to and the expertise to understand the charts. You have to appreciate, I'm a neuropathologist, I will not understand a lot of the issues that are on a child's chart. I concentrate on what is presented to me to lead me into my autopsy. I discuss it with my consultant and we form a plan. Some of the charts -- not Claire's ... And you said we only got the most recent ones and not all of the charts. To delay a post-mortem may significantly reduce the ability to find anything in a post-mortem. There are other reasons that you do

a post-mortem as soon as you can, especially in a child who might have an infection, but also who might have a metabolic disease, which is one of the things that we had to consider in this case. Tissue degenerates very quickly after death. To delay a post-mortem, to read the notes, to understand the notes, to get other people to understand the notes would have significantly delayed the post-mortem. So we do have to rely on this form.

Q. But in fact, Claire's notes weren't really very lengthy.

A. Well, with respect --

Q. I presume you have seen them since.

A. I've seen copies of them. They were extremely complex documents.

Q. Sorry, they're not very lengthy.

A. But they're complex.

Q. If they're complex, so that you don't feel you've entirely appreciated what's been recorded there, is that not exactly the circumstance in which you discuss matters with the clinician?

A. It may have been discussed with the clinician, I don't know that. All sets of notes are complex and I get back to the point that -- I mean, you've had many years and many experts to come to different conclusions after looking at these notes. We have to plan our day, make sure the post-mortem is done in a proper time and we are

very reliant on this in order to make our decisions.

THE CHAIRMAN: Sorry, let me intervene for a moment, doctor. This two-page document that's on the screen, you say that is a more detailed and a more helpful document, apparently, than you typically receive?

A. Certainly. I have had a lot worse than that, yes.

THE CHAIRMAN: Does it then follow that the more detailed and the more helpful that document is, the less likely you are to start going back through whatever additional notes are provided?

A. You will try your best to gather whatever information. That may mean you have time to go through the notes, it may mean that you have a conversation. I can't remember what happened in 1996. I'll just give you some other examples of what normally happens. Most post-mortems in Northern Ireland are done as coroner's forensic post-mortems. They rely -- and I think most people in the United Kingdom rely -- on a one or two-paragraph history from the coroner. I understand my forensic colleagues don't get the notes at all when performing their autopsies and that is the normal practice. We will do our best to gather information, but there is a very limited time frame in order to plan a post-mortem and that is the major constraint.

MS ANYADIKE-DANES: Yes. This, obviously -- I'm so sorry.

THE CHAIRMAN: Mr Fortune?

MR FORTUNE: Sir, just to go back to page 27 [draft], line 15, where Dr Herron said that he does not understand some entries in the charts and then he goes on to say that the charts. In particular, he refers to Claire's chart as complex or the entries within them being complex. Bearing in mind that Dr Herron is, by profession, a registered medical practitioner, can we try and establish just what he does understand or what he doesn't understand? What exactly he may look at in the charts? Because given his background, there must be more than just a simple understanding. He should know his way round the charts and, in particular, the documents that are likely to give him the best indication.

MS ANYADIKE-DANES: Well, in fairness to Dr Herron, let us maybe pull them up.

THE CHAIRMAN: Well, let's see if we can do it in a shorter form than going through all the charts.

Do you understand the gist of the question which has been posed from the floor, doctor?

A. I am a medical doctor, yes. I'm not a paediatrician, I'm not an anaesthetist, I'm not a pharmacologist. I'm a neuropathologist, I understand neuropathology.

I think there are certain rules for giving evidence

in court. The rule is that you stick to your specialty. We all know that I'm a doctor. I have never treated a child outside a very limited amount of time in a neurosurgical ward. I've never worked in a children's hospital, I've never prescribed fluids or drugs to a child. I have never done a X-ray on a child. I'm a neuropathologist.

THE CHAIRMAN: In fact, your point is that you couldn't possibly be expected to understand all the information which is in the notes in the charts because that -- for instance in this case, they come from paediatricians, they come from a paediatric neurologist, and they depend on help from each other, so even more so would you depend on that, if that's what you're going to get into?

A. Absolutely. I must stick to my specialty. That's the rules.

THE CHAIRMAN: Yes. Thank you.

MS ANYADIKE-DANES: Yes, but maybe you might help us -- I understand that general point, but you might help us a little bit with this because Claire's notes really aren't that voluminous. So if you take the four things that you're asked to look at or at least to see if you can reconcile those major problems or explain them in terms of the evidence that you find when you look at her brain and when you also look at the slides that you make

of the tissue from her brain. You are being asked to deal with cerebral oedema, status epilepticus, inappropriate ADH secretion, and a query over a viral encephalitis. And that means presumably, if you're trying to reconcile, you understand what those conditions are.

A. I understand what those ... I certainly understand what viral encephalitis and I understand what cerebral oedema is. I probably would have known a definition of status epilepticus. Inappropriate ADH secretion, I knew about, but not a lot of detail about inappropriate ADH secretion at the time.

Q. So if you're trying to reconcile your findings and provide some explanation for the presentation of that or how that might have been involved in her demise or death, then that's something, if you're not quite sure, you would discuss --

A. Yes.

Q. -- with a paediatrician?

A. At the time of the post-mortem?

Q. Yes.

A. No. Not necessarily. The autopsy was done according to the consent and, in light of these, any of those factors were taken on board in conjunction with the consent that was available to do the post-mortem.

Q. I understand, but what you're trying to do is to try and see if you can shed any light on those clinical problems. So the point that I'm putting to you is that, obviously, if you're trying to do that, you have to have some understanding of what those clinical problems are.
A. Of course.
Q. And to the extent that you weren't entirely sure as to what inappropriate ADH secretion might be, then is that precisely the thing that you -- either yourself independently or through your consultant -- would be seeking to get further information from the treating clinicians or somebody else who might be able to help?
A. Or a textbook.
Q. Yes. But whenever it is that you have finalised your work, you will have satisfied yourself one way or the other through your own information or through assistance from somebody else about those clinical problems?
A. Sorry, can you say that -- I missed the start of that. I need you to repeat the question, sorry. I lost track of it.
Q. By the time you have finalised your work and, in order to do that, you will have satisfied yourself either because you know what those conditions mean or because you have got assistance from somebody else who does?
A. What happens at the end of the post-mortem is we present

1 our findings with the clinicians and all of the team in
2 order to come to conclusions in these cases.
3 Q. No, sorry, doctor, I'm not talking about that period of
4 time. I'm talking about the time you have presented in
5 your own report as your own correlation. At that stage.
6 I understand that thereafter you meet with the
7 clinicians and you have a discussion and you have
8 a grand round or something of that sort. But you have
9 to reach your own view in your report --
10 A. That's not necessarily true. I don't think it's
11 necessarily good practice either. If you write a report
12 in isolation, you may miss a lot of the factors that
13 come to light whenever you do have what we call the
14 grand round or the CPC. Quite often I will send a
15 report out as a discussion document. These are: this is
16 what I have found for now, think about this, and we'll
17 all meet together and come to a conclusion then.
18 That is, I think, a good practice and it is what we very
19 often do in Belfast.
20 Q. Yes, and if you do that, that means presumably the
21 report that you're sending out isn't necessarily a final
22 report?
23 A. That is correct.
24 Q. Yes. And if you're going to do that, how do you
25 distinguish between the report that goes out like that

and the report that will ultimately be your final report? How do you distinguish on the report itself?

A. Um ... What I would do now is, after the combined meeting, add anything that came to light during the meeting to the report. I think that would be the way I would distinguish it now.

Q. But if somebody was going to look at the report after the event in the way that happened with Claire -- the coroner looked at the report after the event -- how would the coroner know that he was looking at what was actually your final report, which incorporates whatever may come out of those sorts of discussions, or the report that went out, which is for, as I think you put it, discussion purposes?

A. I don't think the coroner would have known. But this, I think, was a highly exceptional set of circumstances. If you're writing a coroner's report, it's done in a completely different way.

Q. No, I appreciate that.

A. What I'm saying is in this particular instance, the coroner wouldn't know, but this was a rare, atypical occurrence.

Q. Do you know whether the report we've all been looking at, which is unsigned, is the final report or the report that might have gone out for discussion purposes?

A. I think in 1996 -- I don't think a second report was done. I think that is the only report.
Q. How would you know that? That is what I'm asking you.
A. Um ...
Q. Without it having "final" on it, or without it being signed off in that way, how would you know which one you were looking at?
A. I think if there had been another report we would be able to find it in our system. I think that is the only report that has gone.
Q. There have been a number of drafts and I think your -- we'll come to that in a minute, but now that we are here. You have given evidence in your witness statements to the inquiry to say that it's -- at one stage, you said a report never left the department unsigned. And then I think latterly you said it would be highly unusual and what you think might have happened is there might have been a cover letter. In any event, the way you would be distinguishing in your mind when you provided that first explanation for us from the final report and the discussion report is that the final report would be signed and that's how you would know: this is our final report.
A. The ... What I said -- and I think it's true -- is, in my experience, a secretary would never send an unsigned

report out of the department. I think I was misinterpreting some information that I had. It was my impression that there had been a report in the patient -- in Claire's notes, but I think that may not be the case now. Maybe you could help me with that. It would help me answer the question better.

Q. Can I ask you it in a short way? Does that mean it is possible that this is not the final report?

A. No, I think this is the final report.

Q. And you know that for sure because?

A. Well, I don't know it for sure. I don't know for sure, but I don't see any reason to believe it's not the final report.

THE CHAIRMAN: So the only point of real questioning is that it would be exceptional for this final report to have gone out unsigned?

A. I don't think a secretary would do that. If you look at -- I think I can give you a reference.

THE CHAIRMAN: Please do.

A. Somewhere around 090-054-178.

THE CHAIRMAN: Is that what you're looking for?

A. No, it's the draft reports. I think it's part of this document. Sorry, 186. At the top of this:

"Doctor's copy. Complete and sent 12/2/97".

That indicates that this report was -- this is

a secretary's writing -- sent from our department -- I presume to the clinicians -- on that date, and I'm sure it would have been signed if that had been the normal procedure.

MS ANYADIKE-DANES: Sorry, is this the final report?

A. No, it's not. There's a typed copy of this, but the stuff at the top of that indicates that a report was completed and sent on 12/2/97.

THE CHAIRMAN: Then if we go on and look at that, I think that compares to 190, does it? Can you keep up 186 and give us 190 beside it? 190 then looks --

MS ANYADIKE-DANES: That has the codes in, Mr Chairman. The report that we've all been using doesn't have the SNOMED codes.

THE CHAIRMAN: What 190 does, it has typed in under "anatomical summary" what is handwritten on the left-hand version.

MS ANYADIKE-DANES: Yes.

THE CHAIRMAN: Sorry, doctor, maybe I'm misunderstanding you. Am I right in understanding that you would not expect the copy on the left to be issued in that form as the final report?

A. No, you'd only get a typed copy sent. My point was that there's an indication that a report was sent on 12/2/97 from our department and my experience is that

a secretary is highly unlikely to have sent an unsigned copy to a clinician. That's my experience.

MS ANYADIKE-DANES: Well, just if we stay with 054-186, if one goes over the page, you will see that there are other typographical changes. Then if one goes to the final page, you see a brainstem section has been included; do you see?

A. Yes.

Q. So that's not the final report. Then if you go to the report that the chairman had put to you, which is at 190, starting there, you can see that in that report, that has the SNOMED codes above the clinical summary to the right. Those codes are not present on the report that has been provided to us and which was provided to the coroner. If you go to the last page of this report, 192, you see that there are two dates there. They don't appear on the one that went to the coroner either.

So that's why I'm asking you if you're absolutely sure that the report that we have all been looking at and treating as the final report is the final report.

A. I can't be sure. There are several drafts of these and ... No, I can't be sure of that.

Q. I understand.

MR FORTUNE: Sir, can I have a bit of assistance from Dr Herron? If we look at file 90 at 090-003-003, that

is a copy of what may well be the same document as 190. Why are there two copies in the same file, said to be the Royal Group of Hospitals' papers? Is anyone able to help me? Has the Royal received two copies or is there some other significance that I've missed?

THE CHAIRMAN: Superficially, it seems to me, Mr Fortune, and Dr Herron, that what we have at 003 is the tidied up version of what we also have at 186 and 190, but without the codes.

MR FORTUNE: Is 003 a final copy or the final report, I should say?

THE CHAIRMAN: Do you know, doctor?

A. I think ... It has been quite obvious that in my evidence that the issue about retrieval of reports has caused some complications in this case. I'm not sure how the coroner got a report in 2004, whether it came from the ward, whether it came from us or who gave it to him. I've said in all of my statements that when further material was retrieved from offsite storage, further copies of reports became apparent, which indicated that I hadn't written the report. Whether those were in the more recently found documents or whether they were there at the start, I can't answer the order of when things happened.

MS ANYADIKE-DANES: I understand that.

Mr Chairman, in answer to Mr Fortune's point, it may be that there weren't two copies of the same autopsy report in the hospital's files, but we, in fact, have added it on to a letter that we got when we received the notes and records. If I can ask that we pull up 090-054-177. That is a cover letter that we got from the DLS providing a number of things, including, I believe -- and we can just pull alongside it the first page, 090-054-190. So you see that's in the same series. So that particular report may be referenced in that way because that's how it came to us. And I think the one that's in the Royal's files is the 090-003-003.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: I think that might be the explanation for that, but it doesn't take us any further as to whether it's the final one.

THE CHAIRMAN: Let's move on.

MS ANYADIKE-DANES: Yes. I wasn't actually going to deal with signing in that way, but in any event we have done it now.

Can I just ask you about a point that Mr Fortune was asking you about, which is your experience? I think you said in your fourth witness statement -- I think it is 224/4 at page 8. You refer there to having often

treated hyponatraemia as a junior doctor before 1996.

A. Mm.

Q. So in terms of one of the things that you had to look at, you did have some clinical experience of that.

A. In 1987 and 1988 I was a house officer and quite often patients would come in with hyponatraemia, mostly related to diuretic therapy and minor things like that. Nothing to the degree of Claire, but hyponatraemia's an extremely -- as you know from the paper by Arieff, it's an extremely common condition and I had treated patients with very mild hyponatraemia.

Q. Yes, but you were aware of the condition; that is the point I was putting to you.

A. I think every doctor is aware of the condition of hyponatraemia. They know what the word means, yes.

Q. Let's pull up 090-022-056. This is a note made by the senior house officer on the evening of the 22nd, which is the evening before her collapse. Do you see there the middle bit:

"Hyponatraemia. Query fluid overload and low-sodium fluids."

And another query is "SIADH".

If you'd looked at the notes and records, that wouldn't have stumped you, would it, as to what that means?

A. No, I would have understood that.
Q. So you would have understood that? So there's nothing complex there in terms of understanding what it means. And if you had read that and you had looked back at your autopsy request form, you would have been able to see that all that's being specifically identified as the problem under the list of clinical problems is inappropriate ADH secretion, which is actually the second way in which that hyponatraemia might have arisen as is recorded on that note, and not the possibility that it arose in the first way, which is through fluid overload and low-sodium fluid. Although, if you'd been -- perhaps if some sort of detailed consideration, maybe in conjunction with a discussion ... Can we pull up 090-054-183? There you can see that the serum sodium dropped to 121 at 2330 hours on the 22nd. And there's your query of inappropriate ADH secretion. Just below that, "fluids restricted".

So if you'd looked at the notes, you might have had, as an alternative reason for the development of the low sodium, fluid overload?
A. Yes, I agree with your point, but I still make my point that we do rely -- the case as presented to us gave us a reason for a low sodium in the history. That was in the clinical history provided. She had a "query history

of encephalitis", which is known to cause inappropriate ADH secretion, and I knew that. She had a low sodium. That would be consistent with or may be consistent with inappropriate ADH secretion. And the sequence made sense in her clinical history that that is a sequence that is possible and plausible.

I don't know anything about fluid management, but I would suspect if there was a low sodium, then the fluid restriction would be as a treatment of the low sodium and not because it was considered a cause of it in that statement.

Q. Yes, but if you are trying to investigate -- because this was not a coroner's autopsy that you were carrying out, this was an autopsy carried out for teaching and learning purposes.

A. It was ...

Q. Sorry, that's the evidence that we heard from Dr Steen.

A. I would have considered it possibly more for diagnostic purposes, but ...

Q. But it has a benefit of teaching and learning?

A. All autopsies do eventually, yes.

Q. So if there is a query as to the inappropriate ADH, that means it might have been that way. The alternative is the hyponatraemia might have been caused in a different way and part of what you have to look at if you're

addressing those problems is what else might there be. We know that she was hyponatraemic because that's what the 121 tells us. I know that the fluids were restricted. Is it too much of a query to say, "I wonder if they were restricted because there was concern that she was fluid overloaded", which would be another way of getting hyponatraemia.

A. That's not the way I read that. I read that -- in fact, she had two possible causes for inappropriate ADH secretion. She may have seizures -- she had three possible causes for hyponatraemia already on that form: one was vomiting and diarrhoea; two was seizures; three was possible encephalitis. So I already had three reasons to explain the sodium.

If that was presented to me, a child coming in with a sodium of 121, who had been given fluids, I certainly would have made a bigger fuss about finding out why that was the case. I haven't read the information recently, but that is I think how I approached Raychel Ferguson's case. There was a low sodium indicated on the clinical request form and I didn't feel there was any explanation as to how that happened. And I instigated a full forensic investigation on the basis of that with Raychel.

There were three reasons already to have

hyponatraemia as it was presented to me in Claire's case.

Q. So what you're identifying for us is how critically important it is that the requesting clinician gets these details accurate because -- correct me if I've interpreted your evidence incorrectly -- you have only a limited amount of time to check the details there in the medical notes and records and you are quite reliant on this being accurate because this is going to steer to some extent your line of investigation? Would that be a fair summary?

A. I think that's what I've said all morning, yes.

THE CHAIRMAN: I then asked you, doctor -- and I thought you didn't agree we me -- that since this appeared to you to be a better and more detailed summary than you normally get, that would again be a factor that steered you away from going through the notes and records in any great detail.

A. No, you would love to have the time to go through the records in every case.

THE CHAIRMAN: But you don't?

A. You just don't.

THE CHAIRMAN: And you're even less likely to create that time if you have what you regard as a summary which is fuller and more detailed than usual?

A. This was a coherent story to me. It made sense.
MS ANYADIKE-DANES: This was a narrative that made sense to you?
A. Yes.
Q. The pressures under which your department was working and you would have been working at that time in 1996 and therefore the limited time that was available to you to be, if you like, cross-checking the information that's given to you, if I can put it that way, is that something that's likely to be known by the requesting clinicians?
A. It's very hard for me to know what a clinician knows.
Q. But you discuss with requesting clinicians. Presumably you make it known how important it is that you want to have as decent a history of presenting illness as possible?
A. Of course we want as good a history as possible, yes.
Q. What I'm putting to you is that, so far as you're aware, is it something that experienced clinicians are likely to know that you are relying on them to get these details correct?
A. Um ... I -- yes, I'm sure they do their best to provide the information. I've never been on the other side. I would imagine that they have similar time constraints in providing information for an autopsy as we have in

reading it.

Q. I appreciate that. That wasn't the quite the question I put to you.

THE CHAIRMAN: I've got the point.

MS ANYADIKE-DANES: But I think the chairman has it.

Do you now know from your involvement with the inquiry and its investigation that there are errors in this autopsy request form?

A. Um ...

Q. Let me help you. Let's pull up both parts of the form -- and if we have the next page as well.

THE CHAIRMAN: Sorry, just before you do that.

Doctor, you very helpfully referred to the difference between Claire's case and Raychel's case. Obviously, we're going to come to Raychel's case next year. But the fundamental distinction you were drawing is that, in Claire's case, you were given a list of four clinical problems which focused you and gave you a steer on what it was that was believed or suspected to have caused Claire's death.

A. Yes.

THE CHAIRMAN: In Raychel's case, such a list was absent, and that led you, in Raychel's case, to investigate further; is that right?

A. I haven't read Raychel's statements for a long time, but

I remember at the time there was a clinical history --

THE CHAIRMAN: Yes.

A. -- and now the -- please don't --

THE CHAIRMAN: I'm not --

A. My memory is Raychel came in for an appendicectomy and died.

THE CHAIRMAN: Yes.

A. As far as I remember from the clinical summary, it did mention a sodium of, I think, 130, something like that. But there was nothing in her history that would cause a low sodium. So there was no coherent reason for Raychel to be hyponatraemic. If that had come to me as a medical post-mortem or a limited post-mortem, I would have immediately had -- I was a consultant then. I would have immediately referred it to the coroner in Raychel's case because it didn't make sense. In Claire's case it did make sense.

THE CHAIRMAN: In Claire's case it did seem to make sense. In Raychel's case, in your words, you instigated a full forensic investigation, and that's in contrast with what you did in this case because you were given explanations?

A. Yes. There were three explanations for hyponatraemia in Claire's case already.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: If you hadn't had quite such a clear steer, if I can put it that way, might you have had to do more investigation yourself?

A. If there wasn't a coherent story, you would take it further, yes. Of course you would.

Q. Thank you. Just to point out some of these things because I'm not sure you were entirely clear when I asked if you were aware of the fact there were factual inaccuracies in the autopsy request form.

The date of the admission to the hospital is incorrect. It's 22 October, when she entered on the 21st as you now know. Then the history of the illness. Do you see there it says that:

"She had been well until 72 hours before admission." Which gives the impression that for some time over those 72 hours she had been unwell. That is incorrect.

A. Okay.

Q. Then that she started to vomit, she had a few loose stools and then, 24 hours prior to admission, started to vomit. She didn't start to vomit 24 hours prior to admission.

Can we enlarge the history of presenting illness a little bit? She had a few loose stools. Well, it says her cousin had vomiting and diarrhoea and she had a few loose stools. Can I ask you how you interpreted

that in conjunction with the information about the cousin? How did you interpret that information about Claire?

A. It looked like she had some kind of gastrointestinal condition.

Q. Did you have the impression that she had diarrhoea as well? I'm asking you the impression you got from reading that.

A. Yes, I think I would have gone down that line, yes.

Q. Yes, because that's actually something that was specifically excluded in her medical notes. She didn't have diarrhoea; she had a loose stool, but not immediately proximate to her admission to hospital. Then if, you see:

"Brainstem death criteria fulfilled at 0600 hours and 1815 hours."

The "18.15" is incorrect. And if you look at the seizures, "seizures from six months to four years", that also seems to be incorrect.

If you had not had such a clear picture of what seemed to you like a gastrointestinal problem, would that have caused you to do a little bit more investigation?

A. Well, if there was no clue as to why she was hyponatraemic, I would have -- I've said that before,

I would have looked for a different reason, yes. But there were clues. I mean, if she had just had the vomiting -- if her cousin had had vomiting and diarrhoea and Claire just had vomiting, I would have still thought that she had a gastrointestinal infection.

Q. And what if you appreciated that she hadn't actually been vomiting for the length of time that's put there?

A. I still think that would point towards a gastrointestinal infection. Exposure to someone who seemed to have an infection and vomiting would point in that direction, I think, yes.

Q. I understand. Can we then go to the neuropathology day book?

Mr Chairman, I've just seen the time.

THE CHAIRMAN: We'll break until 11.40.

(11.30 am)

(A short break)

(11.45 am)

MS ANYADIKE-DANES: Just a few things arising out of your previous evidence, doctor. Some clarification is sought about your knowledge of hyponatraemia in 1996. You said that you would have treated children.

A. I said I treated patients. I never treated children.

Q. I beg your pardon. Did you know that there's a form of hyponatraemia known as dilutional hyponatraemia that you

can get from the administration of too much low-sodium fluid?

A. I would have known that.

Q. You would have known that?

A. I think so, yes.

Q. And did you know that unchecked and untreated, the end result of dilutional hyponatraemia can be cerebral oedema?

A. I'm not sure what I knew at the time.

Q. What did you think would happen if you carried on not treating the administration of low-sodium fluids?

A. I honestly don't know what I would have known in 1996. I suppose hyponatraemia, severe hyponatraemia, may cause cardiac disease, pulmonary disease. I'm not sure if I knew how much it was related to cerebral oedema. I may have known. I can't remember 16 years ago.

Q. I appreciate that trying to figure anything back 16 years ago is not an easy task. I appreciate that. But if one thinks simply in terms of the physiology of the things. If you have a child -- or anybody, for that matter -- to whom you're administering continuing amounts of low-sodium fluid, the sheer process of osmosis will mean that there is swelling in the body; is that not right?

A. That is outside my specialty.

Q. You wouldn't know that?
A. I wouldn't be able to make that leap, no. I think it's more complicated than that. I'm a neuropathologist. I know now that hyponatraemia is associated with cerebral oedema. I don't really know if I could talk about the intricacies of dilutional hyponatraemia in a court like this.
Q. I wasn't actually asking you to talk about the intricacies of it, just the basic pattern of it. Did you know that hyponatraemia could be a serious condition that needed to be treated?
A. I suppose it depends on the level of hyponatraemia.
Q. Yes.
A. My knowledge of hyponatraemia, I think, would be reflected in Professor Harding's report, that hyponatraemia -- the brain disease that I associated with hyponatraemia and which he specifically mentions, for the same reasons that I would have thought of it -- and I think Dr Squier mentions it in her report as well -- is a condition called myelinolysis. That is what a neuropathologist would associate with hyponatraemia, and particularly -- it may be wrong now -- the rapid treatment of hyponatraemia is associated with a brain disease and certainly that is something that I would have been thinking of rather than

cerebral oedema.

Q. As a pathologist. Before you became a pathologist, you were a qualified physician, were you not?

A. Qualified doctor.

Q. And you'd have gone through the rotations as a senior house officer?

A. No, a junior house officer.

Q. You'd have gone through rotations.

A. Yes.

Q. When we asked you in your inquiry witness statement requests for your knowledge of hyponatraemia -- we can pull that up. It's in your first one, 224/1, page 13. It's in answer to question 24:

"Describe in detail the education and training you received in fluid management (in particular hyponatraemia)."

And you give your training or education at undergraduate level. You'd have been taught about it and you refer to the curriculum at Queen's:

"Postgraduate level. I passed a Royal College of Pathologists postgraduate exam in chemical pathology in 1990."

Leaving aside the paediatric aspect of it, you were treating hyponatraemia, although not as severe as this, in 1996.

A. No, in 1987.
Q. 1987, sorry. So if you were doing that, you must know why you're treating it in terms of what the effects of it can be if you don't treat it.
A. Well, first of all, in 1987 most of the patients were probably borderline hyponatraemic and the only treatment was to stop the tablet that was causing their hyponatraemia. Really, what a neuropathologist associates with hyponatraemia is this condition called central pontine myelinolysis, and really that was probably the only major association and I think Dr Squier and Dr Harding give their evidence along that line as well.
Q. That's a different point. The point that I'm pressing you on a little bit is dilutional hyponatraemia and what I am pressing you about is whether in the course of the training and education that you have described, and qualifying as a doctor as you did, whether you were not aware therefore that there is a condition called dilutional hyponatraemia, which, if unchecked, can lead to cerebral oedema.
A. I probably didn't know that it caused cerebral oedema. I would have associated it more, I think, with pulmonary oedema. Fluid overload in surgical patients tends to increase your fluid on the lungs, not on the brain, as

far as I know. But it was several years previous to my experience with Claire. It is something that is taught -- this issue about fluid management really was to make sure you didn't give enough ... People with heart failure, people with cardiac conditions that couldn't deal with fluid. Fluid management was so as you wouldn't overload their lungs and their heart with fluid. The brain never really came into the discussions very much as far as I remember.

Q. When Dr Armour gave her evidence, she said that she was well aware of dilutional hyponatraemia in that respect. What she wasn't aware of is that it could happen in the way that it happened with Adam, which is in a relatively short space of time during the course of surgery, and that's what led her to publish that paper. But she -- and she was a registrar herself in 1995 and for that matter 1996 -- was aware of dilutional hyponatraemia and the fact that it could lead to cerebral oedema.

A. I can't say I wasn't aware of it, but it certainly wouldn't have been top of my mind, and I am a neuropathologist, so really hyponatraemia means something else to a neuropathologist in most circumstances.

Q. And just so that we finalise the point I was asked to clarify with you, which is if you had been reading

Claire's medical notes and records, are you saying therefore that when you got to that page, 090-022-056, which I have pulled up before, which is Dr Stewart's entry, you wouldn't, or would you, have appreciated that link in the first line?:

"Hyponatraemia. Query if that arose from fluid overload and low-sodium fluids."

A. I would have recognised that as a cause of hyponatraemia, yes. I get back to the point about the -- I would love to be able to have the time to read and understand hospital notes before a post-mortem, but pragmatically it's not possible.

Q. No. I quite understand, but you have put forward two different reasons. One is pressure of time to do it and I think everybody can understand that. You're not alone on the pressure of time point. The second is whether, if you had read it or read the notes, you would have actually understood them. And your second point seemed to me earlier when you were giving your evidence is that her notes were complex and you wouldn't have understood them. And I have been trying to ascertain what it is you wouldn't have understood. You have quite a distinguished educational record, medically, if I can put it that way.

A. If I had read that, I can understand the fluid overload

causes hyponatraemia, yes, I understand that. And I can understand how fluid overload would cause hyponatraemia, yes.

Q. So what Dr Stewart is querying is whether Claire's hyponatraemia of 121 actually arose because she was fluid overloaded. That's what he's querying. If you leave aside the second line; the second line is a different route. That first line is querying if she could have got to a serum sodium level of 121 because she was overloaded with low-sodium fluids. I think you have just said you would have understood that.

A. I would have understood that, yes.

Q. So if you'd seen that, is that not the very thing that you might have raised with the clinicians as: where does this take us? I'm not sure that I fully understand the mechanism of that, but this is a paediatric clinician suggesting that that's how she's got to 121, that's a very serious hyponatraemic level, can we discuss what the implications of that might be?

A. Well, I think that's fair. I think we did say that on the clinical history, as was provided, there were three causes of hyponatraemia. As far as I'm aware, that is the only entry that points towards the fluids --

Q. Yes.

A. -- as a cause of hyponatraemia. So to find that in --

you say it's a short amount of notes, but they are still quite complex -- would be maybe not as easy to do before a post-mortem. Also, it wasn't mentioned in the clinical history. You would think that if it was seriously considered that it would be offered to the pathologist as something to consider.

Q. But one of the reasons why you're being asked to do an autopsy at all is because the clinicians don't really know. There are some differential diagnoses that they have, but they don't seem to actually know how it is that Claire has died. They have got some routes to it, to her cerebral oedema --

THE CHAIRMAN: That's the point. The point that you made earlier was that the main focus of this autopsy is diagnostic. It's not learning and it's not teaching, it's diagnostic.

A. Yes.

THE CHAIRMAN: Because you can't learn and you can't teach unless you get a reliable, accurate autopsy report, which diagnoses what went wrong. That then becomes the learning point, doesn't it?

A. We all learn from autopsy, but going back --

THE CHAIRMAN: Sorry, the reason why you learn from autopsy is because you get a result from the autopsy, most of the time, which identifies what went wrong.

A. Yes, which is the value of how we deal with our autopsy material in Belfast.

THE CHAIRMAN: That's exactly the point, doctor.

A. Yes. With a combined meeting. On the clinical request form, the issues that were raised in order of clinical importance -- there were four issues, all of which could have caused her presentation and her death. That was plenty to be going on with to a neuropathologist starting a post-mortem.

MS ANYADIKE-DANES: Very well. The other thing I was asked to ask you about is how it was, when you were answering me, you read the information on the autopsy request form as if Claire did herself had diarrhoea. You did that, if I remember correctly, with an association between, I think it was a few loose stools and the fact that the cousin had diarrhoea.

A. And that Claire had vomiting.

Q. And that she had vomiting.

A. I think the vomiting is very important.

Q. Yes, but it's how you got to the diarrhoea point. You read that as if Claire herself had diarrhoea.

A. I don't think that's the way the question was asked. I think it was asked, "Would it suggest to you that".

Q. Yes, sorry. And you said it would have suggested that to you, I thought. I may be wrong.

A. It would have suggested to me that she had a gastrointestinal infection. The loose stools is not -- she had no lower intestinal symptoms. She did, from the history, have lower intestinal symptoms. She had a number of loose stools --

Q. But she didn't have a number of loose stools, other than is recorded on this.

A. As I read. Was I not asked as I read the history?

Q. Yes, exactly.

A. And as I read the history, that information was there.

Q. Which is why I tried to develop it with you a little further. If that was incorrect, if she hadn't got loose stools and in fact the association with her cousin is something that happened, but is not causally related, let's say, necessarily to her presentation -- if that connection had been taken away from you and all you had was a child who had vomited a few times before she was taken to hospital on the Monday early evening, if that's what you had then you might have to, might you not, think more broadly as to whether there is a gastrointestinal infection? A child can vomit for any number of reasons.

A. Yes, but I think that is not the way the question was asked. The question was asked first of all with the cousin being in the picture.

Q. Yes.
A. If Claire just had vomiting, of course of the whole differential widens. Yes, it does widen. But as presented, her cousin had diarrhoea and vomiting, Claire had vomiting three days later. That's a common association and I think that's the way the question was asked.
Q. Exactly, that's why I'm putting is that way. So if some of that is factually incorrect, the point I'm getting at is that it influences the way you approach your investigation.
A. Yes.
Q. Thank you. One other omission from it, which I omitted to raise with you, is although it talks about the medication that she was treated with. She was treated with, it says IV phenytoin and IV valproate, and then it talks about the acyclovir and the cefotaxime that is given; it doesn't mention midazolam. In fact, it doesn't say anything about the quantity or the amount or the dose or anything of that sort on that anticonvulsant medication. It now appears that Claire received an overdose both of the phenytoin and the midazolam. In fact, quite a significant overdose. If you had known that, would that have raised any queries for you?
A. If I had been aware that Claire had an overdose of any

medications then I wouldn't have performed the brain-only consented post-mortem. I would have taken advice. Like Raychel, if there's something that points you in a direction away from a usual hospital consented post-mortem, then you wouldn't do it. There was nothing in what was presented to me that led me down that direction. If someone says to me, "I think Claire or another patient might have had too much medication", then that is immediately a referral to the coroner.

Q. Thank you. So if you had been told that she had received an overdose of phenytoin and an overdose of midazolam, you would not have been happy to have carried on with a consent-only autopsy?

A. I would have passed it to my consultant, but I'm sure they wouldn't have taken it ...

THE CHAIRMAN: Is that who you meant when you said you would have taken advice?

A. A registrar in neuropathology is not going to refer to the coroner. You pass it up to your consultants.

THE CHAIRMAN: The people you would have gone to for advice were, what, Dr Mirakhur and Professor Allen?

A. And I'm sure they would have liaised with the appropriate authorities. You can't do a consented post-mortem if you suspect that there is something untoward in that direction.

MS ANYADIKE-DANES: And is that your practice now? As a consultant, if you'd have that information now, so you're in the position of your registrar coming to you, what would be your decision now?

A. Oh, I would talk to the coroner. Well, I would talk to the clinician who had referred the case in the first instance and suggest they refer the case to the coroner. I think I wouldn't do it myself. If that didn't happen --

Q. Yes, and I think in your evidence you have said that in the past you have actually referred cases that came to you as consent-only autopsies to the coroner.

A. Probably more than anybody else in the Trust.

Q. Thank you. I just wanted to ask you a few things about the neuropathology day book, the reference for that is 302-070B-007. That records you as the pathologist.

A. Mm-hm.

Q. Is there a reason for that?

A. That seemed to be the procedure in the department at the time, that the registrar who did the post-mortem was ... A chain of events started, a sequence of events that identified the person who did the post-mortem with the post-mortem, and the name of the doctor -- in this case me -- was entered in the various recording devices that we have. One is the day book and one is the provisional

anatomical summary and on the final post-mortem. It was like a default initiating from the time of the post-mortem.

Q. Sorry, a default from the time of the post-mortem? The post-mortem hasn't happened at this stage.

A. Oh, it has.

Q. Ah, it has?

A. Yes. Brain only post-mortem. This day book records when the material is received back in the laboratory.

Q. Ah, I see. Does that mean that at this stage you've received the autopsy request form?

A. The post-mortem's already been done.

Q. So you have received the post-mortem request form?

A. Yes, I think so.

Q. Why is it then that her ward number isn't included and her name is misspelt? Is there any particular reason for that?

A. It's not my entry. I didn't enter it in the book.

Q. Who's actually responsible for checking the details in this book?

A. That was 1996. I'm not sure who all the staff were then.

Q. No, I don't necessarily mean the name of the individual. Who's got the position of checking the entries in the book?

A. I think whoever enters the information should be the person who's responsible for checking that detail.
Q. Okay. There were some further points that I have to ask you in relation to the clinical notes and records. The autopsy report itself makes no reference to any of the clinical documentation from the case record. Is there a particular reason for that? Because you hadn't --
A. Sorry?
Q. The autopsy report itself doesn't actually record anything from the clinical notes and records. Is that because you hadn't read them, you were relying --
A. I think I have made the point since last December that I didn't write -- I thought I'd written the report at the time, but it's now my ... I'm pretty confident that I didn't write the pathology report in this case.
Q. Yes. When you were answering the chairman a little earlier this morning, we saw a number of drafts.
A. Yes.
Q. And some of those drafts have -- well, we'll ask Dr Mirakhur whether they're her insertions, particularly the one that we saw at 090-054-186.
Do I understand you to say that you didn't prepare any of those drafts, that it's all Dr Mirakhur or somebody else's work?
A. I think it's all Dr Mirakhur's work, and I can provide

you with an explanation as to why I think that if that's helpful.

Q. Yes, of course.

A. If we go to 090-054-178, it's a knowledge of the procedures that occur during post-mortems. If we start at "Further blocks, Dr Mirakhur". What happens during the examination -- I'm sorry if this is difficult for Mr and Mrs Roberts here. It's getting towards pathology, just so they know that we may be talking about fairly sensitive issues.

When you examine the brain after death, you do it in various stages, and you take pieces of tissue. That was done initially, I think late November or in December.

Q. Maybe just pause a moment. (Pause).

A. There are various stages of the examination and this refers to a stage on 31/1/97 where Dr Mirakhur went back and examined the tissue to make some more observations. "EBs out to Dr Mirakhur." This would indicate that the further examinations she did, the slides were provided to her on 6/2/97.

Then if we go to 090-054-186, all of this handwriting is Dr Mirakhur's handwriting. Can we see more of this document?

Q. Yes, the next page. Actually, I think it's the last page you want. If you bring up the first page and the

last page, 188.

A. This is her writing as well. And also -- it's not something I concentrated on at the time, but because we found these documents, I thought I should explain why I think Dr Mirakhur has written this. The language, obviously -- we know how we write our own reports and that is I think how she writes her language. So the fact that the slides, the extra blocks, the slides went out to her, the report is drafted by her and edited by her. It's her language. But also the material we used subsequently for the CPC, she has prepared herself and written on herself. We tended only to present cases that we had completed ourselves. So when I was making my point last December, I tried to be as certain as possible about who had written the report.

The other -- if you look at the handwritten bit under "brainstem", and see how the paragraph starts, "The sections show ...", each of the previous paragraphs start the same way. There's consistency of language.

THE CHAIRMAN: Is that her handwriting, do you believe?

A. Yes, it's absolutely her handwriting.

MS ANYADIKE-DANES: You did the cuts, didn't you?

A. I was present at the initial post-mortem and I did the brain cut, but I think everything at the end --

Q. If we pause there. Would you have provided her with

a summary of whatever you did or saw that she would then use and incorporate into the final report?

A. The brain description --

Q. Yes.

A. -- was dictated at the time.

Q. That's yours?

A. I think that's all of mine.

MR FORTUNE: Sir, before we leave this particular topic, my learned friend referred to whether or not -- and indeed asked Dr Herron whether there would be any reference to entries in the clinical records. I do not know what my learned friend had in mind, but was my learned friend or is my learned friend expecting particular references to the clinical records and, if so, where should they appear in the post-mortem report?

MS ANYADIKE-DANES: As part of the clinical summary.

MR FORTUNE: But in any other part?

MS ANYADIKE-DANES: Well, it's not my report. Part of the clinical summary will give you the background that you have gleaned, presumably, from the autopsy request form and anything else you see in the notes and part of the reconciliation that you're trying to achieve in the comment may also lead you to refer to them. I'm not wishing to give evidence from the stand though.

THE CHAIRMAN: For instance, if there is something in the

clinical summary that you look at that doesn't seem to be accurate, that leads you to go into the notes more, then that will emerge in the clinical summary, which goes into your report? Am I right in understanding that the clinical summary in this report does not have to parrot the clinical summary which is given in the autopsy request form?

A. That's quite a complex question. You'll find that everybody has different techniques. I think it'd be worth a couple of minutes just to establish that.

THE CHAIRMAN: Sure.

A. Some people write exactly what is presented to them. They think they've been provided with a legal document and they will copy that. Some will use that as --

THE CHAIRMAN: That can't be right that that's done, surely, doctor, can it?

A. Some people ...

THE CHAIRMAN: When this autopsy report is done, it becomes the report of the pathologist.

A. I'm just saying there are different techniques. Some do that. Some add to it with various other conversations that they may have had about a case.

THE CHAIRMAN: Okay.

A. I think Professor Lucas has said his coroner -- and I think maybe some of ours -- don't like any history in

this bit at all because it's often wrong. And what a lot of my forensic colleagues will do as well is they will preface with it a paragraph saying, "I can't stand over anything that I'm going to write in the next paragraph". So it's not really straightforward and there are lots of different ways of presenting the information there.

THE CHAIRMAN: Okay.

A. I think the way we get round that is to -- when we do our combined clinicopathological meeting, the pathologist doesn't present the history. It is the clinicians who present the history, not us.

MS ANYADIKE-DANES: If you did the brain description -- sorry.

MR FORTUNE: Sir, if we look at the clinical summary and the contents of the autopsy request form history, the two bear a remarkable similarity, one to the other.

THE CHAIRMAN: Yes.

MR FORTUNE: The words may have been changed slightly in some instances, but it may lead you, sir, to the inference that the clinical summary has effectively been all but lifted out of the autopsy request form.

THE CHAIRMAN: And that's one of the concerns.

A. But it is common.

THE CHAIRMAN: That's of course one of the concerns,

Mr Fortune, because if the clinical summary that comes to the pathology department is wrong to start with, then the concern because of time pressures and other issues raised by Dr Herron -- whether that in essence becomes a mistaken summary which is taken as read and is repeated on through. Some of this comes back to much earlier notes, which go back a few days. So the difficulty, doctor, seems to be that once an error creeps into the notes, there's a risk that it's going to be repeated right through.

A. That's a fact of medicine. You'll find that quite often. I'm not talking about Claire, but in other cases. If something is mentioned in a letter, you're reading the letter, like a clinical letter, and it follows -- I'll give an example. A patient with inflammatory bowel disease may be called by one person ulcerative colitis on an impression -- most of us will know roughly what that means -- and it follows through, but they may have actually a slightly different disease, Crohn's disease, which has a different management structure. Once again, it perpetuates.

MR FORTUNE: It takes us all the way back arguably to the first entry in the Accident & Emergency department.

THE CHAIRMAN: Yes, it does.

MR FORTUNE: Also, it follows as to whether the charts were

actually inspected at any time.

MS ANYADIKE-DANES: That is a question and I think, in fairness, you said you can't remember whether that happened.

A. I can't remember.

Q. But it is part of guidance that within whatever are your time constraints, that that should happen. The last reference for that is 236-007-077. If you see there under "Necropsy examination":

"Patient notes and consent forms should be studied carefully, particularly in relation to clinical problems and then possible limitations placed on the examination by relatives."

It's not so much that part because it was a brain-only that you were being told to do, but it relates to the clinical problems, and you had four of them. That's the point that I have been trying to explore with you. Then when I had raised with you the issue about the medication, although you didn't know about the midazolam, other anticonvulsant medication is indicated on the autopsy request form under that history, isn't it?

A. Yes.

Q. The phenytoin and the sodium valproate. The second of the clinical problems you're asked to consider is the

status epilepticus.

A. Mm.

Q. So in terms of trying to confirm whether there actually was status epilepticus, is it not relevant to know how well she responded to the drug therapy that was being administered to her?

A. That wouldn't help a neuropathologist in coming to a conclusion as to whether or not there was status epilepticus.

Q. No, you might be able to say, "I don't see evidence of it", but you might raise a query as to whether it existed at all, not only because you can't see any evidence of it, that's the pathology side of it, but also if one looks at the medical notes and records, the child doesn't seem to have responded in particular to it.

A. The way I would have read the autopsy request form was that she had a clinical history suggestive or that might raise a status epilepticus -- she was given anti-epileptic medication, and that was just information that was provided.

Q. Why did you read the history of presenting illness as if she had a clinical history that might give rise to status epilepticus?

A. No, that's not what I meant. In the list of problems to

be considered on page 2, I think status epilepticus was mentioned.

Q. It is, but ultimately, is not part of what you're trying to do is to reconcile this evidence with the evidence that you could find on autopsy with you being told what the problem is. So are you not looking to see, "How does that status epilepticus get in there in the first place?"

A. It was one of the things that could be considered for her presentation. I'm not sure ... You need to ask me the question again. I'm not really sure what you're asking me. The history suggested -- sorry. The list of clinical problems -- I don't have it in front of me. One of the causes --

Q. It's okay, it's 090-054-184.

A. One of the issues was status epilepticus and she was given medication that would treat epilepsy. It seemed reasonable as it was presented to me.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Okay. If we move on now to just prior to your post-mortem, so you've received the autopsy request form, you know what it is, whether you glean it simply from this form or your consultant or you discuss with the clinician. You know what it is you're being asked to look for. Does anyone mention to you about

developmental delay, that that's something they would like to know the answer to?

A. On the clinical history --

Q. Yes.

A. -- the page previous to this --

Q. Yes, it has "mental handicap" under the past medical history.

A. Yes.

Q. Then if you look under the clinical presentation part, it says there is a history of mental handicap. So there are two references to it, but did you understand part of what you were being asked to explore, even though it's not put as a clinical problem, that that is something you were being asked to address?

A. That was addressed, I think.

Q. No, did you understand that was one of the things you were to look for?

A. I think of course you would look for it. It's part of the history.

Q. Okay. So you're then at the point of about to start your work. There was an issue I had raised with you before about the extent to which there are discussions with clinicians. And just so that we're clear, the guidance indicates that that is what should happen, particularly in a complex case?

THE CHAIRMAN: It's wise for it to happen.
MS ANYADIKE-DANES: Yes. And I think you have acknowledged that this probably was a complex case.
A. Yes.
Q. And I think the only part you're not clear on is whether such discussion actually took place.
A. No, I can't remember.
Q. But is your evidence that, just to confirm, that it would have been a good thing for it to have happened?
A. In every case, I would like to have a discussion beforehand, not just complex cases.
Q. I mean this particular case.
A. It would have been useful, yes.
Q. If it's useful, why in particular would you have thought it would be helpful in this case to have had a discussion with the clinicians?
A. I get back to my point: in every case it would be useful so as they can -- if there's something on this that they could add to, maybe they've got more results back that aren't listed on this. Just a general talk about the case in order to help you to focus on what you needed to do during the autopsy.
Q. Let me put it slightly differently to you. Looking now at the information that's on this autopsy request form, what is it you would have liked to have discussed with

the clinician?

A. I would have discussed what was -- nothing more unless they had something they wanted to discuss with me and could have added to it. There was enough information on this form for me to take the case forward.

Q. Sorry, then I'm not understanding what you're saying. I thought you had just conceded that this is a complex case. Like the guidance says, it's wise in a complex case to have those sorts of discussions. You had earlier said that you would have liked to have a discussion like that if time permitted. All I'm trying to explore is: had you had the opportunity to do it, what would you have been wanting to discuss?

A. I would have discussed issues around the history that was provided.

Q. In particular, what would you have wanted to know?

A. Nothing in particular. The more conversations and the more information you can get about a case, the better you can focus your attention on to it.

MR FORTUNE: Sir, would Dr Herron have liked to have known whether a CT scan had been performed or an EEG had been performed and, if so, with what results?

A. If that information was available, yes, that would have been useful.

MS ANYADIKE-DANES: No, would you have wanted to know that?

A. I don't think it would have influenced what I was going to do next in the post-mortem.
Q. Well, if there had been a CT scan before her terminal cerebral oedema developed, would you not have wanted to be able to compare the before and after, if I can put it that way?
A. I don't think that's necessary. You don't always -- especially in 1996, you didn't have all the results of every X-ray that was available to you before you started a post-mortem.
Q. That's a different question that you're answering. I'm asking you: would you have wanted to know if there was one so that you can compare? For example, in the case of Adam Strain, there was an earlier CT scan, which they were then able to compare to see his brain in its normal state, if I can put it that way, with his brain when it was grossly oedematous. I'm asking you: would you have wanted to know if there was a CT scan?
A. Any information is useful. If there had been a CT scan and there was a result of the CT scan, that would have been useful information.
Q. And similarly --
A. And a result of an EEG. Any information is useful.
Q. Because the EEG would have told you something, would it not, even if you couldn't yourself interpret it, you

could have asked a radiologist to interpret it for you, would have told you something about the activity in her brain and the likelihood therefore of it being status epilepticus?

A. Not necessarily. Certainly I'm not an expert on EEGs. The only time I've ever found an EEG useful -- I only remember one occasion in 20 years where I've found the knowledge of an EEG result useful before a post-mortem was when the EEG showed a focal abnormality in a particular part of the brain that could be focused on in a post-mortem. I have never found the knowledge of it having happened or the result of it useful in any other case as far as I remember.

Q. Well, if the EEG had ruled out status epilepticus or made it highly unlikely, presumably that's material to you?

A. I don't know enough about EEGs to know that that is -- that an EEG, first of all -- I know that a negative EEG doesn't exclude epilepsy and I'm not sure that an EEG can diagnose status epilepticus in every case. I don't know enough about EEGs, so I don't know how much it would have helped me.

Q. Precisely, Dr Herron, that's what you'd have done. if you ha got it, presumably you would have sent it off to a radiologist to get their interpretation of what that

EEG is showing.

A. No, not as a neuropathologist. That is a clinical issue that can be dealt with by the clinicians --

THE CHAIRMAN: Sorry, doctor. Can we bring up the following page beside 183? Bring up 184. The autopsy request form is designed at the top of the second page for the requesting doctor to list in order of importance the clinical problems.

A. Mm.

THE CHAIRMAN: And that order of importance presumably has some weight.

A. Yes.

THE CHAIRMAN: So if there has been an EEG which has made it less likely that status epilepticus is the problem, then status epilepticus goes down the list, if it stays on the list at all.

A. Yes. My point is, I don't know that an EEG -- personally I don't know that an EEG can diagnose or exclude status epilepticus.

THE CHAIRMAN: But the requesting doctor does --

A. I'm sure they do. I don't.

THE CHAIRMAN: -- particularly because the requesting doctor here had some support, to put it neutrally, from Dr Webb, from a paediatric neurologist; right?

A. Yes.

THE CHAIRMAN: So the doctors who are involved in referring Claire to you with the consent of Mr and Mrs Roberts for a limited autopsy only on her brain can give you certain information.

A. Yes.

THE CHAIRMAN: Right. And the issue here is that they gave you information, but there is a significant issue about the accuracy or completeness of that information.

A. Okay.

THE CHAIRMAN: And the questions which you are being asked are focused on the point about the advantages, in a complex case, of you having some discussion with the consultants before you conduct the autopsy.

A. Okay.

THE CHAIRMAN: I understand your concerns about -- if you're underworked in that time, you seem to be the only doctor at that time in the Royal who was underworked, so I entirely accept that you weren't underworked. But in order for you to be able to carry out your role as best that you can in the circumstances. You need some support in a complex case from those who were involved in treating the dead girl.

A. Yes.

THE CHAIRMAN: And what doesn't appear, on the face of this two-page document, which came to you, is some of the

information which they had or might be expected to have had.

A. Okay. I understand the point.

THE CHAIRMAN: That's the point in a complex case about creating -- even if it's only a few minutes to speak to somebody on the phone. This doesn't have to be "I'll meet you at 10 o'clock on Wednesday morning and we'll set aside half a hour for it". You can do it much more conveniently than that, can't you?

A. I think I was trying to say I agree with that point, that any information and any conversation is beneficial. I can't remember if it did or if it didn't happen in Claire's case. I mean, you were asking me about what specific issues -- and I don't know that I'm referring to any specific issue, just the more conversation, the more information that I can have --

MS ANYADIKE-DANES: I understand.

A. -- the more I can focus.

Q. I think what I was trying to ask you about on foot of what Mr Fortune was trying to ask you about is the extent to which you would want to understand the basis of the clinician's view that those were the clinical problems.

A. And that's where a conversation is very useful.

Q. And that would be very helpful --

A. I agree with you, yes.
Q. -- to know the strengths of the evidence for any of those four things.
A. Absolutely.
THE CHAIRMAN: And you're not saying that there wasn't a discussion, but only that you can't remember?
A. I can't remember if there was a discussion.
MS ANYADIKE-DANES: Thank you.
MR FORTUNE: Sir, can I just deal with two matters? You presumed, sir, that Dr Herron would know that Dr Webb was a consultant neurologist and that Dr Steen was a consultant paediatrician. My learned friend referred to the EEG being read by a radiologist. It would either be a neurologist or a neurophysiologist, by way of correction. But that report would have been in the charts and would have told Dr Herron one way or the other whether status epilepticus had been identified.
THE CHAIRMAN: If Dr Herron had ... Sorry, Mr Fortune, the more I hear this morning, the more it seems to me that this is the critical form because the amount of time that Dr Herron has to start going through the records is limited. It gives it all the more greater weight and it makes it all the more important that the information in this is complete. Dr Herron says it's more detailed than usual, so that's clearly a point in Dr Steen's

favour.

Unfortunately, in this case, there are parts of it which are of questionable accuracy and it is still ... Some of the listings of the clinical problems and the order in which they are listed or the completeness of that list is open to question.

MR FORTUNE: Sir, just dealing with the omissions -- and ultimately this will be something for submissions -- there are two things in Dr Steen's favour. Firstly, the charts are available. Secondly, there must be a general expectation that anything the neuropathologist cannot find or wants to know more about, there is indeed the telephone number at the end of the form.

THE CHAIRMAN: Yes.

MR FORTUNE: And the expectation is that Dr Herron would pick up the telephone to one or other of the named consultants.

MS ANYADIKE-DANES: If you think also about the possibility that there was a viral encephalitis -- that's one of the things you're being asked to consider. If that's the case, might it have occurred to you that you might want to know more about whether there was any systemic infection in Claire? And if you had wanted to know that, could that have pointed to the query as to, "Well, would it not be more satisfactory in terms of getting

a better answer not to confine the autopsy to only the head"?

A. The ... If you look at the four things that are listed, three of those are completely cerebral diseases, and I'll qualify that in a minute. Inappropriate ADH secretion is going to be a clinical and biochemical diagnosis, so the autopsy is not going to help us very much there. Viral encephalitis with the history that was provided, the history provided does suggest she had a gastritis or gastro-enteritis. If the autopsy had been extended -- and I think Dr Squier maybe makes this point -- in my own experience and personal opinion -- and it's just an opinion -- I don't think we would have gained very much more information. We may have done, I can't rule that out. I don't think we would have.

If you had looked at the gut to look for the virus, unfortunately the tissues in the gut deteriorate very quickly after death and you can't see. Generally, you can't see inflammation. If you had found a virus in the gut, all that would have told you was that there was virus in the gut. And I'm sure lots of children have bugs of all sorts there. It may have given you a cause of the gastroenteritis or the gastritis or the gastric disease. I still don't think that would have told you if the child had viral encephalitis or not. It would

have confirmed what you probably thought was the case already, that there was a gastric infection.

Q. Yes, but the viral encephalitis is the only one of the four which actually has a query over it. You're right if you look under the history of the present illness, there is a suggestion -- and you have interpreted it in that way -- that something's going on in the gut, if I can put it that way. Whether or not that has proceeded to or developed into a viral encephalitis is something that they're not actually sure. There's no question mark over the first three, but there is over the fourth. You're right to say that Dr Squier has raised it. She queries whether if you were thinking about a systemic infection, you might want to expand it to a full autopsy.

A. Yes.

Q. She also says, if one deals with the cerebral oedema --

THE CHAIRMAN: I think -- let's keep the questions tight.

A. It's my personal experience that -- and I've dealt with cases before that were thought to have gut infections. It's very unrewarding. It doesn't take you much further. Maybe you would have found something, but I prefer the explanation of Professor Lucas. This presentation, outside the gut, was a cerebral presentation almost entirely until the end. You could

question whether you could look at the lungs, but when she came in, she was examined several times. She had her chest examined and it was normal. There were X-ray findings in the end, but there wasn't any concern that she had a chest disease. What happened in the chest -- not as a paediatrician, but I'm offering an opinion based on similar cases -- was probably a consequence of everything else that happened. So I don't think we'd have got very far with her chest, I don't think we'd have got very far with her gut, and I don't think there was any disease elsewhere that could be a focus of what was going on in her head. I can't exclude that, I don't know, because I haven't looked.

But more critically and far more important, as Mr O'Hara will know from previous inquiries, this was a consented post-mortem for brain-only and it was the first time that I had ever seen it underlined, "brain-only post-mortem." That is consent.

THE CHAIRMAN: So if you want to extend it beyond that, you have to go back to the requesting doctor to get her to go back to the parents to say, "The pathologist has raised --

A. Mr and Mrs Roberts have already lost their daughter. They've probably had a very difficult conversation about consent for a post-mortem. If you raise -- I mean,

Dr Steen and the rest are experienced clinicians as well and they know where to focus, I suppose, the questions. If someone were to have said to me then, "Would extending the autopsy have significantly made a difference?", my honest opinion was I don't think so. And to say that you must do this, there's an element of maybe bullying the family into a decision that they may not want, I don't know about the Roberts family themselves, for something that may not have any reward.

THE CHAIRMAN: In making this point, doctor, are you distinguishing between the likely reward that you would get out of extending the autopsy so that if you thought that there was something potentially important which was likely to be revealed on an extended autopsy, in that situation you would go back and say, "I really think we'll have to go back and do more -- [OVERSPEAKING]"?

A. That happens quite often. Dr Steen's obviously very experienced, but with junior doctors asking you sometimes, you know -- I had a case two weeks ago: could you confine this to the chest? It was an adult. "Could you confine the autopsy to the chest?" I said, "I could, but you may not get any answers", and you're then going to get into a situation where you've had a limited consent for a chest only post-mortem, you're going to find nothing, and that's going to be

unsatisfactory for everybody. I would suggest, doctor, that before you take consent, that you consider extending it further. But once consent is taken, consent is taken and, as I say, this is the first time I'd actually seen it underlined.

MS ANYADIKE-DANES: Can I just pick up on that point? Does that mean that it's quite possible to have a discussion between the clinician and the pathologist before the consent is taken as to what the scope, if I can put it that way, of the autopsy might be?

A. That does happen sometimes.

Q. And so effectively, your advice is being sought -- or maybe in collaboration with a clinician -- if these are the things we are seeing, you can then offer some advice as to whether you are likely to produce very much by way of answers and assistance if it's confined in this way or confined in that way?

A. It tends to happen with very junior doctors who have never taken consent before. It is possible, but it doesn't happen so much with senior doctors.

Q. Can we just pull up the consent form itself, which is 090-054-185? Did you actually see this form at the time?

A. I wouldn't have started a post-mortem --

Q. You would have received it before you started the

post-mortem?

A. I think so, yes.

Q. When you saw that underlined in that way was it your understanding that it was underlined in that way to emphasise to you the position of the family?

A. I don't know what happened before it was signed. To me, the brain only is brain only.

Q. No, the reason I asked you that is because you said you had never actually seen one where the "brain only" is underlined that way. That's why I was asking you what did that connote to you, it being underlined in that way?

A. I don't know. Whoever underlined it would be the only person who'd know that, I suppose.

Q. Sorry, you seemed to be indicating that it conveyed something to you because it was underlined.

A. Certainly it limited what I could do. That is a very firm decision: brain only.

Q. That's the point that I'm making.

THE CHAIRMAN: But do I understand from what you're saying that it's a very unusual decision?

A. No, it's not a very unusual decision, not at all. This is not -- when the bulk of the pathology or the clinical presentation is cerebral, a brain only post-mortem would be common.

MS ANYADIKE-DANES: I think the chairman meant to underline it in that way would be unusual.

A. It's unusual to see it underlined, but maybe it was just to bring it to my attention that this wasn't to be a full post-mortem.

Q. As I understand it, the restrictions are very often ones that come from the family. They're concerned about disfigurement and so on and a range of other things. And if that doesn't compromise the quality of the autopsy, then obviously, given that it's consent only, the family's wishes are adhered to. If you had understood that actually there wasn't such a limitation from the family, the family were entirely neutral about that, what they really wanted to know is what happened with their daughter, and whatever autopsy investigation had to be carried out to give them the best answer to that, that is what they wanted to happen. Had you understood that, would you have had a discussion as to "well, in that case, let's have a full autopsy"?

A. When we receive consent for an autopsy, we must abide by the consent. I am not in a position, with the short time we have, to go into all of the conversations and whys and wherefores that have happened beforehand. That is obviously a decision that's been made with the family and with the clinician who knew what the case was

and that leads me entirely in my decision making.

Q. I put to you a slightly different question: if you had been having a discussion, which you might have had, and in the course of that discussion it became clear to you that the family weren't actually that concerned about a restriction, they simply wanted to have the best possible autopsy on their daughter to give them the best possible answer to what had happened, in those circumstances might you have considered it appropriate to suggest a full autopsy?

A. If the consent had come for a full autopsy, I would have done a full autopsy. If it came for a brain-only autopsy, I would do a brain-only autopsy. The people taking the consent were experienced paediatricians and clinicians who knew far better at that stage what the clinical history and the issues were than I was going to know with a short reading of the history.

Q. If we then move to the conduct of the autopsy itself.

I think you have agreed with what you thought the purpose was, which was to address those four clinical problems on the second page of the autopsy request form, and also to look at whatever might be the underlying reason for Claire's developmental delay or mental handicap, as it was termed on the form.

Your role, I think you have already identified what

that was. But can we go to the stages of the autopsy? If we look at the 1993 guidelines for the post-mortem reports themselves, it gives some stages. We can see that at 236-007-060.

That's neuropathology. If one looks at appendix 2, that goes through how one goes about the examination. Would you broadly agree with this as a guideline?

THE CHAIRMAN: It's pretty hard to disagree with it as a guideline.

A. I'm just reading the various bits of it. (Pause). In general, it's okay, so far.

MS ANYADIKE-DANES: There's a second page to it. I don't know whether it's possible to get that up as well so that we can just have appendix 2 on the one side and then the left-hand side of 236-007-061. That might not be possible.

If we start on appendix 2 itself, under (a) it says the first thing you do is:

"A careful examination of the scalp for haemorrhage or bruising."

A. Mm-hm.

Q. And presumably the haemorrhage or bruising might indicate maybe there'd been a fall. That would be an entirely different cause for some of her presentation, would it not? Well, it would, wouldn't it?

A. Yes.
Q. Did you examine the scalp in that way?
A. I need to give you some background as to how the autopsy was done with Claire, I think, in order to understand why maybe the observations aren't as complete as one would normally have.
Q. Yes.
A. You see on my CV that I had spent a lot of time studying encephalitis in research. The way we do that was -- it's mostly in animal experiments, animal diagnostics, we were trying to produce vaccines, amongst other things. We scrubbed, wore suits, space suits, we went in and did animal post-mortems and we came out, washed, scrubbed, and out. Even doing that, quite a lot of the people who were involved developed antibodies to the virus we were working with. One suspects he got encephalitis from it and one suspects he got quite severe cardiac disease.

I, at the minute, with Dr Mirakhur for the last number of years have done all the high-risk post-mortems in the trust. That includes HIV, CJD and in fact a case of rabies as well. When you have a case that potentially is infectious -- one of the things was Claire had query encephalitis and she died. So we had to treat this as a case of query encephalitis and death.

So we do that in a very different way from how we would do a normal post-mortem. We do it in a special room that we have in the mortuary with full protection. So it doesn't allow for as much observation as would normally take place, to protect staff.

Q. Doing it in a special room, does that prevent you from examining her scalp for haemorrhaging or bruising?

A. No, but if it had been there, I would have mentioned it.

Q. I'm only asking you if you did it.

A. Yes, of course I did, yes.

Q. If you do things that rule out, do you not identify what you have ruled out as well as what you're rule in?

A. You can do. I accept your point that you could -- I mean, a report could be pages of negatives, and I could have said there was no scalp bruising or haemorrhage, but none was suspected. This wasn't a case of traumatic death. If this was a case of a suspected non-accidental injury or something like that, you would have had pages of description, but you tailor your report according to the circumstances.

Q. I'm not for one minute suggesting there was a non-accidental injury, all I'm suggesting --

THE CHAIRMAN: He's not suggesting that either. Dr Herron is explaining why even though you do something like the examination of the scalp, as you've asked, you don't

necessarily refer to all of that in this report, though you might refer to it in another report of a child in different circumstances.

A. Where it was relevant, yes.

MS ANYADIKE-DANES: Would it be appropriate to record, as a basic description of the scalp, that there was no haemorrhaging or bruising on the scalp?

A. Not in this case, no. If it was present, you would certainly mention it, and if it was present, the autopsy would take a whole different direction.

Q. Yes. But in this case, because of the history that you're given, none of that leads you to suppose that she might have fallen and banged her head and that might have been relevant and because none of that is given to you in the history, therefore it's not relevant to either look for it or seek to rule it out?

A. It's the first thing you're going to see if it is present because -- I'm sorry, Mr Roberts, about the detail here. To remove the brain, you have to open the scalp. If I see -- and it has happened -- if I investigate a death that is considered to be natural and I find a haemorrhage, it stops and my forensic colleagues come in. I could write a report with hundreds of pages of negatives. They're meaningless for most. You tailor your report to the disease that is

present. I think that is the issue.

Q. If we go to the next page, 061, under (b):

"Fresh samples should be taken for microbiology, virology or neurochemistry as needed."

Did you take any for those purposes?

A. Yes.

Q. Did you send any for culture?

A. Culture would have been probably not relevant in this case. Culture -- first of all, you'd have to culture skin cells and I don't think the permission would have allowed us to do that. Brain cells don't really culture.

Q. But did it occur to you that you might want to culture something since we're talking about some sort of viral infection?

A. The culture in this means a different thing. I can't see where it says "culture".

Q. No, I have asked you if you would have wanted to do that.

A. To put it into context, I just need to -- are you reading from somewhere?

Q. No, I'm just asking you.

A. Of course, we sent CSF for culture. Culture means two different things. In certain metabolic diseases, you can take pieces of skin to send to a genetic lab for

culturing. In Claire's case, we sent the CSF, the fluid around the brain to, the laboratory for culturing.

Q. Just so I'm clear -- and the experts will come and give their evidence in due course -- are you saying that there would have been no benefit in sending any of Claire's brain tissue to do anything further with? I'm leaving aside --

A. No, we did do that.

Q. Then what I'm asking you is: what did you do with that brain tissue further?

A. We sent it to the bacteriology and the virology labs, as far as I remember.

Q. What was the result of it?

A. It's in the record. The culture of the CSF was negative as far as I'm aware.

Q. That's the cerebrospinal fluid. I mean any material from her brain itself.

A. This will come to a point that Professor Cartwright and others have mentioned. In Claire's case, looking at the results, they talked about the high protein level and the discussion about what that meant. In order to take CSF from the brain, there are a number of ways of doing it. One is to take the fluid over the surface of the --

Q. Sorry, I am going to come to the CSF. I am not quite at that point yet.

A. But this answers part of your question.
Q. It might do, but if you could answer this one very simplistically for me, if that's possible.
A. There was brain tissue in the sample that went for CSF as well so ...
Q. So you intentionally took some brain tissue as opposed to being concerned that there was some brain tissue in the CSF. Did you take any brain tissue intentionally to send that off?
A. It was mixed with CSF. I didn't do it separately. I don't remember the exact details, but I don't think I did it separately.
Q. My understanding from the evidence is what you were concerned about when you got the results back from the CSF is that actually there was some brain tissue in the CSF, not that you had taken some brain tissue to be sent off, but inadvertently, if I can put it that way -- as I think you said quite fairly, often happens -- inadvertently there was some in that sample in the same way as sometimes there's a little bit of blood in the sample.
A. Mm.
Q. But that wasn't the question that I was asking you. The question I was asking you is, if you leave a side the CSF and what may or may not have got into it, did you

take some brain tissue intending to send that off to be studied?

A. I knew that in the sample of CSF I had brain tissue as well. I didn't take any separately because I knew there was already some there.

MR FORTUNE: Sir, forgive me. Would it not be simpler for Dr Herron to tell us exactly how he carried out this post-mortem? Because at the moment -- and I speak for myself -- I am finding this exchange of questions and answers quite difficult to follow in terms of the actual order in which Dr Herron took knife to brain or the surrounding area.

MS ANYADIKE-DANES: Yes.

A. To do the post-mortem, you open -- I probably didn't, one of the technicians -- open the scalp. The skull is opened and the brain is looked at while it is still in position. There are a number of ways of looking at the fluid that comes over the surface of the brain. In children, when the brain is very swollen, it's very difficult to find some fluid in order to take that. So you have a number of options. You can put a needle into an area where there is a lot of brain tissue and extract the fluid that way, or you can put a needle through the brain into the centre of the brain that has a space called the ventricle, and the fluid can come out that

way. I think that's what happened in Claire's case. Then the brain is removed and fixed in formaldehyde for investigation at a later date.

Q. And that's what you did?

A. That's what I would have done in a case like Claire's, yes.

Q. In fairness to you, I think you have described what you did in one of your inquiry witness statements. 224/3, page 6 onwards. You start there, "... the junior doctor and consultant discuss ..." and you go on and describe the process. As I understand it, that's what you're trying to set out, the actual process. With that in mind, since you have confirmed that as that is what you did, I was then seeking to ask you some further questions that have arisen out of some of the things that our experts have informed us about.

A. Yes.

Q. And that's one of the reasons I asked you: did you think to take any sample? And I think you have given your evidence which is that some sample was within the CSF.

A. Yes.

Q. And that's what you did. Well, you've given your answer to that.

Dr Squier has set out the process also in her report. Maybe it would be easier to see the extent to

which you disagree with her. We find that at 236-004-003. There it starts off:

"Please explain the various stages of a brain-only autopsy."

And then there are a number of phases. So she talks about how:

"You remove [or you are supervised] the brain so you can identify any abnormalities of the scalp, skull and the membranes surrounding the brain as these will not be available after the brain has been removed and fixed."

And would you agree with that?

A. Sorry, I'm ...

Q. It's the first paragraph under (a).

A. That suggests the neuropathologist should be there at the time of the autopsy, yes.

Q. Is that what happens?

A. Yes, that's what happens, yes.

Q. I'm not sure that you can independently recall what happened to Claire, but is that what you expect you did?

A. That would be routine procedure, yes.

Q. Then after you open up the head:

"The brain will be removed, weighed, examined and described, photographed and placed in formalin."

Would you accept that?

A. That would be the routine situation.

Q. Yes. Can I then ask you about the photographing.
A. For the reason I stated, because this was the case of possible infection to staff, we omitted a lot of the situations that could be dangerous to staff members. You wouldn't photograph --
Q. Sorry?
A. We would rarely photograph anything at the time of autopsy. We photograph the brains after they're fixed for a period of time.
Q. So your position would be that you wouldn't have photographed it at that time, you'd have photographed it after it had been fixed?
A. The only time I would ever photograph it at the time is if I thought there was going to be evidence lost that was going to be necessary possibly in a criminal trial. Our routine would be to photograph it after fixation.
Q. I think there's been an issue between you and the experts in terms of weight and so forth and whether you do weigh if the brain is very fragile, and I think Dr Squier has put that certainly from a foetus or a neonate -- and I presume she would concede if there was any other reason why the brain was particularly soft and difficult to handle -- you might miss out some of those stages.
A. You would usually -- I absolutely agree you would

usually weigh the brain. For the reason I've stated, we wanted to -- because of the potential infection risk, it went straight into formalin.

Q. That might be another reason why you would do that.

Then after that, she says:

"After this, a full and thorough examination of the cranial cavity is required and, in particular, careful examination of the dura and the venous sinuses within it."

Would you accept that?

A. The dura was looked at, the venous sinuses were looked at. There was no abnormality of them otherwise it would have been mentioned in the report.

Q. What I am not clear on is the extent to which you include the negatives in your report because you do have some negatives in the brain description. So if you're examining the dura and the venous sinuses and you don't see any abnormalities, is that not a relevant thing to record?

A. It depends on the case. If this was a trauma case, you would spend paragraphs describing the dura and the skull and various other things. My focus at this time was doing a safe post-mortem. If I had seen any haemorrhage or inflammation of the dura or any venous sinus thrombosis, that would have been recorded. Again my

focus was slightly different.

Q. Then she goes on to talk about the papers that should be available and any imaging of the head which has been carried out in life. So from her point of view, that would be relevant to look at, and you have given your evidence about that.

And then she's asked about the process of fixation and what effect it has on brain weight. She gives her evidence on that, which we don't have to go into, and then she is asked about when the brain is cut, when that is carried out, by whom, and what does it entail. And she says -- and just so that we're clear to what extent you're differing from her on this:

"The brain is cut after it is fully fixed and hardened. The cut is usually carried out by a neuropathologist with experience in examining brains."

Would you accept that?

A. Yes.

Q. And:

"The brain is usually weighed and photographed whole in its fixed state and the hindbrain is removed, weighed and cut independently into slices."

Would you accept that?

A. Yes, in Claire's case we photographed just brain slices. I don't think the whole brain was photographed. But we

routinely now certainly photograph the whole brain in most cases.

Q. Is there a reason why you didn't photograph the whole brain?

A. What Dr Squier said is good practice, but I don't know that everybody practices it. I don't know what the procedure for the department was in 1996. If there had been something on the surface of the brain that could be seen, I would have expected maybe that the photographs were taken. I can't remember in 1996 --

Q. Well, in terms of looking of how oedematous it is, seeing the level of effacement, that's quite helpful sometimes to see a picture of the whole brain.

A. We do describe it as well. We describe our findings. And can I tell you how we describe our findings? Because I know Dr Squier maybe disagrees with me on this point.

Q. Yes.

A. We have a special dissection room for brain dissection. Myself, the registrar at the time, and the consultant or two consultants -- maybe the professor was there as well and some other junior doctors would have been there as well. And again, Mr Roberts, sorry about this detail, but we have a bench and foot pedal dictaphone. You have the brain in your hand and you're describing your

findings while you're holding the brain in view of the two consultants and the other staff. So I think the description of the brain at the time is accurate for those reasons. You're describing it while you're looking at it, while other people are looking at you looking at it. So we have the brain description.

The photographs -- if you want to review a case later on -- help and we do routinely photograph cases now. We didn't photograph all aspects of every case then as far as I remember.

Q. I was simply asking why you didn't. You have the equipment to do it. In fact, you took one of two slices through the brain. I am simply asking why you didn't take a picture of the whole brain.

A. That must have been the routine in the department at the time.

Q. The description that you have given, we can pull that up. 090-003-004. If we just focus on the brain description there, this is what I was putting to you when I was asking you the extent to which you record negatives. You have recorded some negatives there. There's no cortical venous thrombosis, no meningeal exudate. Then you say:

"The paraventricular structures, including the mammillary bodies shows no evidence of necrosis."

There's no basal ganglia and so on. So there are some negatives.

A. These are all relevant to Claire's presentation. Cortical venous thrombosis can be a complication of infection, meningitis. Meningeal exudate is a feature of meningitis. The "uncal prominence" and "no necrosis" is a way of describing how severe the oedema is. The Leigh's disease, at the bottom, is a metabolic condition that could present the way that Claire presented. So some people do -- one of my registrars will do three pages of the same thing. My reports are short, but I think they focus on the issues that are relevant to a particular case.

Q. I understand. And then if we go back to Dr Squier at 236-004-003. She talks about the slices that you take:

"They're laid out in order, front to back, and examined carefully with the naked eye. Any abnormalities are noted and documented."

Would you agree with that so far?

A. Yes.

Q. And:

"The whole brain and representative parts of it are photographed for the clinical record."

You have dealt with that:

"A report of the findings are produced for the

clinical record and the documentation available at brain-cut usually includes the autopsy report and a summary of clinical history."

And then if we go over the page to 004, she talks about the slides. This is part of what you did, was it, making the slides?

A. No. That's a laboratory aspect of it. In those days, I think they were called medical laboratory scientific officers; now they're called biomedical scientists.

Q. Do you direct what you want slides of?

A. If you go back to the previous page of my description.

Q. In your description?

A. Yes. Where it starts "histology". Those are the little tissue blocks that are taken.

Q. Yes.

A. And then during the dissection -- and then they are taken by the biomedical scientists for further processing.

Q. No, my question is: is that you directing where you want those slides taken from?

A. I've taken those.

Q. Oh, you have done those?

A. Yes.

THE CHAIRMAN: Sorry, we must have misunderstood you. We thought that you said a few moments ago that the MLSOs

took the slides.

A. No, I dissect the brain and look at the various areas and take sections of the brain. They take it from there for processing.

MR FORTUNE: If Dr Herron looks at Dr Squier's page on the left-hand side of the screen, come down, I think it's six paragraphs:

"The blocks for histology and the slides produced from them are handled by laboratory assistants or qualified laboratory technicians who are trained to slice and stain the tissue."

So that would imply that the slides are actually produced by the technicians.

A. Yes, that's right.

MS ANYADIKE-DANES: And who labels them then?

A. What exactly do you mean?

Q. So that you know when you're looking at the slide, or anybody coming after you who wants to look at the slides, knows where those slides -- where the tissue that they're looking at comes from in the brain.

A. Most neuropathologists have their own pattern of taking sections. And also most neuropathologists will be available to identify when they look down the microscope most of the areas from where the sections are taken.

For instance, we all know what a cerebellum looks

like, a brainstem looks like, the mammillary body looks like. The different areas of cortex are slightly more difficult to examine, but we all have our own techniques of establishing where the sections were taken from. I think Dr Squier refers to a blocking sheet where you would record where each of the sections was taken from individually. That is useful and it could help in some cases, especially if a pathologist isn't very experienced.

Q. Well, is it not good practice to identify where the slides are coming from? Both Dr Squier and Professor Harding say when they looked at the slides have been provided, they -- obviously, to some extent, they can work out where they come from, as you say, but not necessarily for all of them. And would it not have been better practice to have labelled them?

A. It would have helped someone else looking at your case years later to identify where they were from. But you would have known at the time, because of how you dissect the case, where they had come from.

Q. Yes. You would have known.

A. Yes. When a neuropathologist in 1996 was looking at a case, he was doing it or she was doing it for them to look at the slides.

THE CHAIRMAN: In other words --

A. You weren't taking sections in anticipation of it being reviewed in 16 years' time. Of course, you would do it now, but the sections were labelled in the history as to where they came from. Most of us would know, because of our routine, where they came from. You could put them -- now ... The way I do it now, because I do so much forensic work and a lot of forensic work is reviewed elsewhere, you would write exactly what part of the brain they come from.

MS ANYADIKE-DANES: And who determines what stains are applied to the slides?

A. There's a routine one to start with, which is an H&E stain. And then the decision to take it further is dependent on what you find.

Q. So whose decision is it?

A. That would be the neuropathologist's.

Q. Would that be you or your consultant?

A. The way this happened, probably Dr Mirakhur, because she has written the report. After the H&E sections were taken, and the routine ones were done, the further stains that were needed -- I can't remember in this case. It might have been me, it might have been her. I'm not sure. But it would be the neuropathologist.

Q. Is it something that -- doing the best you can, is it something that results in a discussion between you as

the registrar and your consultant: having seen what you have seen on the standard H&E stains, maybe it would be helpful if we applied some more specialist stains?

A. Yes, that's what would normally happen.

Q. That's what would happen normally?

A. Yes.

Q. Are you aware of there being any discussion about the further staining that might be carried out?

A. Not in this individual case, no. I can't remember so long ago.

Q. Do you consider at any stage -- either by yourself as a registrar or with your consultant -- the extent to which you might want to bring in some further expertise?

A. I always do. I would often send cases away for an opinion from another neuropathologist in appropriate cases. It's good practice. I would send a lot of stuff to the United States for advice.

THE CHAIRMAN: And did you do that from time to time in 1996/97?

A. As a registrar, I wouldn't have done it; that would all have gone through the consultants.

THE CHAIRMAN: Were the consultants doing it in 1996?

A. I would imagine they were, but Professor Allen had a large network of people that she worked with as she was an internationally-known neuropathologist and she was

always bringing stuff in and taking stuff out. And I know Dr Squier said that maybe you should have asked for advice from another neuropathologist, but I think you also have to consider that all paediatric neuropathology in Northern Ireland has been reported in by only three people in 40 years. So to label somebody not a paediatric neuropathologist because they aren't a specialist, because they aren't only a neuropathologist, I think would be inaccurate.

Professor Allen, probably since the 60s until 1997, was reporting all the paediatric neuropathology. Dr Mirakhur has extensive experience. I have a lot experience -- maybe not as much as they have at the minute. So there's maybe 70 years' experience of paediatric neuropathology in the department already.

If they had wanted advice, of course they would ask for it, that's good practice, but just because somebody isn't labelled a paediatric neuropathologist doesn't mean they don't know paediatric neuropathology.

MS ANYADIKE-DANES: No, but along with the discussion as to, "Maybe we would apply some other stains", could there be a discussion and are there discussions or, "Maybe this is one that we'll bring in a specialist"?

A. My point is that they were highly specialised --

Q. I appreciate that. I'm not really addressing the point

of the paediatric neuropathology. For example, might you have thought to bring in a chemical pathologist? You have mentioned Raychel's case, for example. They did bring in a chemical pathologist --

A. I did --

Q. You did. Exactly. Might that have been -- I know that you say you're a registrar and it wouldn't fall to you to bring in a different discipline in 1996 but is that a conversation or a discussion that you could have had with Dr Mirakhur?

A. I got the impression that when Dr Squier's comment -- that she was suggesting that a paediatric neuropathologist. I'm not sure, I may have been mistaken. Professor Allen and Dr Mirakhur had vast networks of people they could ask for advice and I'm sure they always did. I remember many conversations with different departments. And that's all the value, can I say, of our combined clinicopathological meeting because very often, when you had a case -- and I'm not saying for Claire -- that brought in other techniques and specialities, you brought them to the meeting to present aspects of clinicopathological correlation. So it would have commonly occurred.

Q. Yes, no, I'm not doubting that. All I am trying to find -- at the moment, I'm asking you the evidence of,

potentially, your side of conversations. Dr Mirakhur will give her other than evidence; I am simply trying to find out from you whether, in those days, discussing whether or not we could perhaps refer this for a specialist view is something that you engaged in with your consultant.

A. Absolutely, yes.

Q. And you are quite right that Dr Squier did refer to a paediatric neurologist. She does that in her fourth report, which is 036-007-004, I think. And she goes on to suggest other specialist advice that you could have sought, the first of which, at 13(a), is the one I have just been putting to you, the consultant chemical pathologist. Then at (b), it was suggested that a consultant radiologist might have been appropriate to see, since status epilepticus is one of the clinical problems you're looking at, whether you can detect any of that from the CT scan, whether the CT scan was of a sufficient quality to do it or whether it would show. And you see her suggestion there that hyponatraemia might not have been, but it is something that some consideration could have been given to.

Then the paediatric neuropathologist or a neuropathologist specialising in neurogenics might have been someone whose advice you could have sought

specifically in relation to what you thought you had detected, which is the neuronal migrational defect or disorder.

A. Of course, we always consider bringing people in, but I get back to the point that, first of all, the CT scan doesn't detect status epilepticus, as far as I know. The paediatric neuropathologist -- we had two very experienced paediatric neuropathologists in the department. Also, Professor Nevin was a colleague of Professor Allen's, and he had seen Claire as a child, I think, as a geneticist. Those people were there to ask for advice if necessary.

Q. How involved was Professor Allen in Claire's case?

A. I don't know, but she was in the department.

Q. Why I'm asking you that is, on a number of occasions you have referred to her perhaps as opposed to referring to Dr Mirakhur. And until just recently, we had in mind that Dr Mirakhur was the consultant working with you on this autopsy and that was the relationship that we were exploring. I wasn't -- can you help as to the extent to which Professor Allen may have also been involved in this case?

A. I think she wasn't very involved, but there were only three neuropathologists in a corridor and while Dr Mirakhur and I were probably -- the evidence suggests

that we were the people involved. We're only a door away and we talk to each other every day. So you don't know what conversations were happening.

Q. Then I was then going to go into, Mr Chairman, the detail of the findings, looking at those four clinical problems, and I'm bearing in mind the time.

THE CHAIRMAN: Doctor, I think we only have you today; is that right?

A. I do have a brain cancer meeting at 12 tomorrow, so if you need me tomorrow morning, I could come in for half an hour.

THE CHAIRMAN: I think we have to try to finish you today, even if it means sitting a bit late because we have Dr Mirakhur tomorrow morning and we have to start Dr Webb tomorrow and continue him on Monday.

A. I have court commitments in England next week.

THE CHAIRMAN: Let's take 45 minutes for lunch and resume at 2.05.

(1.25 pm)

(The Short Adjournment)

(2.05 pm)

MS ANYADIKE-DANES: Good afternoon.

I'm going to try and go through, roughly in order, the four -- maybe not the order in which they're shown on the autopsy request form, but those four principal

differential diagnoses or clinical problems that you were looking at to see how they fared in terms of the evidence that you found one way or the other.

If one starts with status epilepticus, I had put to you the guidelines that that is something that has to be clinically documented and I think in essence -- please correct me if I'm wrong -- that your evidence was that you were taking it that there was sufficient clinical evidence of status epilepticus, which is one of the reasons that had been identified as one of the four problems; is that fair?

A. No. I don't think that's correct. Status epilepticus was written on the form. It's not -- I am not in a position to know if Claire had status epilepticus as a neuropathologist.

Q. Sorry, I beg your pardon. I thought you were taking it that there must be some reason for it appearing on the form in that way.

A. Oh, I would understand that, yes.

Q. So that's one of the things that you're going to look and see whether you can see. What is the sort of evidence that one can find for status epilepticus if one's looking at it from a pathologist's point of view?

A. From a pathologist's point of view, nothing very specific, to be honest. There are occasional research

papers and collections of cases that describe neuropathological findings in status epilepticus, a particular pattern of cells that die in the brain. There are actually quite a few studies on this topic, but I don't think in any individual case, given that Claire when she died had another mechanism of causing cell death, to say that status epilepticus either was pathologically present or was not present. The features are very non-specific. There's no one thing you could say status epilepticus present or not present.

Q. Maybe I can ask it in this way: you've got that as one of the four things that have been identified for you by -- the referring clinician wants to know. So if you're going to explore whether there is any evidence to support a differential diagnosis or to understand the problem of status epilepticus, what is it that you do?

A. We look at the brain microscopically to see if there's anything present. In status epilepticus, there normally isn't anything to see.

Q. That's what I was actually trying to get at.

A. So the first stage is there's very little specific to see with a macroscopic -- macro with an A -- of the brain, the whole brain and the slices. There's very little to see. Then we look at the images down the microscope -- which are called microscopic or

histological images -- and the brain is made up of lots of different cells, some of these cells are called neurones. Neurones are very vulnerable cells to any sort of damage. They are the most sensitive cells in our whole body to damage of any sort. It could be infection, it could be swelling, it could be high temperature, it could be drugs, it could be anything. And they react in a very specific, typical but stereotypical way, and by that I mean no matter what the cause of the damage to the cells is, they will look the same. So if the damage to the cell is caused by a lack of blood flow, it will show the same as the damage to a cell perhaps caused by epilepsy or status epilepticus. The cell will look the same.

The pattern of -- an individual cell, you can't tell what the cause of its damage is. Sometimes you can see, if you look at lots of areas of the brain, a pattern emerging, but in status epilepticus I don't really think you could say that pattern represents that when you have another pathology present, especially.

Q. Yes, thank you. That's actually what I was trying to explore with you. So you would be able to say, "I can see evidence of cell damage", let's put it that way.

A. Yes.

Q. But what I think you're saying is: I wouldn't be able to

tell you whether that resulted from this non-fitting, which is what status epilepticus is?

A. I'm not clear that that's the correct definition of status epilepticus because I'm not a neurologist.

Q. Sorry, one of the things that they thought she had was non-fitting status epilepticus, but leave that aside because they haven't helped you by putting "non-fitting" there.

Am I understanding you correctly that you could go so far as to say you saw evidence of cell damage of some sort or alterations to the cells -- and we'll come in a minute to other things that that might point towards. You could do that, but that would not of itself enable you to say that you saw evidence of status epilepticus?

A. That's correct.

Q. Thank you.

THE CHAIRMAN: If there's another pathology?

A. The only time I think I would diagnose status epilepticus pathologically -- and this comes up because I examine a lot of epilepsy-related deaths in Northern Ireland -- is if someone came into hospital and had status epilepticus and an EEG, and all the other features, and didn't have any other features to show that type of cell damage. It is really that non-specific. And to be honest, it's really based far

more on a clinical history than on a specific pathological abnormality.

MS ANYADIKE-DANES: Yes. I think one of the things that was described was the subclinical seizures in the history. What does that mean to you?

A. It's really a neurological term and I wouldn't be confident to say too much about that, to be honest. It's not a term I would ever use in my practice.

Q. Yes, but it still doesn't help as to whether you would be able to say with confidence that you'd seen evidence of that.

A. Any seizure activity I would never be able to diagnose confidently without a really confident clinical history and no other finding for cell damage.

Q. And if we go down that track just a little bit, a really confident clinical history. In order to provide some support for a diagnosis of that sort, what is it that you would be wanting to match from your findings on examination to clinical history?

A. A confident, experienced paediatric neurologist telling me fairly unequivocally that my patient has status epilepticus. He would be asking me more to describe -- "My patient has status epilepticus, what do you see pathologically?", rather than me saying, "This might be status epilepticus, what was wrong with

the patient?" It's really -- it's not a pathological diagnosis in most cases.

Q. I think I was trying to get there by a long route. So the upshot of the whole thing is you can only describe what you see, and as it happens with that kind of thing, that doesn't enable you to say, "I think I've seen evidence of status epilepticus"?

A. That's right.

Q. Thank you. But if we stay with what you might be learning from differences in the brain, you do say that you detect decided some evidence of neuronal migration disorder.

A. I think that's probably Dr Mirakhur's evidence, if that is in her report.

Q. Can I ask it this way: when you were looking at the slides, did you see anything that would indicate to you neuronal migration disorder?

A. I was going back through my evidence and what I've said at various stages. I wasn't specifically asked about that at the inquest, which is where my evidence is. But there are 35-millimetre slides which show a photograph that looks like displaced neurones that would support that diagnosis. And certainly when I went to the inquest to give evidence, it didn't occur to me that anything other than that diagnosis was present. So

I think I probably agreed with it at the time of the inquest, although I wasn't specifically asked about it. So there are features, certainly in the 35-millimetre presentation, to support that.

Q. We'll come to the detail of the slides in a minute, but in 1996, can I ask you what your experience, as a pathologist, would be of neuronal migration disorder?

A. It's a very vague term. I don't think it is a specific term in many ways. It's a term that's all-embracing for many causes; they can be genetic causes, toxic causes, environmental causes. To me it just means there's an abnormality of how the cells have spread through the brain. How many cases did we have? 34 paediatric neurology cases in the three or four years before 1996. Some of them had neuronal migration abnormalities and I certainly had read long and hard about that diagnosis. I can't say how many cases I've seen by 1996. I don't know how many cases I'd seen.

Q. Would it be something you might say you had some experience of?

A. Some experience.

Q. Would you be confident about diagnosing it without maybe some discussion and some assistance?

A. I would discuss it with somebody more experienced, yes, in 1996.

Q. Now, of course, might be entirely different, but I'm concentrating on 1996.
A. I still think I would discuss it. I'm the only neuropathologist in the country at the minute. I do discuss with colleagues all over the place.
Q. So even now it's something that you would want to discuss with a colleague?
A. Yes, absolutely.
Q. Can I ask you about the stains you used? We mentioned this a little before. One of the things you said when you were commenting on Professor Harding and Dr Squier's own analysis of the slides was that you said they were looking at slides that were at least ten years old when they were examined. I'm reading from your witness statement, 224/4 at page 10. Then you went on to say that the stains on these glass slides deteriorate significantly, even after a short period of time.
A. I think I can correct myself because what has happened with Dr Squier and -- possibly, but I'm not sure, Dr Harding -- she got the tissue blocks herself and re-cut the slides fresh. I think that is what she seems to suggest.
Q. She did two things.
A. She looked at the old ones and --
Q. Yes. So we're clear about that, you can find it in her

report. It's her addendum of August this year, and it starts at 236-005-001. You're quite right that she did make her own slides and stained them. She also looked at yours -- sorry, whoever's slides they were. 236-005-001. So she explains a little bit about routine brain sampling and that the sections on the glass slides are stained and what you can do to improve the diagnostic process. Incidentally, just pausing there, I take it that you don't disagree that you can improve the diagnostic process by the application of different stains.

A. Yes.

Q. And then she talks about the review of additional sections. She says:

"I received further sections which apparently include those reviewed by Dr Harding."

And then she gives the numbers of them. So she not only got blocks from which she made her own slides -- and she has described those in her first report -- but she also saw all the ones that you had prepared or were prepared in the laboratory for Claire, and were sent off to Professor Harding. So she has seen everything.

A. Yes.

Q. So that just helps clarify that point. But what I wanted to ask you is about the aging of slides. You

say:

"The stains on glass slides deteriorate significantly."

If they deteriorate, is that not something that you can be aware of as a pathologist?

A. I think Dr Squier did say in her first report that some of the slides were a little faded, which is possibly why she went on to re-stain the slides herself.

Q. There are a number of -- if the slide that you're looking at is so deteriorated that you shouldn't properly rely on what you are seeing from that slide, then presumably, as a good pathologist, you make a note of that and you either don't rely on it or you take alternative measures?

A. What I think Dr Squier did was proper. You shouldn't -- it really depends on the context in which you're asked the question. You should get the best possible material from which you can make a report. That's absolutely right. At the stage when I was writing that, I was making the point that some of the findings were very, very focal and if you are making your own slides from new material, what was present in the original material may not be in the new material that you're making if the changes are so, so small. I think that's where I was going with that.

Q. I understand that and, of course, you didn't know at that time that she had had an opportunity to look at your slides.

One of the things, when one's talking about slides in this area, is Dr Squier referred to a lack of hippocampal pathology and she thought there had been a failure to apply special stains to look for subtle hippocampal pathology to explain the history of epilepsy thought to represent neurone migration disorder.

The slides, I think -- the stains that you used were H&E, haematoxylin and eosin, and you said that you might have discussed or ... In any event, Dr Mirakhur may have come to the conclusion to apply other stains; is that right?

A. I'm not sure where that has been said.

Q. Well -- sorry, I was asking you whether there would have been a discussion about whether it would be appropriate to apply other stains.

A. It really depends on a pathologist's own experience and preference. I'll explain that. In 1996, the technology and the quality of these further tests was not as advanced as it is today. Many of the stains that we're talking about were really not very good. They were present and available in 1996, but I don't think they were as good as the quality that we have today.

The gold standard for making diagnosis is our first stain, our H&E stain, and most pathology can be seen by that. I'm not going to disagree with Dr Squier about the hippocampal pathology. It's a very, very subtle finding and she may be right. We may be right. I'm not sure.

Professor Harding, however, who I think runs a world-famous centre for hippocampal pathology diagnosis in resections, didn't notice the findings, as far as I'm aware, that Dr Squier noticed.

Q. He's going to give evidence about that. I think there might be a slight difference between those two experts and yourself as to the extent to which there are differences in their evidence, and he will give his evidence on that.

A. He said it fairly specifically in his report.

Q. But when you say that the stains weren't so advanced, is one of the stains that you could have applied, is it GFAP?

A. That's right.

Q. That was known in 1996, wasn't it?

A. It was, and we had it, but it wasn't nearly as good in quality as the stain that Dr Squier would have now.

Q. But that is a more advanced stain or at least a more particular stain to show, for example, scarring than

H&E, isn't it?

A. Not necessarily, no. I think in most cases of hippocampal pathology that I've come across, it's seen on H&E. I'm getting to the point that every lab has its own methods of detecting pathology. Dr Squier obviously has her own techniques, Dr Harding will have another technique, and Belfast had its method for looking for this sort of pathology as well.

Q. Yes. All I'm pressing you on is the extent to which you could have applied further stains to see the extent -- whether you could confirm your original findings. You referred to a paper in your third witness statement, I think, which is -- I call it the "Apoptosis in measles" paper. That's at 224/3. Page 52 is the beginning of the paper, but if we can go to page 55. Under figure 1(a) -- could you see if you can enhance that a little bit? This is a paper that you wrote; is that right?

A. I was involved in it, yes.

Q. Sorry, contributed to. And it's published in Neuropathology and Applied Neurobiology in 1997. So presumably you're doing the work around this sort of time --

A. That's right.

Q. -- since the publication isn't instantaneous with the

research and the writing of it. In this paper, you are using GFAP stains?

A. We routinely used GFAP stains in Belfast at that time.

Q. And you're using them to look at the very thing that you might have been looking at to see evidence of scarring or reactive cells, cell death and so forth?

A. I still maintain that the stain that we routinely used, the H&E, shows that pathology as well. Dr Squier also mentioned -- she criticised for us [sic], as far as I remember, not doing a myelin stain to look for lysis of myelin later on. She did it and it wasn't there.

Q. Sorry. I'm just dealing with this one at the moment before we go on to anything else.

A. I still think that scarring of the hippocampus can be seen by the techniques that were used.

Q. Given that you've just acknowledged that some of this is very subtle, if you're dealing with something very subtle, then do you not seek to enhance the image to you can see more particularly whether you are getting the evidence that you think you are seeing on the standard stains? Presumably that's what these specialist stains are for and that's what you were using them for in this paper.

A. No, I ... I mean, you look at the hippocampus, you can either see scarring or you don't see scarring. We

didn't see any scarring using the techniques that we normally use to see scarring is all I can say at the time.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: We'll move on.

You haven't actually recorded -- or it is not recorded -- in the autopsy report what stains were used.

A. That's right, yes.

Q. Wouldn't that be helpful?

A. I think it would, yes.

Q. Do you do that now?

A. Yes.

Q. Then in terms of where you found the --

THE CHAIRMAN: I'm sorry, let's not leave that hanging. Do you do that now because you always do it now whereas you didn't always do it before, before being round about the mid-1990s?

A. I think documentation in the reports is probably more complete at the minute. You may describe a finding, but not give all the evidence about why you have a finding in previous days. Now you would tend to tabulate all the extra work that you did to show the reasoning behind your conclusion. In those days, you may have just said your conclusion without all of the background information.

THE CHAIRMAN: Thank you.
MS ANYADIKE-DANES: Sorry, Dr Herron, I've a point to put to you, which is just to clarify -- did you say that, using your H&Es, you didn't see any evidence of scarring?
A. I still think it's Dr Mirakhur's report.
Q. I beg your pardon. When you were looking at them, you didn't see any evidence of scarring?
A. No.
Q. And if you were looking to see if -- well, knowing what her history was that you've been told, you have been told that she had epilepsy as a child and so forth, and that there is -- she's referred to as having a mental handicap. Might you be looking for scarring?
A. Oh, yes. But it's ... Yes, that is one of those negative points again. If you saw it, you would describe it.
Q. Yes. I appreciate that. What I'm asking you is: is that something you would specifically be looking for, knowing that she had a history of epilepsy?
A. Yes.
Q. You might be looking for scarring?
A. Yes.
Q. And what you, I think, have confirmed is, yes, you would be looking for it, but you don't recall having seen it, using the stains that you applied or that were applied.

A. That's correct.
Q. Thank you. And you know that Dr Squier has used different stains and she says she has seen evidence of it.
A. I know that, yes.
Q. Then if I can deal with the neuronal migration disorder. As I understand it, you claim that you saw evidence of that in neuroblasts. And where I get that from, Mr Chairman, if you bear with me -- it's being pulled up -- is 302-168-001.

It's in the body of that e-mail, Mr Chairman. This is an e-mail where you are wanting to identify certain of the photographs of slides which you thought particularly evidenced the inflammatory cells and those are the first two images, and then the neuroblast, that's the third image. The neuroblasts relate to the neuronal migration disorder; is that right?
A. That's correct, yes.
Q. So if we go there and go to witness statement 224/3, page 77, that's it there, isn't it?
A. No.
Q. No? Okay.
A. I think it was the third image.
Q. Then if we go to -- maybe you can identify the one that is ... Is it 224/3, page 75? Please up alongside

it page 76.

A. Yes, 76.

Q. 76 is the one?

A. Yes.

Q. Thank you. Those weren't labelled, but Dr Squier labelled them, so we're just trying to refer back so that we're comparing like with like. Can we pull up, next to page 76, 236-007-040?

That's as it came to Dr Squier and she has labelled that "image 10" because she had no other way of identifying it. Can you explain how it is that you see the neuronal migration disorder from that slide?

A. Okay. The left-hand side of the slide is a line we call the ependymal lining. These dark nuclei just inside it -- I don't have a pointer to get it to you. The very black dots are cells that don't appear like they should be there. Our cells have a normal distribution in the brain and these are little nuclei of cells that have the appearance of neuroblasts in an area and in an age that we don't think should be there.

Q. At an age when you don't think they should be there?

A. Yes.

Q. Is this because you associate this migration of cells to the cortex as something that happens within the early weeks of gestation and you wouldn't expect --

A. No, I think it continues for quite a long time.
Q. Until?
A. Probably after one. I wouldn't expect to see this distribution of cells in someone of Claire's age.
Q. Well, Dr Squier's evidence -- and I understand it will be Professor Harding's, but he can give that himself -- is that there are always residual cells in children.
A. There are to a certain extent, but I don't think to this degree. Can I also say that this is not uncommon in neuropathology? This is a very, very subtle finding and people will give different weights to it. Some might say this is within a normal range and some might say, no, this is too much. And I accept there is that spectrum that some might view this as normal. I think it's excessive. Also, Claire had learning difficulties and I suppose you want to think of an association with the learning difficulties and anything you could find in the brain. It is a very subtle abnormality and I'd be the first to accept that there is a range of opinions on this matter.
Q. Dr Squier went through and actually prepared -- and I'm sure you have seen it because it's attached to one of her witness statements. She prepared a little presentation of slides, both to show how these cells, neurones, migrate out and over what period most of them

are doing it -- most, but not all of them are doing it and then she had Claire's slide on the one side and a slide showing migration disorder on the right. 236-007-030.

If we remove the 040. That's the slide that was image 10. You see that on the left-hand side. On the right-hand side, she says this is what migration disorder looks like.

A. There are hundreds of different types of migration. You could show hundreds of different severities of migration disorder. That's one. That's maybe a bit more severe. Claire's, if present -- and I think there's evidence that it might be present -- is in the very, very subtle end of any abnormality.

Q. I think that's her point, that it's so subtle, one of two things might have happened. One, you might have applied better staining, more sophisticated staining, to try and see whether you really were seeing a migration or not. The other is you might have sought the advice of somebody more specialist in that area, and you've mentioned Professor Harding. That's exactly somebody that you might have contacted in relation to it, to see whether you're accurately looking at evidence of a neuronal migration disorder.

A. And my point would be that the two consultant

neuropathologists in Belfast at the time had a -- I was only a registrar, so I didn't have as much experience as them. But certainly the report that you are reading from and the description of the neuronal migration abnormality is Dr Mirakhur's. You have asked me if or not I agree with it and I have given you reasons why it might be there and why if might not be there. But they are experienced paediatric and adult neuropathologists.

Q. So just to help with this then: is this something that you saw and took as a description to Dr Mirakhur and then Dr Mirakhur had a look herself and, as a result of which, we now have that included in her final report, or is it something she identified when she looked at the slides?

A. I can't remember specifically, but it's something that is in her report and she has written it. It may not be me at all; it may all be her description.

Q. That's what I was going to ask you. So it might not be something that you yourself saw?

A. The reason I can't remember it was because the issue didn't come up at the inquest, so there's nothing recorded for my opinion about it at the inquest at the time.

Q. I understand. We are just dealing with possibilities and probabilities. So I suppose it is possible that it

wasn't something that you yourself identified.

A. It's possible. I can only see what's on record from the inquest.

Q. Just so that you have it and so that you have an opportunity to comment on it, her evidence is that you have described:

"... the focal collections of neuroblasts in the sub-ependymal zone and focal collections of neurones in a haphazard arrangement in the deep white matter."

That's one of the ways that it's described. Not you personally; the report describes it in that way, which I think you said, when you looked at it from the inquest, you didn't see any reason to demur.

She says you do not describe "any associated malformation in the overlying cortex", which is something she would have expected you to -- whoever was identifying that -- if that was there; would you accept that?

A. I think in very subtle abnormalities, the cortex -- the surface of the brain -- may be normal with these subtle abnormalities deeper in the brain. I wouldn't necessarily expect any abnormality of the overlying cortex.

Q. She also says that whoever has described it in that way has described it as "haphazard cells" and that could

simply be normal paraventricular nuclei or residua in the germinal matrix. That could just be normally there.

A. I do think this is really Dr Mirakhur's evidence.

Q. Well, Professor Harding, just so that you have his view, refers to:

"Occasional neurones are present in the --

Sorry. I'm reading from 096-027-359, but we don't have to pull it up -- it's a very short report.

He says:

"Occasional neurones are present in the white matter. This is a normal finding. The only substantive abnormality is the presence of scattered neurones showing hypoxic change."

That's what he thinks is abnormal, the hypoxic change. Do you have a comment on that?

A. That's his opinion, yes, and it differs from Dr Mirakhur's opinion.

Q. Well, they will give their evidence on that. You have seen her -- I'm not going to go through all her comparative images, but she has produced other images to do with these ependymal dark cells. For reference purposes --

THE CHAIRMAN: I think --

MS ANYADIKE-DANES: I'm not going to take you into it.

THE CHAIRMAN: If the doctor's deferring to Dr Mirakhur's

view on this, let's move on.

MS ANYADIKE-DANES: Encephalitis. Is that something that you think you saw evidence of?

A. I think it would be useful to see the way I have said this in the inquest to show you how I weighted the evidence.

Q. 091-005-019. Then we can move through the relevant pages.

A. It's the handwritten part of the deposition.

Q. There's a second bit.

A. It starts, "there was mild inflammation of the brain".

Q. "I did not find any virus to cause this, though that does not exclude a virus."

A. And then you can skip a line. And then:

"... with a little inflammation of the brain. In a typical case of encephalitis, the degree of inflammation is more severe."

I'll explain my interpretation of that because I think it's important.

Q. Yes.

A. As I mentioned before, I had done a significant amount of research in encephalitis and had quite a lot of experience of encephalitis. What I learned from that was that any inflammation in the brain that cannot be explained must be mentioned and obviously correlated

with the history as well. So there was inflammation in the brain. It was not typical of what other people have called acute fulminant encephalitis. It was very mild. If I was to put it on a scale of 1 to 10, it'd be 1 or 2, but nonetheless it was present and therefore must be mentioned.

There were a lot of clinical queries in this case. One of them was encephalitis. I think I, in my deposition, and Dr Mirakhur, in a slightly different way in her report, said: right, there's inflammation, in generic terms this is meningoencephalitis. If there's inflammation of the meninges, it's meningitis; if there's inflammation ... encephalitis. We both said there were reasons why it may not be infectious encephalitis or viral encephalitis. We didn't find the virus. We also opened the opportunity to consider other diagnoses such as the -- we couldn't make or diagnose epilepsy. We said metabolic disorders may be included.

Because the inflammation was not typical of a case of lethal encephalitis, we had to open the possible diagnoses. So I think there was certainly mild inflammation in the brain. How one interprets that further, I can go into at any stage, but it must be mentioned.

Q. What did you think had produced it?

A. I thought the most likely cause was a virus. I've said that at the bottom of the report. No one has ever asked me, I think, because I'm not an expert witness in this case, of what I think has happened to Claire. I'm quite happy to give that opinion if I'm asked. You've asked me what I think has caused the inflammation of the brain. And can I answer it slightly as an expert, with my knowledge of the case?

Q. Yes, of course.

A. I think Claire had a viral infection that affected her tummy. Whether it was upper tummy or lower tummy, I think there was a virus inside her gut somewhere. And the reason I think this and others -- I should also mention I'm not a paediatrician or a neurologist or any of those things. Claire was significantly unwell when she came into hospital from a neurological point of view. If Dr Scott-Jupp and some of the others are to be believed, she had a sodium -- and please correct me if I've missed some of the information -- of 132 on first measurement. Dr Scott-Jupp and the others would say that should not be associated with a significant neurological compromise. And I think she wasn't obeying commands, she was ataxic, there were various things, if that's accepted.

Something must have happened to Claire before she

came into hospital. There could be an infection, it could be a seizure, and I can't comment on that. It can't be the fluids because she wasn't given any before she came into hospital. So I think -- and this is how I tend to put cases together when I'm trying to explain them. The primary -- and I'm not saying the only cause of Claire's ultimate illness -- must have occurred before she got into hospital to bring her into hospital. So what could that be? Others seem to have excluded seizures. I can't do that, I don't know if that's right or wrong. I think she has had a gastrointestinal infection. She has very mild inflammation in her brain. One of the causes of mild inflammation in the brain is when the virus spreads to the brain.

I think the most likely thing, but I can't say for sure, is that this virus, in some way, has caused some inflammation of the brain. What I think has happened next is -- and this is just my own opinion. Claire had a vulnerability to the effects of this virus or to any damage that was in her brain because of her previous history of epilepsy/seizures. It may be that because of whatever developmental or non-developmental abnormality caused her learning difficulties, she was a susceptible individual. I think Professor Neville and Dr Squier will say that as well.

So she's more vulnerable to a minor degree of brain injury. I think the infection, the virus, possibly a degree of meningitis, has set in chain something else. What happens next? I don't think this is a severe encephalitis. So I think there must be another factor going on. What is the other factor? Things I can't exclude or include are the things I've already mentioned. Her sodium dropped quite rapidly. Infections are known to cause a drop in sodium according to the other experts; I have no personal experience of that.

So the issue of fluids is obviously very important here -- and please acknowledge that that's outside my territory, but I want to make a suggestion of how I understand it. If it was the case that thousands of children, millions, all over the world were given this fluid regime and didn't have the severe reaction that Claire had, there must be something different about Claire, and I suspect that's the inappropriate ADH secretion that is associated with this infection that took the sodium down.

So if you follow what I'm saying, she's had an infection. Maybe just stomach, maybe not diarrhoea -- it doesn't matter, the same bugs are going to cause both of them. She's had a very mild encephalitic illness,

not one that would normally cause a normal child any damage and it has set a chain of events in place, probably with inappropriate ADH secretion. Beyond that, I can't really make it any further. But the combination of all of them has led to brain swelling. And I will reiterate that that's just an opinion.

THE CHAIRMAN: I understand, doctor. Thank you.

MS ANYADIKE-DANES: Thank you very much.

The inflammation cells that you see, in terms of trying to see, working backwards, what caused them, then you're trying to look at what is the character of that inflammation, I suppose?

A. Yes. That's right, yes.

Q. From the perspective of Professor Harding and Dr Squier, they don't see any kind of infiltration. That's one of the things that they would be looking for, that kind of response, and they don't see that. So even though you describe it as a "low-grade sub-acute meningoencephalitis", their view is that it's not that. But if, and I'm not saying it was your conclusion that it was that -- that might have been the conclusion of Dr Mirakhur based on the description that you provided of what you saw. But if it had been that, so if you got only a low grade -- which I think you've described as maybe 1 to 2 on a scale of 1 to 10 -- doesn't it become

all the more important to know a little bit about her clinical history? In fact you've drawn on some of that actually to try and characterise what is going on: know a little bit more about her clinical history, discuss a little bit more with her clinicians as to how a low grade sub-acute meningoencephalitis can, as what you see on the cells, end up with a fatal cerebral oedema.

A. Yes, and I think that was done.

Q. Sorry?

A. I think that was done in --

Q. You think that was done?

A. I've got good evidence that the case was discussed at one of our grand rounds or CPCs, one of our meetings.

Q. We'll come to what might have been the outcome of that in a little bit. But in any event, I think you're agreeing that all of that points to a further discussion.

A. Yes.

Q. Could you have improved the knowledge of the inflammation of the cells that you saw by applying different stains?

A. Yes, now. I'm not sure that we could have done it any better in 1996. The first stage in looking at the cells is, again, with this routine stain that we use for everything. We do it for everything because it does

help us with everything. This was an H&E stain and it showed lymphocytes in the brain. Lymphocytes are characteristic cells for many things, including encephalitis. Nowadays, I think you would try and sub-type those. I certainly would now. I'm not sure if it would have been helpful or even available in 1996. I can't remember.

Q. Professor Lucas provided a report for the inquiry. The reference for that is 239-002-011. If we pull up 012 alongside it because I think that's where he's discussing it. He says at the bottom:

"I am a little surprised that no one, even in retrospect, has performed specific immunohistochemical stains on the tissue slides to determine for sure the presence/absence of inflammatory T-cells or reactive astrocytes and microglia. In my book, infiltrating CD8+ T-cells are necessary to diagnose encephalitis in most cases and they are either there in the brain or they are not. In they are not, then it is not encephalitis."

A. Yes. And of course Professor Lucas isn't a neuropathologist. He has his opinion. Not all cases of encephalitis have CD8. In my experience, not all cases of encephalitis have CD8+ cells. They are common. I think the inflammatory infiltrate was so mild in Claire's case anyway that it probably wasn't going to

help. I would say, if I was doing this case now in 2012, I would have a whole battery of material that I would use on the case, yes.

Q. But I think, even from 1996, what Dr Squier is saying -- whose territory we're in, if I can put it that way, and for that matter Professor Harding -- and she is saying that there has been no -- if we look at 236-007-005. She says:

"There has been no attempt to confirm the observations made with additional studies. No Gram stains were done to look for bacterial cause."

Then she goes on later on in one of her other reports to talk about the stains that were applied and the stains that she applied. The upshot in 236-003-010 -- her conclusions were from OX15, which is mid-brain were:

"That there is no substantial tissue infiltrate, whereas in respect of OX16 [which is the pons], there is no excess of macrophages in the meninges and no evidence of meningitis or encephalitis."

Professor Harding puts it quite cryptically in his report. He says at 235-002-001:

"My experience does not support this contention. Given the marked degree of brain swelling noted clinically (including papilloedema and CT scan) and

confirmed at post-mortem, I consider it extremely unlikely that microscopic evidence of encephalitis would not be evident by three days. I have seen it occurring within 36 hours."

In other words, he's saying if it was there, he would have seen it and he doesn't agree that it is evident.

A. I think if you look carefully at what he was asked, "whether in your experience an acute and fulminant encephalitis" -- which is not what we said.

Q. I accept that.

A. That's a completely different --

THE CHAIRMAN: You're saying he's answering a different question?

A. Yes, he is.

THE CHAIRMAN: And your point about encephalitis is that you put the scale of inflammation of the brain -- on a scale of 1 to 10, you put it at 1 to 2, and that's what led you to tell the coroner that in a typical case of encephalitis the degree of inflammation is more severe?

A. Absolutely.

THE CHAIRMAN: Therefore, to be concluded from that -- or I conclude from that -- that you're raising this as a possibility rather than anything more certain?

A. Yes, and Dr Mirakhur did the same. If you read her

evidence, she says it is possible, I think.

MS ANYADIKE-DANES: You're quite right about the question he was put. He was put that question because I think Professor Cartwright posed it. In his own evidence, when he looks at the slides -- and he did this report for the PSNI at 096-027-359 --

A. He said there's no evidence. What he said was --

Q. If we pull it up there, he's dealing with a microscopic examination there, and he talks about the numerous blocks that are taken. He says:

"In these sections, there is no evidence of meningitis or encephalitis, inflammation of the brain and its coverings."

And then he goes on to say the other things that there wasn't or isn't any evidence of, and what he does see -- and then he says the point that I read out to you before:

"The only substantive abnormality is the presence of scattered neurones showing hypoxic change."

And his summary is:

"Acute hypoxic damage to nerve cells [in amongst other things], probably terminal."

If one goes over the page to 360, he says at (a):

"There is no evidence of acquired infection, meningitis, or encephalitis."

And down at the bottom at paragraph 4 he says:

"I consider meningoencephalitis excluded, both by microbiology and the post-mortem neuropathology."

A. Yes. Can I comment on that?

Q. Of course.

A. My experience of working with encephalitis is that any inflammation should be mentioned and quantified. I think I have done that. I've also commented on reasons why encephalitis -- why other diagnoses should also be considered because the degree of inflammation was so mild. I find it interesting that Professor Harding, who is a neuropathologist, says, "I consider meningoencephalitis excluded by microbiology", when, as far as I have read Professor Cartwright's evidence, who is a professor of clinical microbiology, he seems to take a different view of that in respect of encephalitis. I think he has been the strongest and most ardent proponent of encephalitis in many of his statements and he is a professor of clinical microbiology. For Professor Harding to make the statement about "excluded by microbiology" I think is significant.

The other point about Professor Harding's evidence -- and of course he's going to give his evidence -- is I think at one stage he called the

cerebral oedema "mild", and in that other report I think he called it "severe". I'm not too sure about that. It's not an issue in this part of it.

If you go to his conclusion, number 5, and maybe if we can either see all of it in one section or even in two halves:

"Hyponatraemia has been identified from the chemical pathological data. There is a history of vomiting, which may result in severe electrolyte disturbance. Hyponatraemia is known to produce brain swelling."

He seems to have excluded seizures. He seems to have included encephalitis. None of us really thinks this is a bacterial meningitis. If I read that, the only suggestion that he is coming up with is the vomiting. I think Mr Roberts and the others would say there was only vomiting in the few hours before Claire got into hospital --

Q. Yes.

A. -- and that the sodium was 132, which wasn't a cause of concern. So I don't think Professor Harding has gone any way to explain why Claire was in hospital with her neurological deterioration.

Q. The sodium was 132 from a sample taken at about 9.30. By that time, she had been vomiting practically every hour.

A. Mm-hm. But her sodium was in a range that others weren't particularly concerned with in a normal child. I'm talking about clinical issues that aren't really my territory, but you understand why I'm saying this. I think we have to try and explain why Claire was in hospital.

Q. Yes, well, in fact I think in your most recent witness statement, 224/4, page 7, you do concede it's possible, I think, that Claire did not have encephalitis in all the circumstances:

"But I cannot comment on the specifics of her death."

A. I'd really need to see how the question was asked.

Q. Have I misread that?

A. No, I think it is possible. I haven't made a categorical diagnosis of infectious encephalitis, I've left it open. I think it is possible that she had a very, very mild encephalitis, but other diseases I couldn't exclude.

Q. You talked about Professor Cartwright's view in terms of the microbiology as a professor in that discipline and consultant in that discipline. When you had such a low-grade inflammation, if I can put it that way, and yet on the other hand in a relatively short period of time the child had died, did it occur that maybe we

ought to seek some guidance from a microbiologist?
A. Well, there were microbiological reports. I'm not sure if further guidance was sought from a microbiologist at the time.
Q. If you look back on it now, could that have been an appropriate thing to have done?
A. I would certainly contact a virologist now, and I do all the time.
Q. But in relation to the information that you have about Claire, might that have been an appropriate thing to have done at the time?
A. I think it would have been an appropriate thing to do at the time, yes.
Q. Then I think the other matter is inappropriate ADH. The inappropriate ADH secretion is the thing that is tied in with the hyponatraemia, and the issue for the hyponatraemia is whether it's cause or effect. Would that be an appropriate way to categorise it?
A. Yes, it certainly seems to be an issue, yes.
Q. What role did you think hyponatraemia might have played once you've got your information on the autopsy request form of a serum sodium level of 121 with the knowledge that there was fluid restriction?
A. The way I read that was Claire had hyponatraemia and she was then fluid restricted, which seems to be a sensible

treatment for hyponatraemia. I think that's all it meant to me.

Q. Were you able to assess at all or form a view from the information that you had as to how that hyponatraemia might have developed?

A. Yes. Well, as I had said earlier, there were three causes of inappropriate ADH secretion.

Q. That's one.

A. Sorry, which?

Q. Inappropriate ADH secretion would be one route.

A. Oh, well --

THE CHAIRMAN: He's saying something different.

A. There were three causes of inappropriate ADH secretion and that's what I was focused on. That's how it was presented to me, as a syndrome of inappropriate ADH secretion causing hyponatraemia, and there were causes for it. As I said earlier in my evidence, if there hadn't been a rational cause for hyponatraemia, I would have done a lot of wider investigation and questioning.

MS ANYADIKE-DANES: Yes. In the comments section -- this might not be your comment -- but it says that a metabolic cause can't be excluded.

A. Mm-hm.

Q. What did you understand that to mean? Sorry, what it says is, "A metabolic cause cannot be entirely

excluded".

A. When Claire presented, she was encephalopathic. Encephalopathy is really a general term to mean a reduced level of brain function. The metabolic causes are widespread. They could be causes -- abnormalities of your amino acids, abnormalities of your biochemistry, a condition particularly called Reye's disease, hundreds of causes. But that would also include issues relating to any kind of metabolic disturbance of your body chemicals. That's Dr Mirakhur's statement, but I said something similar in my evidence as well. I said a wide range of things could still be considered possible.

Q. And if one was trying to sort of tie it together and see where that was taking us, how would that be investigated further? If the clinician sees "can't entirely exclude a metabolic cause", what does that connote to the clinician that they ought to be further considering?

A. They're obviously much more used to children who come in with metabolic diseases. There are consultant metabolic physicians, paediatric physicians, in the Royal. I'm not sure if there were then. They would be aware of the different spectrum of diseases that could cause a presentation like this in a child like Claire much better than I could. I think the main one would be

Reye's syndrome, but none of us found any evidence of that in the brain.

Q. That's what I was going to ask you. If you come to the view that: well, there might be something metabolic going on here, how much of that can you actually exclude from the evidence that you're looking at? I mean the particular kind of metabolic cause.

A. There are thousands of metabolic diseases and really we -- most of them you couldn't exclude.

Q. Most you couldn't exclude?

A. You couldn't exclude.

Q. Do you seek to exclude the ones that can be excluded to help refine things for the clinician?

A. I think the Reye's syndrome is one. It's very rare and I think -- I have seen one or two cases in my life, maybe in the 80s, early 90s.

THE CHAIRMAN: It almost sounds like a road to nowhere to start trying to exclude some metabolic disorders --

A. It is not really done by brain pathology in most cases. If the brain pathology is so non-specific, it's not really going to take you very far. These are more paediatric investigations in a hospital.

MS ANYADIKE-DANES: Sorry, I had put to you a quote:

"It's possible that Claire did not have encephalitis."

And I didn't tell you where that came from. It's 224/1, page 10, in answer to question 15(i). If you see the second sentence:

"It is possible that Claire did not have encephalitis in all the circumstances, but I cannot comment on the specifics of her cause of death."

A. That's right.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Thank you. Just so that I put it to you so you can address it because Dr MacFaul is going to give evidence later on, in his report -- and we don't need to pull it up -- he regards it remarkable that there is no reference to the low sodium made in the report. I characterise it in that way because you were saying you didn't draft that report, given that you or whoever is drafting it had access to the notes and to the autopsy request form completed by Dr Steen --

A. I thought it was in the clinical history that the sodium was 121, in the first paragraph.

Q. I think taking it further forward, where the low sodium takes you, is what I think Dr MacFaul is dealing with.

Then the final point is cerebral oedema because the one fact is that everybody's absolutely clear about -- and I presume you don't demur -- is that she died from cerebral oedema. The great issue has been: how did her

cerebral oedema develop to that extent that she coned and died. That's been the issue and what you've been exploring is the various routes to that oedema as were, for that matter, her clinicians; would that be right?

A. Yes.

Q. Can I just ask, if that's the end target and the issue that's been put is that what more could have been done if you ... Assuming that you weren't under constraints of time, what more could have been done to shed light on the cause of that cerebral oedema?

A. Do you mean in 1996?

Q. Yes.

A. That's a difficult question. Um ... Sometimes -- I don't know if I have a good answer for you.

In neuropathology and in medicine we only can get to a certain distance in a diagnosis and it's frustrating for everybody. It does happen. I think Professor Neville said that with neuropathology examinations you shouldn't necessarily expect anything or a definite answer. I don't think you're asking me just about neuropathology; I think you are asking me about the care as a whole. I'm not sure.

Q. Both, really.

THE CHAIRMAN: Sorry, there's no point in going --

A. From --

THE CHAIRMAN: From your perspective, do you think anything more could have been done in 1996 to try to shed light on the cause of the cerebral oedema?

A. No. Thinking back, and obviously you want to give Mr and Mrs Roberts the best answer you can, but I don't think we could have really taken it any further then.

MS ANYADIKE-DANES: Can I ask the question in a slightly different way? If you hadn't had such clear pointers, but all you had known is that this is a young girl who's come in on 21 October, she had respiratory arrest in the early hours of the 23rd, and she suffered fatal cerebral oedema, she coned and died, effectively, and that's all you really know -- and as I take it from the way you answered the chairman earlier, sometimes the information you get isn't terribly detailed. If that's all you had, what would you have done to try and identify what was the cause of that cerebral oedema?

A. Um ... I would have done a brain post-mortem. I was taking CSF. I would have ... The first thing I would have done, I think, would hopefully be to have the opportunity to have a much more detailed discussion on all the findings before you had to start a PM. But that's, in most, cases not possible.

Q. That's fine. If we pause there. If you'd appreciated that the consultant, the named consultant for the child,

for various reasons, had not actually much experience of the child or had seen the child or even treated the child, but that a paediatric neurologist had, would you have been wanting to speak also to the paediatric neurologist?

A. I think as I've said before, the more information you can get in order to pursue along a particular direction, the better. I'm not sure even know that we would have got any further in defining a diagnosis. I think the issues in this case and in other cases are not neuropathological issues, predominantly, or some of the issues aren't neuropathological. The issues here relate to conditions such as inappropriate ADH secretion, hyponatraemia, fluid balance, obviously. Things that are not diagnosable by post-mortem. One of the -- with Raychel ... I don't know, is Raychel's family here?

THE CHAIRMAN: No.

A. One of the ways of getting to the bottom of Raychel's case was I made sure that the specimens were seized at an early stage to investigate her biochemistry -- I can't remember, but I'll come to it -- her osmolality, all of those things.

MS ANYADIKE-DANES: What do you mean by "seized the specimens"?

A. I think Dr Loughrey was able to get samples that were

taken either in life or after death to look for chemistry results. That's what I understand. I do think really the neuropathology has been slightly helpful, but a wee bit unhelpful in coming to conclusions and the answers maybe lie outside the brain for a lot of what's going on here.

Q. So if I understand the sorts of things you think are most likely to have caused that fatal cerebral oedema are not necessarily the things that you would easily find during a brain-only autopsy, or any autopsy for that matter.

A. Or any autopsy; they're not really autopsy answers.

Q. So it's not that kind of evidence?

A. No.

Q. So you have to look far more closely, if you want to find out and understand what was happening to her in life during that last admission, and the best you can with the tests and results that were carried out on her at that time?

A. Yes.

Q. Is that what it amounts to?

A. I think that's fair, yes.

Q. We'll come to the post-autopsy discussions with clinicians.

To some extent you've covered this, although the

discussion can happen at any number of times. It can happen when you first get the referral to make sure you have got the right end of the stick as to what's being done and what are the important elements to it, if the referral form isn't sufficiently detailed, or presumably at any time when you're actually carrying out your examination, if you see something and you're not quite sure how that fits with what the clinicians might have seen. But is there not another very natural time to do it, which is when you've got as far with your investigations as you have and maybe you're at the point of writing your report, there may be a natural time to have a discussion with the clinicians at that stage, as in fact I think you said sometimes you did before you send out your report?

A. I think ... Can I --

Q. Of course.

A. -- show you 090-054-178, "Urgent for NSU". And I'll explain what that means.

Some of the other commentators have -- maybe rightly, but I don't think so -- been critical of various aspects of the post-mortem report. I think, and this is only my opinion, to take a snapshot of a single report that's 16 years old and to understand the whole process of a department and how it deals with

pathological information is maybe a simplistic thing to do. Professor Allen -- she's now Dame Professor or Professor Dame, I can never remember which way round it is -- set up the neurology department in 1973 on international -- to mimic international units. One of those was the Massachusetts General Hospital in Boston. The Beaumont Hospital in Dublin, and the Neurological Hospital in London. And what they do is a grand round, or we call it -- NSU, I don't know where it came from, neurosurgical unit, but I think it's where the meetings started. Our department is geared up for that meeting. I was there on Tuesday presenting a CPC, I was there last Tuesday presenting two CPCs. That is the core function, I believe, of our department.

So Claire's case, you can see, was being prepared for NSU. I have the slides that were part of the presentation for that and it's something we do with almost all of our relevant cases. So I am confident that Claire was discussed at one of these CPC meetings, which is the natural time, I think, to discuss it. It's a scheduled meeting, we have a rota for when we present, and I think that it is a much better -- my experience over 20 years is that it's a much more critical, robust way of interrogating information. It takes -- in those days, 1996, it might have taken me a week to prepare one

case for it. I think it was Dr Mirakhur who dealt with Claire's case.

Professor Lucas was very critical that there was no CPC done in this way.

Q. I'm going to come to that in a minute.

A. It was mentioned in some of my depositions that this had been done. I think this is a much better way of doing a CPC than a couple of paragraphs in a report.

Q. I'm going to come to that, but can I just ask you, do you see where it says "EBs out to Dr Mirakhur" and you have the date out as "6/2/97". What does "EB" mean?

A. She went back to reassess --

Q. Extra blocks?

A. Extra blocks were supplied to her.

Q. So that's dated 6 February. And then the date on the autopsy report is 11 February.

A. That's right.

Q. Does that timing suggest that you had the grand round, the meeting and then, as a result of that, you produced a report?

A. No.

Q. Or that's going on, the report goes out and the grand round is actually discussing what's reflected in the report and your material?

A. That is how I interpret this information.

Q. The latter?
A. Yes.
Q. So in other words, what I was asking you is: there's no particular evidence of there having been a discussion between the pathologists and the clinicians before the report goes out?
A. There's no record that I'm aware of. It doesn't mean it didn't happen.
Q. I accept that. What I'm now trying to find out from you is: how typical was it in 1996 to have a discussion like that before the report went out and you had your grand round and so forth?
A. I honestly can't remember. It depends, I suppose, how distant you are from the people you're interacting with. The Children's Hospital obviously is further away, if you know the anatomy of the Royal. We're right on the Grosvenor road site, so you're not going to meet your paediatricians as commonly. There is the telephone. Maybe dozens of conversations took place, maybe none took place, I don't know. But it's a small world, you do meet and bump into all your colleagues regularly. It could have happened.
Q. One of the things that Dr Squier says at 236-007-004:
"In this case, while two diagnostic conclusions had been reached in the final report, there remained further

uncertainties such as whether the history of diarrhoea and vomiting may have been associated with CNS infection or whether there was a metabolic disease. These issues should have been investigated with the relevant clinicians prior to finalising the autopsy report."

A. Yes. I think these issues would have been brought up at the CPC.

Q. Your view is they should be discussed at some point and it's not material whether it's before you finalise the report or after you finalise the report?

A. I think what often happens with the report is it goes, "Think about this, this is going to form the basis of the subsequent discussion", and then it would be discussed.

Q. If you wanted to have -- not necessarily you personally. If it was thought helpful to have a discussion like that to aid in the finalising of the report, who instigates that?

A. The ... The CPC or just ...

Q. No.

A. An informal discussion.

Q. For example, would you be saying to your consultant, whether it be Dr Mirakhur or Professor Allen, "This is as much as we have found. It might be a good idea to talk to the clinicians before we actually finalise this

report", or would it be one of the consultants who took that initiative themselves, given --

A. I think anybody could do that.

Q. Okay. Then if we go to --

THE CHAIRMAN: Sorry, is that more likely to emerge as an option when you have a report which is a bit inconclusive?

A. In 1996, I can't remember specifically. Now, obviously, it's very different; you e-mail people all the time.

THE CHAIRMAN: Yes, but the general point is: are you more likely to say, "Look this is a child who we do need to talk about because we've examined this, we've done our tests here, and we're still not really sure what went wrong"?

A. I think that's a fair point and I think the more complicated the case, the more likely it is it is going to be discussed at a group discussion.

THE CHAIRMAN: And Claire's case was complicated and --

A. And there's nothing clear-cut.

THE CHAIRMAN: -- and the outcome is rather inconclusive, isn't it?

A. Yes.

MS ANYADIKE-DANES: If we go to the autopsy report itself, am I right in thinking that the report writing, the first bit of paper that emerges, is the provisional

anatomical summary?
A. Yes.
Q. And that's at 090-005-007. That initial under the text on the left-hand side is your initial, isn't it?
A. Yes.
Q. So does that mean you prepared this?
A. Yes.
Q. The date of -- in the same way as we were looking at the request for autopsy, the date of admission is incorrect, the time of death is incorrect and is the reason for that because you took your information from the request form?
A. This information would have been transcribed largely from the request form. There is a mistake, I think it's of my doing. I think the time of death on the request form was probably -- could have been interpreted as 6.15 rather than 6.25, although the writing on the request form is actually less clear on the original than it is on the photocopy. But I think that should -- I would have meant that to say 6.15. The date of admission was taken from the request form.
Q. And is your standard form in that format so that you put the age and you don't have the date of birth?
A. Those would have been departmental policies that existed before I was ever there. I'm not sure why it's like

that.

Q. When you release this anatomical summary, what is its purpose?

A. Its purpose is really ... I'm a little bit surprised. I think this was in the hospital notes, wasn't it?

Q. Yes.

A. It is of no clinical value, to be honest. What we use it for is to keep in our system, so that our secretaries know when to list cases for further dissection for the brain cut. They keep a record in a rolling order and they generate -- it's really an internal document to be quite honest. It's saying very little that is of use to anybody except to us.

Q. Where do you get the history of acute encephalopathy from?

A. Well, she was encephalopathic when she came in.

Q. It's not actually described like that in the autopsy request form.

A. That's my history.

Q. Yes. So how do you read the autopsy request form to describe her history as acute encephalopathy?

A. Well, she was well -- she had slurred speech, she was drowsy, she had query seizures. Those are all features that would indicate encephalopathy.

Q. If you were going to put that history, is there any

reason why you wouldn't simply summarise the history from the autopsy request form?

A. This document really is of very little relevance to anybody except our department. And it's really just to keep in a list so when we come to do the brain cut, cases don't get missed.

I'll give you a different example. If this was a full post-mortem and there were lots of different findings -- maybe somebody with cardiac disease or something like that -- it would be of more relevance because you would be listing lots of anatomical findings. With a brain-only post-mortem that you haven't really examined at the time, it's really of no value to clinicians.

Q. And then you're up at the top as the pathologist.

A. Yes, for the reason I explained. Once the name got entered, it seemed to continue through the documents.

Q. Except this is your form.

A. Yes.

Q. You --

A. Yes. The department produces it, my name goes on it, yes.

Q. Yes, but you're issuing it, so it would have -- and you've initialled it.

A. Mm-hm.

Q. Anyway. The purpose of the -- if we move on from that and deal with the purpose of the autopsy report. Dr Carson, who's the medical director at the time -- sorry, it's his witness statement 270/1, page 7. He says that the purpose of the report is:

"To inform the clinician who may have requested the autopsy and the family in regard to questions about the person's illness or the cause of death."

Do you accept that that's the purpose of the autopsy report?

A. Yes and no. With a brain-only post-mortem, it's initially to inform the clinician of the neuropathological findings, which they can correlate with all of the other findings in order to inform the family of the cause of death or the person's illness. So it's only one part of the process. With a more substantial post-mortem, like with a coroner's case, for instance, you'll get a more substantial report with a definitive diagnosis and cause of death. With a brain-only post-mortem, it's really just one part of that process.

Q. So if you're doing a brain-only in this context, you're necessarily going to get into some sort of reconciliation between what the clinicians have found and what you've identified as you're only one piece of

it?
A. That's right, yes.
Q. Then if we look at the timing of it, the autopsy report is dated 11 February 1997. Claire died on 23 October 1996. And the brain cut is on 28 November 1996. Why does it take that amount of time to produce the report?
A. Neuropathology reports do take longer than most pathology reports. I would like them to be slightly faster, but I would like them to be accurate. I'll take you through the process. In fact, I think I had a pie chart that might help with this piece of information.
THE CHAIRMAN: You did.
MS ANYADIKE-DANES: You did have a pie chart.
THE CHAIRMAN: 224/3, page 74, I think.
MS ANYADIKE-DANES: There it is there.
A. If we start at the very top, there's a very thin red line.
THE CHAIRMAN: Between the blue and the green?
A. Yes. That's the time -- let's take that as the time of the post-mortem. The green is the time that the brain is being fixed in formalin, which takes about a month, and I think in Claire's case it was about five weeks. In Claire's case, the major time it took to produce the post-mortem is in the purple. That, unfortunately, is

laboratory processing time. The tissue takes a couple of weeks to go through the processors and then to have various stains done through this number of weeks.

That is completely dependent on the staffing level of your laboratory. There are ways to reduce that purple time by automation and computerisation, so nowadays we could shave about two weeks off that time. Then we get to the blue phase, which was Claire's -- the case was ready for the pathologist, I think on the ... About 6 February and was reported, typed, and drafts done on the 11th. So the pathologist time in all of this was about five days. The whole process might seem that you're keeping the family waiting and, obviously, we don't want that to happen. We would like it to be quicker. We could only take about two or three weeks off that with all of the techniques we have now.

I know there were college guidelines in 1993 that suggested four to six weeks, but to me those guidelines were self-contradictory because they also said that you needed to fix the brain for about four weeks. That would mean that you were doing all these other processes in two weeks. In 1996, we didn't have computers, PubMed, Internet searches. These are complicated cases, they need time. The fact that we're still talking about Claire's case 16 years later means that this wasn't

straightforward. So the neuropathologist time was about five days, but unfortunately the whole process takes an awful lot longer.

THE CHAIRMAN: I think you're at one with Dr Squier on this because she says that she doesn't think that the Royal College guidelines of four to six weeks are often met now, never mind in 1996.

A. Frankly, I think they're quite dangerous because most of my practice is forensic and I'm standing in the Old Bailey or in courts defending cases as important as Claire's but in a different context. You have to take your time to do these properly. And I was at one previous inquiry, the Robert Hamill inquiry, where I was possibly criticised for taking three months to write a report as well. I must say that the only recommendation from the Robert Hamill inquiry was that neuropathology should be better funded.

THE CHAIRMAN: You might find that again for what difference it makes, but you might also suggest to the Royal College that they reconsider that part of the guidelines. If they're unattainable with the improvements --

A. I think they're frankly dangerous.

THE CHAIRMAN: And because of improved machinery and computers since 1996, they are still not achievable?

A. No, I don't think so. I wouldn't take a job in a department that told me six weeks to produce a report.

MS ANYADIKE-DANES: I'm not entirely sure that Professor Lucas feels it's an undue time.

A. No, he's not a neuropathologist.

Q. What I would ask you is: when you are submitting to audit, is this one of the things that's being looked at, not only to look at the times, but also to look at what might be the reasons for the length of time it takes?

A. Absolutely. The reason I have this pie chart was because I had done an audit, but not from 1996. I do this every year and it just meant all I had to do was put Claire's details in it to get a pie chart like this.

We have a wide range of inputs from paediatric pathology, forensic pathology, and our own in-house cases. One of the reasons to do the audit was to "jizz up" our forensic colleagues, to get things to us faster and to speed up the process. We can use audit in that way. We are able then to show, "Professor Crane, if you get stuff to us faster, we'll get results to you faster". We make every attempt to do that within a safe working environment.

Q. Can I ask you two things from that? One, I can see there is just an amount of time that's taken up with the stages of laboratory preparation and review and it's not

clear that anything that the clinicians do can particularly helps you with that. But is there any way in which the better gathering together of the clinical information and better assistance to the pathologists from the outset might help that turnaround time?

A. It's not really -- it's not external to us, it's an internal process.

Q. Then the other thing is: if it is something that's looked at in audit and obviously the reasons for it are reviewed, which presumably is why you break it down in that way, is it something that you raise concerns about -- and I will preface it in this way -- because when Professor Lucas was looking at the case, his view was, with such a long response time, sometimes the clinicians get rather dislocated from the process and it makes it harder to engage in the reconciliation activity that you want to.

A. I see his point, you forget the case. We do have a schedule about to put this on. One of the things that I try and use this information for is -- I mentioned a minute ago that one of the reasons I can't be here tomorrow is that, at last, I'm interviewing for a second neuropathologist. I've been single-handed for over two years for the whole country. So we can use this information to push that.

Q. Of course. Then if I can ask you a question -- you've already helped us with why the report isn't signed and so on. But it's a slightly different issue in relation to that, which is attribution, which is -- you have said that all along on the headings, because of the way the thing started, you've been shown as the pathologist when in fact it's not your report, which is your evidence. But you, at that stage were, no matter how skilled a registrar you were, you were effectively still a trainee and you had a consultant who you were discussing with and who was also carrying out their own work in relation to the case. Should the consultant not sign the report or in some way be formally associated with the report on its face, if I can put it that way?

A. Yes. The consultant ... First of all, I say yes, I agree with you, but also I'll say it was ... I went through the pathology records from 1996 and that seemed to be the pattern that it was only the registrar's name on it. I don't think we have found the signed copy now. I suspect Dr Mirakhur will have signed it. You'll see maybe in the cases to come that two names are on the front of the page and now, in Belfast, my name is on virtually every report because I write every report. In 1996, maybe it should have been done, but it wasn't a policy of the department to do that. It caused, as

you know, a lot of confusion for the inquiry and myself and other people in what happened next.

Q. Yes. So if the report had been signed, the person who would be signing it in your experience, in 1996, would be the consultant, Dr Mirakhur?

A. Yes. I think so, yes.

Q. What Dr Squier and Professor Lucas both say is -- and maybe you will see the extent to which you accept this would have been better practice -- that the consultant, irrespective of signing, should be identified on the report because they are ultimately the person who is taking responsibility for the trainee's work.

A. I agree with that. It was the policy of the department then, yes.

Q. If we just go through some of the issues on the report itself, those details on the top part of it, the formal part of it, if I can put it that way --

THE CHAIRMAN: I'm going to pause for a few minutes.

I'm afraid we're going to have to sit late to try and complete Dr Herron's evidence because that will leave the way open for Dr Mirakhur to give evidence tomorrow morning and Dr Webb to start his evidence tomorrow afternoon. So let's take a ten-minute break, doctor, and we'll come back and do everything we can to finish your evidence this afternoon.

(3.45 pm)

(A short break)

(3.55 pm)

MS ANYADIKE-DANES: Dr Herron, I'm going to take it that your evidence is that this is not your autopsy report. You didn't draft it and we've heard your evidence as to how you think the anatomical summary and clinical summary -- what their origins are. You though, just so that we're clear, provided all the information on the brain description and some for the histology, would you have?

A. I think just the brain description.

Q. Just the brain description. And the reason for that, is it, because Dr Mirakhur had her own examination of slides?

A. I think so, yes.

Q. Okay.

A. The brain examination occurred in November.

Q. Yes, I understand that. Thank you. Then there are matters that we can take up with Dr Mirakhur.

What I would like to ask you about is the issue of reconciliation. I do understand that it's not your report, but nonetheless it's a process that the pathologists have to go through with the clinical records and also, at some stage, with the clinicians to

try to produce a reconciliation, if it can be done, with what you see and what the clinicians have experience of in terms of their treatment of the child. And I think you have said that it would have been helpful to do that before the report, but in any event the practice at that time was very certainly to do that after the report.

A. That's correct.

Q. Would that be fair?

A. Yes.

Q. The 1993 guidelines say that what you have to try and do is:

"To reconcile so far as possible the major clinical problem with the pathological findings and to present any inconsistencies in the findings and suggest any steps to be taken such as further opinions, audit meetings and so forth."

I just give the reference for that, 236-007-054. And that is what the guidelines say should be in the report. So you do the best you can with the reconciliation. If there are inconsistencies, so if you can't resolve matters completely, then part of what the report should do is suggest any steps that can be taken such as further opinions and audit meetings. That's what they say, but would you accept that's a reasonable thing to do trying to achieve in your report?

A. I think if you were just producing a report, I think you should do that. If that was a stand-alone document and that's all that the clinicians were going to receive. I still feel that meeting them all in a group with the radiology and everyone else is a much better method. I'll give you an example if that's okay.

Q. Of course.

A. Last week, we met with the team -- it's about 100 now. Maybe it was 30 or 40 then -- and presented a very difficult case of a young man who died of a possible genetic or maybe not a genetic illness. We presented it, the neurologist who looked after him was there, the radiologist, the genetics people probably as well, presented it, a bit like with Claire. This is as far as we can take it, what can we do next? And that is what goes on at that meeting, you see what can be done next. There are more things you can do now than you probably could have done in 1996. There are a lot more genetic tests and there are a lot more tests we can source out around the country and that is what -- I can't remember what conclusion was reached with Claire, but that is what we do and that's a reconciliation meeting.

With a plan, how to take cases further --

THE CHAIRMAN: Just before you go on, do I understand you correctly that you're talking about this meeting now

involving approximately 100 people?
A. It probably is 100 people now.
THE CHAIRMAN: Whereas if you go back 15 years, it's 30 or 40 people?
A. From memory, yes.
THE CHAIRMAN: The general groupings are, you'd have the pathologists --
A. Pathologists, the radiologists, the paediatric neurologists, the adult neurologists, the neurosurgeons, the neuropsychologists, the neurophysiologists -- which would include the EEG people -- medical students, registrars from those departments as well.
MS ANYADIKE-DANES: You're describing what happened in 1996?
A. That was in 1996, yes.
Q. Is that in relation to every case where there's a hospital autopsy or does it extend even to coroner's cases?
A. What I do -- that meeting is designed for cases with a neurological aspect because it's obviously a neurological field. It will depend. A lot of my work is homicide, so obviously it's not appropriate to take it there. It will only work if it is appropriate for a group meeting. The cases that I deal with -- I deal a lot with the post-cardiac surgery deaths. I go to the cardiac surgeons' CPC and present there. And people who

die in intensive care, I will go in intensive care and we have a meeting like that as well. So the ones that the -- the meeting I'm talking about is predominantly neurological deaths. We do present coroner's cases there as well.

Q. Thank you. That's actually what I'm trying to get at. I know what you're saying you do now, but I also understood you to indicate that that's not a recent practice. Is this something that also was happening in 1996?

A. Yes.

Q. And in 1996, would that have happened also for a coroner's case?

A. Yes, as long as it wasn't something like a homicide or --

Q. I understand that.

A. Yes.

Q. Thank you. So that's a routine thing?

A. Yes.

Q. A meeting for all children -- in this case we're talking about children. That's the particular focus.

A. The focus of that meeting was neurological deaths in adults or children.

Q. I understand that, but I'm just refining that. In our case, we're looking at the children. So all the

children who died with some neurological element to it -- which cerebral oedema leading to coning, presumably -- those children would be presented at some sort of grand round?

A. Yes.

Q. Thank you. To the extent to which Professor Lucas and Dr Squier chime with the guidelines in saying that this attempt at clinicopathological correlation is something that should be done in the report and then you have your meeting; is that a difference in local practice?

A. I think it does reflect local practice. Doing it now, we do both. I would have probably a longer final CPC now as well as the meeting. But really, our focus was on the sort of international meetings that went on, that is the way we tended to do it here.

Q. So if the NSU or the grand round is going to become an important part of your clinicopathological correlation, which it is in the way that you have just been describing it, then does it not become very important to record what happens in that grand round because that is the place where you put together the pieces insofar as you can?

A. Yes. This has been discussed at our meetings quite often. In 1996, we didn't keep an attendance; we do keep an attendance now. The reason the meeting isn't

recorded or minuted is because it tends to be extremely critical and confrontational. There are a lot of big egos and personalities in that room who want to tell their friends that they know more than anybody else, and it really is -- I mean, I've been in many courts all over lots of local countries. It is far worse than anything I've ever faced in court.

THE CHAIRMAN: Worse than lawyers?

A. Even worse than lawyers.

THE CHAIRMAN: But to move aside from the joke, the point of the question that you were asked by Ms Anyadike-Danes was that if this is a contribution towards reconciling the different views or uncertainties, then in principle, of course it must make sense to have some sort of record or minute of the meeting, and surely it might also then control some of the runaway egos if they know what they're saying is going to be recorded.

A. But it would also stop them asking questions and making critical comments. I take your point and I agree that an action plan at the end of the meeting would be useful, "These issues were discussed and this is what we should do next in an individual case".

THE CHAIRMAN: Let me take it down to a simple level here. You're fairly confident that Claire's case was discussed at such a meeting.

A. Yes, I am.

THE CHAIRMAN: The trouble is that Mr and Mrs Roberts have no idea what the outcome is. They have no idea what was discussed, they have no idea about the extent to which there was or was not agreement. At the inquest, when it eventually came along, they were left with an autopsy report which was really quite inconclusive. That's not to say that the discussion at the grand round would have been conclusive, but it might have shed more light on what happened to Claire or might have given them more information on what happened to Claire. And it is that lack of knowledge because this isn't just done for the benefit of the doctors or for future teaching and training of doctors, it is done for the families, isn't it?

A. I agree with you entirely that what would normally happen now is that, say the case we had two weeks ago, this is what we do next and we do those things next. The neurologist would probably write to the family now and say: listen, we've all discussed this, these are the things that were discussed, these are the areas of uncertainty, these are the areas of certainty.

THE CHAIRMAN: Can it lead to a revision of the report?

A. Absolutely, yes. Well, if the report isn't ... We find it very useful sometimes, before you finalise the

report, to discuss it with everybody.

THE CHAIRMAN: That's what you referred to this morning by sending out, in effect, a provisional report.

A. And then you bring in all the information, this is what we think so far, give us all your opinions, and we go on, take it back, or this is what you do next: you send blood for genetics, you do this, we're not going to take this any further. But I agree that the families now -- I think they do write to the family. Clinicians will write to the families, I've discussed this with my colleagues, and you let them know what's going on.

THE CHAIRMAN: So the families are served better by what is happening now than they were 15 years ago?

A. I don't know what individual clinicians would have done 15 years ago. But I think communications in general in medicine are better now. There's a lot more communication between doctors and patients' families now.

THE CHAIRMAN: Thank you.

MR FORTUNE: Can we find out who exactly decided that there should be no recording at these meetings? Because if you recall, the same issue surfaced in Adam's case. Because if there was a meeting, whether it's called a morbidity meeting or --

THE CHAIRMAN: As I understand it, Mr Fortune, it's not that

a specific decision was taken not to record; no meetings were recorded.

A. This type of meeting is not minuted or recorded.

THE CHAIRMAN: It hadn't been before and it still isn't, but the difference now is that you have a --

A. We have a register of people who attend and we also will probably -- it's unfortunate that I wasn't able to trace records of all the years that we've gone by. But there will be a paper record or an e-mail record now -- we send out e-mails to say who will be discussed. Obviously, that didn't happen in 1996.

THE CHAIRMAN: Okay.

MR FORTUNE: Even in Adam's case, we had difficulty in identifying as and when a particular individual was the subject of any report.

THE CHAIRMAN: Absolutely. That what leads me to the view that what was happening in 1995 for Adam and in 1996/97 for Claire just wasn't adequate. It doesn't lead to the families finding out much more. There's a question mark about how much more the doctors learnt.

MR FORTUNE: Perhaps it doesn't necessarily lead to better education for the juniors because --

THE CHAIRMAN: To go back to Adam's case, it also raises an issue about whether anybody actually did face down Dr Taylor.

MR FORTUNE: We will never know.
THE CHAIRMAN: If there are big egos and people speaking out at this -- well, anyway, I've got the point.
MS ANYADIKE-DANES: If you're going to have a grand round like that, are the medical notes available for people to look at so they can familiarise themselves with the issues?
A. The clinicians present the clinical history at the meetings, so I would assume they'd have the notes to use.
Q. When you were answering this morning, you gave the indication, which you have just answered the chairman now, which is that one way of doing things is to draft your report as far as you can, have a sort of discussion, and then produce a final report, which in some way incorporates all of that. That's one way of doing it.

Another way of doing it is to produce a final report, recognising that you want to discuss matters and then having your grand round and then with some sort of signposting, if that is the way it works, as to where we may go from here.

A. Yes.
Q. Either could have been happening in 1996 or both maybe. Both Dr Squier and Professor Lucas are a little critical

about the failure to reconcile within the report itself.

But anyway, I was moving you on to the importance that that puts on an effective grand round discussion, if that's where all that is actually going to happen. And you've given a very good reason why, at that stage, people didn't want to have things recorded. And I understand that. But if there was any sort of consensus about what we might do, how did that find expression anywhere? Even if you're not taking minutes and you're not particularly identifying every person who's participating, if you have some line as to where we might be going now with this case, where would you find the evidence of that?

A. In the actions of anybody who was at the meeting. If there's no record I understand that you're not going to have a: you do this, you do that. The consensus might be: have you thought of this, did you do that, maybe you should have, go and think about that and take it from there. It really depends in what line the further work needs to go. If it's a clinical line, the clinicians will take that with them. If there's something more we can do pathologically, we will go back and do that.

Q. And you will see it in the action that's taken, although you may not be able to relate that to any particular discussion. What Professor Lucas says about it -- he

puts great store apparently in his report on having some sort of conference and you can find it at 239-002-012. He said:

"Perhaps, had there been a mortality conference after the autopsy, a bright clinician might have asked, 'But is that enough inflammation/encephalitis to account the for what happened?', and the initial story would have unravelled and a focus on other causes such as hyponatraemia might have emerged".

That's one of the benefits of having a meeting like that, isn't it?

A. Yes.

THE CHAIRMAN: Sorry, doctor, let me go back to this again. I don't quite understand. You have said if the autopsy report is prepared in draft or provisional form and it is circulated and somebody comes up with ideas like this, then that allows for it to be reconsidered before it's issued, maybe revised, maybe some more work done or whatever, but it can alter the content of the final report.

A. I think if new information becomes available, yes.

THE CHAIRMAN: Okay. That seemed to be the exception rather than the rule, but the rule was that there would be a discussion at the grand round; okay?

A. Yes.

THE CHAIRMAN: By that time, the autopsy report has been issued.

A. No, it hasn't been sent. It can be sent to the -- "Listen, we're going to talk about this next week, this is what the findings are." What do you mean by "issued", sorry?

THE CHAIRMAN: Has it gone to the GP, has it gone to the family?

A. No.

THE CHAIRMAN: So even at the grand round stage, it hasn't gone out yet?

A. No, we don't send reports to the GPs and the families; we only send them to the clinicians involved.

THE CHAIRMAN: So even at the grand round, it hasn't been finalised?

A. It depends what sort of case it is. If it was a straightforward case, it would be finalised. If not, any further useful information could have been brought back and added to the report.

THE CHAIRMAN: Do you see anything in Claire's case which makes you think that anything came out of the grand round to contribute to Claire's report?

A. I haven't seen anything that has added -- it's 16 years ago and it was Dr Mirakhur who, I think, took it to the grand round. It doesn't seem like anything has been

added as a result of that. From a pathology point of view, I'm not sure.

THE CHAIRMAN: Assuming it went to the grand round, none of the 30 or 40 people who were there discussing Claire's case seem to have picked up from the discussion at the grand round any point which then led to the report being altered or added to before it was issued?

A. It doesn't seem to have changed things.

THE CHAIRMAN: Is that --

A. I don't know what the discussion in Claire's particular case was.

MS ANYADIKE-DANES: Dr Herron, the section where you might be trying to or where it was trying to reconcile, so far as it can be done, was in the commentary section, which is at 090-003-005. And I think you have said that that leaves certain things hanging because it was just a piece of the information and you needed to have further discussion with the clinicians in order to refine the thoughts, if it could be done, as to what actually was the cause of her death.

What I had asked you actually this morning, when I realised that you could take this to a grand round and that the outcome of the grand round could lead to a revision of the report, is whether it's possible to tell whether what we've got is the final report with

whatever anybody's going to add to it as a result of the grand round, or if what we've got is the report that was taken to the grand round. And I think you fairly said that you couldn't tell.

A. Yes, I don't think I can tell you.

Q. And given that the grand round doesn't lead to any minutes or even any clear note of what the outcome was, from what you're saying it's not really possible to know what people thought or the extent to which that might have assisted in any understanding of what happened to Claire.

A. I think that's right, yes.

Q. Leaving aside developments that happened since 1996, standing at 1996, would you not consider that to be a deficiency in that system?

A. It has its benefits and it has its deficiencies. I do think if -- I suppose there could be some way of recording outcomes without stifling conversation. I think that might be the best solution to that.

Q. Is that something that was discussed amongst you as to how to make best use of the grand round system, if I can put it that way, whilst assisting in communicating more openly or more directly the outcome of those discussions?

A. I don't think it was ever a formal ... I do remember

some discussion several years ago, which was informal, about whether you should record things at the meeting. I think it was just like a chat in the corridor, that sort of discussion, and they said that the reason we don't is because then people wouldn't voice their opinions so openly.

Q. Yes, but in terms of Claire's case, Claire's case is one -- I think it was the chairman's expression -- which was a little inconclusive going on to further discussion. In fact, that's precisely why you wanted further discussion in relation to Claire's case; would that be fair?

A. Sorry?

Q. Claire's case was not one where there was a conclusive outcome.

A. That's right, yes.

Q. So that would be the particular kind of case which you would want to have discussed at a grand round, leaving aside what was the normal practice --

A. Yes.

Q. -- with the hope that that could lead to something more conclusive?

A. Yes.

Q. If that's the case, who's charged with the responsibility of identifying what the ultimate position

is?
A. The ultimate position in terms of diagnosis?
Q. Yes.
A. I think everybody takes their own message away from the meeting. I don't think anybody is in ...
THE CHAIRMAN: For the purposes of the autopsy report, it has to be Dr Mirakhur, doesn't it?
A. Yes, but I thought it was a general question. Yes, if an issue comes back about the autopsy, then the person who's writing the autopsy report will take that back.
MS ANYADIKE-DANES: If it's not a thing that the pathologist can help any further with, ie they've made their contribution and as the discussion emerges it becomes clear that this is not something that we can get better evidence from pathology, this is something that clinicians really need to spend a little bit more time thinking about from a clinical perspective -- if that's where it goes then is it then the consultant, the child's consultant, who's responsible for tying all those ends up and deciding what the ultimate cause of death is?
A. I think that commonly occurs: that when there's a consensus of information gathered, whoever learns most from that will take it and use it to their best ability.
Q. I see that, but in a case like this where it's

a consent-only autopsy, there are two purposes: of course, the clinicians themselves hope to learn something about the way in which the child died, but as you know, the families are also wanting to know what happened. So for that consensus or ultimate decision as to what we think is the cause of death or best we can do, if the pathologist can't help further with the pathology, is it then the child's consultant who determines that and then communicates that to the family?

A. I think the clinicians will take all of the messages from the meeting, anything that they can learn from it, and use all of that information to come to whatever decisions about the case that they can take forward. That will include pathology, radiology, laboratory, clinical details, and if that helps them to take things forward then, yes, they will take that forward.

Q. Is there any discussion with you once they've reached that view -- I don't mean you personally, the pathologist -- as to this is where we think we are and this is what we are going to communicate, just to make sure nothing has been misinterpreted?

A. That does come up, yes: this is far as we can go, this is what we know. Yes.

Q. And in fact, there was a communication with the GP and

the family. They didn't get the autopsy report, but they got letters. The GP, Dr McMillan, was informed that the changes were in keeping with a viral encephalomyelitis meningitis. And that is at 090-002-002. There we are. That's what the GP was told. I'm just going to pull up the equivalent for the family. 001. If we can put the two up alongside.

On the left-hand side, the GP is being written to by Dr Steen; on the right-hand side the parents are being written to by Dr Webb. You can see how that is described:

"In summary, the findings were of swelling of the brain with evidence of a developmental brain abnormality and a low-grade infection. The reaction to the covering of the brain and the brain itself is suggestive of a viral cause. The clinical history of diarrhoea and vomiting would be in keeping with that. As this was a brain-only autopsy, it is not possible to comment on other abnormalities in the general organs. No other structural abnormality in the brain has been identified."

And I have already taken you to the relevant part of the letter that Dr Steen writes to the consultant.

We asked Professor Lucas and Dr Squier the extent to which they felt that was an accurate representation or

summary, if I can put it that way, of what was being said in the autopsy report. And Professor Lucas' view was that:

"Drs Steen and Webb have overinterpreted infection pathogenesis compared with the original autopsy report comment, which was more cautious. So in that sense I do not agree with it. A depiction of developmental abnormalities in the brain, whether actually true or not, would have been of comfort to the families."

And that's his position. I should give the reference. It's 239-002-013.

Dr Squier's position was:

"These letters used the autopsy diagnoses to explain Claire's terminal illness and death and appear to interpret the diagnosis appropriately. There is no mention of the low serum sodium and how this may have played a part in Claire's death."

The reference for that is 236-007-010.

From your point of view, do either or both of these faithfully or accurately reflect what was in the autopsy report? Maybe if you start with the one to Dr McMillan first.

A. I think the autopsy report said more and was less specific.

Q. More and less specific?

A. Yes. Said more and was less specific than the one on the left.
Q. Does that mean that you have some sort of agreement with Professor Lucas, who sees the correspondence as having overinterpreted the infection pathogenesis?
A. The letter seems more certain, I think, a little more certain about that, yes.
Q. Than you would have been?
A. You asked me about the post-mortem report.
THE CHAIRMAN: It's more --
A. The report said "possible", but they also gave other possibilities.
MS ANYADIKE-DANES: As a following -- this letter to --
THE CHAIRMAN: Sorry, just a moment. You were going to ask about the right-hand page as well, I think.
MS ANYADIKE-DANES: Yes, which is the letter to Claire's parents.
THE CHAIRMAN: How do you think that reconciles with the autopsy report? This is Dr Webb's letter to the Roberts.
A. I think he is less ... He says it's "suggestive of a viral cause" and correlates it with the vomiting and the diarrhoea. It's a matter of semantics. It's "suggestive of" versus "in keeping with". There's not a lot, but he has added why, an extra reason why it

might be a viral infection, the history of diarrhoea and vomiting. I suppose it's slightly less specific.

THE CHAIRMAN: Okay, thank you.

MR FORTUNE: Sir, before my learned friend moves on, is Dr Herron suggesting that a better course for a consultant to take when considering the general practitioner is merely to say, "Here's the post-mortem report, read it and, hopefully, understand it yourself"?

THE CHAIRMAN: I don't think he said that. He wasn't being asked it, but he was being asked to comment, since he had some involvement in Claire's investigations after Claire died. He was being asked to express a view on how the letter, which your client wrote to the family GP, sits with the autopsy report.

MR FORTUNE: Well, I --

THE CHAIRMAN: And frankly, he has said it doesn't sit all that comfortably.

MR FORTUNE: Yes, and following on from that, the question I'm posing is: how does a consultant then summarise a post-mortem report in a case that is complex like this without attracting criticism of the kind proffered by Professor Lucas?

THE CHAIRMAN: Well, sorry, there are a couple of options. I think you said to me a few minutes ago that typically the autopsy report is not forwarded to the GP; is that

right?
A. We only send it to the clinician involved.
THE CHAIRMAN: And it's a matter for the clinician about whether it's sent to the GP or not?
A. Yes.
THE CHAIRMAN: Right. If you can't help me on this, don't guess, but do you know how frequently or otherwise the clinician might send to the GP the autopsy report?
A. I don't know. I can't answer that.
THE CHAIRMAN: But it does happen, does it?
A. Well, what happens, sometimes we get asked to send the family a report and we don't do it. What we say is, "We will send it to your clinician, contact them, and depending on what the relationship is, they can send it to you or to the GP". It would rarely go straight to a family because that can be very difficult information to handle. It does happen, but I don't know how often it goes to the GP.
THE CHAIRMAN: If you don't send the report -- say in Claire's case if a decision was taken by Dr Steen not to send a report to Dr McMillan, then the query is how you would inform Dr McMillan of the reasons for Claire's death?
A. I think that's obviously a decision for the individual doctor, but she would have more information than was

just on the autopsy report and could synthesise those and send them -- any doctor to a GP -- in a way that could be understood by the family.

THE CHAIRMAN: Thank you.

A. But it is up to the individual doctors.

MS ANYADIKE-DANES: Just to help, Dr Herron, because you have said you were aware of the 1991 guidance from the joint working party. If we pull up this section, 236-007-070. 3.4:

"It is important that after the post-mortem, the results are communicated and explained to the patient's relatives as soon as possible. This may be done by the hospital consultant ... In either case, a copy of the final post-mortem report should be sent to the general practitioner for information."

One of those reasons is because it might be the GP who is helping them understand it, but in any event this guidance seems to indicate that the final report ought to be sent to the GP. By whichever route that goes, they ought to end up with one.

A. Which guidelines are these, sorry?

Q. This is the 1991 -- the one I pulled up for you before, the report of the joint working party.

A. I think it's sometimes done, I'm not sure if it's generally done.

Q. I'm not indicating that you as the pathologist do it, nor do I think the guidance is saying that. They are simply saying that the report ought to be sent to the general practitioner.

A. That may be the case. I know it is sometimes, but I don't know how often it is sent.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Thank you. The position that Claire's parents had -- and one can see it in Mr Roberts' witness statement, I think it is, of 253/2 at page 4. If you look at the last paragraph, this is a meeting that he and his wife have on 3 March. As I understand it, Dr Steen received the report some time after 11 February 1997. So she would have received the report. At least she's got the results, they met with Dr Steen to discuss the post-mortem results:

"Dr Steen informed my wife and I that the post-mortem had identified a viral infection in Claire's brain responsible for the brain swelling, but that the virus itself could not be identified. Dr Steen explained to my wife and I how an enterovirus starts in the stomach and can then spread to other parts of the body, as in Claire's case. She did not discuss Claire's sodium levels, hyponatraemia or fluid management."

If that is what Dr Steen did in fact explain and

discuss with the parents, how accurate a version of events is that, bearing in mind your own investigations on the pathology?

A. I think the situation is more complex than a viral infection of the brain. As I said in my -- what I maybe understood what was going on with Claire was that, at the most, there was a very little infection of the brain, which wouldn't have explained her bad trajectory. So there must be other issues involved as well.

Q. To help you, let's pull up that comment, 090-003-005, that's where the report has it. I wanted that alongside the previous document. In any event, you can see that that -- what is being said there is that:

"The reaction is suggestive of a viral aetiology."

Whereas in fact, if the Roberts have correctly recalled what Dr Steen was telling them, they were saying that the post-mortem -- it's 253/2 at page 4 -- had actually identified a viral infection that was responsible for causing that brain swelling, although you hadn't been able to identify or isolate the particular virus.

A. Sorry, I understand what you said, but the question again is?

Q. What I'm asking you is therefore how accurate a representation is it of what you actually found at

post-mortem, what the Roberts are recalling Dr Steen told them?

A. I think it just focuses on one of the issues and I think Dr Mirakhur said "a possibility", but didn't exclude other causes. It was a bit more focused maybe.

THE CHAIRMAN: Okay, thank you. Let's move on.

MS ANYADIKE-DANES: Then if I can ask you about a slightly different point, which is to do with tissue sampling.

Obviously, you take tissue in order to make your blocks and then to cut your thins and prepare your slides and so forth. Where is it recorded what you do with that tissue when it's retained after the post-mortem?

A. In a number of day books. In 1996?

Q. Sorry, in 1996, yes.

A. In an number of day books or one particular day book, I think.

Q. That records all of the tissue that you've retained?

A. I think there were documents. There's a book that says "brain tissue retained" or "brain retained". I think there's probably two books. Yes, there's a main day book that will say what we took form the post-mortem, if I understand your question properly.

Q. And therefore what you're retaining?

A. Yes.

Q. Does it indicate what you're retaining it for or how long you propose to retain it?
A. Not in 1996, no.
Q. Are the families told that there is material that's being retained and what it is being retained for?
THE CHAIRMAN: I think "are" or "were". Were they told?
MS ANYADIKE-DANES: Sorry, were they told?
A. They were aware that there was a brain only post-mortem and that the brain was being retained. I don't know what more information was available to them in this case.
Q. No, but who is the person to tell them whether anything is being retained? The material is being retained in the neurological department, isn't it?
A. Yes.
Q. So who then is responsible for communicating either with the family or with the consultant, to pass on to the family, the fact that material is being retained?
A. That is part of the consent process. When you're taking consent for a post-mortem, the brain-only post-mortem would indicate that the brain was being retained for examination.
Q. Yes, but after the examination, after the autopsy has been concluded and the report is provided, how are the families to know whether any material is being retained

in the department?
A. In 1996, I don't think there was a clear procedure for dealing with that. Claire died before the Human Tissue Act, before various structures were put in place for better communication with families. But in 1996, I don't think there was a good communication line with regard to retention.
Q. Does that mean that the Royal didn't actually have a policy about how you communicate that information to the family?
A. I don't know that anybody had a policy. I certainly don't know any policy from the Royal in 1996.
Q. You said that it's recorded in a day book. There are two slightly different descriptions of what happened to the tissue. 224/3, page 28, which is one of your witness statements, and that is ... I think it says, "Out 24/4/97", date of tissue disposal.
THE CHAIRMAN: That's question 9.
MS ANYADIKE-DANES: The question to you was what that meant, "out 24/4/97".
A. Yes.
Q. And you say that refers to tissue disposal. Does that mean that, as far as you were concerned, the tissue that was being held in the department was disposed of at that time?

A. Not all of the tissue. When you dissect the brain, you're left with tissue blocks and slides. And the rest of the brain tissue that hasn't been used to make into these blocks and slides is what we call wet tissue. I think that refers to -- that's what that refers to.
Q. So where you refer in 224/3, page 31, John Murray checked the tissue was present on 6/3/07 -- it's under (iv). So that meant that at that time you still retained tissue?
A. That was two different things. The main brain tissue that was used for the examination was disposed of in 1997. We had said that we had a small piece of frozen tissue that was kept in a freezer and that was still in the freezer in 2007. This was a piece of tissue that was a few millimetres in size.
Q. Sorry, just so that I'm clear, that meant that it was checked and that meant you still had some tissue as at that date?
A. In the freezer, yes.
Q. Yes. When you said that some of the tissue had been disposed of on 24 April 1997, is the family ever told that you're doing that? Do they ever know how you do it?
A. In 1997, I don't think the family is told. It's not something I would really have been aware of in 1997, but

I don't think families were told in 1997.

Q. But there are procedures now in place?

A. Yes.

Q. Can I ask about the referral to the coroner. At any point in time, presumably if you had formed the view that this is a case which really ought to be referred to the coroner, you could have raised that with your consultant and that could have happened?

A. Yes.

Q. Apart from the answer you gave me when I asked you if you'd been aware that there had been a drug overdose, what might have been your response, leaving aside that, on the basis of what you've now seen in Claire's clinical notes and records and what you found, is it a case that you think ought to have gone to the coroner?

A. If I came across this case now?

Q. Yes.

A. I think this would have been reported to the coroner now, yes.

THE CHAIRMAN: I know you think that because you're now aware of the overdose of midazolam and phenytoin. Apart from that, apart from the fact of the overdose, which you say on their own, if that had been realised, would have led you to say to Dr Mirakhur or Professor Allen that you think this is a case for the coroner, setting

aside those drug issues is there any other reason why you, looking at Claire's case now, would believe it was a case for the coroner?

A. There's a very different bar, if you like, for reporting cases to the coroner now. A lot more cases are reported to the coroner than would have been in 1996. I don't know if every hospital death is reported to the coroner now, but I suspect most of them are. The way the case --

THE CHAIRMAN: Has that happened gradually or is it as a result of some particular episode or episodes?

A. I think everybody ... I don't know if it's happened gradually, but it certainly is the case over the last few years. Nobody wants to make a mistake and not refer a case to the coroner, I think.

THE CHAIRMAN: Does it come out of Shipman at all?

A. It might do. It comes out of governance and various other things as well, I think.

MR FORTUNE: You might ask whether in fact the mention of hyponatraemia has contributed to the increase in cases being referred to Her Majesty's Coroner.

THE CHAIRMAN: Has that affected it?

A. Absolutely. If hyponatraemia is mentioned anywhere in a hospital, the coroner is going to be informed.

MS ANYADIKE-DANES: I just have a couple more questions for

you and then I'll liaise with my colleagues, who may or may not have some. One of those questions is to do with the evidence at the inquest. I think you have explained that when you saw the report with your name on the report and given the length of time between when you had been involved in that case and when it was coming to light for you, you took the view that you must have been the pathologist.

A. What happened was, Mr Leckey wrote to me in December 2004. He said, "Information has become available, do you want to comment on it?" And I wrote back to him, I think in January or February, saying, "I've reviewed the case and there's a letter that goes with it". Then he invited me to go to the inquest. That wouldn't be exceptional. Even if I had not known about the document that I subsequently know about, I probably would have gone to the inquest anyway. Any member who is involved -- the criteria we use for going to an inquest are that you're involved in the autopsy, you're on the coroner's list and that you had reviewed the material. On that basis I would have gone anyway. Also, because he had asked me to review the case and I was now a consultant, it was even more appropriate for me to go to the inquest.

Q. Yes. I don't think Dr Squier necessarily takes issue

with that as you were a consultant at the time. The question is the extent to which you made yourself familiar with the details of the case. I appreciate that you have said afterwards that the documentation from storage or wherever it was archived has come to light and you therefore appreciated that contrary to what you thought, and when you gave evidence of it being "my report", it actually wasn't your report, it was Dr Mirakhur's report. But what preparation did you think was appropriate to do before you went to give evidence at the inquest?

A. What I would normally do would be to get the histological slides. I think Mr Leckey had sent me other reports that were coming in with regard to it, maybe Ian Young and various other people's. So I would have read those, I would have looked at the slides again, familiarised myself with the case and gone to the inquest.

Q. When you said familiarise yourself with the case, would you have wanted to actually look at the clinical notes and records?

A. You may do, but they're often impossible to get.

Q. Would you have wanted to?

A. Not necessarily, no. A lot of the clinical information was being dealt with by people I would call clinicians

in the case. I was reviewing the neuropathology, as far as I was concerned, for the inquest.

Q. Then the final point that I had, before I just check whether there are any other issues, is that when I was asking you about the opportunity to discuss the case and essentially you explained about the grand rounds, and for other documentation you've referred to the preparation of slides and so forth for it and extra blocks and so on. But in the e-mail the inquiry got from the DLS at 302-169-001, you'll see there it talks about the clinicopathological correlation and how that comes about, partly through the comments section in the report and also partly at the NSU itself. Then it goes on to say:

"I am advised that Claire's case may also have been discussed at a paediatric mortality meeting, which is also a CPC."

In other words, the paediatric mortality meeting also provides a forum for a clinicopathological correlation; is that right?

A. Yes, it does.

Q. And I think when you -- either it was in answer to one of my questions or to the chairman's question. You said certainly -- I think you gave the example of cardiology, that sometimes you attend those sorts of meetings where

you either contribute to the discussion or make presentations; is that correct?

A. That's correct.

Q. Were you actually aware of the paediatric mortality meeting in Claire or is it just you think it might have happened?

A. No, I've said several times that I knew there were paediatric mortality meetings where cases were discussed but I don't know if Claire's case was discussed, I had no record.

Q. Are you aware of who attends those? I mean, as a pathologist are you aware?

A. I've been at them and it's a broad range of people from the Children's Hospital.

Q. If we stay with 1996 because that sort of practice may change over time. In 1996, so far as you're aware, who were the people who attended a paediatric mortality meeting?

A. It's hard to remember exactly, but certainly -- mostly medical, but there were nursing staff and I think there were people like physiotherapists and paramedical staff as well.

Q. Did those meetings happen after the grand round or were they happening independently of the grand round?

A. Independently. They were something that were organised

through the Children's Hospital.

Q. And was it possible for any information or discussion or learning that came out of that kind of meeting to either be brought to a grand round or to be communicated with the pathologists if they didn't attend it?

A. I really don't know too much of the detail of the mortality meetings. I was at a few of them, but I don't know what happened to the information afterwards. It was almost a different hospital to us, if you like.

Q. I understand. Could it be possible that you have your grand round, which is essentially the pathologist-driven meeting, if I can put it that way, although any number of other people also attend, including clinicians, and that the clinicians then, as a result of whatever is discussed in there, actually use that as part of their discussion in the paediatric mortality meetings? Can it happen in that way?

A. I'm sure it could happen in that way, yes.

Q. And if there's any outcome in a case that you have been involved in, do you expect to have that communicated to you?

A. I don't know that much -- again, the mortality meeting is something that I'm not as familiar with as I am with my own meeting, so I don't know the outcomes and how things were dealt with at the paediatric mortality

meeting.

Q. I'm simply trying to ask you whether you would expect or whether it would be usual to be contacted about a case of yours where you'd done the brain only, that had been discussed at the paediatric mortality meeting?

A. I don't remember ever being contacted about anything that had come out of the paediatric mortality meeting.

Q. Were you ever invited --

A. I had been --

Q. Other than you as a consultant being invited to make a presentation, were you ever invited in 1996?

A. Only to do a presentation. I don't think I was -- because I wasn't in the Children's Hospital. This was a Children's Hospital meeting.

Q. I understand. Is it something that your consultant could be invited to? Could Dr Mirakhur or Professor Allen be invited?

A. She would only be invited to do a presentation.

Q. Yes. And that could have happened in relation to -- I'm not saying it did happen, but a case like Claire could generate an invitation?

A. Yes.

MS ANYADIKE-DANES: Thank you.

Mr Chairman, I wonder if I might have a few minutes.

THE CHAIRMAN: Yes. Just before that, let me take you to a

slightly different point. You've been asked, for reasons which you'll understand, quite a few questions about what Dr Squier says and what Professor Lucas says. I get the impression overall that you're not -- there are some issues on which you disagree with them, but often that's because they're referring to guidelines and you're saying sometimes the guidelines are overtaken by local practice; is that fair?

A. I think that's fair, yes.

THE CHAIRMAN: You don't appear to take great exception to what either of them say, though what the two of them say isn't identical, which is one of the points that you've made really in your own favour, that they're not saying identical things, so there's room for some debate or discussion about what might have been done or what should have been done, et cetera?

A. If there's a specific -- I'm not sure what specific ...

THE CHAIRMAN: I'm trying to get an overall picture of --

A. If you take a single document and put a set of guidelines beside it, I don't think that's necessarily a good reflection of all the work that goes into a pathology department.

THE CHAIRMAN: Right.

A. There will be mistakes, I'm sure there will be mistakes, but that doesn't mean a lot of consideration and a lot

of hard work hasn't gone into disseminating information. So fair enough, take a document, compare it, but I think there's more to the situation than that. I think that is what I meant.

THE CHAIRMAN: Yes. Can I ask you then in terms of -- do you know Dr Squier?

A. I know of Dr Squier.

THE CHAIRMAN: Do you know of her through the shaken baby cases or is it in some other way?

A. I think most neuropathologists will know Dr Squier.

THE CHAIRMAN: As a result of the shaken baby stuff?

A. Well, for other reasons.

THE CHAIRMAN: Okay. And you have known that for some time, I take it, because these issues have been floating around for a number of years, haven't they?

A. Um ... The only ... Can I ...

THE CHAIRMAN: Go on.

A. There are certain -- I'm not sure if I want to be on record talking about this issue.

THE CHAIRMAN: Let me explain to you why I'm raising it, because it seems to me that in the comparatively small world of pathology you wouldn't be unaware of the issues which have arisen about Shaken Baby Syndrome, some controversies in court, some reporting of Dr Squier to the GMC. Right?

A. Yes.
THE CHAIRMAN: But that's not new information, that's been --
A. Dr Squier has a particular opinion on a syndrome, Shaken Baby Syndrome. Not everybody agrees with her.
THE CHAIRMAN: It's not her alone, she's on the minority side?
A. Yes, not everybody agrees, and that has caused some controversy. I'm not going to say who's right and who's wrong.
THE CHAIRMAN: Of course.
A. But I think the other issues you mentioned are very recent, as far as I know, within the last year or so. The legal aspects of that I think are recent.
THE CHAIRMAN: Right.
A. So while Dr Squier's well-known to have different views, the other issues are ...
THE CHAIRMAN: Okay. But you've known of those emerging over the last year or so; is that right?
A. Probably just over -- certainly over the last number of months and maybe a bit longer than that, yes.
THE CHAIRMAN: Thank you very much.
A. I'm not sure that I knew that Dr Squier was involved with Adam Strain. I'm not sure if I know that, if the question is going in that direction.

THE CHAIRMAN: That's okay. Doctor, I'm going to wait for five minutes now because sometimes at the end of the questioning of a witness there are some other representatives who want a few more questions to be put, but it's usually quite short. So if you can bear with us for a few more minutes.

(5.02 pm)

(A short break)

(5.06 pm)

MS ANYADIKE-DANES: I just have two questions, Mr Chairman.

The first relates to December 2004. As you I'm sure know by now, UTV aired a programme in relation to the deaths of three children, which ultimately led to this inquiry being established. That programme went out in October 2004 and there was a meeting with Claire's parents at the hospital on 7 December 2004. They had felt they recognised in that meeting something about their own daughter's condition and death, and they contacted the Royal directly.

The question is this: were you at any time when UTV were making that programme, or after it was aired, asked your opinion as to the cause of Claire's death?

A. By?

Q. By anyone in the Royal.

A. The first I heard about it was a letter from Mr Leckey

in December 2004. No, I wasn't asked anything. As far as I'm aware, I don't remember being asked by anybody.

Q. And after you got that letter from Mr Leckey, were you ever asked to participate in any meetings as part of the preparation, for example, for the inquest?

A. I don't think so, no, not from memory. I think I only liaised with the coroner.

Q. You never discussed matters with either Mr Walby, Dr McBride or Dr Steen or any of the other clinicians who have been involved in Claire's case before giving evidence?

A. At that stage I was now an agent of the coroner, if you like, and I don't think I was asked by anybody to participate in any meetings. Not as far as I remember.

Q. Apart from actually participating in any meetings, did you discuss your views as to the autopsy report and, so far as you could do it, the cause of Claire's death with anyone at the Royal before you gave your evidence to the coroner?

A. I don't think so. I don't have a perfect memory of the time, but I don't think I spoke to anybody. Mr Leckey wrote to me with -- information had been brought to his attention, did I want to comment on it. I wrote a letter back and it was to do with the hyponatraemia aspect of it. I think I wrote back to Mr Leckey saying

I wasn't sure, did this mean it was primary or secondary hyponatraemia? I don't remember talking to anybody in the Royal, but I can't say for sure that I didn't.

Q. Sorry, this was whether it was primary or secondary. You mean whether it was --

A. Hyponatraemia was mentioned in his letter, I think, and I wasn't sure, did he mean --

Q. You were querying with him?

A. Yes, I think that's what it was.

Q. And just so that we're clear, I mentioned specifically Dr Steen and Dr McBride and Mr Walby. What about Dr Mirakhur?

A. No, I don't remember talking to her about it. Mr Leckey had written to me and I reviewed the case and went to the inquest. I could have spoken to her, I don't know. We spoke a lot.

THE CHAIRMAN: It would almost be unnatural if you didn't speak to her about it at all, wouldn't it?

A. We talk about so many things.

THE CHAIRMAN: Yes, exactly.

A. We're in rooms beside each other. We may have mentioned it.

THE CHAIRMAN: And here you have a death, which took place in 1996, going back to the coroner in 2004, 2005 and 2006, so it'd be very odd if you didn't speak to her at

all during that time.

A. It could well have come up in conversation, yes.

MS ANYADIKE-DANES: Thank you very much.

THE CHAIRMAN: Okay, doctor, thank you very much indeed. It has been a long day for you and I'm grateful to you for sticking it out. I hope very much you find a successful candidate tomorrow because it sounds as if you could do with somebody working with you.

A. Yes. Can I just say to Mr and Mrs Roberts that I don't think neuropathology has found all the answers and I'm sorry about that, but if there's anything that I can help you with after the inquiry is over, if you have any questions for me, I would be grateful if they could be passed on to me.

THE CHAIRMAN: Thank you.

Mr Lavery, we had raised a query at the break earlier about whether Dr Mirakhur could start with us tomorrow at 9.30.

MR LAVERY: I have taken instructions in relation to that and she will be available at 9.30.

THE CHAIRMAN: Great. We'll start with Dr Mirakhur at 9.30. I'm hoping that a lot of this ground has been covered today, at least in a general sense with Dr Herron, so we can get through Dr Mirakhur tomorrow and get into Dr Webb at the least for the afternoon, if not a bit

before. Thank you very much. Tomorrow morning at 9.30.

(5.10 pm)

(The hearing adjourned until 9.30 am the following day)

I N D E X