Thursday, 1 November 2012

(9.00 am)

DR ANDREA VOLPRECHT (called)

(The witness appeared via video link)

THE CHAIRMAN: Good morning, doctor. Can you see us in Northern Ireland?

A. Yes, I can see you in Northern Ireland.

THE CHAIRMAN: Can you hear me okay?

A. I can hear you okay, thank you.

THE CHAIRMAN: Thank you very much for joining us this morning. I think you have a Bible at your end; is that right?

A. Yes.

THE CHAIRMAN: I'm going to ask you to take the oath and then your evidence will start through questioning from Mr Reid.

Questions from MR REID

MR REID: Good morning, doctor. As the chairman said, I'll be asking you the questions this morning.

Do you have a copy of your witness statement in front of you?

A. Yes, I do.

Q. That's witness statement 136/1 to the inquiry, dated 3 October 2012; is that correct?

A. That is correct.

Q. Would you like to adopt the evidence that you have given in the witness statement as your evidence before the inquiry?
A. Yes, I would like to adopt that.
Q. Thank you, doctor.

If I can turn to page 1 of your witness statement, you have given us a brief summary of your clinical posts up until October 1996. Would I be correct in saying that you qualified in November 1993 in Germany and you were an SHO at the Children's Hospital from May of 1996?
A. That is correct.
Q. And you were on Allen Ward at the Children's Hospital in August and September of 1996 before moving on to the surgical wards in October and November?
A. That is right.
Q. Can I ask, doctor, what was your awareness of the dangers of hyponatraemia in October 1996?
A. It is very difficult in hindsight to define what exactly I knew at the time about hyponatraemia. But what I can certainly say is that I worked in the neonatal units before and you would have always calculated very carefully the sodium and the potassium content of IV infusions for children. So I would say, yes, I had an awareness of hyponatraemia.
Q. As you say, you were aware of the importance in

calculating the sodium and potassium levels of IV fluids.

A. Yes.

Q. It probably is not a document you have in front of you, but I'll bring it up for the benefit of those in the chamber. It's document 302-031-003. This is the rota of the SHOs for October 1996. That rota shows you as the night cover, 10 pm to 9 am, on Monday 21 October 1996; would that be correct?

A. That would be correct.

Q. Would you have done a day shift that day, Monday the 21st October as well?

A. Yes, I would have an ordinary day shift. My day would have begun at 9 am in the morning.

Q. You would have finished at 5 o'clock before returning to the hospital just before 10 o'clock?

A. No, I wouldn't have gone home. I would have stayed in hospital.

Q. And during that on-call period, is it correct to say that you were covering all the general paediatric wards and all the paediatric surgical wards in the Children's Hospital during that time?

A. Yes, that would have been correct.

Q. I think if we can turn to page 3 of Dr Volprecht's witness statement, 136/1, at 3(a) and (b), you confirm

that you would have been present in the hospital in the infant surgical unit from 9 to 5 and covering all general paediatric wards and all paediatric surgical wards overnight.

On page 4, if we can turn over to that, just at the bottom paragraph you state that:

"A night shift in the Children's Hospital would have been very busy with 10 to 15 admissions not being unusual. I would have been the only doctor during the night being responsible for all admissions to the general paediatric and paediatric surgical wards, five wards in total."

That's your evidence; is that correct?

A. That is correct. What I meant with that is that if children would have been admitted to the Children's Hospital, I would have been the doctor who would have been called from nursing staff to admit the children, although sometimes because the medical registrar had to allow time to be admitted to the wards, they might have seen the children directly in casualty and some of them might have admitted the children themselves.

Q. And that actually happened in Claire's case, isn't that right, Dr O'Hare admitted Claire?

A. That is right. That is correct.

Q. Certainly from the notes, it seems that you had at least

two points of contact with Claire. Firstly, prescribing the fluids and, secondly, recording the biochemistry results; is that correct?

A. That is right.

Q. I think you might have suggested in your witness statement that you may have been present at the midnight review by Dr O'Hare of Claire. Do you have any recollection of that?

A. You see, my difficulty is that I've actually no recollection of the night on call. But I think in the nursing notes it was noted that the doctors were present and because my writing is in Claire's [inaudible due to interference] directly after the midnight review happened, I assume was present at that midnight review.

Q. Yes. If we turn to 090-040-140, please. I'm not sure this is a note you have in front of you, doctor, but if I can describe it for you. It's one of the nursing notes, as you say. It's dated 21 October, timed at 10 pm, and the bottom two lines of that entry say:

"Seen by doctor and registrar, to be reviewed following blood results and erection of IV fluids."

Given that it says, "Seen by doctor and registrar, to be reviewed", do you take it from that that you may have been at the midnight review, which was after the erection of the IV fluids or do you think you may have

been present at the initial admission?

A. No, I actually took from that that I was present after the erection of the fluids at the midnight review.

Q. Okay. You stated earlier, you have no direct recollection of 21/22 October. You are just trying to piece together what you know from the notes; is that correct?

A. Yes, that is correct.

Q. You say at page 3 of your witness statement, if I can bring that up, at the very bottom paragraph:

"According to the clinical notes, there is no indication of my personal clinical contact with Claire or her family, therefore I assume I had no direct contact with Claire or her family."

Would you accept that you would have had to attend Claire to prescribe the fluids though?

A. You see, sometimes what happened, the clinical chart of the child would have been in the trolley and sometimes the nursing staff would bring the fluid prescription sheet in the nursing station to get the fluids prescribed. So it might have been that I was not present in Claire's room when I prescribed the fluids. It might have been that I prescribed the fluids when the chart was at the end of the bed, but [inaudible due to interference] recall where I prescribed the fluids.

Q. You just broke up there at the very, very start of that answer. You said:

"You see sometimes what happened the clinical chart of the child would have been in the ..."

And then you said something and then you said that nursing staff might bring the fluid prescription to the nursing station. Where did you say the clinical chart of the child might have been?

A. Usually -- right, I know now what you mean. The medical record would be in a trolley at the nursing station, so for example to write a result in, you wouldn't have been present at the side of the bed.

Q. Would there be some notes that would be at the bottom of the patient's bed and some notes that would be kept on the patient's trolley?

A. Usually, the medical records would be all in the trolley at the nursing station, but there would be ... Um ... How do you call the word? There would be a hard thing to have your prescription chart fixed to ...

Q. A clipboard or something like that?

A. Yes, a clipboard, thank you very much. Usually the fluid prescription sheet would be on a clipboard and that clipboard would usually be at the patient's bedside. But that could be moved to the nursing station and I might have prescribed it there or at [inaudible

due to interference] side.

Q. Sorry, you said that that'd be brought to the nursing station and you might have prescribed the IV fluids at the nursing station; is that what you said?

A. Yes, either there or at the patient's bedside and I would not be able to say where exactly I did that.

Q. And would it have been a common event for you to prescribe IV fluids having not seen the child and just having the clipboard brought to you? This is in October 1996. Would that have been a common event?

A. I would say that in that time it would not have been unusual. Usually, yes. [Inaudible due to interference] in the patient, you would make yourself a picture and prescribe them the fluids, but it would not have been unusual to get a clipboard brought to you to prescribe fluids, particularly if fluids have to be written up before and the bag was empty and a new bag had to be prescribed.

THE CHAIRMAN: Doctor, if I can intervene for a moment: is that because what you would have been doing with prescribing the fluids appeared to be a fairly standard form of treatment, whereas you would go to the child's bedside if things appeared to be more complicated?

A. Definitely, yes. That would be the situation.

MR REID: And doctor, you're in Germany now, but you spent quite a number of years in Antrim Area Hospital and Craigavon Area Hospital over the last decade. Have practices changed in terms of the prescribing of IV fluids? Would it still be not unusual for you to be brought the fluid prescription chart to the nursing station and you prescribed there? Would that be an unusual event now? Have things changed?

A. I have left Northern Ireland in 2008, so I would be only commenting up to 2008. Certainly that would not be possible because a prescription sheet has changed, you need more information to be able to prescribe fluids properly, including the last electrolyte result, and for that you would need to go back to the patient, you would need to go back to the [inaudible due to interference] to make all these enquiries because it's hard to be written up, to be able to do a proper prescription.

Q. We're skipping ahead somewhat, but if I can take you to page 24 of your witness statement. In the large block of text you say:

"During my first specialist registrar year at Craigavon, I was annoyed that in patients with diabetic ketoacidosis, the fluid balance chart had no room for the documentation of the U&E results and blood gases and no space for urinary output and so on. I created

a fluid balance chart where all these important results and observations were combined. This made it easier for the medical and nursing staff to see trends in the condition of the child and to alter the management accordingly."

I believe you did a similar exercise in Antrim Area Hospital; is that correct?

A. Yes, that's right.

Q. And you found those new fluid balance charts to be much more useful?

A. Yes, because you could actually see very early the individual trend where the results were going to because you had much more room to have [inaudible due to interference] of the child, results, and the actual prescription on one large sheet.

Q. And do you think that sheets such as that should be present in every hospital, every ward?

A. I think the diagnosis of diabetic ketoacidosis lent itself to that kind of prescription sheet. I don't think every child on IV fluids would need such a sheet, but certainly there should be prescription sheets for children who are on IV fluids where urinary results actually [inaudible] with the time when they have been done in order to adjust fluid management.

Q. If I can just bring you to your fluid prescription of

the evening of 21 October. Do you have the prescription chart there in front of you?

A. No, I don't have it there, but I recall the sheet.

Q. I will describe it to you. It's the intravenous fluid prescription chart. It's reference 090-038-134. What it says is: 500 ml of 0.18 per cent NaCl, 4 per cent dextrose, no additives, at a rate of 64 ml per hour, prescribed by Dr Volprecht.

At the top right of that sheet there's also the weight, which is 24 kilograms, and then there are small numbers. It says "10", "10" and "4" on the left column, and then "40", "20", and "4" on the right column. Would I be correct in saying that's your fluid calculation?

A. That's right, yes.

Q. So that's 40 ml per hour for the first 10 kilograms, 20 ml per hour for the second 10 kilograms and one ml per hour for each kilogram after that?

A. Yes, that would be correct.

Q. Making a total of 64 ml per hour.

A. Yes.

Q. You have said in your witness statement that both the choice of Solution No. 18 and the rate at which you were prescribing were standard practice at the time; is that right?

A. Yes.

Q. And that you took your lead from Dr O'Hare, she had written IV fluids and hadn't specified any differences in the IV fluids that should be prescribed; is that correct?
A. That's correct, yes.
Q. In 1996, would it only have been in those circumstances where the registrar had said, "Prescribe these fluids differently", that you would have deviated from that standard practice?
A. No. For example, if nursing staff would have highlighted that at the admission of the child and then be asking to prescribe the fluids, if the clinical condition obviously of the child had changed, I would have gone back to re-examine the child and made up my mind and then decide on what fluid should be prescribed on the child.
Q. So if the clinical condition of the child had changed since the registrar had seen the child, you would have contemplated reviewing the IV fluids?
A. Yes, for example there are children who are not at all on IV fluids and if you are informed from the nursing staff that they now have diarrhoea or they have started to vomit now, then you would need to prescribe the fluids for the first time and obviously, in those circumstances you would need to go back and reassess the

situation in order to make up your mind what [inaudible due to interference] would be appropriate.

Q. You would have been aware of Dr O'Hare's differential diagnosis and her differential diagnosis was viral illness and she'd also mentioned encephalitis, but struck that out. You would have known of those differential diagnoses whenever you prescribed the IV fluids I presume?

A. I wouldn't be able to recall that.

Q. If you're prescribing the fluids, you would have had to look at the medical notes in order to know if this was a standard case or if this was a non-standard case.

A. Yes, obviously.

Q. And in those medical notes, Dr O'Hare records her differential diagnoses. So would you have been aware then of the diagnoses if you'd been reading the medical notes.

A. Yes. If I would have read the medical notes, I would have seen the diagnoses.

Q. In October 1996, if you had seen mention of encephalitis, even if struck out, would that have made you think any differently about the prescription of IV fluids?

A. It's very easy with hindsight now, obviously, in hoping that it would have changed my management at the time.

But to be honest, because I haven't seen Claire clinically myself, I haven't examined her, the medical registrar had seen the child. From the way the fluid prescription was suggested, I don't think that I went back in detail to think of different fluid regimes.

Q. As it was your responsibility as the SHO to follow the registrar's lead and both prescribe the fluids and take blood samples; isn't that right?

A. That is usually what was done at the time, yes.

Q. And also, whenever you sited the cannula for the IV fluids, would you also have then taken a blood sample for the electrolytes and biochemistry testing?

A. You see, what happened is that I don't have a personal recollection of the night on call, so I can't say if I did site an IV line. To be honest, I was under the impression that I had no direct clinical contact with Claire, so I assumed that maybe the admitting doctor had sited the line and taken the bloods. But I can't say for sure because I don't have recollection. But yes, usually if you would site an IV line to prescribe IV fluids, then the [inaudible due to interference] have been taken through that cannula.

Q. So you have no direct recollection, but the usual course of events would be that you would prescribe the IV fluids as you did do, then you would insert the cannula

and that you would take the blood sample for a blood count at that stage? That would be the usual course of events.

A. Usually the admitting doctor would site the line and would take the blood specimens. If that would have been done and the line would have [inaudible due to interference], which sometimes happens, then usually the nursing notes -- there would be a passage "line resited and bloods drawn". I don't recall that this was stated in the nursing notes.

Q. If you turn to page 4 of your witness statement, 136/1, in the second bullet point of (b) you state:

"My responsibility towards Claire that night was to prescribe her initial fluid regime and medications and to chase her blood results."

What do you mean by "to chase her blood results"?

A. If there had been outstanding bloods of a child who had been admitted, you would need to make sure that these blood results get back and get documented on the child's medical chart.

Q. So if you are aware, for example, that a blood sample had been taken, it'd be your responsibility to check with the laboratory to see where those results were?

A. Exactly.

Q. Your second note in the clinical notes is on

090-022-052. It comes following Dr O'Hare's admission note and her note of a review at 12 midnight in which she stated:

"Slightly more responsive, no meningism, observe and reassess AM."

And signs it "B O'Hare".

You are familiar with this particular sheet?

A. Yes, I'm familiar with that page.

Q. Below that then there is the sodium result and the potassium result and the glucose and so on are stated in one column. Then on the right-hand side in the right column, there's then the -- I think it's the haemoglobin and the PCV and the white cell count.

Do you have any knowledge as to who may have recorded the sodium result on that particular sheet?

A. No, I don't know. What I can say is that I wrote down the full blood picture result and that I added the arrows in both results, and the white cell count result, and beside the sodium. I don't know who has written down the sodium result. I'm not quite sure if the blood results came back maybe together or coming back [inaudible due to interference] blood results [inaudible due to interference] together maybe with the midnight review because I was asked why did I not time the entry of the white cell count and I was wondering were they in

such close proximity that I only signed for the result I have written down rather than timed it.

Q. So you think that the biochemistry results might have come back possibly at a different time than the electrolyte results?

A. Could you please repeat that question?

Q. You think that the electrolyte results -- sodium, potassium, and so on -- may have come back at a different time from the biochemistry results, so that's why you recorded the biochemistry results at a later time?

A. I didn't record the biochemistry results at all.

Q. Apologies, what I mean is, you recorded the white cell count; is that right?

A. That's right.

Q. So you think --

A. You see, I recorded the white cell count on the right-hand side of the electrolyte results, so I assume that the first [inaudible due to interference], but I didn't record them. So I recorded the while cell count right beside them and I added the two arrows beside the white cell count and beside the sodium result and I signed for the white cell count.

Q. You were aware then of the sodium result of 132 because you wrote the downward arrow besides it; is that

correct?

A. That's correct.

Q. If you had been aware of that sodium result of 132, would it have changed any actions you were taking or would you have taken any action as a result in 1996?

A. It's always difficult to think with all the knowledge we have now to recall back what I was thinking at the time. But certainly, the sodium result was only slightly lower, not unusual to see it in lots of children we have admitted to the Children's Hospital at the time. If I assume that the blood results were there at the midnight review, we might have discussed it, I can't personally recall what exactly was the end of the discussion. Obviously, I didn't change the fluid prescription after the result was seen. But obviously, if a child is reviewed at midnight, you would know that the following morning, there will be a review at the ward round with, usually, a second U&E result to maybe then review the situation.

Q. If you received a result on admission of sodium 132 now, for example, would you react in a different way?

A. Well, I would have certainly made sure that it's repeated at least eight hours later.

THE CHAIRMAN: Sorry, doctor, you expected that it would be repeated on the ward round; isn't that right?

A. That would have been my usual assumption, yes.
THE CHAIRMAN: Because that is what usually happened. If there is a slightly low sodium count at midnight, then that would be one of the things to pick up on the ward round in the morning?
A. Yes. That is what I would have expected.
THE CHAIRMAN: Right. But if it had been significantly low, say it was 127 or 128, would that have led you to arrange for a repeat test at 3 or 4 o'clock?
A. That would be definitely a different situation, and yes, that U&E result would have been repeated a couple of hours later. Sometimes you would even do it immediately to make sure that the result was correct.
THE CHAIRMAN: Okay, thank you.
MR REID: The chairman asked you whether you would have expected a repeat result at the ward round. Can I bring you to page 16 of your witness statement, WS136/1? Just in the very final question on that, (f), you say, as you have said:

"[You] would have considered the sodium level as only slightly below normal and, therefore, in the context of Claire's stable condition at midnight, it would not have warranted being repeated immediately."

In the next sentence you say:

"My usual practice would have been to arrange

a repeat test the following morning, either to do this myself or to hand it over to the medical day staff."

A. That's correct.

Q. You were going off in and around 9 o'clock the next morning.

A. Yes. I would have gone back to the surgical ward where I went until lunchtime.

THE CHAIRMAN: Just pause there, doctor. You would have stayed in the surgical ward until about midday or 1 o'clock?

A. Yes, that's right.

THE CHAIRMAN: So that's 27 or 28-hour shift?

A. It would be actually 36 hours because I would have been on -- that's right, yes. It would be 24 hours until 9 o'clock the next morning, and then until lunchtime, yes, correct.

THE CHAIRMAN: Thank you.

MR REID: If you're on the on call until about 9 o'clock the next morning and you say that sometimes your usual practice would have been to arrange a repeat test yourself the following morning, what time would you normally have done a sample such as that?

A. If it would be possible, you would try to do it before the ward round so that the result would have been available for the ward round.

Q. Is that the case, whenever you're the on-call doctor overnight, and so you're still in and around the ward at the time of the ward round, or do you think that would generally be the case, even if you were finishing at 9 o'clock?

A. Let's see. For very deranged blood results, you would make sure that the result would have been available, a new result, an actual result, for the ward round. But obviously, the admissions would still go on, so it would have been a matter of actually being free to do those bloods prior to the ward round. If that didn't happen because of being engaged somewhere else in the hospital, then nobody would do the bloods and the first person who could have done the bloods would have been the medical personnel for that ward arriving at 9 o'clock.

Q. Because if I can bring you to page 17 of your witness statement, over the page, you say:

"I cannot give the reasons why the sodium result was not checked until the evening of 22 October as I do not recall these events. The normal procedure would have been for me to have taken another sample prior to finishing the night shift. However, if there were many admissions during the early hours of the morning [as you have just stated], I may have handed over outstanding blood tests to the day medical staff."

Is that correct?

A. That's correct.

Q. So in general, you would try and make sure that there were electrolyte results available for the ward round the next day?

A. Yes.

Q. And that would either be by you doing the samples yourself or by you saying to the senior house officer who's coming on shift, "I haven't had the time to do these blood samples, would you make sure they get done?"; is that correct?

A. Yes.

Q. Well, first of all, do you accept that it seems that you didn't get the opportunity to take another sample that morning, that evening, early morning?

A. Yes.

Q. And in those circumstances you say, normally, you would have handed over the fact that there are outstanding blood tests to the SHO coming on.

A. Yes.

THE CHAIRMAN: Sorry, doctor, just so that I understand it. I understand why you might not be able to do it yourself because there's you and a registrar who are covering, in effect, the Children's Hospital through the night. So the people who have the better chance to do the test are

the new doctors coming on, on the Tuesday morning; is that right?

A. That's right.

THE CHAIRMAN: When you said in your witness statement that you would either arrange the repeat test and do it yourself or you would hand it over to the medical day staff, one way to hand it over to the medical day staff is for you, if you get the chance, to speak to the staff who are coming on and mention this to them directly. That's one way.

A. Yes.

THE CHAIRMAN: Is another way simply the fact that the slightly low result is in the notes in any event and you expect that that will be picked up by the day staff coming on duty?

A. That's correct, yes.

THE CHAIRMAN: Right. Thank you.

MR REID: Would you ever make a note in the medical notes to say, "Repeat blood tests in the morning", or, "in the AM", for example?

A. Yes, I would have done that before, yes.

Q. But obviously you accept that that unfortunately wasn't done in this case?

A. Yes.

Q. Dr O'Hare in her review note wrote, "Observe and

reassess AM". And this is her review at midnight. Would you consider that -- and I know you're interpreting Dr O'Hare's note -- to include electrolyte testing?

A. It's difficult for me to comment on that. Certainly the sodium result was there and it was marked to be slightly low. [inaudible due to interference] morning ward round would have picked that up and if they had realised that no repeat U&E had been sent, it would have been sent ...

THE CHAIRMAN: If they had picked up that there had been no repeat U&E, then they would have sent for that; is that what you said?

A. Could you repeat the beginning of your sentence?

THE CHAIRMAN: I'm trying to repeat what we think you said, doctor. It's all getting a bit messy. I understood what you had said was that if the morning staff had picked up the fact that there had been no repeat U&E, then they would have arranged for that to be done.

A. Yes, that's correct. That's what I said.

THE CHAIRMAN: Okay.

MR REID: Doctor, you signed at the bottom of the note where the sodium result and the white cell count and so on were noted, even if they weren't noted by you; isn't that right?

A. I signed below the white cell count, yes.

Q. Unfortunately, there's no time or date beside that entry. Would you accept that a time or date beside that entry would have been useful in the circumstances?
A. Yes, obviously that would be professionally correct, if it would have been dated and it would have been signed. I usually would do that. That is why I said I wondered if the results came back around midnight and because they were recorded after the last entry by Dr O'Hare, I wondered if they had been available at midnight and maybe that was the reason why I didn't repeat the time beside them. But yes, they should have been dated and timed.
Q. Do you think there's any possibility that a doctor who's coming on the next day might look at that entry and think that those results were from a result that might have come in that morning, for example?
A. I don't know what other doctors might have read in it. If they weren't sure, then they could contact the [inaudible due to interference] were sent. On the other hand, the child was admitted the previous evening. So if there's only one result available ...
Q. You said, "I don't know what other doctors might have read in it. If they weren't sure, then they could contact the ..."
A. The laboratory.

THE CHAIRMAN: Doctor, the reason we have to go back a few times is there's a slight hiccup in the connection, so while we're getting nearly everything which you say, there are some points at which the connection is not perfect. Do you hear us continuously?

A. There are very small interruptions, but they are minor. So usually I can follow you.

THE CHAIRMAN: Okay, thank you.

MR REID: You said that sometimes you might take a sample yourself before the ward round. If a result came back before the ward round, you would normally time that, I presume.

A. If I would have got a second specimen back, I hope I would have timed and dated it to make sure that it's different from the admission blood.

Q. Can I ask you just about the handover the next morning? You can't recall exactly what happened, but can you just tell us the general nature of handovers after the evening shift in October 1996?

A. There was no formal set out how handovers had been to be done at the time. Usually, the doctor who was on call had a page, all the admissions were written down, and you would have recorded on the admission or beside the admission what else was outstanding. You would try to make contact with the day people to hand over what

happened in the wards. But because there were five wards, that takes a wee while, and we wouldn't have seen everybody. And if you were still in the middle of admissions, that handover might be slightly delayed.

Q. Would you normally, however, have the opportunity to explain the condition of the patients, the treatment they were receiving and any outstanding tests that might need to be done?

A. Could you please repeat that question?

Q. Not a problem. The handovers weren't formal in October 1996, but would you have had the opportunity at some point to say to the doctor coming on the condition, the treatment and any outstanding tests that had to be done for each patient?

A. You would try to do that. You would obviously [inaudible due to interference] the most unwell ones or the ones which have been recently admitted where the situation was unclear. I would say that you couldn't ensure always that you were able to speak to every medical person about all the details of the night shift for each ward.

THE CHAIRMAN: Sorry, doctor, just to clarify that. For you to do a handover at 9 am with Dr O'Hare, for you to do that for each ward that could take some time, couldn't it, because you were covering five wards?

A. That's correct.

THE CHAIRMAN: But apart from that, at 9 am on the Tuesday morning, you were going to resume work on the surgical ward; is that right?

A. That's correct, yes.

THE CHAIRMAN: And how urgently are you needed on the surgical ward at about 9 am?

A. If that would have been -- if the ward I would have gone back to was infant surgical unit, then I would be pretty much needed there because I would have to do bloods there prior to the ward round.

THE CHAIRMAN: Right. This is an issue about arrangements and governance within the hospital, but at that time the prospect of somebody in your position being able to do a significant handover to the day shift was very, very limited, wasn't it?

A. Let's phrase it that way. There was, for example, no overlapping time plan, there was not the time plan that, for example, day staff came half an hour early to get a ward round. It wasn't formalised like that at the time. So you're trying to get the most urgent and important things handed over to the relevant people and sometimes, yes, they are not handed over because there was literally not the time to do that. And sometimes what you would have done is to leave a note in the ward

round book or to speak to a member of staff to make sure they handed it over.

THE CHAIRMAN: Thank you.

MR REID: If I can turn to page 13 of your witness statement, please, doctor. Just the very top paragraph:

"I had not been informed about the ongoing small vomits overnight. Otherwise I would have reviewed Claire and possibly reassessed her fluid prescription. I was not called back by nursing staff to review Claire during the rest of my shift."

If we can bring up, for those in the room, 090-038-133, which is the fluid balance chart for Claire for the evening of the 21st into the morning of the 22 October. There it shows that Claire was vomiting at least, it seems, once every two hours, really. Would you expected to have been contacted by nursing staff if a child was vomiting that frequently or would you have been too busy to look after that?

A. I think again it's very difficult to answer that question in hindsight. Obviously, with the knowledge we have now, yes, it would have been nice to know the situation. And on the other hand, yes, it was sometimes very busy in hospital, you got calls to review children, but would only be able to see them then an hour later or one-and-a-half or two hours later because there were

more urgent things to be dealt with in the meantime. And to be honest, I'm not able to say, if the situation had changed dramatically, if I would have been informed. It's very difficult to assess. You would hope that I would have made a different decision.

Q. So for example, do you know how you may possibly have reassessed her fluid prescription? Do you know how you might have done that?

A. There is certainly the possibility that I would have gone -- if the child was vomiting, I would have gone back, I would have re-examined her and if that would have re-examined [inaudible due to interference] I would have been possibly much more worried about her than I was during my whole night shift about her because if I now look back through the notes, I [inaudible due to interference] and I didn't know that she was that unwell.

Q. If you just repeat the last part of that sentence. You said, "If you look back through the notes ..."

A. What I said is: if nursing staff would have informed me that they were worried because she continued to vomit, I would have gone back and would have examined her and would have maybe come to a different conclusion that she was more unwell [inaudible due to interference] assumed having not the knowledge that she was vomiting because

I assumed she was stable because I wasn't called back.
Q. One last question about the fluids: you had prescribed a 500 ml bag of Solution No. 18; isn't that correct?
A. That's correct.
Q. Just before you go off the on-call duty for the night, in and around 7 am, Claire had received a cumulative total of 536 ml of Solution No. 18. I presume by that that a second bag must have been erected in and around that stage.
A. I can't comment on that. Obviously, if 500 ml are only in a 500 ml bag, so any additional fluids must have been from a second bag. But I don't think that I prescribed a second bag.
Q. Would it be for a doctor to prescribe a second bag? A nurse couldn't, for example, put up another bag when that bag ran empty?
A. Usually. I was under the impression that you needed a prescription from a doctor before you can erect a second bag.
Q. You have no knowledge of whether or not a second bag was erected at that stage?
A. No. I have no recollection.
Q. If we turn to the final page of your witness statement, page 27. This is the section where you're asked to provide any further points or comments you might wish to

make. In the first sentence you said:

"I certainly did learn from Claire's case and the cases of the other children, as I have also pointed out in my answers to question 37 and 38."

When you say "I certainly did learn from Claire's case", at what point did you become aware of the learning points in Claire's case?

A. Because I did not have any personal recollection of the night shift, and as part of that was because I didn't feel that I had a direct clinical contact with her, these learning points obviously only crystallised during the years [inaudible due to interference], certainly not directly kind of in the first years after her case. Probably only ...

THE CHAIRMAN: Can I ask you, doctor: can you remember being aware in October 1996 that Claire had died?

A. You see, I was asking this question myself, because usually you would remember cases, and certainly when children died. Certainly, when I first was informed to do a witness statement, I was wondering why I couldn't recall the night on call. But I think that was because I felt I was only marginally involved and I was wondering, had I been going off on holidays relatively -- maybe before she died and I was away. Because I remember that I was away for two or three

weeks at the time and I wondered, did I miss all the tragedy from first-hand, because although I was new in hospital at the time, I certainly would have been completely devastated if I thought I had seen a child and she died only a couple of days later. And I would have known other cases where I was personally involved where [inaudible due to interference] recollection of what I did and what I decided and what I thought at the time.

THE CHAIRMAN: Let's suppose that you're right that you did go on holidays and then came back at some point in November. That would take you into November. You don't remember any discussion in the Children's Hospital?

A. You see, I think I had probably a quite unique situation at the time. If you remember, I had only started to work in Northern Ireland in May of that year. So I was coming from a foreign country, I had slight difficulties with the language at the time. All the [inaudible due to interference] consultants' names didn't mean anything to me at the time, so if you are in a close knit network where people had studied together, where they knew each other, I was kind of an outsider of that at the time. So even if there was discussion, the people which maybe were involved did meet at the time, something [inaudible

due to interference] I wouldn't have known.

THE CHAIRMAN: I understand, thank you.

MR REID: Just on the last page of your statement, you say that:

"During [your] paediatric training in Antrim Hospital, [you] joined a group together with a consultant paediatrician, nursing staff and the ward pharmacist to create a new sheet for fluid prescription and monitoring."

Which we've spoken about already. And you also:

"... participated as a specialist registrar trainee in the multi-disciplinary group, which was set up to create a care pathway for fluid management in 2004. As part of [your] training, you were involved in undergraduate education and induction programmes for new doctors at the various hospitals and [you] always use this opportunity to emphasise the importance of correct fluid calculation in children and their monitoring through checks of blood electrolytes."

I know you've left Northern Ireland since 2008, but thinking about what things were like in hospitals in Northern Ireland in 2008, is there anything in particular you think could be done better in order to monitor the dangers of hyponatraemia in hospital patients? Is there anything in general you think could

be done better?

A. I think the emphasis has already changed that IV fluids are seen now as true medication. So I think the first question that needs to be answered is: does a child need IV fluids? So I think the trend goes much more now to, for example, children with gastro-enteritis into the emphasis of oral re-hydration rather than starting IV fluids [inaudible due to interference]. That would be the first point to decide on if IV fluids necessary.

And then the second point, if IV fluids are started then the situation has to be monitored carefully.

I think a great change has already happened in the fact that No.18 Solution is vanished now from the paediatric departments and probably from most hospitals in Northern Ireland now. And certainly with the flow charts in all the treatment rooms up about hyponatraemia, it's very difficult to prescribe fluids now to children without acknowledging that that is a potential risk of erecting IV fluids.

Q. Thank you, doctor. I have had one question handed --

THE CHAIRMAN: Just while we're on that, how does the situation, as you left it in Northern Ireland in 2008, compare to the German system for managing fluids and the use of Solution No. 18 and so on? Are you working in Germany in the same area of paediatrics as you were

here?
A. No. You see, I have never worked in a hospital in Germany after I left Northern Ireland [inaudible due to interference] in a paediatric practice, which is like a GP for children --
THE CHAIRMAN: Okay.
A. -- but it's not a private practice, you will just see all children with different illnesses, but you wouldn't see them in hospital, so it's difficult for me to comment on the systems you have in Germany now.
THE CHAIRMAN: Okay, thank you.
MR REID: One question handed up from the floor, doctor.
You have said already that it seems that you didn't take a further sample yourself that morning. In that situation, you say that normally you would have handed over to the house officer coming on to say to them that a blood sample needed to be done; is that correct?
A. That would be correct, but I wouldn't be able to recall if I did it and to whom I did it.
Q. Yes. In those situations where you leave it to the day staff to do an updated electrolyte test, when would you expect that blood test to be carried out?
A. It really depends on how and where the ward round was staffed at the day. So if everybody was present and you had an SHO to accompany either the consultant or the

registrar with the ward round and you had a second SHO, then I would have expected the bloods to be done immediately. But if there was only one SHO in the ward, that might have been difficult.

Q. So if there were two SHOs on the ward round, you would have expected a sample to have been taken at the ward round?

A. Yes.

Q. Just another question that has been asked, doctor.

If I can bring up for the benefit of those in the chamber 090-022-052 and 053 beside each other, please. The notes I'm bringing up on screen, doctor, are the notes that Dr O'Hare and yourself made and then the note made by Dr Stevenson of Dr Sands' ward round the following morning.

At that ward round, Dr Stevenson noted:

"U&E. Sodium 132. Full blood count. White cell count, high, 16.4. Glucose 6.6."

Was there any -- and I realise this is a long time ago -- training given to SHOs such as yourself about the recording of blood results in the medical notes?

A. To be honest, other than that, you should always obviously date and time an entry, I wouldn't be able to recall any specific training.

Q. So for example, if you were on a ward round in and

around October 1996, what checks would you make to see what the blood results were like at the time of the ward round?

A. You see, I don't -- I can't even recall if we were able to check the bloods by the computer at that time because I think either at that time or slightly later, you were able not just to phone the lab but to just get it via the ward computer. Certainly before that, it would have been quite tedious: you would need to either see an entry "bloods taken" and the time beside that, or you were on call yourself and you know exactly when you did the bloods yourself and you knew what was outstanding. Apart from that, it would have been very difficult to find out immediately when which blood result was received back or was taken.

Q. And just to I understand what you mean, when you say a ward computer, do you mean a blood gas analyser?

A. No, a computer whereby you can electronically receive results.

Q. I understand. A computer where you can call up the results --

A. That's correct.

Q. -- recorded by the laboratory?

A. Yes. Because they would have been timed then.

MR REID: I have nothing further, Mr Chairman.

THE CHAIRMAN: Doctor, if you wait a moment. Can I ask you about your reference at page 27 to the training which you did in Antrim and the group that you were working on with the consultant paediatrician? Was that Dr Jenkins, Dr John Jenkins you were working with?

A. No. The consultant in the group was actually Jarlath McAloon at the time, and it was set up specifically for the ward in Antrim Hospital. It was for the children's ward in Antrim Hospital.

THE CHAIRMAN: I'm sorry, there was a slight hiccup in the line when you gave us that name? Did you say Dr McAloon?

A. Yes.

THE CHAIRMAN: Did you know Dr Jenkins in Antrim?

A. Yes.

THE CHAIRMAN: Was he a more senior paediatrician?

A. At the time [inaudible due to interference] he was a more senior paediatrician and he was not involved in that [inaudible due to interference] group. That was really only on ward level.

THE CHAIRMAN: Thank you very much. If you give me one moment.

Is there another question, Mr Reid?

MR REID: Yes, Mr Chairman. If I can call up on screen 090-031-099 and 090-032-108, please.

Doctor, these are the printed lab results of, firstly, the sodium, the potassium, the chloride and so on, and then, on the other page, the haemoglobin, the erythrocytes, the PCV, white cell count and so on. Firstly, would be I correct in saying that these forms would have been sent from the laboratory to the ward and then would be signed by the SHO receiving them, or initialled by the SHO receiving them, the following morning? Was that the practice in October 1996?

A. The printed result from the laboratory reached the ward, but it would never be that this would be your actual result. Sometimes you would get a big bunch of results back and they were days and days later. I can't recall having seen factual printed results at the time when you really needed to work on that result. Usually, it was already [inaudible due to interference] on because this was only the printed result; you would work on what was verbally, orally or by phone given through.

Q. You say sometimes you would get them a few days later, but occasionally they might be available the next morning at the ward round. Is that right that, on occasion, they might be available the next day?

A. I would say it is a possibility that they are available at the ward round, but what you should remember is they would come in a big bunch and they would be hardly

in the [inaudible due to interference] already filed in the proper space in the medical record of the child. So you would have like 20, 50 of them. And usually, you would sign them in the afternoon when there was time.

Q. And those results would have the date of the specimen and the date of the laboratory report on them; isn't that right?

A. That's correct.

Q. So if you looked at the report, you would have the opportunity of seeing when the specimen was taken and when the laboratory reported, at least in terms of the date?

A. That's correct. If the time was noted on the laboratory form, which reached the laboratory, then, yes, you could have that information.

Q. But as you say, a lot of the time they were in large bunches and you maybe didn't look at the printed records that often?

A. You would look at them, but you would certainly not expect, from a night-time result, the printed result the following morning.

Q. I have promised you "finally" a few times, but hopefully this is the final point. If I can bring up 090-022-052 and 053 together, please. I said to you that at the ward round the next day, the blood results effectively

repeat the blood results that were recorded during your shift. Are you surprised to have seen the fact that the blood test results were simply almost repeated again in the ward round of Dr Sands, the note of Dr Sands' ward round, which was taken by Dr Stevenson?

MR FORTUNE: That's not correct because if you look at the --

MR REID: I'll come to that in a moment, Mr Fortune.

THE CHAIRMAN: They're not identical, but they are very, very similar indeed. I presume the question we're coming to is how expected or unexpected is it for them to be so close to each other.

MR REID: Yes.

MR QUINN: That's the question.

THE CHAIRMAN: Sorry, doctor, let me explain. The test results from the Monday evening, which you entered the right column of and somebody else entered the left column of, and you then put the arrows for sodium and the white cell count -- okay?

A. Yes.

THE CHAIRMAN: They are then found again in the notes of the ward round from the following day.

A. Okay.

THE CHAIRMAN: The sodium result is the same at 132. The white cell count, which was 16.5 on your entry, is this

time 16.4. But the glucose is the same at 6.6. There is an issue about whether there was confusion about whether this was a second set of tests or whether this was a repetition in writing of the tests from the Monday night.

A. Okay.

THE CHAIRMAN: Just to emphasise the point: those results are almost identical, but they are not quite identical because the white cell count is fractionally different at 16.4, whereas on your entry it was 16.5. And the question we're coming to is: how common or otherwise would it be to have a second set of tests which gave results which were so very, very close to an earlier set of tests? Can you comment on that?

A. I couldn't really comment on that because if there are two tests, then you would have a laboratory information if there are two samples sent. Were there two samples sent?

THE CHAIRMAN: It appears probable that there were not two samples sent. But there is a suggestion that the overnight results from Monday night were misunderstood later on Tuesday by Dr Webb to be Tuesday morning results. Partly because they're on the ward round note for Tuesday morning and perhaps partly because the results are not absolutely identical, although they are

very, very close. Can you comment on that or not?
A. I wouldn't really be able to comment on that.
THE CHAIRMAN: Okay. Is that everything?
MR REID: Unless my friends have anything further. (Pause).
No further questions, Mr Chairman.
THE CHAIRMAN: Doctor, that brings to an end all the questions we want to ask you from Northern Ireland. I'm very grateful for you taking time out to help the inquiry. Unless there's anything more you want to say, that brings an end to this link-up with you in Germany.
A. Okay, thank you very much.
THE CHAIRMAN: Thank you again. Ladies and gentlemen, we'll take a break for 15 minutes, thank you.
(10.22 am)
(A short break)
(10.40 am)
THE CHAIRMAN: Ladies and gentlemen, the position now is that Professor Neville has come over from England to give his evidence as an expert engaged by the inquiry to provide an opinion on certain areas relating to Claire's treatment. He has to leave here today about 4.15. I hope that will be sufficient time for his evidence to be taken. If it is not, then we will arrange perhaps for a video link for his evidence to be completed at some further date if that is required. But let's do

everything we can to finish it by 4.15 today to let the professor away. And at that point, I will then arrange for Mr and Mrs Roberts to complete their evidence from yesterday. I don't want them to go into this weekend with the prospect of giving evidence next week hanging over them.

Professor Neville, please.

PROFESSOR BRIAN NEVILLE (called)

Questions from MS ANYADIKE-DANES

MS ANYADIKE-DANES: Good morning, professor.

A. Good morning.

Q. Professor, do you have there your curriculum vitae?

A. I have my curriculum vitae here.

Q. Thank you. Just so that we can confirm it, you produced one report for the inquiry; is that correct? And do you have it there?

A. Yes, I do.

Q. Thank you very much indeed. For the purposes of referencing, your curriculum vitae is at 311-032-001. If we go to 002, which is the first substantive page of it, we see your that your present appointment is professor of childhood epilepsy at the Institute of Child Health. And prior to that, you were professor of childhood epilepsy, and also professor of paediatric neurology and a consultant paediatric neurologist.

If one goes to the page after that, 003, and looks at your present professional work, we see that there is a heavy emphasis, not surprising from your appointment, on epilepsy. Has that been an interest of yours for some time?

A. Yes, it has. I am now emeritus professor --

Q. I understand.

A. -- but I continue working on research.

Q. It is a lengthy CV, I'm not proposing to go through it, I simply wanted to establish what your area of expertise was, what your particular interest is.

We see that in terms of consultancy -- did you first become a consultant in 1973?

A. Yes, I did.

Q. And we see that from 003. You retained that position and become a professor also. So would it be fair to say that you would be familiar with paediatric neurology in 1996, which is the relevant period for us in this case?

A. Yes, it would.

Q. Thank you. I would like now to try and move through the assistance you have provided us, roughly chronologically, with what was happening to Claire. There may be, from time to time, periods where we have to deviate from that because it helps to explain matters, but that's what I'm intending to do.

I would like to start first with the initial assessment and treatment. Claire comes in at about 7 o'clock on the Monday, 21 October in 1996. You provide in your report at 232-002-003 -- and if we can pull up 004 as well. There you are talking about what the differential diagnoses might be if a competent examination is carried out.

A. Yes.

Q. If we see that there, maybe you can explain why you consider those should have been the differential diagnoses that a reasonably competent paediatric registrar would have made on the basis of the information that could have been available to such a person.

A. Yes. They were a sort of inflammation of the brain, which was not more specifically defined. They could include overwhelming infection as a differential diagnosis with a sort of collapse, say, though I don't think she was in that state. There are a number of metabolic disorders, which include hyponatraemia, with cerebral oedema as a possibility, occurring. Intracranial haemorrhage is obviously important. Hydrocephalus is probably much less important because she had previously had a CT scan.

I think that poisoning was something which could be

probably deferred to a later time when they'd looked at the other evidence. And non-convulsive status epilepticus is also on that list. But it seemed to me that hydrocephalus and non-convulsive status epilepticus were probably rather less likely to be within the registrar's sort of competence.

Q. Yes. What is it that you think, having examined Claire -- and one can only know from the records that have been taken of what was found, but assuming that's what there was and knowing what else one might look for, why do you have that list? In other words, what's the basis of you having formulated such a list?

A. Well, it's a list of the possible diagnoses which I think are likely to have occurred.

Q. That arise out of what evidence?

A. Well, out of the evidence of having been previously a child who had somewhat slow development, who had had epilepsy, but that appeared to have passed or been in remission, so that she was already damaged and therefore these were a group of problems which arose in somebody who probably was just or seemed just somewhat unwell and with a stomach upset, but actually was not talking. So she was actually rather sicker than that, and so I thought that that set of problems really fitted the likely causes.

Q. There has been an issue raised as to whether there isn't a slight inconsistency within your report in the list that you have formulated and considered that a competent paediatric registrar could have arrived at. So if one bears in mind that list you have there and if we just highlight the paragraph that starts "the differential diagnosis would have included". You'll see there are seven items there. Starting with "encephalitis" and culminating in "non-convulsive status epilepticus".

Then if we go and pull up next to that page a little bit further on in your report, which is at 006. If you look right at the top there's paragraph 4:

"Hyponatraemia/cerebral oedema ..."

Then if you look down at the bottom just below 8, there's an asterisk, and it says:

"These are the diagnoses [that is the asterisked ones] that I think should have been within the competence of a paediatric registrar."

A. Yes.

Q. And if you compare the two, you can see that you have, on your page 3, included item 3, which is "metabolic disorders, including acute liver failure/hyponatraemia/cerebral oedema" as something that you think a competent or a paediatric registrar could have suggested. But when you get to your page 6, that

particular item isn't asterisked. It might help if we removed your page 3 and put alongside your page 5, which starts the list, if I can put it that way. That might assist.

THE CHAIRMAN: 5 and 6, please.

MS ANYADIKE-DANES: Yes. You can see that your list starts at 1, "encephalitis", and goes on, and now there are eight items as opposed to seven. But the issue is: is there a reason, and if so what is it, why, when you're dealing with it at page 6, you don't include hyponatraemia as something that a competent paediatric registrar might have arrived at, but you do when you're discussing it in page 3?

A. Yes. I think that the reason that I did this was that "hyponatraemia/cerebral oedema" was within a group called "metabolic disorders" beforehand. And then I split it off and I'm afraid I failed to put it in as something which was appropriate. I think it is an appropriate thing for somebody at a registrar level to know.

THE CHAIRMAN: So rather than take it out from the admitting registrar's list of identifiable differential diagnoses, you want to add it to the list for the ward round the following morning?

A. Yes, I would.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Just so that we're clear, that means it should have been something that both the admitting registrar and a registrar taking the ward round should have considered?

A. Sure.

Q. And there is not intended to be anything made of the difference between the two pages?

A. No.

Q. Thank you. If we look at that list, Dr O'Hare, who was the admitting registrar, gave evidence and addressed those matters. I don't know whether you have had an opportunity to look at the transcript where she does do that.

A. Yes, I had a look through that, yes.

Q. It is on 18 October, it starts at page 135. It goes on to about 147, but if we try and pull out the main points of it.

A. Yes.

Q. It starts really at line 21 and says that the first is a serum calcium. That's a test that could have been done. She's going through a series of tests to see whether she would have or could have or should have arrived at any of those differential diagnoses that you have suggested.

Her view is that:

"Calcium can be high or low. It's very unusual for it to be associated with seizures in a child of this age."

Over the page, essentially she comes to the conclusion that she wouldn't have thought of doing it serum calcium on Claire at that stage. Do you have any observations to make about that?

A. Yes, it's not really so much a matter of causing seizures, it's just so relatively commonly performed that I don't see why you don't do it. I agree that when you argue it in more detail, you might wish not to do it, but it's so usually part of an examination that you'd normally do it.

Q. You mean it's a usual part of a set of blood tests?

A. Yes, sure, yes.

Q. So just so that I understand you, are you saying that what you're really advocating is that a set of blood tests be done and you're not really distinguishing each and every one, just so that you have a comprehensive set of blood work?

A. That's right.

THE CHAIRMAN: Professor, do I understand this to come back to the point which I have taken from your report, and you'll correct me if I'm wrong, that your view is that

Dr O'Hare did carry out a competent examination, but that she should have required more tests to be carried out than she actually did?

A. Yes, I think she should.

MS ANYADIKE-DANES: Following on from that question from the chairman, is that because you think, had she carried out more tests, either she would have been in a better position to have expanded the differential diagnoses, or she would have provided a basis for the doctors coming the next day to have expanded a set of differential diagnoses?

A. Yes, that's right. You could do tests one at a time, but it isn't really efficient when you have a child who is unwell.

Q. Thank you. Then if we go over the page at 136, she goes on to consider whether or not it would have been helpful or appropriate to have carried out a serum glucose. She says:

"That was done as a routine part of the U&E."

And she says it's recorded.

Then she goes on to say, if we think about whether we should have done a liver function test, and although she goes through it, ultimately she does conclude that a liver function test would have been a test that she could have done. I want to take you through her

reasoning because, by the way, she addresses the issue of Reye's syndrome.

She starts at line 19:

"I think the question mark was whether she should have checked her liver function, might she have had encephalopathy, for example, resulting in abnormal CNS findings."

She addresses that and she says she has never seen that particular condition in a child without jaundice or without a big liver.

And then over the page she says:

"Let's think about more unusual conditions, something like Reye's syndrome."

And she refers to having seen reference to it in different witness statements. And she says that:

"Reye's syndrome is a sort of catch-all thing which [I'm at page 137] describes a child who has abnormal liver function and encephalopathy."

She also says that it's:

"... a diagnosis that was often made in the 70s and 80s and hasn't been made in the recent past because there we have much better diagnostics."

Would you accept that?

A. I think there's less treatment with aspirin, which is helpful in that context. But it is still a possibility.

A liver function test is very simple to do, a transaminase, so I would do it.

Q. When you say there's less administration of aspirin, is that because the use of aspirin is particularly connected with the development of Reye's syndrome?

A. Yes.

Q. So that might have been a reason why they tested for it more frequently?

A. Yes.

Q. But does it happen independently of an overuse of aspirin?

A. Yes, it does happen as well.

Q. Is that therefore a reason for looking for it if you're doing a broad base of tests?

A. Yes, it would be.

Q. Just so that we understand, is your canvassing for a broad base of tests because Claire came in with fairly generalised and non-specific symptoms, which didn't immediately point to any particular condition?

A. That's exactly right. And that she had somewhat more than just being a bit off the boil, if you like, because she was not talking and she was ataxic, so my reading is that she required somewhat more investigation. These are not huge investigations; these are just really a fairly basic set of tests.

Q. While you're helping us in that way, we're pausing there and thinking about 1996, just so that we don't judge 1996 by today's standards. Is this a set of tests that you consider would have been appropriate, standard, common, in a comparable situation in 1996?
A. Yes.
Q. Thank you. Then she carries on on that page to talk about whether we thought there was an inborn error of metabolism. She says that she doesn't actually know whether she thought about that, but anyway she didn't do anything to test for that.
A. I have got sympathy for that. I mean, that is much more complex as a problem and I would await further thoughts on this. I would have deferred that until --
Q. What would that have involved if you were going to do that?
A. It's a whole range of potential problems, including searching for mitochondrial disease and the like, which really requires a lot of money and is a major investment, really.
Q. Is it more invasive?
A. Pardon?
Q. Is it more invasive?
A. No, you just do simple tests, but you send them to a laboratory that would do it.

Q. In any event, I think what you're saying is that you wouldn't have expected --
A. No.
Q. Although you would have expected them to keep that on their range as a possibility, you wouldn't have expected them to have tested for that at that stage?
A. Yes. The reason I would have just kept it in mind is because there was, I think, no previous explanation for her original illness. And so I think it required just a bit of thought as to why she had developed that illness before with epilepsy and --
Q. When you say "her original illness", you mean when she was a baby --
A. Yes.
Q. -- and came under the care of Elaine Hicks as a consultant neurologist?
A. That's right.
Q. Because that wasn't resolved, you would have that in your mind as --
A. Yes.
Q. I understand. Then I think on this page she does go on to consider that she would have done a liver function test with hindsight. Possibly because she might have had in mind hepatitis A, for example. Would you agree with that?

A. Yes.
Q. Then she deals with your suggestion of a toxic screen and she says that history from the family didn't give her any note that Claire had taken anything that could have given rise to that. So based on that, she wouldn't have pursued that line.
A. No, I wouldn't, I think, in the first instance either.
Q. But you would have maintained it as a possibility?
A. Yes.
Q. So then do you have a range of possibilities, breaking down to a number of tests, some of which are in higher order of importance than others?
A. Yes.
Q. And you await the results of those first line tests, if I can put it that way, to see whether they indicate that these other tests ought to be carried out or can be discounted.
A. Yes.
Q. It's a bit like detective work.
A. Yes.
Q. Then over the page at 139, she talks about urine osmolality. She said she wouldn't have done it at that time, partly because she didn't have the urea and electrolyte results, so it wouldn't have occurred to her to do that kind of urine test at that stage. She goes

on to say or at least cite the Patient Safety Alert, which refers to how urine chemistry may be helpful in a small number of high-risk cases. And I think the upshot of it is that she did not regard Claire, at that stage, as being a sufficiently high-risk case. Can you comment on her reasoning?

A. I think that it was probably right not to look at the urine osmolality initially. I think it was right to do the ordinary blood tests and then to decide afterwards what were the appropriate further investigations.

Q. Thank you. Then if we continue. Having looked at those results and given her answers in that way, she then starts to look in detail at the differential diagnoses that you suggest and we ask her to consider just a few because, in a way, in having provided that evidence, she's already covered some of them.

One of the ones that we wish her to deal with in particular is the metabolic disorders, including the acute liver failure, hyponatraemia.

She specifically is asked -- this is at page 140, line 14 -- whether she considers that she should have suggested that as a possible differential diagnosis. I'm trying to see where her answer to that comes because we get diverted slightly. (Pause).

I think we go off to deal with that difficulty or

potential inconsistency in your report that I mentioned. If you bear with me a minute, I'll try to get to the place where she finally deals with that point.

THE CHAIRMAN: Let's bring up 142 and 143, I think.

MS ANYADIKE-DANES: Yes. Then I think she starts really at 19 where it's being put to her. (Pause).

A. Can I say that there should be a registrar and a consultant who are also available to discuss the investigations, both before and after they've been done?

Q. Sorry, just before we get to it, it gets taken slightly out of order. We go to deal with the intracranial haemorrhage first, which is at 144. She discounts that because there was no headache and no history of her having a bleeding disorder. Would you accept that as discounting it?

A. No.

Q. Right at the outset without doing anything further?

A. No. You can have intracranial haemorrhage without -- I think it's unlikely in the context of her other illness, but it is still a possibility and a CT scan would eliminate that.

Q. Then she goes on to deal with hydrocephalus.

A. Yes, I think she said that hydrocephalus would not be something that would occur from birth, and of course she's wrong about that.

Q. Why do you say she's wrong about that?
A. You can have hydrocephalus from early life, which only presents later, and that would be something that she would perhaps not know.
Q. Does that mean that Claire could have had undiagnosed hydrocephalus from early life, which was presenting itself in this way --
A. Yes.
Q. -- now, much later on?
A. She could do, but it's unlikely because of the previous CT scan.
Q. And then she has addressed --
THE CHAIRMAN: Despite the fact that you say she's wrong about that, this is something which you say she might not be expected to know?
A. Yes.
THE CHAIRMAN: Right. So if she might not be expected to know it --
A. No.
THE CHAIRMAN: -- it's really not a criticism of her not to include it as a differential diagnosis.
A. Not at all. Absolutely not.
MS ANYADIKE-DANES: So she wouldn't be a person who could include it. What might happen is that somebody else who was more experienced and knowledgable perhaps ought to

have put it on the list --

A. Yes.

Q. -- if only to be ruled out by further consideration.

A. Yes.

Q. But it's not something that you're expecting she should have included in her list of the differential diagnoses?

A. Sure. And she points out also that it is possible that a tumour might have occurred, and therefore it could have been presenting in that way.

Q. Yes. Then if we finally go on to the hyponatraemia, which she gets to at page 147 of the transcript. She poses rhetorically at line 11:

"Why did I not consider hyponatraemia in this child? I didn't have her urea and electrolyte results at 8 pm that evening. She was coming in from home, she would not have been on IV fluids. I wouldn't have considered it for a child at that time."

Why would you have thought, at that stage, hyponatraemia was an appropriate differential diagnosis for her to have had?

A. Well, it remains a possibility because she had been vomiting, she was, I think, getting short of fluid, and it is quite likely that what would happen is that she would have intravenous fluids given to her, so therefore it is something you should be thinking of because you

would want to repeat that test, in my view, really quite early.

Q. There might be two things. She examines her first at about 8 pm, or at least what that's when she records her note. So there's what she sees at that stage on presentation.

A. Yes.

Q. Then there are blood tests carried out subsequently and she starts her on IV fluids and she makes a note that she should be reassessed afterwards and she comes back at midnight to do that. Somewhere in about then the blood results are recorded and one can see that there is a slightly low test or result --

A. Yes.

Q. -- for her sodium. So that would be another opportunity to review presumably her differential diagnoses and to see whether anything that's happened in the intervening period requires her to modify them in any way.

A. Yes.

Q. If we start with the first set, are you saying that as Claire came in and was examined and whatever she saw or could reasonably have seen at 8 pm with the history is something that should have led her to include hyponatraemia in her list of differential diagnoses?

A. I think it's something you would be conscious of, but

you'd be doing the test in order to discover exactly that fact so that she -- yes, she should have been conscious of that possibility.

Q. What particularly should make her conscious of that at 8 o'clock when she's examining her, bearing in mind this is 1996?

A. Yes. She would be aware that this is a risk for children with neurological problems, particularly, so that if you have a child with epilepsy and learning disorder, you would have a relatively high risk of that possibly occurring if this child did not rapidly improve.

Q. Just so that we're clear, does that mean that it may not be something that is causing her presentation, but it's a risk in the way in which you might require to treat her?

A. Yes.

Q. So you should be mindful of that?

A. Yes, indeed. I think it's highly likely that she had two disorders, one of an intercurrent infection and the other being hyponatraemia.

Q. Even as she came in, some of that was present?

A. I think the problem about the -- well, if we're going to judge the current levels of 132, that could well have been a rapid drop down from 140.

Q. I see.
A. And you would have not known that fact, you would have just ... You just would realise that ... And it's the speed at which you're dropping, which is as important, I think.
Q. So is the point then, you would not have known at that stage when she was within the normal reference --
A. No.
Q. -- and, therefore, how quickly she had moved from the normal reference to 132?
A. Yes.
Q. Although there was no way of Dr O'Hare knowing or any registrar at that stage knowing, at 8 pm, that she was 132.
A. No.
Q. So that's what I'm trying to distinguish, where the hyponatraemia comes in for you. Is it something that you're thinking is part of the cause of her presentation and/or is it something that you're thinking is a risk in the way you might be treating her and we should just be mindful of that, which are potentially two different things?
A. Yes. I find it difficult to separate the two, really, as she presents.
Q. So whichever way, you would have had hyponatraemia there

as something to be mindful of?

A. Yes.

Q. Then Dr O'Hare goes on to think about the hyponatraemia. From her point of view, when she saw the 132 serum sodium result, that's not something that would have caused her to be concerned in particular, it's just below the reference, nor anything that would have led her to think in terms of developing cerebral oedema. So if we just pause there for the minute, and bearing in mind that she's a paediatric registrar and this is 1996, what would you have expected her to have concluded about a serum sodium level of 132 at that stage? I should say, although she would have been seeing that round about midnight, it's probably coming from a blood test -- I'm not entirely sure -- taken at 9/9.30 in the evening, something of that sort.

A. I think what you would have thought about that at that stage is: this is low, it's not very low, and there is a danger of giving a great deal of solute, of giving fluids to this child without being carefully monitored. We have argued, I think in our notes, as to whether this should have been given as more normal saline. In other words, whether it should have been a higher concentration of saline or not and whether it should have been two-thirds of the amount rather than ...

I think that it's really quite difficult to be sure of that fact.

What I think is --

THE CHAIRMAN: That's why I understand you not to be really critical of the fact that Claire did get the Solution No. 18 --

A. Yes.

THE CHAIRMAN: -- or the volume at which she started to receive it. Your criticism really comes a bit further along in the course of her treatment, that that was maintained; is that right?

A. Yes, I think that's right. You could argue that either way.

MR GREEN: Forgive me. It would be helpful if the professor could be asked to clarify what he meant when he said a moment ago:

"We have argued in our notes about whether this is normal saline."

It was the phrase:

"We have argued, I think, in our notes."

I would be helped by some clarity as to what was meant by that.

THE CHAIRMAN: I think it's a debate between the experts.

When you said, "We have argued in our notes", professor, is that a reference to the other experts who

have given reports?

A. Yes.

THE CHAIRMAN: And you have seen what Dr Scott-Jupp has said, for example, which is not identical to your own view; is that right?

A. Yes.

MS ANYADIKE-DANES: To follow on from where the chairman was asking you, I think you said that it's a difficult call as to whether she should have been on the Solution No. 18 or something more restricted or at least a greater concentration of sodium at the outset.

A. Yes.

Q. I'm not sure that you've particularly been concerned about the amount. And then you have a view as to if you were going to review that, what you would have done. In your report, you expressed a view -- and I just give it for reference purposes, it's 232-002-004. Your view, on balance, I think, is that given that you've got a drowsy child, you would have had an urgent review, but you might not have ... I think, on balance, your view is that it might have been more appropriate to have even started with a more restricted fluid because you are dealing with a drowsy child.

A. Yes.

Q. Can you help expand on what you mean by that and why

that makes a difference?

A. Because she was showing signs already of having a problem and drowsiness and lack of speech were already part of it, I would be really careful about giving a great deal of fluid. In fact, she had rather more fluid than was actually intended, I think.

Q. But if we stick with the position of the paediatric registrar in the evening that she came in. She's going to put her on IV fluids. You don't demur from the fact that that might have been an entirely appropriate thing to put her on IV fluids?

A. Yes, that's okay.

Q. There's not a problem with that. You're not concerned about the rate or amount of IV fluids that she was started on in particular?

A. Not at that stage, no.

Q. Where you're slightly equivocal is whether in all the circumstances it wouldn't have been better, given her drowsy nature and not being entirely clear what's causing that, to have had her on a slightly higher concentration fluid of sodium; is that where you are?

A. Yes, that's what I think we'd normally be doing.

Q. At that stage, which is when she's being started off and indeed continued with that at midnight, how significant a factor is it then as opposed to later on, where you

might have a different view as to what they should have done about her fluids?

A. I think you could argue the case either way.

Q. Thank you. The CT scan is another one of those tests or procedures that you thought could and should have been put in place. Dr O'Hare addresses that at page 181 of her transcript. Essentially, at line 21, she really says that you have to think about why you do one.

I think her view is that there is more information now leading to doing one and she didn't think that it was necessary or appropriate at that stage.

A. Yes, I assume that what she would have been thinking of doing is planning a CT scan for the following morning, presuming that the child had not already begun to show major improvement. So that's what I was assuming. And if that was the case, that would be entirely appropriate.

Q. To have planned to have one carried out on Tuesday morning?

A. Yes.

Q. How important do you think that would have been as a direction, the arrangements for it to have been carried out on Tuesday morning? How important do you think that would have been?

A. I think it's very likely that it would have shown the

earlier signs of raised intracranial pressure. But it would also have shown, potentially, a demonstrable other lesion that was causing problems as well.

Q. In order for her to have put that in train, to have ordered it, if I can put it that way, so that that happened on Tuesday morning, she would have had to see things, examine Claire, get results, something that would have led her to believe that that was something that should actually be ordered. So what I'm trying to find from you is what is it in Claire's presentation or the results that she would have received almost at any stage, whether it was at 8 o'clock or midnight, that should have triggered a response in a paediatric registrar to have said, "What we really need is to ensure that Claire has a CT scan tomorrow morning"?

A. I think that would have been her not having -- oh, her having shown a considerable improvement in her level of consciousness.

Q. Sorry, I have misunderstood you. Is that why she would have thought that she should do a CT scan?

A. No, that would be the reason for not doing it.

Q. When Dr O'Hare examined Claire at midnight, she thought that she seemed a little brighter. She had made a note to herself "re-examine after fluids", she came back, she did re-examine her and she thought Claire seemed

a little brighter. If that was her view at the time, do you still say that she should have ordered a CT scan for the next morning?

A. I think that it is reasonable to wait until the following morning on the basis of the state that she was in and then review the situation first thing in the morning, and if she hasn't shown improvement in speech and in her dysarthria, then I think she would then deserve to be scanned.

Q. I think the actual term that Dr O'Hare uses is that she was slightly more responsive at midnight.

A. Yes, which is a little bit uncertain, but I am not doubting the situation at 12 o'clock. I'm asking about the problem from 8 o'clock in the morning really.

THE CHAIRMAN: Unless I misunderstand your report, professor, your criticisms of what happened overnight are limited.

A. Yes.

THE CHAIRMAN: And to the extent that you make some of those criticisms, you acknowledge explicitly in the report that others might take a different view.

A. Yes, I think that's fair.

THE CHAIRMAN: But your real concern about Claire's treatment is what happened from the Tuesday morning onwards.

A. It is.

THE CHAIRMAN: To put it maybe far too simply, there was nothing done on the Monday overnight which could not have been remedied or corrected if steps which you think should have been taken on Tuesday had been taken?

A. Yes, I think that's right.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Can I just ask you to clarify that point as to your view? It's very difficult because, obviously not having examined the child, your view is constrained by the records of the tests that actually were taken. Insofar as you can do it -- and please say if you can't -- how ill do you think Claire was by the time anybody would have seen her in the morning of the 22nd?

A. Well, she was persistently, as I've said, not speaking. I gather she was unsteady. She was pale, she had been vomiting and I think she was still retching. So I think she was quite ill. It wasn't just a simple neurological illness. I think she had some neurological signs which were in addition, and I think that they've been argued about as to how many of the signs, the pyramidal signs, were already there or not there. But it seems to me that she was unwell at that time and really --

Q. Maybe you can help us with this: if her serum sodium was 132 at 9/9.30, or thereabouts, representing where she

was at that time on the evening of the 21st, I think your view is -- and nobody will know it -- that that serum sodium level could have been continuing to deteriorate or reduce --

A. Yes.

Q. -- over time until you get to the next test, which may have been more or less 24 hours later on, the following evening, and then by that time it's 121, although nobody knows that until about 11.30. There's no way of knowing whether that actually is what was happening to her serum sodium, but if that was deteriorating, is your view of that affected at all by the fact that Dr O'Hare, the paediatrician, can regard her as appearing slightly brighter at midnight? Sorry, slightly more responsive.

A. Yes. I think this particular state does show fluctuations, and it depends also on sleep as well. It's really -- it's not that much of a variation to matter, I think.

THE CHAIRMAN: Just to complete that note, the note which says, "Slightly more responsive", then says, "Observe and reassess AM" --

A. Which is fair.

MS ANYADIKE-DANES: Thank you. So then if I just ask you about the electrolyte testing.

The result would have come through at midnight that

she's 132. Can you just explain to us how significant you would regard it that those tests are repeated and, if so, when you think they should have been repeated?

A. I think it's absolutely clear they should have been repeated the following morning, early, not waiting for the ward round, but get on with doing it.

THE CHAIRMAN: Who instigates that? This is complicated by the [OVERSPEAKING] --

A. -- it should be important that it's done.

THE CHAIRMAN: So the onus for that is on the registrar coming on at about 9 o'clock or a little bit before 9 --

A. Sure.

THE CHAIRMAN: -- to take that step?

A. Yes.

MS ANYADIKE-DANES: How common might it be that a child presenting like Claire could have had a serum sodium level of 132 and that not indicate particularly anything of concern?

A. I think it is quite possible that that could be transient so that it does require checking to make sure that it is dropping or not dropping.

Q. Or just a blip of some sort?

A. Yes.

Q. Not exactly an artefact, but to do with something that doesn't contribute to anything of concern in her

condition?

A. Yes.

Q. If that is at one end of the spectrum, at the other end of the spectrum, could it indicate something more serious?

A. Yes.

Q. Even at that level?

A. Yes, it could indicate the beginning of inappropriate ADH secretion, so that she will be on the way down with her sodium so that she could be developing a really very severe disorder.

Q. If she were developing that condition, would the effect of that mean that she was not retaining sodium in the way that she would otherwise have been, and that would mean the level the of sodium in her system were low and could be reducing progressively?

A. Yes.

Q. And that would be serious?

A. Yes.

Q. Leaving aside whatever was being done about her fluid regime --

A. Yes.

Q. -- is there any way of telling whether you're on one end of the spectrum or the other?

A. By testing.

Q. Sorry?
A. By testing.
Q. Just by testing?
A. Yes.
Q. Is that one of the reasons you do it, just to make sure?
A. Yes, that's simple sodium testing.
THE CHAIRMAN: Professor, you almost looked there as if this is depressingly simple and obvious. Is that --
A. Yes. Well, I think it is very surprising that it wasn't done that morning. I'm astonished really that it didn't occur.
MS ANYADIKE-DANES: If we go to the ward round, the ward round is conducted by Dr Sands, who's a paediatric registrar. He, at first pass, has non-convulsive status epilepticus as his working view and he feels that if Claire's in that state, really he needs a neurological opinion from an expert or a consultant, in any event.

You in your report -- and for reference purposes it's 232-002-005 to 006, so perhaps if we pull the two up together -- you have to some extent criticised that diagnostic assessment by Dr Sands and set out what you think -- and this was a thing that you were discussing before and assisting the chairman with -- what you think he should have reached at that stage. And you have

included there the hyponatraemia/cerebral oedema.

The evidence has been that although Dr O'Hare thought she seemed slightly more responsive -- and I think even the nurses themselves thought she seemed a little bit brighter -- by the time the ward round happens, by the time it gets to Claire -- that's about 11 o'clock -- by that time, the parents, who arrive in the hospital at 9.30 -- that's their evidence -- they don't think she looks at all better than when they left her the previous evening and, if anything, she might look marginally worse, but in any event certainly not any better.

A. Yes.

Q. I think Dr Sands said when he examined her, he would agree, and I think also, Nurse Field thinks that she looks or recollected her looking pale and lethargic. So whatever may have been the slight improvement that people have recorded previously, by the time it gets to this stage she doesn't appear to be in that state any more.

A. No.

Q. And this stage, we're not sure how soon before the parents see her at 9.30 she might have been in that state, but certainly by then she seems pale and lethargic and no better. If that's the case, then at

what point do you think that Dr Sands himself should have started to think about the risks of SIADH if he's got that information, leaving aside his own examination?

A. I think he should have been thinking about it and should, of course, have consulted both of the consultants concerned, Dr Steen and Dr Webb. But I think he did consult Dr Webb in that circumstance.

Q. Yes.

A. So I think he shared that decision with Dr Webb.

Q. Yes.

THE CHAIRMAN: Let me take you back for one moment. When I asked you a few minutes ago who the obligation lay on to instigate the tests even without waiting for the ward round, you said the onus lay on the registrar. Do I understand you to be saying the registrar rather than a senior house officer and rather than the consultant? Or is it specifically on the registrar that this obligation falls?

A. The tests can be requested by anybody. The problem is, it should be done early --

THE CHAIRMAN: Yes. So it's not --

A. -- before the 11 o'clock.

THE CHAIRMAN: Is that a collective failure? I know there's an issue about where Dr Steen was or if she was there, but assuming in the normal course of events a consultant

would be there, a registrar would be there and at least a couple of house officers --

A. Yes.

THE CHAIRMAN: -- is that a collective responsibility to get the tests done?

A. I think so, yes.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: And apart from SIADH, should or could he reasonably also have been thinking that there was a developing cerebral oedema?

A. Yes.

Q. Why do you say that?

A. Of course, I don't have the sodium levels in order to back that up, and it's done partly by looking at the profile of what was occurring and of her certainly not improving and not showing major improvement even when treated for epilepsy.

Q. She wouldn't have been treated at that stage for epilepsy.

A. No.

Q. We're at the ward round now.

A. Okay. At the ward round stage, no. She's just not improved, really, and you would have expected, if she had -- she would be already beginning to develop cerebral oedema in a mild form.

Q. Just so that I'm clear, are you saying that that is a possibility that he should have retained, that that might be what's happening?
A. Yes.
Q. It would need to be confirmed, but he should have had that as a possibility?
A. Sure.
Q. Even as a registrar?
A. Yes.
Q. And in 1996?
A. Yes.
Q. Thank you. His SHO, who would have been accompanying him on the ward round, had the medical notes and records. I just want to take you to a comparison between the two sets of results to see whether there is any significance in these. If we pull up 090-022-052, and have alongside that 090-022-053. The left-hand side, those are the notes taken at midnight. We're not entirely sure -- we might be now. At the time when I was last looking at the evidence, we weren't entirely sure whose hand that serum sodium result is in, but in any event, that's the result that he would have seen or his SHO would have seen looking at the notes.
You see the sodium level there at 132.
A. Yes.

Q. Slightly to the right of that, you see the white cell count at 16.5. Slightly elevated, I think that arrow means. Do you see that there, professor?

A. Yes.

Q. And then if one looks over to the page, these are part of the notes taken by --

THE CHAIRMAN: Sorry, and the glucose at this point is 6.6. That's the third entry.

MS ANYADIKE-DANES: Yes, I beg your pardon. The glucose is 6.6. If we have those three highlighted.

If one looks to the right-hand side, this is the note taken by Dr Stevenson, who accompanied Dr Sands on the ward round. You can see, as highlighted there, that's the serum sodium level there of 132. That's the white cell count, 16.4, and then the glucose is 6.6. The only difference is in that white cell count. Instead of being 16.5, as was recorded at midnight, it's 16.4. We don't exactly know when this note was written up, but the ward round, when it gets to Claire, seems to have been at about 11 o'clock.

Insofar as you can, would you have interpreted those as representing two different sets of results because of that difference in the white cell count, or derived from the same result or the same test, if I can put it that way?

A. I think it's much more likely that these are the same results because the -- I think it's very likely that the sodium level would have dropped between the two. I take the white count to be an error --

Q. Thank you.

A. -- one way or the other.

THE CHAIRMAN: Well, can I ask you it in another way: to put it rather crudely, what are the odds of tests which were performed at about 9 or 10 o'clock on Monday night in these three respects being so very, very close to tests which are done, say, 12 hours later? Could that happen quite easily?

A. I don't think so, no. I think this looks like the same set of results.

THE CHAIRMAN: That's as far as you can put it?

A. As I can see, yes.

MS ANYADIKE-DANES: If we are then at the ward round, you're saying that you think that Dr Sands should have had SIADH, and also should have had the possibilities that she was developing cerebral oedema. Should any significance have been attached to the fact that her white cell count is slightly raised, irrespective of the slight difference between 16.4 and 16.5?

A. Yes, there's argument about whether a differential was performed on that and whether it was lost.

Q. Sorry, what does that mean, professor?
A. I don't think we know the differential for the white count on that.
Q. Could you explain that?
A. The polymorphs and lymphocytes are not clear.
Q. Sorry, professor, just for the benefit of those who may not have appreciated what that means or its significance, could you explain that?
A. It has some significance in terms of what sort of organism is likely to be causing the disease. I take these to mean that she was infected and that that infection could be sort of almost anything, really, but probably a gut infection.
Q. What tests would have to be performed? You said the differential and the white cell count. What tests would actually have to be performed to have provided some better insight into what was causing that?
A. At the very least a differential of the polymorphs and lymphocytes within that spectrum --
Q. How standard is that?
A. Very.
Q. Thank you. If she did have some sort of gut infection, although as you say you couldn't be precise about that because of the tests that hadn't been carried out at that stage, is that the sort of thing that could have

been responsible for her presentation?
A. Yes, it could. It could have both produced the primary problem and the beginnings of the degree of cerebral oedema, which was then going to build up.
Q. So just trying to understand, does that mean that what you're dealing with is that there could be things which are the underlying cause and those same things could also be the result of other things --
A. Yes.
Q. -- and it's trying to find out what is the cause and what is the effect?
A. That's right. Yes, it is, but of course the most important thing in that situation is you can't do an enormous amount about dealing with the infection except for the two manoeuvres which were used. What you can do is to manage the sodium level if you've got it.
Q. Yes. And also to try and see what are the range of things, whatever might be cause or effect, but what the current state of what's happening in her brain is?
A. Yes.
Q. Let's go back to what you were telling the chairman about the CT scan. As she presented there at the ward round, what are your views as to what should have happened about a CT scan then?
A. I think she should have had a CT scan performed then

because you really didn't know what was wrong with her.
Q. And what could that CT scan have revealed?
A. Well, it could have revealed a haemorrhage, it could have revealed an area which looked suspicious of being inflammatory and it could have revealed early cerebral oedema.
Q. And you've also, I think, suggested that she should have had an EEG.
A. Yes, indeed.
Q. How important did you regard it that she should have had a CT scan and should have had an EEG at that stage?
A. They're both of considerable importance. The EEG situation seems to be that she was given one dose of diazepam, which I think was reasonable, just to see whether she showed marked improvement or not. But then she was on a regime of receiving a total of four drugs in different forms. That seems to me to be quite inexcusable without having an EEG performed.
Q. We've moved on a little bit.
THE CHAIRMAN: Sorry, just because you think that those drugs were administered on, I think, almost a speculative basis.
A. Yes, they were.
THE CHAIRMAN: The evidence that Claire had a condition which required those drugs to be given was not firm

enough for them to be administered; is that right?

A. No, it wasn't firm enough when there's apparently a very simple test which can be performed or which will demonstrate the point immediately.

MS ANYADIKE-DANES: Because you moved on to talk about the diazepam, which is something that happens later in the day --

A. Sorry.

Q. No, no, it's fine. At this point, I think one's trying to sort out what could and should have been done right at the outset, which might have been quite significant for what happens later in the day.

A. Okay.

Q. So the outset that I'm discussing or seeking to raise with you is 11 o'clock or thereabouts in the ward round.

A. Yes.

Q. So I think you have said that at that ward round, whoever was conducting it, with the information that was available, should have had some consideration to the possibilities of SIADH --

A. Yes.

Q. -- should have had some consideration to the possibilities that there was a developing cerebral oedema and should have organised a CT scan and/or an EEG.

A. Yes.
Q. Would that sum up what you've been telling us?
A. Yes.
THE CHAIRMAN: Mr Fortune?
MR FORTUNE: Sir, with these differential diagnoses in mind, could Professor Neville help us with two matters? Firstly, as to the significance, if any, he would attach to Dr Stevenson repeating the glucose measurement of 6.6 and, secondly, what that measurement might mean, bearing in mind it's within the parameters of normal. Does it indicate, for instance, any metabolic disorder and, if it doesn't, is that by way of any reassurance?
A. I think the level is normal. It's not one that would provoke seizures, nor is it high enough to cause any other concern about diabetic situations. So I think it's a form of reassurance, really.
MS ANYADIKE-DANES: I think the point may be more: if you perform such a test and got a normal result back, how does that help you with any concern you might have started off with about the possibility of developing cerebral oedema or SIADH? Does that assist?
A. Not in the least.
Q. Why?
A. Well, they're not modified by the glucose.
Q. So irrespective of that, are you saying that he should

have retained the concern that you originally said he should have had?

A. Oh yes, absolutely.

Q. Thank you. You had indicated that that slightly elevated white cell count might have suggested that there was, I think, something that the parents thought she might have had, which was a tummy bug.

A. Yes.

Q. Would that be a layman's way of capturing that?

A. Yes.

Q. And that might have been part of her presentation when they brought her to the hospital in the first place.

A. Yes.

Q. If that's the case and they are to be seen from those results, is that something which you think could have been treated or treatment for it started earlier?

A. I think that giving fluids by IV and waiting for other results would be entirely reasonable. I think that was appropriate.

Q. If it had been higher, would that have indicated that something in relation to that specific result should have been commenced earlier?

A. Well, there is a question of whether a lumbar puncture should have been performed in this situation, and it's variously argued as to -- it's an argument about whether

it should or should not be performed. My conclusion about this is that it would be perhaps not worth doing perhaps on the night before when this child was originally seen, but by the following morning I would have thought it was worth doing.

Q. And why do you say that?

A. Because you want to know if there is any form of bacterial or virus infection. You get the most direct clue that you can from a CSF being taken.

Q. If I may pick that up and ask you two things about it. Firstly, the possibility of meningitis is something that had concerned the parents. That was one of the things they wanted to know and were seeking comfort that she didn't have that. I think their evidence would be that they expressly asked about that and were told that they needn't worry about that. I think they were told that both when she was admitted and when they were present during the ward round. It was also something that concerned the child's grandparents and they specifically raised that -- well, their evidence is that they specifically raised that with Dr Webb when he came to examine the child at 2 o'clock on that Tuesday afternoon. The parents weren't there at that time.

On all those occasions both the parents and the grandparents were told that, no, that wasn't there. In

fact, I think the grandparents' view -- and this is simply their recollection of it -- was that meningitis had been ruled out. Can I ask you what, at that stage, would have been the examination or the results of tests that would have allowed the clinicians to have ruled out the possibility of meningitis?

A. Well, if that a lumbar puncture was not performed, there's only the blood test results to go on. I don't think that a severe bacterial meningitis is at all likely in this child. I think it's much more likely that it could be a sort of meningoencephalitis, a sort of virus infection that is affecting the brain in a somewhat slower fashion. Having not really got anywhere in the first night, it would have been worth doing it just to find out what the results were.

Q. And could you have ruled out the possibility of the presence of it or it developing in the absence of a lumbar puncture?

A. No.

THE CHAIRMAN: Well, the only thing that strikes me -- and maybe you can help me on this -- does that mean then that on the Tuesday morning what you would have been putting in place, if you were there, was a CT scan, the EEG and the lumbar puncture?

A. But above all a sodium level. I think you might well

have been pushed in the direction of ... But I think you'd have to be clear that you were likely to be dealing with dual pathologies. One was the sodium level and the cerebral oedema and the other would be the intercurrent infection, and you wouldn't know necessarily the extent of that.

Q. I think in fairness, Dr Webb's evidence is that he was considering a lumbar puncture, I think, the following day. I think one sees that in his first witness statement, which is 138/1, page 27. One sees it just under (i):

"Explain why you didn't deem it necessary to conduct a CT scan on Claire and were willing to wait."

He said:

"[He] didn't think Claire had a neurosurgical emergency. If she had a meningoencephalitis, then a CT scan was unlikely to have been helpful and could be arranged for the following day to facilitate lumbar puncture."

And then he goes on later on to explain at page 84, at (e), round down at the bottom, when he's being asked about any test for the diagnosis of meningitis, and he says:

"I recommended viral cultures of stool, urine and blood and a throat swab to look for possible viral

agents that might be causing meningoencephalitis. I did not request a lumbar puncture, but would have planned this for the following day if Claire had improved and after a CT scan if there were still concerns about her level of awareness."

So by the sound of it, he was thinking that that might happen on the Wednesday, if I can put it that way, but by the Wednesday, they were overtaken by events. Would that have been reasonable to have waited that long?

A. I don't see why he didn't get on and do it on Tuesday morning, really.

Q. I think the chairman had suggested that the treatment plan that he had in terms of the anticonvulsant therapy and so forth was in fact treating a condition that hadn't really been tested for, if I can put it that way.

A. Yes.

Q. If he had performed such a test, would that have assisted him in targeting or better formulating his treatment plan?

A. Yes, it would, but the two arms of this are going on separately. There's the cerebral oedema/hyponatraemia part of it and there's the infective part. They are going on together. It doesn't remove the problem of hyponatraemia.

Q. So you should be tested for both?
A. Yes indeed.
THE CHAIRMAN: Okay. We need to take a break. The stenographers have been going since soon after 9 o'clock. We'll start again at 12.10 and finish at some time around 1 o'clock for lunch.
(12.02 pm)
(A short break)
(12.15 pm)
MS ANYADIKE-DANES: Professor, just a few points that I've been asked to cover with you at this stage rather than coming back later on, now that you're dealing with them.
The first point is a point of clarification, really. It goes back to that question as to what 132 should have prompted, this is her serum sodium level, in terms of further blood tests or any other consideration. If one goes to Nelson, which is the textbook on paediatrics, which they certainly had at the Children's Hospital then -- they may also have had Forfar & Arneil -- but in any event, in Nelson it's the 15th edition. We have taken some sections out of that and put them into our system. The relevant part of it is to be found at 311-018-005.
If you see right down at the bottom under "hyponatraemia". Hyponatraemia is being defined there

as less than 130. Then it goes on to talk about the conditions that it is caused by and so on. But the particular part that I'm wanting to ask you about is, given that the serum sodium level was 132, why should that have caused a concern and prompted, so far as you're concerned, further blood testing in the morning?

A. Because it was a trend, potentially, in the direction down and there's no way of knowing at that stage, so it's important that it is repeated six to eight hours later.

Q. And what do you regard as the normal parameters for serum sodium?

A. It's normally 135 to 150.

Q. So below that is something that you start thinking about?

A. You start thinking about. And they've taken it as less than 130 and left 132 in the middle. So that's the way they've read that, you know.

Q. But irrespective of how they've taken the definition of hyponatraemia, if I can put it that way, leaving aside whether it's to be defined as hyponatraemia or not, does a reading below the reference level, the 135 to 150, have significance as far as you are concerned in a child like Claire?

A. Yes, it does. It mean that she's relatively at high-ish

risk of it dropping further.

Q. And then that is something that I wanted to ask you because you had talked about what might be called a predisposition or a vulnerability to hyponatraemia or any sort of central nervous system disorder perhaps because of her previous experience and by that I think you were referring to the epilepsy or the slightly unresolved cause of her problems, her neurological problems, when she was a baby.

A. Yes.

Q. What is your evidence for suggesting that that aspect of Claire could have made her vulnerable in the way that you've been saying?

A. Well, there's a whole group of disorders from head injuries and other sort of invasions of the nervous system, which can produce this disorder. So it's not a particularly focused list of problems, really. But any of them can make it more likely that they will go down that route and develop oedema.

Q. Yes. I think what the issue is is how, having taken her history and learning that she had had epilepsy when she was a baby, she'd had one incidence of a seizure when she was 4, nothing since, why in 1996 would a registrar in 1996 have appreciated that she had a vulnerability that he or she ought to be aware of?

A. Well, she was cognitively impaired to, I think, a significant degree, and that cognitive impairment long antedated the events which we're now seeing. And I think they were probably there at the beginning. She also had a form of epilepsy at that early stage, which was called probably infantile spasms, which is really quite a severe form of epilepsy, which can in fact slow your development further. So she had more than a mild problem. So I think she's therefore at significant risk, really.

Q. As it happens, epilepsy is a particular area of interest for you and focus of your work, certainly latterly.

A. Latterly, yes.

Q. If we are going back to 1996 and standing in the shoes of a paediatric registrar, would they have had the knowledge to have, if not described it in the terms that you've described it in, made some sort of connection or allowed them to have some awareness that she might be a child that they should be careful of in the respects that you've mentioned?

A. Yes, and I think if you start off with a sodium that is already a little bit slow, it is entirely reasonable to repeat the level, and be quite clear whether you are going up or down.

Q. Leaving aside that bit, I think this was being targeted

at your view as to the characteristics of her own history, if I can put it that way. Does a paediatric registrar in 1996 appreciate that?

A. I would hope, between the registrar and the consultant, you'd get a view that that was a potential problem, yes.

THE CHAIRMAN: Does this illustrate the problem that Claire's case features, which is the fact that Dr Sands seems to have been working without reference to a paediatric consultant for whatever reason?

A. Yes.

THE CHAIRMAN: You've acknowledged that he did the right thing in going to Dr Webb, but he still didn't have a consultant paediatrician as he would normally be expected to have.

A. Yes, but I think the paediatric neurologist should know something along those lines.

MS ANYADIKE-DANES: Maybe a slightly different way, I think, if he had had access to his consultant at the time of the ward round or at least been able to --

A. Oh yes.

Q. -- telephone and make contact with his consultant. We know that he went off to find the consultant neurologist, but that would be some time perhaps before he could be sure of doing that. If he had had his consultant with him or been able to phone that

consultant up, I think that's the point. Could he have been assisted, if he hadn't formed those views himself, been guided in informing them by that kind of contact?

A. I think, absolutely, he should have been able to talk with his consultant paediatrician and get a combined view, yes.

Q. Thank you. I think where I had been asking you before was in relation to the tests that you think should have been carried out, and I think you had expressed the view that there should have been, so far as you're concerned -- we're now talking about at the ward round or ordered as a result of the ward round, there should have been the repeat U&E tests, there should have been a CT scan ordered and/or an EEG and some consideration should have been given to a lumbar puncture; would that summarise it?

A. Yes. It's not and/or, really.

Q. It's and CT scan and EEG?

A. Yes.

Q. If we focus then on the EEG element of it. So far as you're concerned, at that stage, and on the basis of the information that you have that's recorded about Claire, how important was it to have the EEG?

A. Well, I think it was crucial to have it if you were going to be managing this child as having non-convulsive

status epilepticus. So in that circumstance, it was absolutely required. If of course you already had the sodium level at an earlier stage, then you'd have had something else to treat and get on it, and you may well have deferred the situation until you saw if you got improvement. And I think if you ... You would have facilitated getting that EEG, I think.

Q. Yes. Can I ask you in this way: if you'd had the serum sodium result, a repeat one, and the result back and the result had shown a further fall -- you can't know because that didn't happen, but let's say that that was the result of that -- and that had been treated. How would you say that that should have been treated?

A. That would have been treated by fluid restriction, by, I believe, a higher level of salt, either half normal or normal. And if the child was not improving, a diuresis being induced by mannitol and, if still not improving, by ventilation of the child to take the PCO2 down to a lower level.

Q. So that's something, certainly the latter thing that you have referred to, is something that you would do if you had quite a significantly low result?

A. Yes.

Q. So if we are talking about some repeat blood tests that might have been done first thing in the morning, maybe

even before -- well, would you have thought it could even have been done before the ward round?

A. Yes. Certainly, yes.

Q. Let's say that is done and you have your result at some time during the ward round or just afterwards and you see a continuing -- not a continuing because you didn't know where it started, but a further fall and you had treated it in the way that you suggested, which was to restrict the fluids and change the concentration of saline in the fluids, and you'd approached it in that way, is it possible for appropriate treatment of that sort to actually have affected matters so that you didn't end up having to persist with or even commence an anticonvulsant therapy?

A. Yes. But it would be nevertheless helpful to know.

Q. Yes. And do you say that because it's possible that the seizure activity or the episodes were as a result of falling serum sodium as opposed to any other independent cause?

A. Yes. A drop in sodium is a very potent cause of seizure activity. But I think you also have to remember that some of the episodes this child was having could well be episodes of extension rigidity, which are not seizures at all. The chattering of the teeth, I think that need not be a seizure at all.

Q. If it's not a seizure, what would be causing that?
A. It's the form of extensor attack that happens during -- you have episodes when you extend, when your teeth chatter and there's no cause in the brain at all, it's just a lower motor neurone sort of problem.
Q. So that we are clear, what brings that about?
A. Having a high pressure.
Q. You mean a high intracranial pressure?
A. Yes.
Q. And what brings a high intracranial pressure about?
A. Cerebral oedema.
Q. Potentially from the serum sodium?
A. Yes. That's right.
Q. So does that mean that these episodes could actually have been a product of the low sodium, which set in train a series of symptoms, as opposed to seizures from some sort of independent cause?
A. I think some of them could have been. I think that the episode of jerking on one side that was noted was a proper seizure. But again, it could have been provoked by hyponatraemia.
Q. If that's possible, that those episodes or even the seizure could have been provoked by hyponatraemia, is there any way of distinguishing between whether what we're looking at is a response to a gradually worsening

situation caused by ever lower levels of sodium in her system, or caused by some independent neurological condition? Is there is any way of telling the difference?

A. I think by doing an EEG, you'll be able to tell the difference between a localised area or a more generalised area of brain that is firing continuously, and the occasional episode that's happening, which may be the result of hyponatraemia.

Q. So if you don't do the EEG and don't do the repeat sodium tests, if I'm understanding you, you actually can't properly attribute a cause to those things --

A. No.

Q. -- and therefore can't treat them appropriately?

A. No, that's right.

THE CHAIRMAN: Or to put it another way, you are just working in the dark?

A. Yes.

MS ANYADIKE-DANES: Dr Webb has produced a statement which addresses this question of the CT scan and EEG. It's his third statement, it's produced this year, October 2012, and it's 138/3 at page 2, is where he talks about the CT scan.

If we can bring up page 3, that's where he talks about the EEG.

A. Yes.

Q. You have seen this before. Oh, sorry, page 3 is a bit fuzzy, I think we've retyped it. It's exactly the same thing, but just for ease of reading. If we remove page 3 and replace it with page 4. It's exactly the same thing, it's just clearer to read.

If we look at the bottom on page 2, that's the explanation. He says that:

"I have no doubt that if a CT scan had been available down the corridor in the Children's Hospital in 1996, I would have arranged it for that Tuesday afternoon. However, this was not the case and to arrange a CT scan for Claire involved sending her by ambulance to the adult hospital. There was a potential for this procedure to be delayed particularly if there was a backlog of adult cases ..."

And:

"I was also aware of the published concern about sending children to an adult facility for emergency investigations. I felt that Claire was in non-convulsive status epilepticus at the time, which we needed to treat and did not think this was a wise option."

Just before I ask you about that, another thing to bear in mind is that when Dr Webb first saw Claire,

he was under the impression that that serum sodium result of 132 actually resulted from a test that had been done that morning as opposed to a test that had been done the previous evening. So he was under perhaps a misapprehension as to where her serum sodium results might be. And in fairness to him, he might have taken other steps -- in fact, I think he indicates that he would have done -- if he had realised that that was a test from the previous evening.

Anyway, if we focus on what he says here about a CT scan and see if you can help us. Assuming that he had the constraints that he describes, if you're in that situation, is her condition still of the level of concern that would have nonetheless had you require a CT scan?

A. Yes. The brain is an interesting organ in that it slowly fills with fluid and the pressure doesn't really go up very much until a certain point when it goes up dramatically. So you're really trying to deal with the central part of it when you've got time on your hands and you can actually deal with it. By the time you get to the point of it having dramatically risen, you've basically nearly had it. So there's no reason for him waiting until the following day. It's obviously up to him to try to negotiate how to fit this in and what the

timing of it would be, but I think it's really -- he should have done so.

Q. The tipping point, I think, as you were describing it, is that because there is a certain space between the brain and the skull?

A. That's right.

Q. And is there any reliable way of knowing how much of that space you've used up? In other words, how much time you have left before you have to do something really quite dramatic?

A. By a CT scan.

Q. So absent a CT scan, then you don't know how much of that space has already been --

A. No.

Q. -- used up by the brain having been swollen through oedema?

A. No.

Q. In other words, you don't know where you are along the way of cerebral oedema?

A. That's right.

Q. If you think the child may be developing cerebral oedema, is what I understand you to say that, even on a precautionary basis -- because you don't know where you might be along the way -- then you have a test, which tells you where you are?

A. Yes. If you're going to do it the following day, why not do it today?

MS O'ROURKE: I'm not sure if, in fact, counsel's about to do that, but since we have the page up, whether the professor should therefore be put the next paragraph of Dr Webb's statement.

MS ANYADIKE-DANES: I'm going to get there.

MR FORTUNE: Before we get to the next paragraph, could Professor Neville help us as to what "the published concerns are about sending children to an adult facility for emergency investigations" are? Is that a brake on the necessity for a CT scan at this stage?

MS O'ROURKE: Could I just add to that question, particularly because the professor said, "If you think you're developing cerebral oedema". In fact, what Dr Webb has said in the previous paragraph is:

"I didn't think that was the case, I thought this was non-convulsive status epilepticus."

So if he has reached that view and the published concerns and what he says in the next paragraph --

MS ANYADIKE-DANES: I'm coming to that. I was coming to that.

Can we start though with the first point, which is: so far as you are aware, are there published concerns about sending children to adult facilities for

emergency investigations?
A. No, I don't know of such -- it must be very dependent upon the local situation here.
THE CHAIRMAN: Sorry, just to explain it for the record. The adult facility is in the same Royal Hospital site. The Royal Children's Hospital was at that time part of the Royal Group of Hospitals, part of the Eastern Board at that time. In any event, we're talking about a large site. But it is all one site. It's not as if Claire would have to have been driven across Belfast.
A. No. It sounds like a situation whereby you just move the child across at a stage at which they are not as bad as they might be much later, as it was the following day.
MS ANYADIKE-DANES: If I can perhaps also put this: I think at that time, the only place where a child could have a CT scan was in the adult facility, so it is an issue that would have to be considered in every case if you wanted a child to have a CT scan.
A. Yes.
Q. And I think the issue is if there is a concern ordinarily about sending children to adult facilities for emergency investigations, would you have considered, even if there were such material, that that kind of concern was nonetheless outweighed by Claire's own

condition or the need to be certain about her condition?
A. Yes, I would. I would have pushed for that investigation to be performed.
Q. I think we might, in due course, ask Dr Webb to identify the publications that he's referring to. In any event, from your point of view --
THE CHAIRMAN: That raises another issue entirely about Dr Webb.
MS ANYADIKE-DANES: In any event, from your point of view, irrespective of whether she's going to be taken by ambulance from one side of the site to another, given how she was presenting, given the concerns that you think there should have been about her, that was nonetheless something that should have been done?
A. Yes, absolutely.
Q. Then if we go now --
MR FORTUNE: Leaving aside Dr Webb, surely then it's a matter for the Trust to assist you as to any concerns that had been published at that time. That would be another appropriate route of investigation.
MS ANYADIKE-DANES: Yes, we might seek that, certainly in relation to this facility, because this is something that would have been considered for each and every child for whom they wished to have a CT scan done.
MR FORTUNE: Because as I understand Professor Neville, he's

saying: take your opportune moment, put the child in an ambulance and take the child to the adult hospital because it's necessary to have a CT scan performed.

THE CHAIRMAN: Sorry, let's put this in perspective. The Children's Hospital is the regional centre in Northern Ireland for the treatment of children. Whether there are published concerns or not about sending children to an adult facility, if that is where children have to go to get a CT scan, how much of an ordeal or trial is it to put a child in an ambulance and move her within the Royal site? Because if this is an explanation for Claire not getting a CT scan, then presumably it would have applied at the time to all the children in the Children's Hospital.

MR FORTUNE: Sir, that may well be right, but at the moment, speaking for myself --

THE CHAIRMAN: Sorry, Mr Fortune. It cannot be an explanation for a failure to get a CT scan that we're not going to move a child from one part of the Royal to another. What's the point in having a regional centre?

MS O'ROURKE: Since it's Dr Webb that's putting it forward and it's his statement, it's not given as an explanation; it's given as an explanation as to why not that afternoon, when his strong belief was that this was not cerebral oedema, but was in fact non-convulsive

status epilepticus. And I think that is why I highlighted the next paragraph. It is not that he is not saying that he wouldn't do it and that published guidelines don't do it -- and, sir, your point is very well made, this is the regional centre, this is where it will happen -- the point is made, he didn't jump to it at 2 o'clock. He doesn't disagree that it may well have reached a point where it was appropriate and the next day was then.

MS ANYADIKE-DANES: Yes. I was coming to that point. Firstly, I wanted to address the question of the movement from one part of the hospital to another.

The next point, of course, is the point that my learned friend has just mentioned, which is that he felt that Claire was in non-convulsive status epilepticus at the time and that they should be getting on and treating that.

Can you help with how he could have been certain about that, or at least sufficiently certain about that so as not to have sought to have a CT scan done?

A. Sorry, we're talking about status epilepticus?

Q. Yes. If you look down at the very last sentence, which is a part sentence of page 2, moving on to the top of the next page:

"I felt that Claire was in non-convulsive

status epilepticus at the time, which we needed to treat, and did not think this was a wise option."

In other words: we didn't need to be waiting for a CT scan, we should be getting on and treating the non-convulsive status epilepticus because that's what I felt she had. So the point that I'm asking you is: what, so far as you are concerned, is the evidence that she had that, which is sufficiently strong to have meant that he did not need to pursue the CT scan, which you think was necessary?

A. I think that convulsive status epilepticus is relatively low on the list of possibilities, it's not impossible, but it's not high on the list.

Q. And why is that?

THE CHAIRMAN: Is this not the evidence that the professor gave earlier this morning?

MS ANYADIKE-DANES: I'm not sure he's exactly said why it was low on the list of priorities.

Why is that?

A. Sorry?

Q. Why do you it's relatively low on the list of priorities in relation to a child like Claire?

A. Well, her epilepsy had ceased, she was at significantly higher risk of developing epilepsy again, but the form of epilepsy that she had before, which was as

I understand it, likely to be infantile spasms, is one which tends to have an end point to it, around 2, 3, 4-ish, and then to either go away or persist almost continuously with a different sort of epilepsy. So I think that the chances of it just starting in the middle of something which would be 3 or 4 years away is unlikely.

Q. Was there any evidence that would enable him to be pretty clear that it was convulsive status epilepticus and that was available to him at that time?

A. I don't think that the attacks that were occurring were sufficient.

Q. Sorry, at that time, when he was examining her, it would have been 2 o'clock.

A. Yes.

Q. And there hadn't been any attacks at that time at 2 o'clock.

A. Sorry, I thought ...

Q. I can pull it up and show you the attacks.

THE CHAIRMAN: The first attack is at 3.25.

A. Sorry.

MS ANYADIKE-DANES: So when he was forming the view that she was in non-convulsive status epilepticus, which is at 2, there wouldn't have been any record of attacks.

A. No. I don't ... Anyway, I don't see any reason why he

would have specifically chosen that disorder.
Q. If you wanted to be sure about it, he says that he didn't think it was necessary to do a CT scan. If you wanted to be sure about whether she was in non-convulsive status epilepticus, how would you be sure, what could you do?
A. You'd do an EEG.
Q. So it comes back to that?
A. Yes. And that's how the study that was done -- which is in what he's also quoted -- what they did was to scan each child, to do an EEG on each child just to be sure that they'd been in status for ...
Q. Just for the record, it's 090-042-144. We'll pull it up. There we are. So the first one, the mother sees, and she's timed that at 3.25. Her evidence yesterday was she was pretty sure it was 3.25. That's what she describes as a "strong seizure".

Then the rest follow on at the times that you see. But in any event, none of that would have happened and there were no recorded episodes of that sort before Dr Webb had seen her the first time round.
A. Sure. Yes. So there's even less thought that that would be the case.
Q. Yes. So then let's go in and deal with the next paragraph. He says:

"I also felt that her presentation had been triggered by infection, probably a viral illness."

Pausing there, the test for that might be a lumbar puncture. Was there any other test that could have been done to fortify him or confirm him in that view?

A. Liver function tests would be somewhat more generally helpful than just showing the high transaminases of Reye's syndrome. And a CT scan would be helpful if it had shown some form of invasion of the brain.

Q. I suppose if they had done another full blood workup, you could see whether the white blood cells had continued to rise.

A. Yes, you could.

Q. And even if you had done the differential, you might have some view, if that was the case, as to what was causing that.

A. Sure.

Q. So he had a view that her presentation was triggered by infection, but am I understanding you to say that there hadn't been any tests that would have provided the evidence for that --

A. No.

Q. -- other than the test that was done the previous evening showing a slightly raised white cell count?

A. Yes.

Q. Then he says:

"The yield from a CT scan in children with infection related to encephalopathy is low in the early stages of their illness."

And he cites some material for that.

A. David Mellor, yes.

Q. That's why he thought it might be better to do it the following day. Leaving what he says about cerebral oedema for the minute, can you comment on that assertion?

A. It depends what "the following day" is, really, doesn't it?

Q. Not the assertion about the following day, the assertion that the yield from a CT scan in children --

THE CHAIRMAN: Sorry, that was the professor's point. Is the following day Tuesday because she was admitted on Monday? That's what the professor's point was.

A. Yes.

THE CHAIRMAN: If Claire's admitted on Monday and she's unwell, then [OVERSPEAKING] --

A. -- the following day is Tuesday.

MS ANYADIKE-DANES: I appreciate that.

The particular question I wanted to put to you, professor, and I didn't frame it well, was: when he says that:

"The yield from CT brain in children with infection related to encephalopathy is low in the early stages of their illness."

And he cites an article in support of that, do you agree with that?

A. Yes, it always has been that ...

MS O'ROURKE: Some of us have lost our screens. (Pause).

A. It is low. I think that in that he's not thinking really about cerebral oedema, he's therefore attaching more importance to this point of waiting until it is better so that he can get a better view. But of course, cerebral oedema can, as we know, be over only too quickly, so that he has to choose the right time, and I think the following day was, that is the Tuesday, the correct time.

MS ANYADIKE-DANES: I see. I think maybe it's this way: that if he's using the CT scan as a diagnostic tool for the encephalopathy, then his point is that you need to see a slightly greater development of that before you get the best image of it. Whereas if, as you're saying, you could be using it or should be using it for two things which you should be worried about, one is the developing cerebral oedema, you would be able to see that, and if it's developing, there's certainly no point in waiting for it to develop further.

A. Yes.
Q. In addition, you might also be able to see something to assist you with your diagnosis of encephalopathy.
A. Yes, indeed.
Q. He does then go on to say that a CT scan might have detected evidence of cerebral oedema. And then he says:
"But it is also possible for the CT scan to appear normal in the early stages of cerebral oedema."
A. Yes, that is possible, but I think unlikely in the course of what you're now seeing from the evolution of this condition.
Q. If we put aside the benefit of our hindsight, it depends what you mean by "the early stages of the cerebral oedema" and the extent to which you're able to be confident that, if there is a cerebral oedema, you are only in the early stages of it.
A. Yes. Well, I think because you're in the hands of not having done the sodium level and not therefore having something ... You could perfectly well, if you see a low sodium at that stage -- you'd get on with treatment and see how the child did. So it isn't to say that a CT is essential, it's in this particular circumstance they seem to have developed the feeling that there's a need for it. But of course, it could have been obviated possibly by having a low sodium which

you could then get on and treat.

THE CHAIRMAN: This is your concern that he went too quickly and too strongly in favour of one diagnosis --

A. Yes, indeed.

THE CHAIRMAN: -- and missed what you think was a more likely diagnosis?

A. Sure. I don't deny that he worked hard at it and came back to see the child and did that sort of thing, but it was in the wrong direction.

MS ANYADIKE-DANES: If I could pull up two parts of the medical notes and records side by side. It's 090-022-053 and the next page, 054. This is Dr Webb's first examination of Claire. It's wrongly dated and wrongly timed, but I think the evidence is now that it is his first examination, it took place on the Tuesday the 22nd at about 2 o'clock.

A. Yes.

Q. So at this time, Dr Webb's evidence was that he had seen that -- do you see there above it -- Dr Stevenson's note of the ward round where it says the sodium levels of 132?

A. Yes.

Q. He had become aware of that and he believed, as I had said before, that that derived from a test that had been taken that morning. In other words, her serum sodium

result was 132 that morning. And then if you see over the page where he continues on, he does his examination, his results, the important factors. He doesn't know about her history sufficiently well enough. And then he gives a suggestion, and there are three elements of that suggestion. If we go to the third one:

"CT tomorrow if she doesn't wake up."

That seems to have been predicated on the fact that he thought that was her serum sodium level that morning.

A. Yes.

Q. If it had been her serum sodium level that morning, would that have been a fair enough thing to do, wait and do your CT scan the next day?

A. No, I think he should have done an EEG, but the CT -- well, no, he didn't have any reason for suggesting that this child was recovering. So I think he should have done it then as well.

Q. I understand. So irrespective of whether he'd made that error --

A. Yes.

Q. -- they should still done the CT scan? Although the error suggests potentially that if you thought you were applying the same margin of timing, if he'd thought it was the previous evening, maybe he would have been in agreement about a CT scan. But that's another matter.

You're saying it doesn't really matter, so far as you're concerned, whether he thought that that serum sodium result came from the previous evening or came from that morning, he really should have been doing a CT scan.

A. Yes.

Q. Thank you. If we just go to the point about the EEG, which he also deals with. If we go back to 138/3, and I think it was page 4 which gave us our clearest picture. I think he also deals with EEG at 138/2 at page 8. If we can bring that alongside. If we go to his first explanation about it, which is to set out the service, if I can put it that way. He says in terms of an emergency EEG -- now, before we get into that, how would you have characterised, as at the 22nd -- so the Tuesday -- the need to have an EEG for Claire or the need for Claire to have an EEG, rather?

A. Certainly crucial if you're treating as non-convulsive status epilepticus.

Q. So if you're going to do that, it was crucial?

A. Yes.

Q. Irrespective of whether you were going to do that and you needed to know where you stood with her to have a better plan for her treatment, would you have regarded an EEG as an emergency EEG, urgent, or just a good idea to do it if it can be done that day?

A. It depends on whether you know that ... Whether you have the sodium level or not in the beginning. But in that you have a disorder which you don't understand, then I think an EEG anyway would be extremely helpful, is probably the way I can put it.

Q. And do you think it should have been done before you started treating her for non-convulsive status epilepticus or any of the other conditions for which they were treating her with anticonvulsant medication?

A. As I've said, I think she could have had the first dose of diazepam without it being tried, but after that she would have needed an EEG.

Q. Before you did anything further?

A. Before you did anything else.

Q. And if you really felt the situation was such that you needed to be doing something, then how do you regard the need for an EEG? Is it urgent, is it an emergency, how do you categorise it?

A. I think it's critical that it's done.

Q. Okay. Then we can see now what the service was, if I can put it that way. The beginning of the description of it is to the right on page 8, it says he regards "emergency" as a same-day service. Are you talking about an EEG that day?

A. Yes.
Q. Okay. So it doesn't really matter whether you call it emergency or not, you mean one that day?
A. Yes.
Q. And he said that wasn't feasible because of the level of technical staff available to carry them out. He says:

"[He] would not have gone to our technician on an afternoon and expected her to provide an EEG that afternoon. That kind of service was not discussed and was not available. [He] might have discussed undertaking an EEG the following day, but that would have depended on the technician's workload."

Then if we go to what he says in his most recent statement, he says at (b):

"I must have felt when I saw Claire first at 2 pm that I had sufficient evidence to treat her for non-convulsive status epilepticus."

And I think you've commented on that in the sense that you didn't think he did, as I understand it. Just in fairness to him, looking there at what he identifies as the evidence, which is her background history of risk, the description of her presentation and the subsequent behaviour and her response to diazepam, which he noted a slight improvement, albeit her parents didn't necessarily see that. But in any event he noted

a slight improvement.

Assuming those things are correct, does that provide him, in your view, with sufficient evidence to carry on treating her for non-convulsive status epilepticus in the absence of the tests that you've referred to, particularly the EEG?

A. I fear it doesn't, really. He hasn't demonstrated the abnormality in the brain and the child is -- although there was a bit of improvement, perhaps, the child remained unwell during that afternoon. So I think this should have been done and I can't see why they couldn't remove one patient who was non-urgent in order to do it.

Q. He comes on to deal with that. Leaving aside the timing points, and there may be an issue about his second visit at 3 pm, leaving aside that, he said at 5 pm:

"I believed I was beginning to feel that encephalitis was higher on the differential than a recurrence of Claire's underlying episode, hence the decision to start acyclovir and cefotaxime. If Claire had encephalitis, she was very likely to have seizures as part of this presentation and it made sense to continue to treat her for seizures."

So that's his explanation for that. Then says:

"It was my belief at the time that the standard practice in small units in particular was to treat the

child and arrange an EEG for the next working day."

THE CHAIRMAN: What does he mean by "smaller units"? Is the Regional Paediatric Centre in Northern Ireland a smaller unit?

MS ANYADIKE-DANES: I don't know, Mr Chairman. That's one of the questions I would like to ask him, amongst many.

In any event, that is how he categorises it.

If we pause there. Is that a correct assertion that there is some sort of standard practice that if you're in a small unit and you have a child who you might otherwise in a larger unit have an EEG, you don't do it until the next day?

A. Well, you do it as soon as you possibly can in this situation. He is treating this child with repeated doses of relatively high levels of drugs, really without knowing what he's treating.

Q. Can I put it this way. So far as you are aware, is there any such standard practice?

A. No, I don't know that there is. But people may find themselves quite unable to do an EEG in a small unit because they haven't actually got an EEG department, so they may need to send the child to a place that has.

Q. Yes, but assuming that you have available to you an EEG, it's a matter of rostering, if I can put it that way, or establishing priorities. I'm not wishing to minimise

the inconvenience and difficulty to a person who thought they were having such a test and finds that they can't. But assuming that you literally have the facility, if I can put it that way, is there any standard practice, so far as you've heard of --

A. No.

Q. -- which would lead to that kind of decision?

A. No, I don't know of that.

Q. So then if I'm understanding you, so far as it can be done, what drives the timing of having an EEG is the needs of the child.

A. Yes.

Q. So then if we continue on down, he says he thinks that he did give consideration to requesting the EEG on the Tuesday afternoon -- so he has thought about it for the Tuesday afternoon:

"But I would have been very conscious of the workload of the EEG department, particularly in the absence of a second technician on maternity leave."

And:

"The single technician was providing an EEG service to the entire province and dealing with children and families who had waited weeks and longer for an EEG."

If that's the case, does that mean those are booked appointments and not necessarily emergencies?

A. Yes.
Q. Then he says that if he asked her to bump a child off her list at such short notice, that would inevitably put her in a conflict situation.

He goes on to talk about the benefit of hindsight, which is not to be denied, and he says:

"Finally, EEG technicians were and are a very valuable resource and experienced technicians are and were very scarce. I had just completed my first year at the Children's Hospital and certainly did not want to jeopardise my relationship with our only technician at the time."

A. I think that the technician's position is well understood and I think we can sympathise to a degree with that. But it seems to me that if you are managing this child in a way which requires repeated doses of anticonvulsants, you should be able to make out a strong case as to why this child should be treated and another deferred.
Q. So is it then for the neurologist to make the case on priorities?
A. Yes.
Q. Or the radiologist?
A. Yes.
Q. I understand.

MR FORTUNE: Following on from that, do we know whether or not any enquiry has been made of the department as to whether there was and still is a list of booked appointments for that afternoon and any slots available for emergency EEGs?

MS ANYADIKE-DANES: The short answer -- and not wishing to give evidence from where I stand -- is we have made those enquiries, we know how many slots were booked, and we don't know what character they were. We've been trying to find out an outpatients list for the EEG service, but we know that there was a service being carried out in the morning and in the afternoon for EEGs.

MR FORTUNE: And out of hours?

MS ANYADIKE-DANES: Well, we're trying to get some information on that, but that's where we are at the moment with what we've received. So the issue would be one of priorities.

A. Yes.

Q. There were children booked, if I can put it that way, to have EEGs in the morning and in the afternoon and, as I understand you to say, it's a matter for the neurologist to assess the patient he has, how important he thinks it is that an EEG is performed, and to make that case to the radiologist, the technician?

A. That's how I understand the working of this department, yes.
Q. If you're in the neurologist's position and you feel you have no option but to want to treat what you see as seizure activity, if I can put it that way, how strong a case would you feel that you could make for Claire?
A. Very strong.
THE CHAIRMAN: Isn't that where the real difference is between you and Dr Webb?
A. Pardon?
THE CHAIRMAN: Is that not where the real difference is between you and Dr Webb? Dr Webb does not appear from his statement to have regarded it as urgent and as important as you do in your evidence.
A. Yes.
THE CHAIRMAN: So, in a sense, the debate about resources and priorities and bumping people out who have been waiting for some time, that is all a relevant issue and it's all a factor to bear in mind, but the more fundamental point is that you say Claire should not have been started on these various treatments and this diagnosis should not have been made with the degree of confidence which Dr Webb seems to have made it on the basis of the information which was available to him?
A. Exactly, sir.

THE CHAIRMAN: Okay. We'll take a break for lunch and come back at 2.10.

(1.15 pm)

(The Short Adjournment)

(2.10 pm)

(Delay in proceedings)

(2.23 pm)

THE CHAIRMAN: Just before you start, we had better announce what we've managed to arrange over lunchtime. Professor Neville has made himself available to come back here on Monday, so he will be here and available until Monday lunchtime. I think we might start at 9.30 on Monday to make sure there are no hiccups because the professor has to leave at lunchtime and we can't bring him back another time.

That means that Dr Joanne Hughes will give evidence after Professor Neville on Monday. She also has to finish and I'm afraid we've messed her about a few times with late notice cancellations.

You had two witnesses on your list for Monday, who I don't think at this stage you know anything about. We don't yet have witness statements from them. So in a way, it's not difficult to put them back for a little time. Their evidence, we expect, will shed some light on what might have been going on in the Children's

Hospital on the morning of Tuesday 22nd, which may explain something about the whereabouts of doctors. We'll come to that in due course. We were notified after the first week's hearing of clinical evidence that somebody had remembered some information about what was going on and we're trying to pin down how that stands up to scrutiny.

But Professor Neville will continue until shortly before 4 o'clock, he'll leave, we'll take a short break and Mr and Mrs Roberts will finish before the weekend.

MS ANYADIKE-DANES: Thank you very much indeed.

Professor Neville, it's probably right that I clarify some things with you in terms of what you were able to read before you came to give your evidence. I understand from you that you were able to read all the relevant witness statements for the purposes of giving your evidence.

A. Yes, I was.

Q. And the reports?

A. Yes.

Q. Then although many witnesses are fairly consistent as between their witness statements and the oral hearing, there are nonetheless some differences. I understand that you haven't been able to read all the transcripts of all the evidence of the witnesses that may bear on

what happened in the morning and in the evening.

A. No.

Q. Given that you are good enough to come back to provide us with more evidence on Monday, what I'm going to ask you to do is to read the transcripts that relate to the evidence of: the admitting registrar, which would be Dr O'Hare; the registrar who take the ward round, which is Dr Sands; and the registrar in the evening, which is Dr Bartholome; and also the evidence of Dr Steen, who's the consultant paediatrician, even though she wasn't actually there seeing the child, nonetheless she expresses some views on diagnostics and how things might have been conducted.

So I think it would be very helpful if you could do that and then, when you provide us with your answers, people will appreciate that those are in the context of the most up-to-date evidence from the witnesses where that evidence may have changed.

A. I don't actually have Dr Bartholome.

Q. Yes. We can provide you with the transcripts.

A. Okay, thanks.

MR GREEN: [Inaudible: no microphone] provide Dr Stevenson's transcript as well. It would be very helpful if --

MS ANYADIKE-DANES: Of course.

Then if we continue with where we were, which was

the consideration of what are the tests that could have been carried out and how significant an omission they are. Professor, there are some differences between you and Dr Scott-Jupp, who's one of the two paediatricians who has provided expert evidence for the inquiry, on some of these issues, particularly one that we are going to consider now, which is the electrolyte testing. I think you acknowledge that --

A. Yes.

Q. -- between you in your reports and how you would treat the low sodium that one sees later on. As we go through, I may take you to some of those sections and ask you to explain why nonetheless you have the view that you do, even though a paediatrician might have a slightly different view.

A. Okay.

Q. But before we move on, is there anything further you want to say about EEGs and CT scans from where we left it?

A. No.

Q. Before we move on to the next thing which I wanted to ask you about, which was the electrolyte testing, I would like to ask you some questions that have been submitted for your consideration.

The first is that Dr Harding -- I think you have

seen his report also --

A. Yes.

Q. -- he suggests that the encephalopathy in Claire's case was due solely to hyponatraemia. But -- and this is how the issue arises -- Claire seems only to have been borderline hyponatraemic on admission, and it's arguable whether on admission she was suffering from symptomatic hyponatraemia, but she was showing signs of neurological impairment.

The question is how, so far as you are concerned, does one account for that? If she's got the signs of neurological impairment, but her serum sodium levels don't seem sufficiently low on admission to indicate symptomatic hyponatraemia, how does one subsequently ascribe the encephalopathy to hyponatraemia?

A. So we're basing this on the notion that she has previous damage?

Q. Mm-hm.

A. There are various things about the sodium level. The first is that it may, as I've said before, have dropped quite significantly and still remained in the upper end of the range of abnormality. So it may have dropped really quite a long way and thus be symptomatic.

Q. I understand.

A. In terms of brain damage, I'm not quite sure

I understand the purpose of the question.
Q. The purpose of the question is whether you think that, on the information available, one can properly attribute Claire's encephalopathy to hyponatraemia.
A. I think you'd have to say that a major part of it was that. But I couldn't say that all of it was and that there wasn't an additional problem.
Q. If the sorts of tests that you were discussing with us earlier today in your evidence had been carried out, would anybody have been in a better position to answer that question, or would you have been in a better position to answer that question?
A. I'm not certain that we would have been. I think it just is not known. I really couldn't be sure.
Q. So that is assuming that matters carry on on their path and one ends up with the result that one did end up with, which is that, unfortunately, Claire died. If the tests that you suggest were carried out had been carried out and those tests had indicated, as I had put to you earlier this morning, a lowering yet further in her serum sodium levels, and that had been addressed, is there a chance that you would never have got to the stage of encephalopathy?
A. No, that's exactly what you would have expected.
Q. Thank you. I think you might have answered this, but

since somebody wants to draw particular attention to it, forgive me if you have. Dr Scott-Jupp and you agree that Claire's electrolytes should have been tested by the time of the ward round.

A. Yes.

Q. The issue is how important do you think that was?

A. I think it's crucial.

Q. Thank you.

I want to turn to the referral to Dr Webb. Dr Scott-Jupp's position is that he finds it concerning that there's no record that Dr Sands discussed the case with Dr Steen, and if, as he says, she was unavailable, then he considered that to be unacceptable. Your view is -- and one finds that at 232-002-007 -- that the consultant paediatrician should have been involved as the cause of Claire's brain illness was unexplained, although you say that that could have been the responsibility of Dr Sands or Dr Webb or both, depending on the local practice as to how the consultant paediatrician is kept involved, if I can put it that way.

I think that goes back to something that you were answering in a question of the chairman, which is the availability and how important it was that Dr Sands had access to the consultant paediatrician. I think that's

where I would like to start with you.

How important was it that when Dr Sands first saw Claire, given her presentation, that he was able to discuss matters with the consultant paediatrician?

A. Well, it would normally be a matter of course, really, that he would expect to discuss the problem. But what I don't know is whether Dr Steen's absence was such that the consultant paediatric neurologist felt he had to just get on with dealing with the problem without reference further to the consultant.

Q. I'm going to come to this later on, but just as you raise it now: Dr Webb has never thought that the responsibility for Claire's care and treatment rested with him. Somebody will correct me if I'm wrong. He regarded himself as essentially providing an expert opinion on matters that came within his experience and expertise as a paediatric neurologist. That's what he thought he was doing.

A. Yes. And I agreed with that in my statement, so far as I could see the way it went.

Q. The question that I've put to you is slightly different. Assuming that he was able to, how important is it that the registrar makes contact with his consultant paediatrician and is able to discuss and liaise with her, outside maybe whatever his referral has been to

Dr Webb?

A. Well, it's normal and mandatory that you do that if you're providing consultant care and, if you don't have the right person available, that you nominate another person.

Q. Yes. I think Dr Sands did consider that Claire was actually very sick indeed and he has felt that her problems were neurological in origin, or at least a substantial part of them were, which is why he went to try and get an opinion from Dr Webb. I think this goes back to something that the chairman was raising with you. It may be that he did not have the experience or the expertise to be able to think more laterally or in a broader way about what her presentation might imply about other differential diagnoses. He's got a neurological thing, he understands that there's something like that happening, but he may not have had the experience to be able to think about the range of things that might be causing that.

What I'm putting to you is: in that situation, was it sufficient for him just to go with the neurological presentation and seek assistance from Dr Webb, or should he really have been able to and have access to his consultant paediatrician to make sure that there wasn't something significant that he had missed?

A. Well, I think both are true. In other words, he should have had proper access to his paediatric consultant colleague and he also needed to make direct contact with the paediatric neurologist by whatever means. And I think there is an issue about whether the paediatric neurologist is in fact -- whether he realises that a low sodium is really an important problem. I know he says he's got nothing to do with fluid management, but he really, I think, can't easily get away from the notion that a drop in sodium has got to be associated with worsening neurological disease.

Q. Just so that I follow up on that: even though he might have been approached to give his view as to what this presentation that is described to him that Claire has, what that might mean, even though that's how he may be brought into the case, are you saying that he cannot ignore the other question of low sodium --

A. No.

Q. -- and the implications of that for her condition?

A. No. No, that's right. He might well have wanted somebody at consultant level to talk to, to try to work out what was going on.

Q. I was going to ask you that as well. So if we have got that, it would have been helpful, as I think you have indicated, for Dr Sands to be able to discuss matters

through with his consultant paediatrician. Do you think it would have assisted in the management of Claire and her treatment if Dr Webb had been able to, as it were, consultant to consultant, have discussions with Claire's consultant paediatrician?

MR GREEN: Forgive me for interrupting, but you will recall, sir, that Dr Sands' evidence was that he did contact Dr Steen. The reference on the transcript -- I'm not asking that it be called up now -- is the transcript of 19 October, page 182, lines 3 to 10, then lines 19 to 22, then on page 183, lines 5 to 9, and lines 16 to 18. His recollection, if I can just summarise it very briefly, was that he did contact Dr Steen, he's not sure what time in the afternoon, although he thinks it was early-ish in the afternoon, and he's not sure whether he first rang her, failed to get her and she rang back, or if he got through to her first time.

MS ANYADIKE-DANES: Thank you very much indeed. That's exactly the point that I was getting on to. I'm at the level or the stage, if I can put it that way, of the ward round and the immediate aftermath. And that's when I'm suggesting to Professor Neville that it might have been helpful if Dr Sands had been able to discuss matters through when, if you like, the differential diagnoses are being formed at the start of the day.

A. Yes.
Q. I do entirely take your point that Dr Sands attempted to speak to Dr Steen and believes he did do so, but that was in the afternoon. I'm in the morning still.
A. I think she might have been able to assist in whether the blood electrolytes had been re-done in the morning or not.
Q. Yes.
A. It was her firm, after all, who was doing it -- or not.
Q. What other assistance and guidance do you think that she might have brought to it if he'd been able to make use of her experience in the morning?
A. Well, I suppose the view that occasionally a drop in sodium level is associated with this group of disorders.
Q. So if I understand you correctly, then he might have been assisted to see the whole other side that you've been at pains to point out --
A. Yes.
Q. -- which is the implications of low sodium --
A. Yes.
Q. -- and how you might go about treating that, once you had tested it and found that to be the issue or an issue.
A. Yes.
THE CHAIRMAN: Apart from the fact that that opens up

another avenue, which you say should always have been open about what was wrong with Claire, does that also tie into decisions which are made later about what drugs Claire is given? Because at least some of them affect adversely her level of consciousness, which in turn may have an impact on things like the Glasgow Coma Scale and why it's going down.

A. Yes. I mean, particularly midazolam.

MS ANYADIKE-DANES: Thank you. So then I think where we were before we started to think about what Dr Steen might have brought to it is that you'd expressed a view that it might have been helpful for Dr Webb to have been able to discuss matters with Dr Steen --

A. Yes.

Q. -- and brought their combined experience and disciplines to bear, if I can put it that way, on trying to see why Claire is the way she is and has remained like that for these hours.

Given that it falls to Dr Sands to make, effectively, that referral to Dr Webb, because it seems that Dr Steen is not available to do that, what do you think are the things that Dr Sands should have been highlighting to Dr Webb?

A. Well, I suppose he should have, if he knew, highlighted the fact that the sodium had not been repeated that

morning, if that was the case. He should be pointing out that this child is not really showing any recovery. There may have been blips up and down, but actually there wasn't any significant change, and thus she was remaining really quite ill. I suppose he would have run through what sort of problems he might be thinking of in terms of the neurological condition and have been trying each of those out in discussion.

Q. Testing them?

A. Yes.

Q. Then if we have got there, it would appear from his evidence that the sort of thing that he would have raised was obviously the non-fitting status epilepticus, and he would have raised, it would appear, the encephalitis -- at least, that's his evidence -- that he would have raised that because that was something -- although it wasn't recorded as part of the ward round note -- he says he had in mind. So those are the two things that he says he had in mind. He hadn't thought about the encephalopathy; that seemed to be something that Dr Webb contributed.

So he would have been raising those two things. And what do you think that he could have reasonably expected Dr Webb to have done at that stage? So it's not entirely clear when he managed to make contact with

Dr Webb, but it might have been round about noon time --
A. Yes.
Q. -- or maybe 12.30 or thereabouts. It's not entirely clear. But assuming that he has managed to reach him after the ward round and some time before lunchtime, what is it that he might be expecting in all the circumstances for Dr Webb to do?
A. Well, obviously to examine the child and to then attempt to separate the fixed from the short one side then the other type problems.
Q. Pause with "examine the child". How quickly do you think, all things being equal, that Dr Webb ought to have responded to that and actually seen Claire?
A. He seems to have got there at 2 o'clock.
Q. Yes.
A. And it sounds as though he was acquainted with this problem, because there's one account, I think, of it being at 1.30 that he happened to catch the doctor --
Q. I think that might be Dr Webb's account. I think Dr Sands is of the view that me might have seen him rather earlier than that. In his evidence -- and when you see the transcript, you'll see -- his view was he was rather expecting Dr Webb to come a little earlier. That's one of the reasons why I'm asking you. Assuming he described matters as you would have

considered an appropriate way to describe them in the circumstances to Dr Webb, how urgently do you think Dr Webb should have responded to that and come and examined Claire?

A. He needed to look at the child pretty quickly. And I suppose the reason for that was so that appropriate investigations could be got under way and they're, of course, the same investigations that we've discussed previously.

THE CHAIRMAN: Professor, with your own experience as being a paediatric neurologist, all other things being equal, you will go to another patient urgently. But presumably Dr Webb wasn't just hanging around chatting or gossiping on the ward.

A. No.

THE CHAIRMAN: Presumably he was looking after the patients that he was assigned to.

A. Sure.

THE CHAIRMAN: So it might be a bit harsh to infer that he somehow dilly-dallied on his way to Claire.

A. No, no, I didn't suggest that really.

THE CHAIRMAN: I just want to get --

A. I was just saying that I thought that was probably reasonable sort of speed, perhaps a bit slow, but I don't know, in the circumstances.

THE CHAIRMAN: What Dr Sands said was that he agreed when he saw Claire that there was something significantly wrong and, for instance, he thought he needed to get information from the Ulster Hospital, where she'd been treated before. So that's a sign of the urgency which he felt the situation had. He also knew that the blood tests were not from that morning, but that they were from the previous night.

A. Yes.

THE CHAIRMAN: But he says then that he was surprised that the blood tests were not re-done on foot of his ward round, though it's not specifically noted that they were going to be done on foot of the ward round. So then you move on. Dr Webb is contacted, he comes, in the absence of evidence to the contrary I'll assume that he comes as quickly as he could, which may not have been quite as quickly as, in an ideal world, he might have been available to come; yes?

A. Yes, I think that's probably right.

MS O'ROURKE: Sir, I wonder if we could just throw into the mix, since we're looking at that timing. Dr Webb's evidence in his witness statement is that he learns of it form Dr Sands at a lunchtime meeting. It's not a formal referral, but they're at the same meeting and he, when he does come, is with Claire between 15 and

25 minutes, which bearing in mind the evidence of the parents -- that they're back at about 2.10 pm -- would suggest that Dr Webb has not arrived at 2 o'clock, but 2 o'clock is the time he's writing the note up having carried out his history taking, which would therefore suggest he may have arrived at 1.30, and if it was a lunchtime meeting and the rectal diazepam was an immediate response to being given the information, and we know that's recorded at 12.30, it would suggest that he has in fact attended within an hour and no more. And I wonder if the professor might be asked if that's reasonable timing, bearing in mind he doesn't get a formal referral by a phone call or whatever; he has it raised with him when he's at a meeting.

MS ANYADIKE-DANES: I'm more than happy to put it that way, except to say that Dr Sands has a slightly different view of the time.

THE CHAIRMAN: He does. Dr Sands does have an earlier view of the time than Dr Webb remembers. There's a degree of uncertainty about this, which frankly we're never going to be able to resolve many years after the event.

A. No.

THE CHAIRMAN: If he did find out about Claire for the first time at about 1.30 and the note is written up at about 2 o'clock, that's a very prompt response.

A. Mm. Yes. I'm not sure what an informal, as distinct from a formal, referral actually means. It seems if you're asked for an opinion, that's what you give.

THE CHAIRMAN: Okay.

MS O'ROURKE: Sir, if I may make it clear: I'm not saying that, I'm saying in the sense that sometimes the professor will be aware, you get a written referral or sometimes you get a telephone call, which is direct to the consultant in question as opposed to running into him in the corridor or at a meeting. So I was using informality in that sense. In other words, it's not a direct bleeping, there's no note in the notes that there was a bleep happened or in fact that something of that sort was organised.

MS ANYADIKE-DANES: In terms of response, does it make any difference how you're asked for an opinion?

A. Pardon?

Q. In terms of how quickly you respond, does it make any difference how you are asked for your opinion?

A. I think it depends upon the urgency with which you are asked.

Q. Dr Sands has described Claire's condition, when he examined her during the ward round, as he thought she had a major neurological problem. I think that's the expression that he used. And that's a view he formed at

the ward round. If he formed that view and communicated it to Dr Webb, what I'm trying to find out -- and I'm sure we're not going to be able to resolve it in terms of the actual times, it may be more, all things being equal, which they may not --

THE CHAIRMAN: Isn't that the problem? We have no idea at all whether all things are equal.

MS ANYADIKE-DANES: I wasn't going to put it quite like that. I was going to say: if you didn't have a constraint, what sort of speed of response, if you're being told that the registrar who can't make contact with his paediatric consultant, considers that he has a child who has a major neurological. I wondered if you might help in that way.

A. It would depend on the urgency and what you were already doing, but you'd expect to achieve that, hopefully, within half an hour if that's what was being suggested.

Q. Of course that rather depends whether he could physically do that, given his other commitments.

A. Yes.

Q. That's why I said all things being equal. When Dr Webb comes to examine the child, how significant is it that there appears to be, at that time, no other doctor who is able to -- well, no other doctor there, and therefore no other doctor who's able to describe anything about

how Claire has been over the day? How significant is that?

A. That's very surprising, really. You would expect there to be a doctor who has gained experience of this patient and is able to fill in the gaps for Dr Webb.

Q. So that means that when Dr Webb examined Claire, whether he did it at 1.30 or 2 o'clock, whenever it was, what he had available to him was the medical notes and records that you have seen and the results of his own examination and the history that he would have taken of the grandparents?

A. Yes.

Q. How helpful --

THE CHAIRMAN: No, no, I think he must have more than that because he must have available to him what Dr Sands had told him and Dr Sands' views to the extent that he conveyed them when he asked him to become involved in Claire's case at all.

A. Yes.

THE CHAIRMAN: It would clearly be better if, when Dr Webb arrives to see Claire, that Dr Sands is there or Dr Stevenson is there, who had been on the round with Dr Sands, or better again, if Dr Steen had been there. But let's suppose that for some good reason none of them were available, Dr Webb would have the records, but

would also know what Dr Sands' concerns had been.

A. Surely, yes.

MS ANYADIKE-DANES: Sorry, yes, I should have said that. What.

I was thinking of is: whatever changes that there may have been in anybody observing her between whenever he had that conversation with Dr Webb after the ward round and when Dr Webb arrives, that might be something that might have been helpful and that's what I wanted to ask you about.

Is that significant at all that there isn't anybody who can discuss with him the comparator, this is how she was when she was being discussed with you by Dr Sands, this is what's happened over the next couple of hours; is that relevant at all?

A. Well, it's a very much more satisfactory way of doing business, of putting a point of view which you have and asking the person who has been more regularly involved of how this seems to that person or are there problems that might be involved in thinking about that. So it is more satisfactory to have somebody there.

THE CHAIRMAN: It must help.

A. Yes.

THE CHAIRMAN: The person who it helps most must be Claire.

A. Mm.

THE CHAIRMAN: If Dr Webb comes along, he's engaged because there is a significant level of concern. It would be far better if Dr Sands, or at least another doctor, was there to discuss with him.

A. Yes.

THE CHAIRMAN: Because (a) to help them both form a better idea, discuss the various options and then to make sure, for instance, when Dr Webb leaves that the paediatricians know the extent of Dr Webb concern.

A. Yes, and can actually articulate whether Dr Webb is as concerned as the other person or not, and, if not so, to say why not.

THE CHAIRMAN: Yes.

MS ANYADIKE-DANES: Thank you. You have discussed Dr Webb's examination at 2 o'clock, which you thought was competent.

A. Mm.

Q. But you have also drawn attention to three things that you nonetheless feel were failings, if I can put it that way. This is from 232-002-008 of your report, but I don't think we need to pull it up. The first is to include the possibility of rising intracranial pressure to explain Claire's reduced consciousness level and motor signs.

I can pull up a schedule that we had prepared to

show the Glasgow Coma Scale which she had. It's 310-011-001. Assuming that Dr Webb was examining Claire around about 2, that red entry under 2 pm comes from Dr Webb's own assessment of her Glasgow Coma Scale score at the time he made the examination.

Assuming that, there had only been one previous examination -- because these observations didn't start until 1 pm -- and assuming he's seeing her at 2, or, if he saw her earlier, then there's a little bit of a change at an even shorter interval than one hour.

A. Yes.

Q. And that's all he's got in terms of these sorts of observations other than the actual description of her presentation. So when you were saying Dr Webb should have included the possibility of a rising intracranial pressure as a means of explaining Claire's reduced consciousness level and motor signs, what exactly is the evidence that you are basing that on? What's the evidence of the reduced consciousness level?

A. She had reduced consciousness level because on either scale, it was lower than it should have been.

Q. Yes.

A. But at the level of 8/9, it's at a sort of marginal level for urgent action, as you might say, but it then rapidly drops.

Q. If we stay with what he saw, take it in stages and confine ourselves to his examination at 2. He has the description of her presentation, both on admission and during the ward round.
A. Yes.
Q. He has that and other descriptions he might glean from the notes and records. And then he has the fact that when she's started on his hourly observations, she starts at a 9 or 10, as the case may be -- I'm going to ask you about this in a minute -- and then when he is himself assessing it, he puts her at 8 or 9 --
A. Yes.
Q. -- which, if his counsel's argument is correct, might be that within half an hour she had dropped from 10 to 9 to 8 to 9. Or if the note timed is actually when he conducted it, she had dropped by one point in an hour.
A. Yes. The drop from obeying commands to localising pain could be seen as quite significant. So I think that is a drop, but ... Yes.
Q. So is that, therefore, where you gained the evidence that says that with that kind of information, in addition to the other material that he has in the medical notes and records and what Dr Sands has said to him, and the history that he has taken from the grandparents, that he should have, on the basis of all

of that, been considering the possibility of a rising intracranial pressure?

A. Yes, I think so, because it really is that you're not improving, if anything. In a situation where you're not improving, then you have to explain that. And one of the reasons is cerebral oedema. Another one may be non-convulsive status, but ...

Q. And then your other query is something that you have already dealt with before, which is that he failed to require an urgent sodium level test as part of his assessment at that stage.

A. Yes.

Q. And I think you have already explained why you thought that was important. Then you say he should have been aware of that because there is a possibility of inappropriate secretion of ADH in acute brain illness, Claire's sodium levels/conscious level and fluid balance should be monitored and should have directed that that be done. When you say "monitored", what do you mean by that?

A. Really by doing plasma sodium levels and then watching the process of doing it at least every six hours, initially, if there was a low level, just to be clear that you were aiming in the right direction.

Q. So if that were the case, he should have been requiring

1 another one, say, or one to be done at, say,
2 8 o'clock --
3 A. Yes.
4 Q. -- in the evening. And what urgency should be attached
5 to getting those results back? Because that would be an
6 out-of-hours test.
7 A. Oh, they need to be returned rapidly because it's
8 life-threatening.
9 Q. I'm going to ask you this now because the Glasgow Coma
10 Scale results are something that will become
11 increasingly significant over the passage of that
12 afternoon and evening. What is the difference, if you
13 can explain it to us, between the one point that Dr Webb
14 has by way of an increase to the level?
15 A. Sorry?
16 Q. If you look along the bottom, you see that there are
17 scores and then next to them there are scores in
18 brackets.
19 A. I took it that 9, which is on the scale you've got
20 there, is the modified coma score, and that -- no, that
21 9 is the coma score from the Glasgow Coma Scale straight
22 and 8 is the lowered one, which allows for children,
23 young children.
24 Q. The one in the brackets is the one that Dr Webb
25 indicates should be for children.

A. Is that right?
Q. Sorry, I think that might be the other way round.
A. I think it's the other way round.
Q. Sorry, it's the other way round. The lower number is the modified version --
A. Yes, because it has a smaller number of components to it.
Q. And I think Dr Webb's argument is that because it has got a smaller number of components, you should bear in mind that in reality it should be one higher, if I can put it that way. But in any event, what is the significance, so far as you can help us, with the actual level of those scores?
A. I think the drop from obeying commands to localising pain is significant. And then a further drop down to flexion to pain at a much later stage at 9 o'clock becomes highly significant. What I'm not completely sure about is, if you look at the "no verbal responses", they plough along at a particular level of 1 until 6 o'clock when they suddenly jump to 2. I'm not completely sure whether those are correct or not, in other words "inconsolable, agitated" from "no vocal response", as to how separate those two were. It just looks like somebody coming on and learning to do it properly, if you like.

THE CHAIRMAN: In a sense, does that look the wrong way round --

A. Yes.

THE CHAIRMAN: -- that that middle section is going marginally up, whereas the top and bottom sections are going down?

A. Yes, it does.

THE CHAIRMAN: Does that reflect sometimes, professor, the fact that there's no absolute perfect cut-off between a 2 and a 1 and a 3 and a 2 and someone who comes on might have a slightly different take on it?

A. Well, I think that certainly in separating whether somebody is making incomprehensible sounds or no verbal response, you could -- that's an error you could make.

THE CHAIRMAN: Yes, okay.

MS ANYADIKE-DANES: Whether one takes the paediatric Glasgow Coma Scale or the Glasgow Coma Scale, at the levels they are, what is the significance of those now that we have this up?

THE CHAIRMAN: Sorry, I think you said that at the level of 8 to 9 it's marginal for urgent action.

A. Yes, and that at 7/8 you really do need to be doing something. But it's in the context of the child not getting better, and in fact getting marginally worse.

MS ANYADIKE-DANES: Yes. Is there any significance, so far

as you can see, to the fact that having -- gradually, point by point ... and then levelled off at 6 or 7, as the case may be, creeps up a point or two and then goes down? Is there any significance in that?

A. I think the last point of 9 o'clock is a very clear change.

Q. Yes.

A. So that flexion to pain only is really quite obvious and is a reason for doing something.

Q. Is that because of the fall from 8 to 6 or 9 to 7, as the case may be, or because of the absolute number? Because that absolute number is also recorded in relation to 4 o'clock and 5 o'clock in the afternoon.

A. Yes, but it's recorded in a different form by no eye opening. So that's the reason for that occurring. No, I think that these were fluctuating as well so that -- they were all at a level which, after the 8/9, which required action and -- although there was one blip up at 8 o'clock.

THE CHAIRMAN: But even at their best point, is it too simplistic for me to take the view that, on these readings, Claire's in trouble?

A. Yes.

THE CHAIRMAN: Sorry, is that too simplistic?

A. No, no, that's fine. That's exactly right.

MS ANYADIKE-DANES: So you have made those three sets of criticisms, if I can put it that way, of the examination that Dr Webb carried out or at least the conclusions that he reached as a result of it. And from your point of view, what should have happened after he had carried out that examination?

A. I think he should have investigated the problem in more detail by the tests which we've already discussed.

Q. So all you're saying is that which you have hoped or would have liked to have done earlier, it certainly should have happened now?

A. Yes.

Q. And can we turn to the fluid management point? Because at this stage Claire has been on IV fluids, the same type of fluid, the same rate of administration --

A. Yes.

Q. -- since about 8 or so of the previous evening. And so far as we can understand it from the evidence, there has been no actual review of that. What has happened is that they have simply carried on what had been initially prescribed on the evening of the 21st. Do you think that in amongst the other things that you are suggesting that Dr Webb could or should have done after this first examination, that he should have reviewed her fluids?

A. I think he should have been aware of the potential problem of low-solute fluids in this situation. It's difficult for me to be sure, reading his account, as to whether this had passed him by or whether it had been something that he was sort of aware of vaguely, but not really very sure of.

Q. And if he was to provide any guidance, what is it that that would involve? For example, if we pull up the concluding part of his note, which is his suggestions, that's at 090-022-054. So you see the suggestion to start on IV phenytoin, and he has the prescription for that to be calculated by the SHO. Then he says:

"Hourly neurological observations."

Then he says:

"CT scan if she doesn't wake up tomorrow."

Leaving aside the fact that you said there should have been an EEG, there should have been a CT scan, and that her electrolytes should have been tested, but if one focuses on her fluid management, as he is now making suggestions for what people should, do you think there is any guidance that he could have given or any suggestion he could or should have made in relation to her fluid management?

A. Well, yes, he could have reduced the amount of fluid that was going in, he could have raised the level of

sodium, but really the primary test of doing the sodium level is paramount, really.

THE CHAIRMAN: Which emphasises the need for a blood test?

A. Yes, it's as simple as that.

MS ANYADIKE-DANES: I think you have suggested that he should have prescribed a blood test and, in fact, I think you think that should have happened first thing in the morning. But in terms of alerting, as a neurologist, people to the potential dangers that there might be if her fluid management wasn't paid very careful attention to, is that something that he should have reflected in his suggestions list? Speaking as a neurologist, I mean.

A. Well, yes, he should have alerted people to the need not to give anticonvulsants, which were what were planned, until he'd satisfied himself as to where he was, and it should be within his field to at least know about the dangers of low sodium levels and to have some method of managing them.

Q. It may be that that kind of alerting people to the potential dangers or to what you should keep an eye out for may be better done if you have actually got somebody there to have that discussion. Leaving aside that, because it doesn't seem as if he did have that, how important do you think it might have been that he

included some sort of warning note about it?
A. I think he does later sort of mention about this in his account of the -- I think it's his witness statement. So he obviously is partly aware of this, but it doesn't, I think, appear here.
Q. Do you think that it was part of his role and responsibility to provide that cautionary note or warning even though his view is that he was simply being brought in to give some discrete neurological opinion?
A. Yes, I do think he has that responsibility because this is a particular feature of neurological conditions, and therefore if you don't know about it, then you can't be sure that anybody else will.
Q. And if you, as the paediatric neurologist brought in to give that opinion were aware that the child's consultant paediatrician wasn't about -- you may not have known that she couldn't have been contacted, but certainly wasn't there -- and hadn't seen the child, does it change at all what you think your responsibilities are when you examine the child and make suggestions for their treatment?
A. Well, yes, but I think you'd be, I'm afraid, just doing the same set of things that you've been trying to do and failing to do, and that is the three tests which we think were necessary.

Q. So the fact that the child's consultant paediatrician doesn't seem to be readily available, if I understand you correctly, doesn't actually change what you think the consultant neurologist's responsibilities and obligations are in that situation?
A. No, not exactly, but it does mean that the paediatrician who's in charge of this patient, that she's not there for discussion and for putting the alternative points of view that may exist.
Q. And if you were aware of the fact that the paediatric registrar wasn't there during the afternoon and so the only doctors who were there were relatively junior SHOs, what's the implication of that?
A. I think Dr Sands' view of the severity of the condition really required that this was either properly handled in terms of being found to be a serious problem to get on with, or that it could be relieved relatively easily, which of course it wasn't.
Q. Do you think that a stage had been reached where a decision or a transfer to paediatric intensive care could have been considered?
A. I think it's quite likely that a transfer to paediatric intensive care should have occurred earlier.
Q. Sorry, what do you mean by "earlier"?
A. Pardon?

Q. What do you mean by earlier? Before 2 o'clock in the afternoon?
A. No, no, I don't mean that, no. I think after that time if, of course, she hadn't had an appropriate response to treatment with the drugs that she needed. You see, the problem is that the most potent method of reducing intracranial pressure in children rapidly is to hyperventilate them, and that takes their pressure down usually very readily. And that doesn't require that you have abnormally high levels, although hers were a bit high, it requires that you're actually taking it down physically in order to do that.
THE CHAIRMAN: Does that require you to be in intensive care?
A. Yes, ventilation requires intensive care.
MS ANYADIKE-DANES: If -- sorry.
A. It's not always that intensive care doctors understand this point.
Q. When you said if you thought or should at least have been considering that she had raised intracranial pressure and that could be addressed by hyperventilation, is that really to change the balance between the gases in her system?
A. That's right. You'd do it after you'd reduced the fluids and you'd given a diuretic. So you would do it

in a particular order.

THE CHAIRMAN: I think the initial question here was about considering moving Claire into intensive care. Do I understand your answer to be that that should have occurred earlier than it did, but you're not saying that it should have occurred at 2 pm when Dr Webb saw her?

A. No, I think she could have been managed probably in the ordinary ward if she'd been given the right treatment. Then she might have required going to intensive care or not, depending on how she was.

MS ANYADIKE-DANES: If she were going to be managed on the ordinary ward, is there any specific instruction that would have to be given to the junior doctors or the nurses? Is there any better level of understanding they might have had to have about the condition or its implications?

A. They were then doing hourly Glasgow Coma Scale scores and they were, I think, observing her. The problem was they were looking for sort of seizure activity or near-seizure activity rather than trying to manage raised pressure.

Q. And if they were trying to manage raised pressure, because that's what Dr Webb might have thought was the problem, how do you do that?

A. Well, you're looking for signs of the extensor attacks

and the eyes rolling up for features which might suggest that. Because everything doesn't always work according to plan, and sometimes the child will get a bit worse before they get a bit better.

Q. And does that mean that it would have to be explained to the junior doctor and particularly the nurses who were carrying out the hourly observations that that's what they should be looking for?

A. That's right, yes.

Q. And who should have had the responsibility to do that?

A. Oh, I think it would be a combination of nurse and either consultant or registrar, depending on who was available.

Q. I meant: who should have had the responsibility of making sure that the nurses understood that's what they should have been looking for?

A. I think it should be a consultant or a registrar.

Q. And if the only consultant about is Dr Webb, does that mean that even though he's not the child's named consultant, it would fall to him to explain that to the nurses?

A. I fear it would.

Q. If that's what, as you say, he should have done or somebody should have done, is that something that should have been recorded in her medical notes and records?

A. Yes, indeed.
THE CHAIRMAN: It all becomes a very unhappy mess during that Tuesday afternoon, professor, doesn't it?
A. Yes, it does.
THE CHAIRMAN: Dr Webb comes along, you say he's doing the right thing, he comes back more than once, he's doing the best he can, but you think he's on the wrong track?
A. Yes.
THE CHAIRMAN: Dr Sands, the registrar, has been there, there's a major question mark about whether he's back during the afternoon and a major question mark about whether the nurses and the junior doctors really understand what's going on.
A. I think it's very difficult for them because they've not had a lead, really.
THE CHAIRMAN: As the afternoon goes on, Claire's condition only gets worse.
A. Yes.
THE CHAIRMAN: And it's not picked up, it's not really picked up by anybody who's there, and Dr Webb is clearly working hard, doing the best he can, but on an approach which you think is flawed, and the drug administration, to some degree, actually makes it a bit worse.
A. It's possible, yes, quite possible. The main point being that it's diverted your attention whilst it's all

being done on to some other line of action rather than thinking about --

THE CHAIRMAN: To the exclusion --

A. That's right. That's the way these things tend to get managed and if you're really concentrating on one thing, you're tending to put the other on one side.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Thank you.

There is an administration of the rectal diazepam. That happens that afternoon, 12 noon, I mean. That's something that Dr Sands has thought might be appropriate. In fact, even before that, there was some indication that if there were seizures, that that would be appropriate. So it would appear from the discussion between Dr Sands and Dr Webb that Dr Webb agrees it's appropriate, and so it's administered.

When Dr Webb sees her, he is under the impression that there has been some improvement, if I can put it that way, as a result of the administration of rectal diazepam. What is the significance of that in terms of trying to work out what is wrong with Claire and how best to treat her?

A. Well, I would say it wasn't dramatic. In other words, she didn't drop off to sleep and wake up and was talking again. So it wasn't as clear as that. I think it was

just an improvement in a sort of level of responsiveness, which I think means that it didn't really help a whole lot.

Q. I think Dr Webb interpreted that as indicating that he might be on the right tracks with anticonvulsants. It will be a matter for him to give his evidence, but that's what I thought he was saying in his witness statements, as a result of which further anticonvulsants were given. If that's what he thought, would that be a valid conclusion to reach so far as you're concerned?

A. Not, I think, in the context of having a sodium that's not been done that morning, you're almost ready for another sodium to be done in the afternoon, and no EEG or CT scan. I think that's the problem. It's in that context. It doesn't really make sense.

Q. There's no evidence that she was bradycardic, is there?

A. No.

Q. Is that significant?

A. It's a very lateish stage, very often, in cerebral oedema.

Q. How would that manifest itself if she had been?

A. By her heart slowing.

Q. Can you have quite significant cerebral oedema in the absence of that?

A. Yes, you can.

Q. Potentially life-threatening cerebral oedema in the absence of that?
A. Yes, you can. And she did.
Q. One of the things that both doctors wanted to see, both Dr Sands and Dr Webb, were Claire's Ulster Hospital notes. It seems that they were faxed through at about 3.15 on the Tuesday afternoon.
A. Yes.
Q. They were the two most recent letters in relation to her treatment. Have you seen those?
A. Yes, I think I have.
Q. Well, let's just get them.
A. The ones about her talking and walking, but having a somewhat asymmetric gait.
Q. There are two of them. The earliest is 30 May 1996. We don't need to pull it up, but just for reference's sake it's 090-013-018, and the second is 1 August 1996, which relates to a clinic she attended, and that's 090-013-016. It's really dealing with her learning disabilities and her attentional disabilities. Have you seen those?
A. Yes, I have.
Q. If you got those -- and that seems to be all that he received at that stage -- what would that add to the diagnosis that was developing or the diagnosis that you

might have developed?
A. Well, I think it makes it clear that she had speech, that she was walking, that she had some favouring, I think, of the left side so that she was not walking quite so well on the right, and pointed out that she was somewhat hyperactive and difficult to manage in those terms. So it gave a reasonable sort of picture of her really not being in quite the state that she finished up here, in this acute illness.
Q. And so if you had been in Dr Webb's position and received that, which he would have got some time after your first examination and before your examination at 5 o'clock, what difference would that have made to anything that you think Dr Webb should have been doing?
A. I think it would have indicated that she had an acute neurological condition, which was in addition to her previous problems, and that required explanation.
Q. Does that mean she might have something completely independent of her previous problems?
A. Indeed. Because it's hard to see what would actually follow that three years later or more.
Q. Yes. Over that afternoon, as the chairman has indicated, she did receive different anticonvulsants, if I can put it that way.
A. Yes, indeed.

Q. If I can pull this timeline up, for no other reason that they're all there and one can see all the observations in a snapshot. 310-001-001. Firstly, you can see the rectal diazepam. There's a time series along the bottom. You can see the phenytoin is then administered in response to Dr Webb's examination at 2 o'clock. We'll come to that in a minute. Then you see, a bit after 3 o'clock -- in fact it's at 3.25 or thereabouts -- that the midazolam is administered. I'm just looking at all the things that happen just before he comes back at 5 o'clock for a re-examination. Those are the three sets of medication that are administered. You can see that blue line going up, creeping up towards "9" on the far right-hand side, that's the fluids. And you can see the Glasgow Coma Scales there indicated, both modified and as Dr Webb has indicated.

A. Yes.

Q. You can also see the seizure there marked at the same time that the midazolam was administered. Then I think there's one episode of teeth tightening because that happened at 4.30. So that's what has happened. In addition, I think there's been the IV midazolam infusion. That's what's happened before Dr Webb comes back at 5 o'clock to see her.

I want to ask you first about the phenytoin. So far

as we can see from all the evidence, none of the tests that you have suggested are carried out and the phenytoin is therefore administered, it's 635, which was an error. Just on the matter of incorrect arithmetic, it should have been 432 --

A. Yes.

Q. -- which in itself might be towards the top end of the amount, but anyway, it was significantly more than Dr Webb had intended it should be.

A. Yes.

Q. And then there is the midazolam.

THE CHAIRMAN: If you want to ask first about the phenytoin, let's ask about the phenytoin and stick to that.

You've given your view on this, professor, at page 9 of your statement.

A. Yes.

THE CHAIRMAN: 232-002-009.

A. Yes.

MS ANYADIKE-DANES: I think your view is that you didn't think it was a huge overdose or that it was likely to have materially altered the outcome or have a major effect on the diagnosis or management. But I think you do conclude or note that it would have reduced her level of consciousness temporarily.

A. Yes.

Q. The inquiry has engaged Dr Aronson to talk about the medication specifically, but from your point of view -- specifically because this is Dr Webb prescribing this medication and would therefore be interpreting, if I can put it that way, the results or Claire's presentation as a result of it. So, so far as you're aware, what do you think would be the effect of giving this, as you put it, not a very large or not a huge overdose on top of the diazepam, the effects of which may still be in her system?

A. I don't think that it will probably make a major difference. The levels at which you tend to go off the scale on this drug are not linear so that it will have a higher ... At the end, it will actually rise quite sharply, but it seems to have been tolerated reasonably. So probably not much effect.

Q. Just so that we're clear, what is the phenytoin for?

A. It's an anticonvulsant.

Q. Why not give more diazepam?

A. Well, phenytoin is what was then certainly -- and still probably is -- the most regularly used drug for giving continuously.

Q. For giving continuously?

A. Yes, so it's very -- thought to be very effective.

Q. I think your view is that it shouldn't have been given

at all before the tests that you have indicated were carried out.

A. Yes.

Q. Then after the phenytoin, the midazolam is given --

MR COUNSELL: I wonder if Professor Neville could be asked to explain what he meant when he just now said that "it seems to have been tolerated reasonably" and what the evidence to support that is.

THE CHAIRMAN: Thank you. Did you hear the question?

A. Yes, I did. There wasn't a major cardiac side effect to this, and there can, of course, be significant cardiac effects. That means, I think, that she was able to manage that dose satisfactorily.

MS ANYADIKE-DANES: But could it have been having an effect short of producing a major cardiac effect?

A. No, I think you either produce an effect or you don't.

Q. I understand. Then the midazolam is given at 3.25.

A. Yes.

Q. The record of seizure attacks shows that she had the seizure that the mother witnessed at 3.25. The mother's evidence is that she's pretty clear that it was that time. Is it possible for the combined effect of the rectal diazepam, the phenytoin and the midazolam to have in any way contributed to that seizure?

A. It is possible particularly that midazolam can excite

seizures of a different sort. I think it's much more likely that these were due to low sodium levels or they were the effect of hyperextension attacks, which were not seizures.

Q. Just so that we put it up as we're talking about it, it's 090-042-144, that's the record of attacks. It's the first entry. The mother described it as something that she hadn't seen before in connection with Claire or, for that matter, anybody else. She says it lasted about five minutes, was very strong, and she described how Claire's body went in relation to it and that she was sleepy afterwards.

A. Yes.

Q. It may be that we can never know to what extent --

A. I think that's right.

Q. -- any of these combinations of things could have given rise to it.

A. That's right.

Q. But is it possible it played a part?

A. Is it possible to?

Q. That the combined effect of all that medication together with potentially, although we don't know, a falling sodium level -- is it possible that all those things combined --

A. With the whole lot, I think it's very likely that some

seizures would occur particularly with a drop in sodium.

THE CHAIRMAN: Sorry, your focus on this for the seizures is the drop in sodium --

A. Yes.

THE CHAIRMAN: -- it's not these drugs?

A. It's much more likely to be the drop in sodium.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Sorry to press you, but I want to be clear on it because we're going to put some of your evidence to others. Is it possible that the combined effect of these three medications that I've told you in the amount that they were -- is it possible that they themselves contributed to --

A. Yes, it is possible.

MR COUNSELL: Again, I'm sorry to interrupt. I wonder if Professor Neville could be asked to deal with timing. Because as I understand it, the evidence is that the seizure is recorded as being at 3.25 and the prescription for midazolam is at the same time, 3.25. I wonder whether Professor Neville is able to give a view as to how long it would be before a dose of midazolam could have any effect at all.

THE CHAIRMAN: Could it have an instant effect?

MR COUNSELL: Exactly.

A. Well, what are we being told now? That the ...

THE CHAIRMAN: Insofar as we can rely on the timings in the notes, midazolam is recorded as being given at 3.25 and there's a seizure at about 3.25 --

A. -- 3.10 and 3.25 [OVERSPEAKING] --

THE CHAIRMAN: I think for that first attack or seizure, however it's described, Mrs Roberts said it was 3.25. She has written "3.25", that is her writing. The 3.10 is not her writing. The question from Mr Counsell was: in that scenario, if that was at the same time as Claire got a dose of midazolam, what is the likelihood of that having provoked an instant response by way of a seizure?

A. Remembering that I think it's more likely that it's caused by the sodium and that ... I think it is possible that that could have happened in a quarter of an hour, but not, I think, terribly likely.

THE CHAIRMAN: Okay. Mr Fortune? What's your scenario?

MR FORTUNE: Insofar as the stat dose of midazolam is concerned, on which figure is Professor Neville basing his answer? 12 milligrams or 120?

A. Oh, 12.

THE CHAIRMAN: Your report at page 10 makes it clear you don't believe for a --

A. I don't think it's likely she would have been given that, otherwise she would have been much more rapidly

into intensive care.

THE CHAIRMAN: Yes, there would have been a different, but far quicker, disastrous outcome?

A. Yes.

MS ANYADIKE-DANES: Just for the sake of completeness, and I accept that you don't think that she was given that for one minute but, if she were, in terms of a seizure, what might be the likely effect?

A. If she was given 120?

Q. Yes.

A. She would have become deeply unconscious and stopped breathing, I suspect.

Q. And how quickly would that have happened?

A. I think within about 15 minutes, 10 to 15 minutes.

Q. If we leave the 120 out of it and concern ourselves with the 12, does it make any difference to the response, the drugs that she may already have in her system, or have you answered simply for how quickly she might have responded to the midazolam on its own?

A. I'm answering on midazolam on its own.

Q. If you take into consideration whatever might be the effects of the diazepam, which might still be in her system, and the phenytoin, which she received at 2.45 or thereabouts -- so she's got her diazepam at 12.35, her phenytoin at 2.45. If she then got the 12 milligrams of

midazolam at 3.25, if you're looking at the cumulative effect, does that change your view as to how quickly she might have responded to the midazolam?

A. Not how fast. She might have ... I don't think it's likely that she would have changed very much in those terms. I think she probably would have become rather sleepy anyway in an ordinary sort of way.

MR QUINN: Mr Chairman, before we leave this point, and time is moving on, perhaps you'd be kind enough to pull up 232-002-016, which is page 16 of the professor's report. It's paragraph xx, "The overdose of 12 milligrams IV stat". Mr and Mrs Roberts would certainly like that paragraph explained, particularly the middle section about:

"It likely reduced her conscious level and therefore reduced her breathing and increased her PCO2."

That would seem to be the main issue of the midazolam in this expert witness's report and perhaps that could be dealt with for a few moments.

THE CHAIRMAN: Sure.

MR FORTUNE: Whilst Professor Neville is bearing that in mind, my learned friend keeps referring to "if there was any diazepam still in her system". Diazepam, of course, has a long half-life, as Professor Neville will no doubt explain, and it can remain in the system for certainly

up to one to two days. The source for that is Dr Aronson's report 237-002-008 at paragraph 2(c).

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: That's correct.

MR GREEN: Sorry to throw my tuppence worth in: I note that the time of the administration of the rectal diazepam has been variously described as 12 noon, 12.35 and 12.30. It's actually 12.15 in the notes. The reference is 090-026-075.

THE CHAIRMAN: Thank you.

MS ANYADIKE-DANES: Thank you very much.

THE CHAIRMAN: Professor, we're going to have to finish your evidence for this afternoon in the next few minutes, but where Mr Quinn took us to on page 16 -- the point about the midazolam -- you say clearly at page 10 in your report that you don't believe that Claire got 120 milligrams, but you do say at page 16 what you think the effect of getting 12 milligrams would have been in contributing to the fall and the readings in the Glasgow Coma Scale, that it was still a dose that -- you don't think that she needed this dose at all, that it was a big dose and it probably reduced her conscious level, reduced her breathing and increased her PCO2 and therefore exacerbated her condition.

I think you've indicated that you don't think that

the phenytoin is likely to have made a major difference. Do we read this paragraph as indicating that you do think that the midazolam did make some difference and it was a difference for the worse?

A. Yes, I think it could have done because it's a much more sedative drug.

MS ANYADIKE-DANES: Can I just ask you about the increase in her PCO2? Is that an increase that can have any bearing on her intracranial pressure?

A. Indeed. So if it rises to, say, 70 to 80 micromoles per litre, then it will have a consummate increase in intracranial pressure. If you then hyperventilate, you will bring it down.

Q. So it may have been that Claire's intracranial pressure could have been affected by falling serum sodium levels?

A. Yes.

Q. Because that could have been prompted a developing cerebral oedema?

A. Yes.

Q. And if at the same time she's received an overdose in terms of 12 milligrams of the stat dose of midazolam and then has gone on to an IV midazolam, so she's continuing to have midazolam in her system, if I can put it that way, that of itself could have increased her PCO2, which also has an effect on her intracranial pressure?

A. Yes.
Q. So the combined effect might have been to hasten the rise in intracranial pressure that could have arisen from her falling serum sodium levels?
A. Yes, that's right.
Q. Thank you.
THE CHAIRMAN: Is that a point to stop?
MS ANYADIKE-DANES: I think we might.
THE CHAIRMAN: Professor, we're going to have to stop there to allow you to catch your plane. We're very grateful to you for coming today and for coming back again on Monday. In order to make sure the professor's evidence finishes on Monday morning, I emphasise the need for any additional questions or issues to be raised with Ms Anyadike-Danes, preferably over the next 24 hours if that's at all possible.

We'll now take a break for 10 minutes and resume with Mr and Mrs Roberts at 4.05.

(3.55 pm)

(A short break)

(4.05 pm)

MR ALAN ROBERTS (continued)

MRS MARGARET JENNIFER ROBERTS (continued)

Questions from MS ANYADIKE-DANES (continued)

MS ANYADIKE-DANES: Good afternoon.

I have been asked to take you back to one point before we go back to actually where we were. The one point I want to take you back to -- and I am sorry to have to do it -- is when you were leaving. Mrs Roberts, you said you were the one who went to the nurses' station, popped your head around to say she seems to be settled and sleeping now, we're off.

MRS ROBERTS: I did, yes.

Q. When you were doing that, can you remember if it was a nurses' handover in the sense that there were a lot of nurses there or not?

MRS ROBERTS: I wouldn't have been sure what was going on, but there was more than two, possibly three nurses.

Q. It will be for others to say what that means, but that's what you remember?

MRS ROBERTS: Yes.

Q. Thank you very much indeed.

Where I left it with you was, I know, a distressing place, but you were describing to me the conversation that you were having principally with Dr Steen, I think you said. Dr Webb you knew was there. I don't think either of you particularly remember his contribution to that, but you knew he was there and you weren't really sure whether there was a nurse there. I think that really wasn't what you were taking on at the time. So

you were trying to absorb what Dr Steen was telling you, is that fair enough, in the counselling room?

MRS ROBERTS: Yes.

MR ROBERTS: Yes.

Q. I think we had got as far -- somebody will correct me if I'm wrong -- she had told you about the build-up of fluid, she had told you it was a viral thing, and you think she mentioned an enterovirus that had gone into her brain and that had had been the reason why her brain had swollen in that way and really there was nothing that could be done.

MRS ROBERTS: That's right.

Q. You, I think, Mr Roberts, had asked her whether there was anything that could be done about the build-up of fluid and I think I put to you, "Maybe drain it off or something; is that the sort of thing you had in mind?", and I think you had said that was the sort of thing you had in mind: if there's too much, is there not a way of getting rid of it?

You had been told, no, there wasn't anything that could be done at that stage and what's more, everything that could have been done for Claire had been done. And then I think you were saying that there was an explanation of what the brainstem tests would be, and that that was the next stage that they would go to.

Is that roughly, as you recall, where we had left matters?

MR ROBERTS: Yes, that's correct.

Q. And did she explain to you what the brainstem test was?

MR ROBERTS: No, I don't think in any great detail. I think it was just explained that a series of tests had to be carried out.

Q. Just that they had to do that?

MR ROBERTS: Yes, and they would be repeated 12 hours later.

Q. Did she give you her expectation in relation to what the results of those might be?

MR ROBERTS: No, it was just they had to carry out the test at that time.

Q. Were you present when they did that? I think the first one was done at 6 o'clock in the morning.

MR ROBERTS: Oh yes, we were in PICU at that time.

Q. Did you stay throughout that time?

MR ROBERTS: Yes.

MRS ROBERTS: Yes.

Q. I think the second one was done at about 6.25 in the evening.

MR ROBERTS: Yes.

Q. When that happened and she gave you the results, can you remember any discussion about the coroner or a post-mortem or anything like that?

MR ROBERTS: Well, what happened after that was --
THE CHAIRMAN: Sorry, are we talking then about the Wednesday morning after 6 or the Wednesday night after 6.30?
MR ROBERTS: We're talking Wednesday evening, around 6.30.
THE CHAIRMAN: Thank you.
MS ANYADIKE-DANES: That's my fault, I should have said. Did anything happen between the 6 o'clock and the 6.30, 6 am and 6.30 pm? Did anything happen apart from --
MR ROBERTS: Discussions you mean?
Q. Apart from you being with Claire.
MR ROBERTS: We stayed with Claire and then we contacted her family and the rest of the family came up. Then we all spent time with Claire.
Q. I should have asked you: did any other doctor come and talk to you during that time that you can remember?
MR ROBERTS: No, I don't recall a doctor speaking to us at that time.
Q. Did any nurse come to talk to you?
MR ROBERTS: We would have spoken to the nurse in PICU. I think there were two nurses on in PICU, so we definitely had a conversation with the nurse in PICU. Claire at that time was moved into a side cubicle, a separate area, and the family obviously were around.
THE CHAIRMAN: Let's move on to where you were at 6.30 pm

when you did have the next conversation, I think.

MS ANYADIKE-DANES: Sorry, just so that I'm clear about it: does that mean that although you may have spoken to the PICU nurses, that there was no further explanation of what had happened to Claire, how she had come to the stage that she was?

MR ROBERTS: No, no.

Q. Thank you. Then if we move to 6.25. The second one has been completed and what happens after that?

MR ROBERTS: At 6.30, it was explained that the second brainstem test had been completed. And then obviously we had to make a decision to discontinue Claire's life support.

Q. Who is speaking to you at that stage in terms of doctor?

MR ROBERTS: That's Dr Steen.

Q. What does she say that you can remember?

MR ROBERTS: Just basically what I've said there, that the second brainstem test has been carried out. The ventilator is keeping Claire alive, keeping her breathing, and there was really nothing more that anyone could do. We had to make a decision then to disconnect the life support.

Q. Yes. At what stage do you remember, if you do, there being a discussion about a post-mortem, an inquest, anything of that sort?

MR ROBERTS: We were brought in, it must have been around 6.30, and we were with Claire for, say, 10 or 15 minutes, and the life support was discontinued then. So that was around 6.45. And following that, then Dr Steen brought my wife and myself into a separate room within PICU. That's where we had another discussion with Dr Steen.

THE CHAIRMAN: Just the three of you, as far as you remember?

MR ROBERTS: Just the three of us, yes.

MS ANYADIKE-DANES: And what's said?

MR ROBERTS: Dr Steen explained to us -- well, obviously, offered her condolences and discussed what had happened and we then discussed what the next process was. We were asking Dr Steen what had to be done, where do we go from here, what do we do?

Q. And how did she answer you?

MR ROBERTS: Dr Steen advised us that there would be no need for an inquest, but the hospital would need to carry out a limited post-mortem on Claire's brain. The intention behind that was to try to identify the virus that had been explained to us previously, the virus that had caused Claire's brain to swell.

Q. When you asked her about what happens now, who raised the issue, if you can remember, about any kind of

investigation to find out about an inquest? Was that you or was that her coming back and telling you that that wouldn't be necessary?

MR ROBERTS: No, we obviously were looking for guidance and advice and we depended on Dr Steen for that.

Q. So it came from her that that wasn't something that would be the next step, that the next step was to carry out a brain-only autopsy to find out, if they could, what that virus was?

MR ROBERTS: Yes.

MRS ROBERTS: Yes.

MR ROBERTS: And we agreed to that because that was obviously -- we needed that information. We just couldn't leave it there. That was the cause of death as explained to us. So it was important for us to identify the virus responsible.

Q. Yes.

MR ROBERTS: I have to say at that time, obviously, there was no talk about fluid management or hyponatraemia. It was solely centred around the cause, the cause was a virus, and the next stage then was a brain-only post-mortem to identify the virus.

Q. Forgive me if I've asked this already before, but because it was something that Dr Steen said -- Dr Steen says she can't actually remember any of this, but she

was giving her evidence as to what she would have thought she would have done or what she would have wanted to have done, if I can put it in those terms. And her view was that another benefit, if I can put it that way, to carrying out a brain-only autopsy was that you might be able to have some understanding as to what had caused Claire's learning difficulties, that that might shine some light on that.

Do you remember anything like that?

MR ROBERTS: No, there was no discussion around that. The discussion was around identifying the virus responsible for the brain swelling.

Q. When you say there was no discussion about that, if she had raised that with you, is that something you think you would remember?

MRS ROBERTS: Yes.

MR ROBERTS: Yes, I do believe so. I did draft out a letter later through the process of events, and that was one of the sort of outstanding issues that I did have, that now that we had the post-mortem results through, we still were unable to identify a virus, and we got, I think it was a letter from Dr Webb, and then the letter from Dr Webb did identify the sort of subject that you're referring to. That sort of refreshed questions in my mind that maybe it was an area we could explore, but it

certainly wasn't done on 23 October.

Q. I think that's sort of a draft letter that you might have appended to one of your witness statements.

MR ROBERTS: That's correct, yes.

Q. I will see if I can find that now that you mention it. I think it's your first witness statement and I think it goes along with the diary.

THE CHAIRMAN: 253/1, page 20 and 21.

MS ANYADIKE-DANES: Perhaps we can pull those two pages up. Then if we see down, on this first page, you have (a), (b), (c), and (d), and then you see at (d):

"Is it possible to know more about Claire's developmental brain, ie when this ..."

MR ROBERTS: "Brain abnormality" above that.

Q. Can you read for us what goes above that?

MR ROBERTS: I was saying sort of ... Foetus 4 to 6 months, what the causes could be, what Claire's learning potential was, and that was it, really.

Q. And then, significantly for you, at (f):

"How big a factor was Claire's brain abnormality in her ability to fight the infection?"

That's what you were told she had.

MR ROBERTS: Yes.

Q. You're wanting to know if that in any way compromised her ability to deal with that infection.

MR ROBERTS: Yes, yes.
Q. So if that had been mentioned, do you think that this letter might have been drafted slightly differently?
MR ROBERTS: I was only starting to raise the possibility there. That's when I received the letter from Dr Webb. And that's what raised my views on it and the possibility that that was an area that could be explored for at least some sort of answers for us.
THE CHAIRMAN: I think perhaps just one query is whether, when you asked that question at (d), "Is it possible to know more about Claire's developmental brain abnormality?", and so on, could that possibly have come about because that's what Dr Steen had suggested to you in October might be one side outcome or one extra outcome of the brain autopsy?
MR ROBERTS: No, I think I got -- I can't remember exactly the phrasing within Dr Webb's letter, but I would have got that possibly from Dr Webb's letter.
THE CHAIRMAN: Okay.
MS ANYADIKE-DANES: We can pull that up. It's 090-001-001. This is Dr Webb's letter to Mr and Mrs Roberts, 21 March 1997. This is summarising the findings of the swelling of the brain with evidence of a developmental brain abnormality. Do you think that's where you got your expression "brain abnormality" from?

MR ROBERTS: Yes, that's similar to the wording I've used there, the developmental brain abnormality.

Q. After it talks about the clinical history and so on, it goes on to the last sentence to say:

"No other structural abnormality in the brain has been identified."

Is that therefore what's prompting your letter?

MR ROBERTS: Yes. I think that letter was dated 21 March.

Q. Yes.

MR ROBERTS: And I drafted my letter on 28 March.

Q. Yes. What I was asking you and what I think you were helping us with is that this comes in response to the letter that Dr Webb sends you, not following on, so far as you can help us, with any conversation that Dr Steen might have had with you. And if she had had that conversation indicating to you that the brain-only autopsy could have helped you with this, then you would have remembered that because it's clearly something you want to find out about, and maybe your correspondence might be framed slightly differently.

MR FORTUNE: In fact, can we have a look at the first page of the letter? Because the first paragraph reads in this way towards the end of it:

"We were grateful for the discussion we had with Dr Steen and yourself at the Royal on [query] Monday

3 March [query]. However, we find we are still asking ourselves questions, which I have noted below. We would be grateful for any further explanation."

And then we have (a), (b), et cetera. So it looks as though it's a combination of what was discussed and what is set out in Dr Webb's letter of 21 March 1997. Maybe Mr and Mrs Roberts can help us there.

MR ROBERTS: Well, we would have had a discussion -- I think the original question was around on 23 October. Was it discussed with Dr Steen? This letter is drafted out after a meeting on 3 March 1997. So my letter's drafted on receiving Dr Webb's.

THE CHAIRMAN: What I was asking you was whether part of that letter might have been because inevitably you're thinking over everything that happened and might it have been that you asked the question at (d) because that's one of the things that Dr Steen had said might come out of Claire's brain being examined?

MR ROBERTS: Not on 23 October.

THE CHAIRMAN: Okay.

MS ANYADIKE-DANES: Just for the sake of completeness, Dr Webb writes to you, and I think Dr Steen writes to your GP. That letter is typed on 6 March, so maybe shortly after that it goes out. It's to be found at 090-002-002. This is after the post-mortem results are

available and there you see in the second sentence:

"The cerebral tissue showed abnormal neuronal migration, a problem that occurs usually during the second trimester of pregnancy and would explain Claire's learning difficulties. Other changes are in keeping with a viral encephalomyelitis meningitis."

And then there's a reference to Dr Webb and herself having seen you.

So that's what comes out of it. The only issue really is whether that kind of information is something that was discussed with you as a benefit, if I can put it that way, of having such an autopsy carried out, that you might learn that kind of information. I think your evidence is you certainly don't remember that happening and I think your evidence further is that, if it had been said in that way, you would have remembered it.

MR ROBERTS: Yes.

MRS ROBERTS: Yes.

THE CHAIRMAN: Well, I understand from you both that you don't remember this being raised as a reason for the examination of Claire's brain. But do you remember it then being discussed at the meeting which you appear to have had in early March? Because there is a letter which apparently went to your GP, which does give some information about when Claire's difficulties might have

started. Did you know that before you got the papers for the inquiry?

MR ROBERTS: Sorry?

THE CHAIRMAN: Did you know that this explanation had been given to your GP before you got the papers from the inquiry?

MR ROBERTS: No, no.

THE CHAIRMAN: So while Dr Steen may have written that to your GP, that wasn't something which then went on to discuss with you?

MR ROBERTS: No. The first time we saw that letter to the GP was through the inquiry's paperwork.

MRS ROBERTS: Yes.

THE CHAIRMAN: Does that also mean then that you're as sure as you can be that it was not discussed at the meeting in early March, maybe 3 March?

MR ROBERTS: I couldn't be 100 per cent sure on that date, but what I'm saying is that it wasn't discussed on the evening of 23 October.

THE CHAIRMAN: I understand that. I understand you're clear about that.

MR ROBERTS: Mm-hm.

THE CHAIRMAN: Do you know whether it was then discussed -- whatever the date was, let's not worry about the precise date -- in March?

MR ROBERTS: Yes, I couldn't be sure of that.
THE CHAIRMAN: Okay, thank you.
MR QUINN: Sir, the point here is that when Dr Steen discussed this on 23 October, she gave the Roberts that as a reason why she should do a brain autopsy, whereas it's a different point now being made on 3 March, whatever date the question mark is, it is not a reason because Dr Steen then knows the result and she frames the letter to the GP a few days after that. There's a difference in what's happening here. Dr Steen in her evidence said she asked them to consent to it being an autopsy because they night find a reason for Claire's problems.
THE CHAIRMAN: I understand that. What's then disappointing, even if Dr Steen's evidence was right about that being a reason for the autopsy, and explaining to Mr and Mrs Roberts that that might be a secondary effect of it, is that when that information did come through, Mr and Mrs Roberts weren't told, despite the fact that they appear to have met Dr Steen --
MR QUINN: Perhaps on Monday the 3rd.
THE CHAIRMAN: And despite the fact that that letter went to their GP.
MR QUINN: That's the point. Right.

MS ANYADIKE-DANES: Mr Chairman, I think it's further the point that there are two different letters written. I think this is what my learned friend was pointing out: the information that's contained in the letter that Dr Steen sends to the GP is not the same as the information that's contained in the letter that Dr Webb sends to the Roberts.

THE CHAIRMAN: That's why I asked the Roberts did they know about, but their answer is that they didn't know about it at all until the inquiry came.

MR QUINN: I'm obliged, Mr Chairman. I think also the point is that they never got a copy of the --

MS ANYADIKE-DANES: I'm just about to ask that.

Before the inquiry started, did you ever get a copy of the autopsy report?

MR ROBERTS: No, we didn't. We didn't ask for one. On the meeting of 3 March, Dr Steen did go through the autopsy report. I do recall asking Dr Steen for a more -- well, a breakdown of that, a more concise version of that, and I think that's what then prompted the letter from Dr Webb.

Q. Can I just put to you a couple of other points that you made in your evidence about the limited brain-only autopsy? I think it's in the witness statement 253/1, at page 16, where it says:

"Dr Steen advised us that it was important that doctors learned from Claire's death and the reasons for her death, which may help prevent similar tragedies in the future."

How important was that for you?

MR ROBERTS: Well, that was very important. Dr Steen explained that the death of any child is a tragedy, and it's important for doctors to learn from the death of a child. That was one of the reasons she gave for doing the brain only post-mortem, that lessons could be learnt and potentially educate doctors and help children in the future.

Q. We will come in another part of the hearing to deal with this in more detail, but just now that you mention it, having given you that indication of how a brain-only autopsy might help not just you to understand something, but actually might form a learning role or learning purpose, if I can put it that way, for other doctors, did she ever tell you after the autopsy had been carried out that they had now, as a result of that autopsy, learnt something that could help other doctors afterwards?

MR ROBERTS: No, there was no discussion around that.

THE CHAIRMAN: Just to make sure I understand the sequence after: you agreed to the limited autopsy on the evening

of 23 October, between that and around about 3 March, did you have any discussions with Dr Steen or Dr Webb or anybody else?

MR ROBERTS: We did go back to the hospital on 11 November 1996, which was a few weeks after Claire's death. That was -- we did that on our own, really. I'm not sure whether my wife maybe telephoned the ward before we went to the hospital or whether we just arrived in the hospital. We met with Dr Sands and had a conversation with Dr Sands. The purpose of that really was just to go back to Allen Ward and speak to people on Allen Ward and enquire about the post-mortem, what stage the post-mortem was at, how long it would take, when were we likely to get a response or some answers, and again emphasised the importance of trying to identify the virus and the cause of the virus.

MS ANYADIKE-DANES: I think we can see that at 090-022-061. Right down at the bottom, 11 November 1996, 3.35 pm. Perhaps we can pull that up. This is a note of Dr Sands. Do you remember it was Dr Sands that you spoke to?

MR ROBERTS: Yes, it was Dr Sands.

Q. "Spoke at length with Mr and Mrs Roberts earlier today. They are naturally still trying to come to terms with what happened to Claire. I talked through the events

before her death and also talked generally with them. They are naturally anxious to discuss the post-mortem results with someone. I will pass this on to Dr Steen ASAP."

While we're there, when he says he talked through the events before Claire's death, can you remember what he said?

MRS ROBERTS: I can't, no.

MR ROBERTS: It was very general, it was just that it was a terrible shock, a tragedy, just general chat about losing a child. There was nothing more specific about Claire's treatment.

Q. If I can put it that way, did you learn anything more about what had happened -- well, not what had happened, but why it had happened as a result of that discussion?

MR ROBERTS: No, my recollection of my conversation with Dr Sands was really just to discuss Claire. We talked a little about Claire and how sudden it had been from going into the hospital on the Monday evening to losing her on the early hours of the Wednesday morning.

Q. Did that talk with him take place either in the ward or in some room off the ward?

MR ROBERTS: I don't remember being in a room speaking to Dr Sands. I think it was more likely to happen or it did happen out either on the ward or on the corridor

somewhere.

Q. Do you know if the senior nurse Angela Pollock was there?

MR ROBERTS: During that conversation?

Q. Yes.

MR ROBERTS: No, the conversation was purely with Dr Sands.

Q. Do you ever recollect meeting Angela Pollock at any time?

MR ROBERTS: No.

Q. Thank you.

There are some other questions around what happened afterwards, but I'm going to ask them in relation to the governance section and not here. So it doesn't mean that we don't want to have the further evidence that you have about that, it's just that I think it's probably better addressed then. However, I do want to ask you about the autopsy request form.

I wonder if we can pull that up, 090-054-183. It's very short so can we pull up the next page 184 alongside it.

This, as I'm sure you know by now, is the request form that Dr Steen sent for the purposes of Claire's autopsy. I want to ask you about some of the information in it. If we go to "History of the present illness", you'll see:

"Well until 72 hours before admission."

There may be an issue as to exactly what that means. But one way of interpreting it is that from about three days before her admission, she was unwell all that time, if I can put it that way. That is one way of interpreting it. In other words, she started being unwell in and around Saturday and continued to be unwell throughout the weekend and you brought her unwell on Monday, would be one way of interpreting that.

Did you say anything to any of the doctors to suggest that Claire had been unwell like that?

MRS ROBERTS: No. 72 hours before admission?

Q. Yes.

MRS ROBERTS: No.

MR ROBERTS: No.

Q. Claire's grandparents, who also met doctors and gave them, to some extent, a history -- I know that you say you've spoken to them since, is it likely that any of them could have indicated that?

MR FORTUNE: Before there is any answer, how is a question like that going to assist you, sir? It's highly speculative and, indeed, questions about the contents of this form, albeit my learned friend wants to put them to Mr and Mrs Roberts, are more to do with Dr Steen and not Mr and Mrs Roberts. Once again, I pose the

question: how are you going to be assisted?

THE CHAIRMAN: I'm just looking back on Dr Steen's evidence on this issue to see where Dr Steen says she got this information. Because you know that there's a specific concern about a number of apparent inaccuracies about the information which is contained in this form.

MR FORTUNE: Yes. And Dr Steen's addressed those matters.

MS ANYADIKE-DANES: Mr Chairman, I simply want to establish whether, if there are any inaccuracies in it, which it seems that there are, any of that information could have come from Mr and Mrs Roberts.

MRS ROBERTS: Could I also say that this is our daughter we're talking about and if she had been unwell 72 hours before admission, she would have been brought to the hospital. The GP would have been contacted.

THE CHAIRMAN: She wouldn't have been at school or Monday.

MRS ROBERTS: Definitely not.

MS ANYADIKE-DANES: Or at church on Sunday?

MRS ROBERTS: No.

MR ROBERTS: Or playing with her cousins on the Saturday.

MRS ROBERTS: Claire had a very active and happy weekend.

Q. I understand. My only purpose, Mr Chairman, is simply excluding the source of information as being Mr and Mrs Roberts.

MRS ROBERTS: Thank you.

Q. I think, given Dr Steen's inability to have any independent recollection of matters, it might be a fair enough question to ask.

THE CHAIRMAN: Well, did Dr Steen, when you first met her on the Wednesday morning at about 4 o'clock, or later on on the Wednesday evening at about 6.30, did she take a history from you of Claire's illness, whether it was 72, 48 or 24 hours before? Did she go through the history of Claire with you?

MR ROBERTS: No.

MRS ROBERTS: No.

THE CHAIRMAN: In a sense, is that a short way through it? Because if she didn't take a history from Mr and Mrs Roberts, the information which is in this form did not come from Mr and Mrs Roberts, or at least from anything Mr and Mrs Roberts said to Dr Steen. We know that there are some inaccuracies or something gets into -- we now know that when something goes into a hospital record, it tends to be repeated through further records. But this is not something which was taken from you at any time on 23 October?

MRS ROBERTS: No.

MR ROBERTS: No, no.

MS ANYADIKE-DANES: Mr Chairman, that is a very short way through it, but it's also a little bit different to that

because in her evidence, if I remember correctly, Dr Steen said that in order to form a view as to what had happened, she looked at the medical notes and records and she discussed with the nursing staff to try and get a sense of what was happening. So I simply want to rule out the Roberts as a source of this information, whether it got into the medical records, whether it was something that the nurses thought, or whatever it was, did or did not come from them. That's what I'm seeking to do.

MR FORTUNE: My learned friend has just had the answer from Mr and Mrs Roberts at your intervention, sir.

THE CHAIRMAN: Mr and Mrs Roberts confirmed that this information did not come from them to Dr Steen. The only outstanding issue is whether that information was given by you to any of the nurses and doctors who were involved in Claire's treatment who you spoke to on the night of the 21st or during the day of the 22nd.

MS ANYADIKE-DANES: I can go through it very quickly. There are some very discrete assertions that I can go through very, very quickly and I'm sure that Mr and Mrs Roberts will be able to say whether they recall giving that piece of information to anybody at any time after their daughter was admitted.

THE CHAIRMAN: If you pick out the specific --

MS ANYADIKE-DANES: I can indeed:

"She had a few loose stools."

Is that something that you could have provided in terms of information?

MRS ROBERTS: Well, it has been said that loose motions -- and then I have said nothing, no constant bowel movement and possibly just "smelly poos".

Q. Yes. Then, "24 hours before admission". So one way of interpreting that is on the Sunday, that she started to vomit. Is that information that you were likely to have given?

MRS ROBERTS: No.

MR ROBERTS: We wouldn't have given that because it's incorrect.

THE CHAIRMAN: If it said, "within 24 hours prior to admission", that would be correct because it started on the Monday afternoon after school.

MRS ROBERTS: Yes, 3.30.

MR ROBERTS: Well, no, admission was at 7 pm Monday.

THE CHAIRMAN: That would be within 24 hours prior to admission.

MR ROBERTS: Oh, within.

THE CHAIRMAN: It doesn't say that. Let's not overcomplicate it. It's my fault.

MS ANYADIKE-DANES: I think that's it, but I would simply

like to ask them to confirm something that I think they already have done, but just for completeness. Just a bit after that where it says:

"Felt to have subclinical seizures, treated with rectal diazepam, IV phenytoin, IV valproate, acyclovir and cefotaxime cover given."

Were you given any of that information? I'm not saying that you now were the source of it, obviously, but were you given any of that information?

MRS ROBERTS: No, not on the morning of the 23rd.

Q. Then if one goes right down to the bottom to the clinical diagnosis, were any of these terms used to you or Claire described in this way: cerebral oedema, status epilepticus, underlying encephalitis?

MRS ROBERTS: Not on the 23rd.

MR ROBERTS: No. Cerebral oedema may have been mentioned at that -- that is something that may have been talked about because it was a cerebral oedema that was obviously the issue, the problem, and it was the cause of the cerebral oedema that was the issue.

Q. In terms of the status epilepticus, underlying encephalitis, were those expressions used to you?

MR ROBERTS: No, the first time I saw status epilepticus, I think, was on Claire's death certificate.

Q. Then finally, in that middle text there of the "History

of presenting illness" where it says:

"The serum sodium dropped to 121."

And there's a date and time given for it. Did anybody ever tell you that her sodium levels had dropped?

MR ROBERTS: No.

MRS ROBERTS: No, sodium wasn't mentioned.

MR ROBERTS: We were never aware of Claire's sodium levels, whether it was 121 or 132 or whatever. We were never informed of a figure for Claire's sodium levels.

Q. Or of the significance of them?

MR ROBERTS: Or of the significance of them.

Q. One question I wonder if you might help us with, and that is the medical certificate for the cause of death. I'm going to pull up a specimen of it, which is 139-033-001. Perhaps if I can turn that around.

When Dr Steen was giving her evidence, the main part of it is headed up "Medical certificate of cause of death", that is filled in and handed in and that is part, as we understand it, part of what you take to register and get the death certificate. I think she referred to the counterfoil as a stub, that's something that the hospital retains. We haven't been able to find this certificate. Can you help as to what actually happened to it so far as you're aware?

MR ROBERTS: No, I didn't receive that. I think that was handed over to my brother, I believe.

Q. Yes. Actually, if we pull up 091-012-077. If we look at the "qualification of the informant", if I can put it that way, "uncle". That's your brother who takes it to register?

MR ROBERTS: Yes, that's T Roberts.

Q. Can we understand it's taken to register and left at the registry?

MR ROBERTS: I presume so.

Q. You have never seen it?

MR ROBERTS: I've seen it on ...

Q. Sorry, I don't mean the certificate, but you've never seen the "medical certificate of cause of death"?

MR ROBERTS: No, no.

Q. And that means you don't believe you've retained it or anybody's retained it?

MR ROBERTS: I never received it initially. I know it was my brother who did the paperwork side of things, so I've no idea where it went or what happened to it.

Q. Thank you very much indeed.

There were just a few other matters that I think you, Mr Roberts, wished to deal with. Maybe the better way is to ask you if there's anything else that you want to say rather than me frame questions for you.

MR ROBERTS: Well, I did have quite a few questions lined up this morning, but having listened to Professor Neville, I think a lot of those issues have been addressed. The only sort of follow-up to Professor Neville's evidence -- there was some discussion around midazolam and we're still very concerned about the midazolam, when it was given. There was discussion that it was given at 3.25 and Claire had the seizure at 3.25. I listened to the evidence of Professor Neville. Just the issue I would have around that is the actual rate that the midazolam was administered at. If that could be maybe put on note and raised with Professor Neville for next Monday. The rate of midazolam. We know Claire got whatever, a 330 per cent overdose of midazolam. But what we're concerned about is the actual rate and how quickly that midazolam was given.

Q. You mean whether it was a slow push or not as the case may be?

MR ROBERTS: Yes. Even if the midazolam is administered as a slow push, the doctor giving it would have assumed he was giving the correct dose. And he would have then worked off his recommendation, which would have been maybe a 1 to 2-minute slow push. But if he gave, say, 12 milligrams over a 1-minute push, what impact would that have?

Q. I understand.

MR ROBERTS: I think there was one other issue just with possibly Dr Sands. It's to do with the management plan. Maybe if we can call it up. It's Dr Webb's management plan for 5 pm.

Q. Yes. 090-022-055, I think.

MR ROBERTS: That's correct, yes.

Q. Right down there at the bottom. We'll highlight that.

MR ROBERTS: There are three stages for Dr Webb's management plan. We've listened to Dr Sands giving evidence, saying Claire was the sickest child on Allen Ward. He considered Claire had a neurological -- a major neurological condition. He considered Claire to have encephalitis. He has that in his medical note from around 11 am. And Dr Sands was coming back on to the ward at around 5/5.15. I presume he has read the management plan of Dr Webb and he has implemented part 3 of the management plan, which is to administer the sodium valproate.

My concern is: why did Dr Sands not consider part 1 of the plan, which is the acyclovir, to tackle the encephalitis, which he has in from his 11 o'clock note, which is now verging on six hours earlier?

Q. Yes. Just so that we're clear, you mean why doesn't he find out whether that's been administered and, if it

hasn't been, seen to it?

MR ROBERTS: Well, Dr Sands has said that he felt Claire had encephalitis and a major neurological problem. Especially the encephalitis side I find difficult to fit in because Dr Sands has the opportunity. Prior to this plan there was no plan to treat the encephalitis. Dr Webb has devised a plan to cover Claire for encephalitis, albeit that he puts in a note saying, "I don't think meningoencephalitis is likely". So that was Dr Webb's view. But Dr Sands is coming along and he has already identified to us, supposedly identified to us, that Claire has a brain infection at 11, and she may have encephalitis. And here he has an opportunity to approach and tackle that potential and yet he doesn't do that. He carries on with his initial thoughts of non-fitting status and administers the sodium valproate.

Q. You're referring to the addition he makes to the ward note, which can be found at 090-022-053, when, in addition to "non-fitting status", he adds "encephalitis" and "encephalopathy"?

MR ROBERTS: Yes.

THE CHAIRMAN: Who adds that in?

MS ANYADIKE-DANES: Dr Sands.

MR ROBERTS: I think in Dr Sands' evidence during the ward round he had discussed encephalitis and a brain

infection with us during the ward round. So it takes it not only back to the addition of the note at around 1, it takes it back to 11 am when Dr Sands supposedly discussed with us encephalitis.

Q. And your point is: why didn't he do anything to address that if he'd formed that view?

MR ROBERTS: Yes.

Q. Apparently he had it confirmed when he spoke to Dr Webb and, even if he didn't do it then, why didn't he activate it when he came back on the ward some time after 5 pm and saw Dr Webb's plan?

MR ROBERTS: Exactly. The plan was there so why did he not approach it? In fact, we now know the acyclovir wasn't actually administered until 9.30, which is verging on 10, 11 hours after Dr Sands had initially -- well, supposedly identified it to us on the ward round.

Q. I understand. Anything else?

MRS ROBERTS: Nothing, no.

MR ROBERTS: That's us.

THE CHAIRMAN: Thank you very much. I think we'll almost certainly ask you to give some evidence at the governance stage in a couple of weeks' time.

MRS ROBERTS: Can we just say that we loved Claire and told her so every day?

THE CHAIRMAN: Okay. Ladies and gentlemen, we'll finish and

we'll resume at 9.30 on Monday morning. Thank you.

(5.00 pm)

(The hearing adjourned until 9.30 am on Monday 5 November)

I N D E X